AVX **High Reliability Tantalum Capacitors**

Version 15.6

A KYOCERA GROUP COMPANY

www.avx.com

MIL-PRF-55365 • MIL-PRF-39006 • MIL-STD-790
AS 9100 • ISO 13485 • ISO 9001 • ISO 14001

ESCC 3012 • ESCC 3012/001 • ESCC 3012/004
CECC 30801 • ISO 9001 • ISO 14001 • TS 16949

Contents

INTRODUCTION

The Biddeford facility within the AVX Tantalum Division is the leading supplier of high reliability tantalum chips to the medical, military and aerospace industry.

As tantalum technology continues to develop, we are able to offer extended ratings providing more downsizing opportunities, higher capacitance ratings, new case sizes and Low ESR options for critical output filtering applications. Combining this with in-line reliability grading capability for all chip capacitor series, we are able to supply these products to the most demanding applications.

Based on the core qualifications maintained for CWR09, CWR19/29, CWR11 and CWR15 product families, new products are now available utilizing the latest advances in tantalum technology, which enable PCB downsizing and component count reduction, yet which incorporate manufacture & test in accordance with MIL-PRF-55365.

A special facility within the plant enables the production of application specific modules and arrays, providing custom solutions for specialized requirements.

AVX facility in Lanskroun, Czech Republic is manufacturing location with production of high end SMD & Wet tantalum capacitors including automotive, industrial, medical, aerospace and specialty applications. Lanskroun is European Space Agency (ESA) approved facility for manufacturing of ESCC 3012 SMD tantalum capacitors including detail specification ESCC 3012/001 TAJ-ESA series and ESCC 3012/004 low ESR and High CV SMD tantalum capacitors. Specialty applications are including industry unique hermetically sealed SMD tantalum capacitors THH with continuous operation temperature up to 230ºC and TCH series of low ESR hermetically sealed SMD polymer capacitors for mission critical applications.

WET TANTALUM

A new axial leaded wet tantalum series named TWA has been introduced. This utilizes a unique cathode system that enables the manufacture of high capacitance / voltage ratings. The TWA series is qualified to DSCC 93026, which has been updated to include some of the new high capacitance ratings available.

The AVX proprietary cathode system TWA-E is also used on wet tantalum capacitors manufactured in Lanskroun facility in accordance with CECC 30202 standard.

In addition the TWC series, which corresponds to the conventional wet tantalum capacitors, has been launched with COTS-Plus and MIL-PRF-39006 options available. These wet tantalums are also available in 200°C versions or modular configurations (TWM) for the most demanding applications.

This catalog provides details for the latest product families and provides the necessary part numbering information to allow users to tailor any of these products to their own requirements.

COTS-PLUS TANTALUM CHIP – WEIBULL GRADE: EXTENDED RANGE/LOW ESR SERIES

These series have been developed in response to the “Commercial Off The Shelf” initiative taken by many military users to enable cost effective procurement of current technologies.

They are based on TAZ (CWR09/19/29), TBJ (CWR11) & TBC (CWR15) form factors. Leadership in tantalum technology has enabled the introduction of extended capacitance/voltage ratings for all standard case sizes, giving the designer scope for downsizing existing assemblies and reducing component count. To reduce time to market for the introduction of extended CV ratings into military applications, these parts are supplied with Weibull grading and Group A / surge options in accordance with MIL-PRF-55365 Rev. G, but are not JAN branded. These parts can also be supplied to Source Control Drawings for specific military requirements. A standard non-established reliability level is available, together with the options of 100% testing to Weibull “B”, “C” or “D” grade. Other options include ambient or high/low temperature surge, additional Group A conformance testing (to MIL-PRF-55365 or alternative) and Low ESR ratings below current MIL-PRF-55365 specification limits.

Extended case sizes beyond the CWR standards are also available, especially targeted to high capacitance power supply filtering applications.

For TBJ series family case sizes, the new DSCC drawing 07016, superceding 95158, lists all available Low ESR ratings with full Weibull Grading and MIL-PRF-55365 Rev. G surge test options.

New additions to the AVX COTS-Plus portfolio are NBS & NBM series OxiCap®. Based on niobium oxide technology these series offer ideal solutions for lower voltage applications required by DSP and IC / ASIC bulk decoupling. This technology has the added advantage of a benign failure mode if ever subjected to forward overvoltage conditions.

MIL QPL - ESTABLISHED RELIABILITY

The new CWR19 & CWR29 TAZ series offer widely extended capacitance / voltage ratings. While the CWR09 remains available for all legacy programs with no planned obsolescence, CWR19 / 29 are recommended for all new designs, due to the opportunity to use a higher voltage rating in a given application or downsize a design to achieve real estate savings and weight reduction. CWR 19/29 are also available for ratings from 4 - 50V. Reliability levels up to and including “D” Weibull grading are available along with ambient and high/low temperature surge options. A new case size (X case) has been added to extend capacitance ratings to 470µF; for the larger case size (G, H and X case) low ESR options (to sub-100 mOhm levels) are available for critical power supply designs.

The new CWR15 series offers maximum capacitance / voltage ratings in micro miniature L (0603 equivalent), R (0805 equivalent) & A (1206 equivalent) sizes. These provide a unique opportunity for the designer to upgrade commercial designs using X5R ceramic to an equivalent capacitance / voltage / size rating in tantalum technology, with the additional benefits of established reliability, wider operating temperature range, improved temperature coefficient, no voltage coefficient, and elimination of piezo noise.

All Established Reliability series are MIL QPL listed ratings with both Group A & Group C tests maintained for MIL-PRF-55365 approval.

SPACE LEVEL, AVX SRC9000 & MIL T- LEVEL

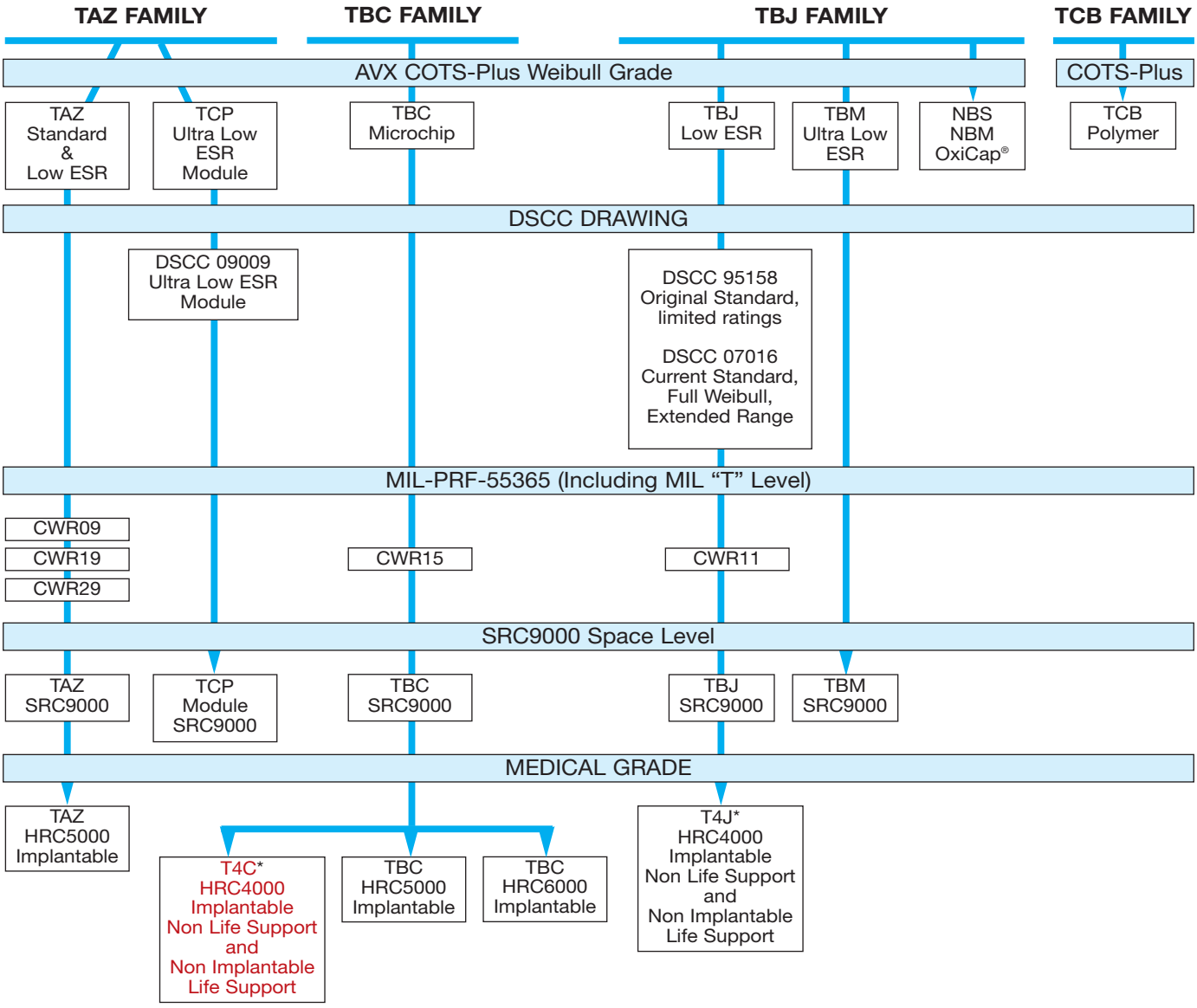
For Space applications, additional testing is available with full details listed in our SRC9000 specification for Space Level products. As a minimum, SRC9000 requires both Weibull level voltage conditioning (“C” & “D” Level) and surge test (option “C”). Additional tests include DPA, 100% Real Time X-Ray, surge voltage, hot DCL test, 3 sigma parametric test limits and additional Lot Conformance Test protocols.

While AVX SRC9000 remains the standard for Space Level, MIL-PRF-55365 now defines a new “T” level, which specifies C Weibull grade reliability minimum, “C” surge and also includes DPA, X-ray and 3-sigma test limits common to SRC9000.

AVX Tantalum Division

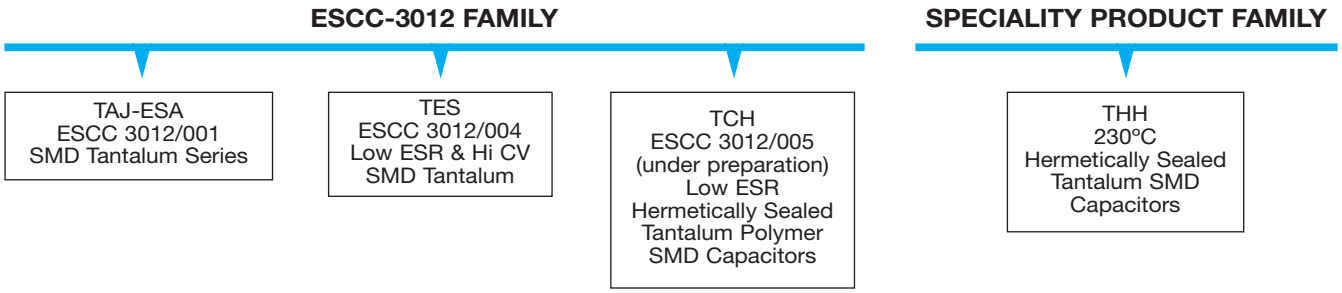
Surface Mount Military/Aerospace Products

BIDDEFORD HIGH RELIABILITY TANTALUM CHIP SPECIFICATIONS

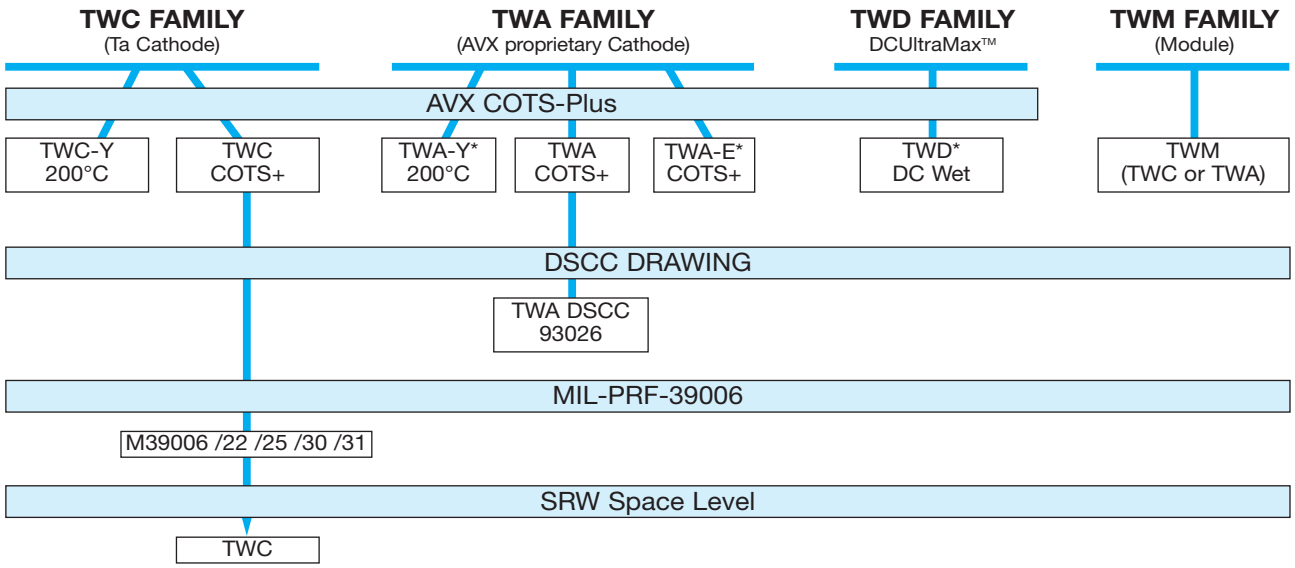


Under Development
*Czech Republic

CZECH REPUBLIC HIGH RELIABILITY TANTALUM CHIP SPECIFICATIONS



HIGH RELIABILITY WET TANTALUM SPECIFICATIONS



*Czech Republic

GROUP A TEST OPTIONS

TEST	Group A Testing comparison			
	AVX COTS-Plus	MIL-PRF-55365 QPL		AVX SRC9000
		MIL Weibull B, C, D	MIL T Level	Space Level
100% Reflow	✓	✓	✓	✓
100% Thermal Shock	✓	✓	✓	✓
100% Weibull	Optional	Mandatory	Mandatory-Grade C min	Mandatory-Grade C min
100% Surge Current	Optional	Optional	Mandatory - C Level	Mandatory - C Level
100% Electrical Testing	Custom Test Limits Available	To Specification Limits Only	+3 Sigma Limits	+3 Sigma Limits or Custom
Visual & Mechanical	Sample	Sample	100% - 20X	100% - 20X
Simulated Mounting, Rework and Lot Conformance (Sample)	Optional			✓
Solderability Test* (Sample)	Optional 75% Coverage	Mandatory 95% Coverage	Mandatory 95% Coverage	Mandatory 95% Coverage
100% X-Ray	Optional		✓	✓
DPA - 1580 Destructive Physical Analysis	Optional		✓	✓
Surge Voltage (Sample)	Optional			✓
Hot DC Leakage (Sample)	Optional			✓
Temperature Stability (Sample)	Optional	Mandatory	Mandatory	Mandatory

*Only Mil QPL ratings receive the steam age portion of solderability testing unless otherwise specified by the customer

HIGH RELIABILITY SPECIFICATION REQUIREMENTS COMPARISON CHART

TEST		AVX Series	100% Reflow	Vibration	Shock or Bump	100% Thermal Shock	Resistance to Soldering Heat	Moisture Resistance	Operating Life	100% Weibull	100% Surge Current	100% Electrical Testing	Visual & Mechanical	Simulated Mounting, Rework and Accelerated Life	Solderability Test*	100% X-Ray	DPA - 1580 Destructive Physical Analysis	Surge Voltage	Hot DC Leakage	Temperature Stability	Burn-in 168hrs	Adhesion (shear)	Climatique Sequence ***
MIL PRF 55365 QPL	Standard MIL	CWR09, 11, 15, 19, 29	O■	■X		O■	■X	■X	■X	O■	▲■	O■	O■X		■X▲			■X		O■X			
	New "T" level	CWR09, 11, 15, 19, 29	O■	■X		O■	■X	■X	O■X	O■	O■	O■♦	O■		■X▲	O■	O X	■ X		O■X			
Space Level	AVX SRC9000**	TBJ/TBM (COTS)	O	▲X	▲X	O	▲X	▲X	(★O)▲X	O	O	O▶	O	O X	O X	O	O X	O X	O X	O X		▲X	
	AVX SRC9000**	TAZ/TBC/TBJ (MIL)	O■	▲■X	▲X	O■	▲■X	▲■X	▲■X	O■	O■	O■▶	O■	O X	O■X	O■	O X	O■ X	O■X	O■X		▲X	
AVX COTS-Plus	COTS-Plus**	TBJ/TBM/TAZ	O			O				O	▲	O	O X		▲X					▲X			
	DSCC 07016	TBJ	O	▲X		O	▲X	▲X	▲X	▲	▲	O	O X		▲X			▲X		▲X			
	DSCC 95158																						
	COTS-Plus	TCB	O						■X		O	O△	O X		O X	O X		O	O△	■X			
ESA-ESCC3012	LAT 1	TAJ-ESA, TES	O●	O	O	O●			O		●	O●	O	O	O●	level B ●		O		O	O	O	O
	LAT 2		O●			●			O		●	O●	O	O	O●	level B ●		O		O	O		
	LAT 3		●			●					●	O●	O		O●	level B ●		O		O	O		
	NO LAT		●			●					●	●			●	level B ●							

*Only Mil QPL ratings receive the steam age portion of solderability testing unless otherwise specified by the customer
**Testing of low ESR components requiring a mounted sample shall allow a 2X increase in catalog ESR for post measurements
*** = Dry Heat, Damp Heat, Storage, Low Air Pressure, Damp Heat

- O Standard Test
- ▲ Optional Test
- ■ Qualification and or GRP C
- X Sample Test
- ★ COTS Upscreen 1000Hr 125°C
- ▶ AVX Standard DCL/ESR/DF 3 SIGMA
- ♦ DLA Standard DCL/ESR 3 SIGMA
- ● Part of Manufacturing Flow (PID)
- Δ AVX Standard DCL 3 SIGMA

HIGH RELIABILITY TANTALUM CHIP PRODUCT FAMILY - DESIGN GUIDE

TAZ Series Case Size

R
A
B
C
D
E
F
G
H
X

TCP Module

TAZ FAMILY SIZES:

CWR09, CWR19, CWR29 and TCP Modules

The TAZ family boasts the widest range of case sizes and fullest range of MIL-QPL qualifications of any tantalum chip family, making it the ideal choice for the MIL-Aerospace designer.

This family represents the most flexible of surface mount form factors. The case sizes originate from the original MIL chip sizes, enabling support for all legacy programs, but have been extended to include both smaller and larger case size options. There are ten case sizes covering the full Capacitance/Voltage range. Parts are suited to hybrid or PCB assembly, with case sizes A to E designed as low profile (.050" nom).

The Low ESR versions of the larger case sizes are ideally suited to power applications, and the H case is also footprint compatible with TBJ D / E case sizes.

This family is also the ideal replacement for conformal coated CWR06 styles in mechanically demanding applications.

TBJ FAMILY SIZES:

DSCC 95158, 07016 & CWR11;

TBM Ultra-Low ESR;

NBS & NBM Low ESR OxiCap®.

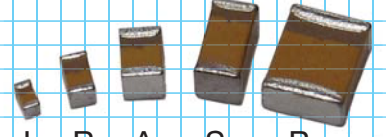
The TBJ family is based on EIA / Industrial standard sizes. While this series offers a more limited range of form factors (only 4 QPL case sizes, A through D, with an additional 2 case sizes (E & V) available to DSCC drawing), it does enable commercial designs / prototypes to be upgraded from commercial to COTS-Plus or even SRC9000 Space level for flight applications.

TBC FAMILY SIZES:

CWR15

TBC represents the world's smallest military approved tantalum chip capacitors technology. The case sizes are based on existing small case ceramic chip / resistor chip sizes; L, R & A case are equivalent to 0603, 0805 & 1206 sizes respectively, but with capacitance/voltage combinations significantly higher than available in 125ºC rated ceramic devices. TBC represents a significant enabling technology for downsizing and reduced payload circuits for military and aerospace PCB, hybrid & flex circuit applications.

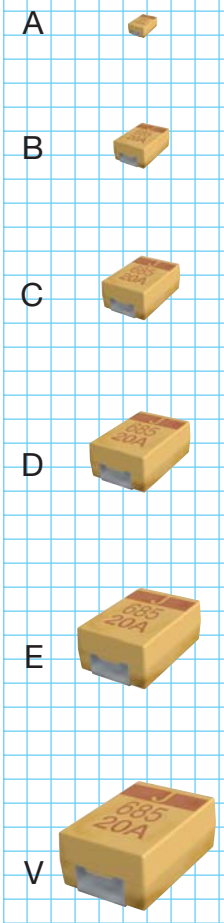
TBC Series Case Sizes



L R A S B

TBJ Series Case Size

A
B
C
D
E
V



PART NUMBERING, TEST & PACKAGING OPTIONS

Part Numbering:

AVX part numbers have 19 character fields. Standard characters are used to denote AVX series, case size, capacitance code, capacitance tolerance, voltage code and standard / Low ESR designator.

Test Designators:

The following table is a cross-reference between AVX and MIL designators for the various termination, test and inspection options available:

Symbol	Parameter	Condition	Designator	
			MIL	AVX
^	Termination Finish	Hot Solder Dip	C	8
		Solder Fused	K	0
		Solder Plated	H	H
		Gold	B	9
		Matte Sn	–	7
#	Lot inspection Conformance Level	MIL QPL (JAN brand)	–	M
		DSCC Dwg	–	D
		Lab/SCD/SRC9000	–	L
		Standard	–	S
++	Surge Current Test (also used for custom requiements)	No Surge	Z	00
		10 Cycles Ambient	A	23
		10 Cycles -55ºC & +85ºC	B	24
		10 Cycles -55ºC & +85ºC Pre-Weibull	C	45
@	Voltage Conditioning (Reliability) Grade	Non ER	A	Z
		B Weibull	B	B
		C Weibull	C	C
		D Weibull	D	D
*	Capacitance Tolerance	±5%	J	J
		±10%	K	K
		±20%	M	M
0	AVX SCD Designator	0 = N/A	N/A	0
		9 = SRC9000	N/A	9

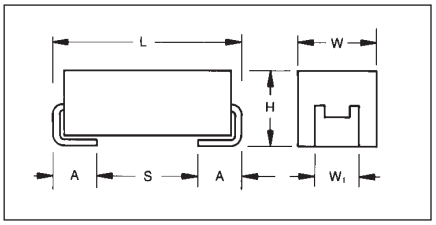
Packaging Designators:

Due to the wide range of mounting processes that can be used for these products, there are many packaging options including bulk, tape / reel and waffle pack. Full dimensional information and packaging quantities are available in the packaging section (Applications Guide). Custom packaging is available for some product series (e.g. non-modular reel quantities, inverted in waffle (for wire bonding), special bar coding requirements, etc.). Please contact factory for custom requirements.

Symbol	Parameter	Condition	Designator	
			MIL	AVX
□	Bulk	Bulk	Default	B
		Bulk - ESD Packaging	–	K
	Tape & Reel	4" Reel	TR\4	X
		7" Reel	TR\7	R
		13" Reel	TR\13	S
	Waffle Pack	Waffle Pack	W	W
		Waffle - ESD Packaging	–	L

TAZ Series

CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level



This is the original high reliability molded tantalum chip series and the case sizes still represent the most flexible of surface mount form factors. TAZ offers nine case sizes, eight of which (A through H) are fully qualified to MIL-PRF-55365/4, and also includes the original sub-miniature R case (non-QPL).

This series is fully interchangeable with CWR06 conformal types, while offering the advantages of molded body/compliant termination construction (ensuring no TCE mismatch with any substrate). This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques.

The parts also carry full polarity and capacitance / voltage marking. The five smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

All 4V to 50V ratings are qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

MARKING

(White marking on black body)

Polarity Stripe (+)

Capacitance Code
Rated Voltage

CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W_1)	Term. Length (A) +0.25/-0.13 (+0.010/-0.005)	S min	Typical Weight (g)
A	2.54 (0.100)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	0.38 (0.015)	0.016
B	3.81 (0.150)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	1.65 (0.065)	0.025
C	5.08 (0.200)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	2.92 (0.115)	0.035
D	3.81 (0.150)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	1.65 (0.065)	0.045
E	5.08 (0.200)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	2.92 (0.115)	0.065
F	5.59 (0.220)	3.43 (0.135)	1.78 (0.070)	3.30±0.13 (0.130±0.005)	0.76 (0.030)	3.43 (0.135)	0.125
G	6.73 (0.265)	2.79 (0.110)	2.79 (0.110)	2.67±0.13 (0.105±0.005)	1.27 (0.050)	3.56 (0.140)	0.205
H	7.24 (0.285)	3.81 (0.150)	2.79 (0.110)	3.68+0.13/-0.51 (0.145+0.005/-0.020)	1.27 (0.050)	4.06 (0.160)	0.335
R	2.05 (0.081) ±0.20 (0.008)	1.30 (0.051) +0.20 (0.008) -0.10 (0.004)	1.20 (0.047) max	1.0±0.10 (0.039±0.004)	0.50 (0.020) +0.30 (0.012) -0.20 (0.008)	0.71 (0.028)	0.010

CWR09 MIL-PRF-55365/4

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) at 85ºC							
µF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)	50V (N)
0.10	104								A
0.15	154								A
0.22	224							A	B
0.33	334	R		R			A		B
0.47	474			R		A		B	C
0.68	684				A	B	B	C	D
1.0	105			A/R		B	C	D	E
1.5	155		A		B	C	D	E	F
2.2	225	A/R		B	C	D	E		F
3.3	335		B	C	D	E		F	G
4.7	475	B	C	D	E		F	G	H
6.8	685	C	D	E		F	G	H	
10	106	D	E		F		G		
15	156	E		F		G	H		
22	226		F		G	H			
33	336	F		G	H				
47	476		G	H					
68	686	G	H						
100	107	H							

TAZ Series

CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR09):

TAZ	H	686	*	006	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A M = MIL (JAN) CWR09	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A T = T Level 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

CWR09 P/N CROSS REFERENCE:

CWR09	D	^	686	*	@	+	□
Type	**Voltage Code** C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc	**Termination Finish** H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	**Surge Test Option** A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull If blank, None required	**Packaging** Bulk = Standard \TR = 7" T&R \TR13 = 13" T&R \W = Waffle See page 7 for additional packaging options.

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

TAZ	H	686	*	006	C	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	**Surge Test Option** 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.10 µF to 100 µF								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage (V_R)	≤ 85°C:	4	6	10	15	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	2.7	4	6.7	10	13.3	16.7	23.3	33.3
Surge Voltage (V_S)	≤ 85°C:	5.3	8	13.3	20	26.7	33.3	46.7	66.7
Surge Voltage (V_S)	≤ 125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1	44.5
Temperature Range:	-55°C to +125°C								

TAZ Series

CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

				Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Ripple Data by Rating						
				Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
							+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
CWR09 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
	TAZ R 334 * 004 C ☐ # @ 0 ^ ++		R	0.33	4	45	1	10	12	6	8	8	0.030	0.03	0.02	0.01	1.16	1.05	0.46
	TAZ R 225 * 004 C ☐ # @ 0 ^ ++		R	2.2	4	12	1	10	12	6	8	8	0.030	0.05	0.05	0.02	0.60	0.54	0.24
CWR09C^225*@+	TAZ A 225 * 004 C ☐ # @ 0 ^ ++	TAZ A 225 * 004 C ☐ L @ 9 ^ ++	A	2.2	4	8	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.63	0.57	0.25
CWR09C^475*@+	TAZ B 475 * 004 C ☐ # @ 0 ^ ++	TAZ B 475 * 004 C ☐ L @ 9 ^ ++	B	4.7	4	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR09C^685*@+	TAZ C 685 * 004 C ☐ # @ 0 ^ ++	TAZ C 685 * 004 C ☐ L @ 9 ^ ++	C	6.8	4	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR09C^106*@+	TAZ D 106 * 004 C ☐ # @ 0 ^ ++	TAZ D 106 * 004 C ☐ L @ 9 ^ ++	D	10	4	4	1	10	12	8	8	10	0.080	0.14	0.13	0.06	0.57	0.51	0.23
CWR09C^156*@+	TAZ E 156 * 004 C ☐ # @ 0 ^ ++	TAZ E 156 * 004 C ☐ L @ 9 ^ ++	E	15	4	3.5	1	10	12	8	10	12	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR09C^336*@+	TAZ F 336 * 004 C ☐ # @ 0 ^ ++	TAZ F 336 * 004 C ☐ L @ 9 ^ ++	F	33	4	2.2	2	20	24	8	10	12	0.100	0.21	0.19	0.09	0.47	0.42	0.19
CWR09C^686*@+	TAZ G 686 * 004 C ☐ # @ 0 ^ ++	TAZ G 686 * 004 C ☐ L @ 9 ^ ++	G	68	4	1.1	3	30	36	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR09C^107*@+	TAZ H 107 * 004 C ☐ # @ 0 ^ ++	TAZ H 107 * 004 C ☐ L @ 9 ^ ++	H	100	4	0.9	4	40	48	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR09D^155*@+	TAZ A 155 * 006 C ☐ # @ 0 ^ ++	TAZ A 155 * 006 C ☐ L @ 9 ^ ++	A	1.5	6	8	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.63	0.57	0.25
CWR09D^335*@+	TAZ B 335 * 006 C ☐ # @ 0 ^ ++	TAZ B 335 * 006 C ☐ L @ 9 ^ ++	B	3.3	6	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR09D^475*@+	TAZ C 475 * 006 C ☐ # @ 0 ^ ++	TAZ C 475 * 006 C ☐ L @ 9 ^ ++	C	4.7	6	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR09D^685*@+	TAZ D 685 * 006 C ☐ # @ 0 ^ ++	TAZ D 685 * 006 C ☐ L @ 9 ^ ++	D	6.8	6	4.5	1	10	12	6	8	8	0.080	0.13	0.12	0.05	0.60	0.54	0.24
CWR09D^106*@+	TAZ E 106 * 006 C ☐ # @ 0 ^ ++	TAZ E 106 * 006 C ☐ L @ 9 ^ ++	E	10	6	3.5	1	10	12	8	10	12	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR09D^226*@+	TAZ F 226 * 006 C ☐ # @ 0 ^ ++	TAZ F 226 * 006 C ☐ L @ 9 ^ ++	F	22	6	2.2	2	20	24	8	10	12	0.100	0.21	0.19	0.09	0.47	0.42	0.19
CWR09D^476*@+	TAZ G 476 * 006 C ☐ # @ 0 ^ ++	TAZ G 476 * 006 C ☐ L @ 9 ^ ++	G	47	6	1.1	3	30	36	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR09D^686*@+	TAZ H 686 * 006 C ☐ # @ 0 ^ ++	TAZ H 686 * 006 C ☐ L @ 9 ^ ++	H	68	6	0.9	4	40	48	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
	TAZ R 334 * 010 C ☐ # @ 0 ^ ++		R	0.33	10	50	1	10	12	6	8	8	0.030	0.02	0.02	0.01	1.22	1.10	0.49
	TAZ R 474 * 010 C ☐ # @ 0 ^ ++		R	0.47	10	50	1	10	12	6	8	8	0.030	0.02	0.02	0.01	1.22	1.10	0.49
	TAZ R 105 * 010 C ☐ # @ 0 ^ ++		R	1	10	10	1	10	12	6	8	8	0.030	0.05	0.05	0.02	0.55	0.49	0.22
CWR09F^105*@+	TAZ A 105 * 010 C ☐ # @ 0 ^ ++	TAZ A 105 * 010 C ☐ L @ 9 ^ ++	A	1	10	10	1	10	12	6	8	8	0.050	0.07	0.06	0.03	0.71	0.64	0.28
CWR09F^225*@+	TAZ B 225 * 010 C ☐ # @ 0 ^ ++	TAZ B 225 * 010 C ☐ L @ 9 ^ ++	B	2.2	10	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR09F^335*@+	TAZ C 335 * 010 C ☐ # @ 0 ^ ++	TAZ C 335 * 010 C ☐ L @ 9 ^ ++	C	3.3	10	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR09F^475*@+	TAZ D 475 * 010 C ☐ # @ 0 ^ ++	TAZ D 475 * 010 C ☐ L @ 9 ^ ++	D	4.7	10	4.5	1	10	12	6	8	8	0.080	0.13	0.12	0.05	0.60	0.54	0.24
CWR09F^685*@+	TAZ E 685 * 010 C ☐ # @ 0 ^ ++	TAZ E 685 * 010 C ☐ L @ 9 ^ ++	E	6.8	10	3.5	1	10	12	6	8	8	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR09F^156*@+	TAZ F 156 * 010 C ☐ # @ 0 ^ ++	TAZ F 156 * 010 C ☐ L @ 9 ^ ++	F	15	10	2.5	2	20	24	8	8	10	0.100	0.20	0.18	0.08	0.50	0.45	0.20
CWR09F^336*@+	TAZ G 336 * 010 C ☐ # @ 0 ^ ++	TAZ G 336 * 010 C ☐ L @ 9 ^ ++	G	33	10	1.1	3	30	36	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR09F^476*@+	TAZ H 476 * 010 C ☐ # @ 0 ^ ++	TAZ H 476 * 010 C ☐ L @ 9 ^ ++	H	47	10	0.9	5	50	60	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR09H^684*@+	TAZ A 684 * 015 C ☐ # @ 0 ^ ++	TAZ A 684 * 015 C ☐ L @ 9 ^ ++	A	0.68	15	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR09H^155*@+	TAZ B 155 * 015 C ☐ # @ 0 ^ ++	TAZ B 155 * 015 C ☐ L @ 9 ^ ++	B	1.5	15	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR09H^225*@+	TAZ C 225 * 015 C ☐ # @ 0 ^ ++	TAZ C 225 * 015 C ☐ L @ 9 ^ ++	C	2.2	15	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR09H^335*@+	TAZ D 335 * 015 C ☐ # @ 0 ^ ++	TAZ D 335 * 015 C ☐ L @ 9 ^ ++	D	3.3	15	5	1	10	12	6	8	8	0.080	0.13	0.11	0.05	0.63	0.57	0.25
CWR09H^475*@+	TAZ E 475 * 015 C ☐ # @ 0 ^ ++	TAZ E 475 * 015 C ☐ L @ 9 ^ ++	E	4.7	15	4	1	10	12	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR09H^106*@+	TAZ F 106 * 015 C ☐ # @ 0 ^ ++	TAZ F 106 * 015 C ☐ L @ 9 ^ ++	F	10	15	2.5	2	20	24	6	8	8	0.100	0.20	0.18	0.08	0.50	0.45	0.20
CWR09H^226*@+	TAZ G 226 * 015 C ☐ # @ 0 ^ ++	TAZ G 226 * 015 C ☐ L @ 9 ^ ++	G	22	15	1.1	4	40	48	6	8	8	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR09H^336*@+	TAZ H 336 * 015 C ☐ # @ 0 ^ ++	TAZ H 336 * 015 C ☐ L @ 9 ^ ++	H	33	15	0.9	5	50	60	8	8	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR09J^474*@+	TAZ A 474 * 020 C ☐ # @ 0 ^ ++	TAZ A 474 * 020 C ☐ L @ 9 ^ ++	A	0.47	20	14	1	10	12	8	8	10	0.050	0.06	0.05	0.02	0.84	0.75	0.33
CWR09J^684*@+	TAZ B 684 * 020 C ☐ # @ 0 ^ ++	TAZ B 684 * 020 C ☐ L @ 9 ^ ++	B	0.68	20	10	1	10	12	6	8	8	0.070	0.08	0.08	0.03	0.84	0.75	0.33
CWR09J^105*@+	TAZ B 105 * 020 C ☐ # @ 0 ^ ++	TAZ B 105 * 020 C ☐ L @ 9 ^ ++	B	1	20	12	1	10	12	6	8	8	0.070	0.08	0.07	0.03	0.92	0.82	0.37
CWR09J^155*@+	TAZ C 155 * 020 C ☐ # @ 0 ^ ++	TAZ C 155 * 020 C ☐ L @ 9 ^ ++	C	1.5	20	6	1	10	12	6	8	8	0.075	0.11	0.10	0.04	0.67	0.60	0.27
CWR09J^225*@+	TAZ D 225 * 020 C ☐ # @ 0 ^ ++	TAZ D 225 * 020 C ☐ L @ 9 ^ ++	D	2.2	20	5	1	10	12	6	8	8	0.080	0.13	0.11	0.05	0.63	0.57	0.25
CWR09J^335*@+	TAZ E 335 * 020 C ☐ # @ 0 ^ ++	TAZ E 335 * 020 C ☐ L @ 9 ^ ++	E	3.3	20	4	1	10	12	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR09J^685*@+	TAZ F 685 * 020 C ☐ # @ 0 ^ ++	TAZ F 685 * 020 C ☐ L @ 9 ^ ++	F	6.8	20	2.4	2	20	24	6	8	8	0.100	0.20	0.18	0.08	0.49	0.44	0.20
CWR09J^156*@+	TAZ G 156 * 020 C ☐ # @ 0 ^ ++	TAZ G 156 * 020 C ☐ L @ 9 ^ ++	G	15	20	1.1	3	30	36	6	8	8	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR09J^226*@+	TAZ H 226 * 020 C ☐ # @ 0 ^ ++	TAZ H 226 * 020 C ☐ L @ 9 ^ ++	H	22	20	0.9	4	40	48	6	8	8	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR09K^334*@+	TAZ A 334 * 025 C ☐ # @ 0 ^ ++	TAZ A 334 * 025 C ☐ L @ 9 ^ ++	A	0.33	25	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR09K^684*@+	TAZ B 684 * 025 C ☐ # @ 0 ^ ++	TAZ B 684 * 025 C ☐ L @ 9 ^ ++	B	0.68	25	7.5	1	10	12	6	8	8	0.070	0.10	0.09	0.04	0.72	0.65	0.29
CWR09K^105*@+	TAZ C 105 * 025 C ☐ # @ 0 ^ ++	TAZ C 105 * 025 C ☐ L @ 9 ^ ++	C	1	25	6.5	1	10	12	6	8	8	0.075	0.11	0.10	0.04	0.70	0.63	0.28
CWR09K^155*@+	TAZ D 155 * 025 C ☐ # @ 0 ^ ++	TAZ D 155 * 025 C ☐ L @ 9 ^ ++	D	1.5	25	6.5	1	10	12	6	8	8	0.080	0.11	0.10	0.04	0.72	0.65	0.29
CWR09K^225*@+	TAZ E 225 * 025 C ☐ # @ 0 ^ ++	TAZ E 225 * 025 C ☐ L @ 9 ^ ++	E	2.2	25	3.5	1	10	12	6	8	8	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR09K^475*@+	TAZ F 475 * 025 C ☐ # @ 0 ^ ++	TAZ F 475 * 025 C ☐ L @ 9 ^ ++	F	4.7	25	2.5	2	20	24	6	8	8	0.100	0.20	0.18	0.08	0.50	0.45	0.20
CWR09K^685*@+	TAZ G 685 * 025 C ☐ # @ 0 ^ ++	TAZ G 685 * 025 C ☐ L @ 9 ^ ++	G	6.8	25	1.2	2	20	24	6	8	8	0.125	0.32	0.29	0.13	0.39	0.35	0.15
CWR09K^106*@+	TAZ G 106 * 025 C ☐ # @ 0 ^ ++	TAZ G 106 * 025 C ☐ L @ 9 ^ ++	G	10	25	1.4	3	30	36	6	8	8	0.125	0.30	0.27	0.12	0.42	0.38	0.17
CWR09K^156*@+	TAZ H 156 * 025 C ☐ # @ 0 ^ ++	TAZ H 156 * 025 C ☐ L @ 9 ^ ++	H	15	25	1	4	40	48	6	8	8	0.150	0.39	0.35	0.15	0.39	0.35	0.15

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level

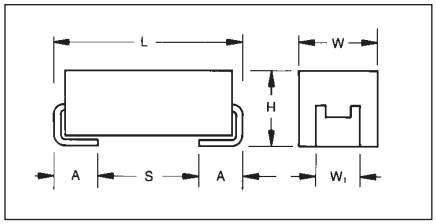
RATING & PART NUMBER REFERENCE				Parametric Specifications by Rating per MIL-PRF-55365/4									Typical Ripple Data by Rating						
				Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
				@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
CWR09 P/N	AVX MIL & COTS-Plus p/n	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR09M^224*@+	TAZ A 224 * 035 C ☐ # @ 0 ^ ++	TAZ A 224 * 035 C ☐ L @ 9 ^ ++	A	0.22	35	18	1	10	12	6	8	8	0.050	0.05	0.05	0.02	0.95	0.85	0.38
CWR09M^474*@+	TAZ B 474 * 035 C ☐ # @ 0 ^ ++	TAZ B 474 * 035 C ☐ L @ 9 ^ ++	B	0.47	35	10	1	10	12	6	8	8	0.070	0.08	0.08	0.03	0.84	0.75	0.33
CWR09M^684*@+	TAZ C 684 * 035 C ☐ # @ 0 ^ ++	TAZ C 684 * 035 C ☐ L @ 9 ^ ++	C	0.68	35	8	1	10	12	6	8	8	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR09M^105*@+	TAZ D 105 * 035 C ☐ # @ 0 ^ ++	TAZ D 105 * 035 C ☐ L @ 9 ^ ++	D	1	35	6.5	1	10	12	6	8	8	0.080	0.11	0.10	0.04	0.72	0.65	0.29
CWR09M^155*@+	TAZ E 155 * 035 C ☐ # @ 0 ^ ++	TAZ E 155 * 035 C ☐ L @ 9 ^ ++	E	1.5	35	4.5	1	10	12	6	8	8	0.090	0.14	0.13	0.06	0.64	0.57	0.25
CWR09M^335*@+	TAZ F 335 * 035 C ☐ # @ 0 ^ ++	TAZ F 335 * 035 C ☐ L @ 9 ^ ++	F	3.3	35	2.5	1	10	12	6	8	8	0.100	0.20	0.18	0.08	0.50	0.45	0.20
CWR09M^475*@+	TAZ G 475 * 035 C ☐ # @ 0 ^ ++	TAZ G 475 * 035 C ☐ L @ 9 ^ ++	G	4.7	35	1.5	2	20	24	6	8	8	0.125	0.29	0.26	0.12	0.43	0.39	0.17
CWR09M^685*@+	TAZ H 685 * 035 C ☐ # @ 0 ^ ++	TAZ H 685 * 035 C ☐ L @ 9 ^ ++	H	6.8	35	1.3	3	30	36	6	8	8	0.150	0.34	0.31	0.14	0.44	0.40	0.18
CWR09N^104*@+	TAZ A 104 * 050 C ☐ # @ 0 ^ ++	TAZ A 104 * 050 C ☐ L @ 9 ^ ++	A	0.1	50	22	1	10	12	6	8	8	0.050	0.05	0.04	0.02	1.05	0.94	0.42
CWR09N^154*@+	TAZ A 154 * 050 C ☐ # @ 0 ^ ++	TAZ A 154 * 050 C ☐ L @ 9 ^ ++	A	0.15	50	17	1	10	12	6	8	8	0.050	0.05	0.05	0.02	0.92	0.83	0.37
CWR09N^224*@+	TAZ B 224 * 050 C ☐ # @ 0 ^ ++	TAZ B 224 * 050 C ☐ L @ 9 ^ ++	B	0.22	50	14	1	10	12	6	8	8	0.070	0.07	0.06	0.03	0.99	0.89	0.40
CWR09N^334*@+	TAZ B 334 * 050 C ☐ # @ 0 ^ ++	TAZ B 334 * 050 C ☐ L @ 9 ^ ++	B	0.33	50	12	1	10	12	6	8	8	0.070	0.08	0.07	0.03	0.92	0.82	0.37
CWR09N^474*@+	TAZ C 474 * 050 C ☐ # @ 0 ^ ++	TAZ C 474 * 050 C ☐ L @ 9 ^ ++	C	0.47	50	8	1	10	12	6	8	8	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR09N^684*@+	TAZ D 684 * 050 C ☐ # @ 0 ^ ++	TAZ D 684 * 050 C ☐ L @ 9 ^ ++	D	0.68	50	7	1	10	12	6	8	8	0.080	0.11	0.10	0.04	0.75	0.67	0.30
CWR09N^105*@+	TAZ E 105 * 050 C ☐ # @ 0 ^ ++	TAZ E 105 * 050 C ☐ L @ 9 ^ ++	E	1	50	6	1	10	12	6	8	8	0.090	0.12	0.11	0.05	0.73	0.66	0.29
CWR09N^155*@+	TAZ F 155 * 050 C ☐ # @ 0 ^ ++	TAZ F 155 * 050 C ☐ L @ 9 ^ ++	F	1.5	50	4	1	10	12	6	8	8	0.100	0.16	0.14	0.06	0.63	0.57	0.25
CWR09N^225*@+	TAZ F 225 * 050 C ☐ # @ 0 ^ ++	TAZ F 225 * 050 C ☐ L @ 9 ^ ++	F	2.2	50	2.5	2	20	24	6	8	8	0.100	0.20	0.18	0.08	0.50	0.45	0.20
CWR09N^335*@+	TAZ G 335 * 050 C ☐ # @ 0 ^ ++	TAZ G 335 * 050 C ☐ L @ 9 ^ ++	G	3.3	50	2	2	20	24	6	8	8	0.125	0.25	0.23	0.10	0.50	0.45	0.20
CWR09N^475*@+	TAZ H 475 * 050 C ☐ # @ 0 ^ ++	TAZ H 475 * 050 C ☐ L @ 9 ^ ++	H	4.7	50	1.5	3	30	36	6	8	8	0.150	0.32	0.28	0.13	0.47	0.43	0.19

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level



MARKING

(White marking on black body)

Polarity Stripe (+)

Capacitance Code
Rated Voltage

An extended range of capacitor ratings beyond CWR09 that is fully qualified to MIL-PRF-55365/11, this series represents the most flexible of surface mount form factors, offering nine case sizes (the original A through H of CWR09) and adds the new X case size.

The molded body / compliant termination construction ensures no TCE mismatch with any substrate. This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The parts also carry full polarity and capacitance / voltage marking.

The four smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W_t)	Term. Length (A) +0.25/-0.13 (+0.010/-0.005)	S min	Typical Weight (g)
A	2.54 (0.100)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	0.38 (0.015)	0.016
B	3.81 (0.150)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	1.65 (0.065)	0.025
C	5.08 (0.200)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	2.92 (0.115)	0.035
D	3.81 (0.150)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	1.65 (0.065)	0.045
E	5.08 (0.200)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	2.92 (0.115)	0.065
F	5.59 (0.220)	3.43 (0.135)	1.78 (0.070)	3.30±0.13 (0.130±0.005)	0.76 (0.030)	3.43 (0.135)	0.125
G	6.73 (0.265)	2.79 (0.110)	2.79 (0.110)	2.67±0.13 (0.105±0.005)	1.27 (0.050)	3.56 (0.140)	0.205
H	7.24 (0.285)	3.81 (0.150)	2.79 (0.110)	3.68+0.13/-0.51 (0.145+0.005/-0.020)	1.27 (0.050)	4.06 (0.160)	0.335
X	6.93 Max (0.273)	5.41 Max (0.213)	2.74 Max (0.108)	3.05±0.13 (0.120±0.005)	1.19 (0.047)	N/A	0.420

CWR19-MIL-PRF 55365/11

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage DC (V_R) at 85ºC						
µF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)
0.33	334							A
0.47	474						A	
0.68	684					A		
1.0	105				A	A	B	
1.5	155				A	B		
2.2	225			A	A	B	D	
3.3	335	A	A	A	B	D	E	
4.7	475	A	A	B/C	B/C/D	E		
6.8	685	A	B	B/C/D	D/E	E	F	G
10	106	B	B	B/C/D/E	D/E	E/F		H
15	156	B	B/D/E	D/E	E/F	F	G	
22	226	B/D	D/E	E	F	G	G/H	
33	336	D/E	E	F	F/G	H	H	
47	476	E	F	F/G	G/H	H/X		
68	686	E	F/G	G	G/H			
100	107	F	G	G/H	H			
150	157	G	G	H/X				
220	227	H	H	H				
330	337	H	H					

TAZ Series

CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR19):

TAZ	H	227	*	006	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A M = MIL (JAN) CWR19	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A T = T Level 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

CWR19 P/N CROSS REFERENCE:

CWR19	D	^	227	*	@	H	+	□
Type	**Voltage Code** C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc	**Termination Finish** H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	**Case Size**	**Surge Test Option** A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required	**Packaging** Bulk = Standard \TR = 7" T&R \TR13 = 13" T&R \W = Waffle See page 7 for additional packaging options.

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

TAZ	H	227	*	006	C	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	**Surge Test Option** 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C							
Capacitance Range:	0.33 µF to 330 µF							
Capacitance Tolerance:	±5%; ±10%; ±20%							
Rated Voltage (V_R)	≤ 85°C:	4	6	10	15	20	25	35
Category Voltage (V_C)	≤ 125°C:	2.7	4	6.7	10	13.3	16.7	23.3
Surge Voltage (V_S)	≤ 85°C:	5.3	8	13.3	20	26.7	33.3	46.7
Surge Voltage (V_S)	≤ 125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1
Temperature Range:	-55°C to +125°C							

TAZ Series

CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

				Parametric Specifications by Rating per MIL-PRF-55365/11										Typical Ripple Data by Rating						
				Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
				@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
CWR19 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR19C^335*@A+□	TAZ A 335 * 004 C □ # @ 0 ^ ++	TAZ A 335 * 004 C □ L @ 9 ^ ++	A	3.3	4	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19C^475*@A+□	TAZ A 475 * 004 C □ # @ 0 ^ ++	TAZ A 475 * 004 C □ L @ 9 ^ ++	A	4.7	4	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19C^685*@A+□	TAZ A 685 * 004 C □ # @ 0 ^ ++	TAZ A 685 * 004 C □ L @ 9 ^ ++	A	6.8	4	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19C^106*@B+□	TAZ B 106 * 004 C □ # @ 0 ^ ++	TAZ B 106 * 004 C □ L @ 9 ^ ++	B	10	4	8	1	10	12	8	10	10	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19C^156*@B+□	TAZ B 156 * 004 C □ # @ 0 ^ ++	TAZ B 156 * 004 C □ L @ 9 ^ ++	B	15	4	8	1	10	12	8	10	10	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19C^226*@B+□	TAZ B 226 * 004 C □ # @ 0 ^ ++	TAZ B 226 * 004 C □ L @ 9 ^ ++	B	22	4	8	1	10	12	8	10	10	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19C^226*@D+□	TAZ D 226 * 004 C □ # @ 0 ^ ++	TAZ D 226 * 004 C □ L @ 9 ^ ++	D	22	4	4	1	10	12	8	10	12	0.080	0.14	0.13	0.06	0.57	0.51	0.23
CWR19C^336*@D+□	TAZ D 336 * 004 C □ # @ 0 ^ ++	TAZ D 336 * 004 C □ L @ 9 ^ ++	D	33	4	4	2	20	24	8	10	12	0.080	0.14	0.13	0.06	0.57	0.51	0.23
CWR19C^336*@E+□	TAZ E 336 * 004 C □ # @ 0 ^ ++	TAZ E 336 * 004 C □ L @ 9 ^ ++	E	33	4	3	2	20	24	8	10	12	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19C^476*@E+□	TAZ E 476 * 004 C □ # @ 0 ^ ++	TAZ E 476 * 004 C □ L @ 9 ^ ++	E	47	4	3	2	20	24	8	10	12	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19C^686*@E+□	TAZ E 686 * 004 C □ # @ 0 ^ ++	TAZ E 686 * 004 C □ L @ 9 ^ ++	E	68	4	3	3	30	36	8	10	12	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19C^107*@F+□	TAZ F 107 * 004 C □ # @ 0 ^ ++	TAZ F 107 * 004 C □ L @ 9 ^ ++	F	100	4	2	4	40	48	10	12	12	0.100	0.22	0.20	0.09	0.45	0.40	0.18
CWR19C^157*@G+□	TAZ G 157 * 004 C □ # @ 0 ^ ++	TAZ G 157 * 004 C □ L @ 9 ^ ++	G	150	4	1	6	60	72	10	12	12	0.125	0.35	0.32	0.14	0.35	0.32	0.14
CWR19C^227*@H+□	TAZ H 227 * 004 C □ # @ 0 ^ ++	TAZ H 227 * 004 C □ L @ 9 ^ ++	H	220	4	1	8	80	96	10	12	12	0.150	0.39	0.35	0.15	0.39	0.35	0.15
CWR19C^337*@H+□	TAZ H 337 * 004 C □ # @ 0 ^ ++	TAZ H 337 * 004 C □ L @ 9 ^ ++	H	330	4	0.9	10	100	120	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19D^335*@A+□	TAZ A 335 * 006 C □ # @ 0 ^ ++	TAZ A 335 * 006 C □ L @ 9 ^ ++	A	3.3	6	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19D^475*@A+□	TAZ A 475 * 006 C □ # @ 0 ^ ++	TAZ A 475 * 006 C □ L @ 9 ^ ++	A	4.7	6	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19D^685*@B+□	TAZ B 685 * 006 C □ # @ 0 ^ ++	TAZ B 685 * 006 C □ L @ 9 ^ ++	B	6.8	6	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19D^106*@B+□	TAZ B 106 * 006 C □ # @ 0 ^ ++	TAZ B 106 * 006 C □ L @ 9 ^ ++	B	10	6	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19D^156*@B+□	TAZ B 156 * 006 C □ # @ 0 ^ ++	TAZ B 156 * 006 C □ L @ 9 ^ ++	B	15	6	8	1	10	12	8	10	10	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19D^156*@D+□	TAZ D 156 * 006 C □ # @ 0 ^ ++	TAZ D 156 * 006 C □ L @ 9 ^ ++	D	15	6	5	1	10	12	8	10	12	0.080	0.13	0.11	0.05	0.63	0.57	0.25
CWR19D^226*@D+□	TAZ D 226 * 006 C □ # @ 0 ^ ++	TAZ D 226 * 006 C □ L @ 9 ^ ++	D	22	6	5	1	10	12	6	8	8	0.080	0.13	0.11	0.05	0.63	0.57	0.25
CWR19D^156*@E+□	TAZ E 156 * 006 C □ # @ 0 ^ ++	TAZ E 156 * 006 C □ L @ 9 ^ ++	E	15	6	3	1	10	12	8	10	12	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19D^226*@E+□	TAZ E 226 * 006 C □ # @ 0 ^ ++	TAZ E 226 * 006 C □ L @ 9 ^ ++	E	22	6	3.5	2	20	24	8	10	12	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR19D^336*@E+□	TAZ E 336 * 006 C □ # @ 0 ^ ++	TAZ E 336 * 006 C □ L @ 9 ^ ++	E	33	6	3.5	2	20	24	6	8	8	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR19D^476*@F+□	TAZ F 476 * 006 C □ # @ 0 ^ ++	TAZ F 476 * 006 C □ L @ 9 ^ ++	F	47	6	3.5	3	30	36	8	10	12	0.100	0.17	0.15	0.07	0.59	0.53	0.24
CWR19D^686*@F+□	TAZ F 686 * 006 C □ # @ 0 ^ ++	TAZ F 686 * 006 C □ L @ 9 ^ ++	F	68	6	1.5	4	40	48	10	12	12	0.100	0.26	0.23	0.10	0.39	0.35	0.15
CWR19D^686*@G+□	TAZ G 686 * 006 C □ # @ 0 ^ ++	TAZ G 686 * 006 C □ L @ 9 ^ ++	G	68	6	1	4	40	48	10	12	12	0.125	0.35	0.32	0.14	0.35	0.32	0.14
CWR19D^107*@G+□	TAZ G 107 * 006 C □ # @ 0 ^ ++	TAZ G 107 * 006 C □ L @ 9 ^ ++	G	100	6	1.1	6	60	72	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19D^157*@G+□	TAZ G 157 * 006 C □ # @ 0 ^ ++	TAZ G 157 * 006 C □ L @ 9 ^ ++	G	150	6	1.1	10	100	120	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19D^227*@H+□	TAZ H 227 * 006 C □ # @ 0 ^ ++	TAZ H 227 * 006 C □ L @ 9 ^ ++	H	220	6	0.9	10	100	120	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19D^337*@H+□	TAZ H 337 * 006 C □ # @ 0 ^ ++	TAZ H 337 * 006 C □ L @ 9 ^ ++	H	330	6	0.9	20	200	240	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19F^225*@A+□	TAZ A 225 * 010 C □ # @ 0 ^ ++	TAZ A 225 * 010 C □ L @ 9 ^ ++	A	2.2	10	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19F^335*@A+□	TAZ A 335 * 010 C □ # @ 0 ^ ++	TAZ A 335 * 010 C □ L @ 9 ^ ++	A	3.3	10	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR19F^475*@B+□	TAZ B 475 * 010 C □ # @ 0 ^ ++	TAZ B 475 * 010 C □ L @ 9 ^ ++	B	4.7	10	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19F^685*@B+□	TAZ B 685 * 010 C □ # @ 0 ^ ++	TAZ B 685 * 010 C □ L @ 9 ^ ++	B	6.8	10	8	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19F^106*@B+□	TAZ B 106 * 010 C □ # @ 0 ^ ++	TAZ B 106 * 010 C □ L @ 9 ^ ++	B	10	10	8	1	10	12	8	10	10	0.070	0.09	0.08	0.04	0.75	0.67	0.30
CWR19F^475*@C+□	TAZ C 475 * 010 C □ # @ 0 ^ ++	TAZ C 475 * 010 C □ L @ 9 ^ ++	C	4.7	10	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR19F^685*@C+□	TAZ C 685 * 010 C □ # @ 0 ^ ++	TAZ C 685 * 010 C □ L @ 9 ^ ++	C	6.8	10	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR19F^106*@C+□	TAZ C 106 * 010 C □ # @ 0 ^ ++	TAZ C 106 * 010 C □ L @ 9 ^ ++	C	10	10	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR19F^685*@D+□	TAZ D 685 * 010 C □ # @ 0 ^ ++	TAZ D 685 * 010 C □ L @ 9 ^ ++	D	6.8	10	5	1	10	12	6	8	8	0.080	0.13	0.11	0.05	0.63	0.57	0.25
CWR19F^106*@D+□	TAZ D 106 * 010 C □ # @ 0 ^ ++	TAZ D 106 * 010 C □ L @ 9 ^ ++	D	10	10	4	1	10	12	6	8	8	0.080	0.14	0.13	0.06	0.57	0.51	0.23
CWR19F^156*@D+□	TAZ D 156 * 010 C □ # @ 0 ^ ++	TAZ D 156 * 010 C □ L @ 9 ^ ++	D	15	10	5	2	20	24	6	8	8	0.080	0.13	0.11	0.05	0.63	0.57	0.25
CWR19F^106*@E+□	TAZ E 106 * 010 C □ # @ 0 ^ ++	TAZ E 106 * 010 C □ L @ 9 ^ ++	E	10	10	3.5	1	10	12	6	8	8	0.090	0.16	0.14	0.06	0.56	0.51	0.22
CWR19F^156*@E+□	TAZ E 156 * 010 C □ # @ 0 ^ ++	TAZ E 156 * 010 C □ L @ 9 ^ ++	E	15	10	3	2	20	24	8	10	10	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19F^226*@E+□	TAZ E 226 * 010 C □ # @ 0 ^ ++	TAZ E 226 * 010 C □ L @ 9 ^ ++	E	22	10	2	3	30	36	8	10	10	0.090	0.21	0.19	0.08	0.42	0.38	0.17
CWR19F^336*@F+□	TAZ F 336 * 010 C □ # @ 0 ^ ++	TAZ F 336 * 010 C □ L @ 9 ^ ++	F	33	10	1.5	3	30	36	8	10	10	0.100	0.26	0.23	0.10	0.39	0.35	0.15
CWR19F^476*@F+□	TAZ F 476 * 010 C □ # @ 0 ^ ++	TAZ F 476 * 010 C □ L @ 9 ^ ++	F	47	10	1.5	4	40	48	10	12	12	0.100	0.26	0.23	0.10	0.39	0.35	0.15
CWR19F^476*@G+□	TAZ G 476 * 010 C □ # @ 0 ^ ++	TAZ G 476 * 010 C □ L @ 9 ^ ++	G	47	10	1	4	40	48	10	12	12	0.125	0.35	0.32	0.14	0.35	0.32	0.14
CWR19F^686*@G+□	TAZ G 686 * 010 C □ # @ 0 ^ ++	TAZ G 686 * 010 C □ L @ 9 ^ ++	G	68	10	1.1	6	60	72	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19F^107*@G+□	TAZ G 107 * 010 C □ # @ 0 ^ ++	TAZ G 107 * 010 C □ L @ 9 ^ ++	G	100	10	1.1	10	100	120	10	12	12	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19F^107*@H+□	TAZ H 107 * 010 C □ # @ 0 ^ ++	TAZ H 107 * 010 C □ L @ 9 ^ ++	H	100	10	0.9	10	100	120	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19F^157*@H+□	TAZ H 157 * 010 C □ # @ 0 ^ ++	TAZ H 157 * 010 C □ L @ 9 ^ ++	H	150	10	0.9	15	150	180	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19F^227*@H+□	TAZ H 227 * 010 C □ # @ 0 ^ ++	TAZ H 227 * 010 C □ L @ 9 ^ ++	H	220	10	0.9	20	200	240	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19F^157*@X+□	TAZ X 157 * 010 C □ # @ 0 ^ ++	TAZ X 157 * 010 C □ L @ 9 ^ ++	X	150	10	0.9	15	150	180	10	12	12	0.200	0.47	0.42	0.19	0.42	0.38	0.17

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

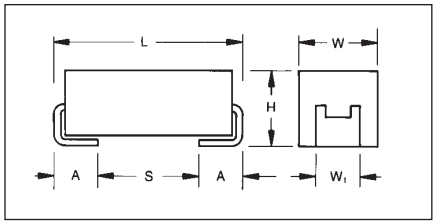
				Parametric Specifications by Rating per MIL-PRF-55365/11										Typical Ripple Data by Rating						
				Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
CWR19 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR19H^105*@A+□	TAZ A 105 * 015 C □ # @ 0 ^ ++	TAZ A 105 * 015 C □ L @ 9 ^ ++	A	1	15	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19H^155*@A+□	TAZ A 155 * 015 C □ # @ 0 ^ ++	TAZ A 155 * 015 C □ L @ 9 ^ ++	A	1.5	15	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19H^225*@A+□	TAZ A 225 * 015 C □ # @ 0 ^ ++	TAZ A 225 * 015 C □ L @ 9 ^ ++	A	2.2	15	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19H^335*@B+□	TAZ B 335 * 015 C □ # @ 0 ^ ++	TAZ B 335 * 015 C □ L @ 9 ^ ++	B	3.3	15	9	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.79	0.71	0.32
CWR19H^475*@B+□	TAZ B 475 * 015 C □ # @ 0 ^ ++	TAZ B 475 * 015 C □ L @ 9 ^ ++	B	4.7	15	5	1	10	12	6	8	8	0.070	0.12	0.11	0.05	0.59	0.53	0.24
CWR19H^475*@C+□	TAZ C 475 * 015 C □ # @ 0 ^ ++	TAZ C 475 * 015 C □ L @ 9 ^ ++	C	4.7	15	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR19H^475*@D+□	TAZ D 475 * 015 C □ # @ 0 ^ ++	TAZ D 475 * 015 C □ L @ 9 ^ ++	D	4.7	15	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19H^685*@D+□	TAZ D 685 * 015 C □ # @ 0 ^ ++	TAZ D 685 * 015 C □ L @ 9 ^ ++	D	6.8	15	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19H^106*@D+□	TAZ D 106 * 015 C □ # @ 0 ^ ++	TAZ D 106 * 015 C □ L @ 9 ^ ++	D	10	15	6	2	20	24	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19H^685*@E+□	TAZ E 685 * 015 C □ # @ 0 ^ ++	TAZ E 685 * 015 C □ L @ 9 ^ ++	E	6.8	15	3	1	10	12	8	10	12	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19H^106*@E+□	TAZ E 106 * 015 C □ # @ 0 ^ ++	TAZ E 106 * 015 C □ L @ 9 ^ ++	E	10	15	4	2	20	24	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR19H^156*@E+□	TAZ E 156 * 015 C □ # @ 0 ^ ++	TAZ E 156 * 015 C □ L @ 9 ^ ++	E	15	15	4	2	20	24	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR19H^156*@F+□	TAZ F 156 * 015 C □ # @ 0 ^ ++	TAZ F 156 * 015 C □ L @ 9 ^ ++	F	15	15	3	2	20	24	8	10	10	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19H^226*@F+□	TAZ F 226 * 015 C □ # @ 0 ^ ++	TAZ F 226 * 015 C □ L @ 9 ^ ++	F	22	15	3	3	30	36	8	10	10	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19H^336*@F+□	TAZ F 336 * 015 C □ # @ 0 ^ ++	TAZ F 336 * 015 C □ L @ 9 ^ ++	F	33	15	3	5	50	60	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19H^336*@G+□	TAZ G 336 * 015 C □ # @ 0 ^ ++	TAZ G 336 * 015 C □ L @ 9 ^ ++	G	33	15	1.1	6	60	72	8	10	10	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19H^476*@G+□	TAZ G 476 * 015 C □ # @ 0 ^ ++	TAZ G 476 * 015 C □ L @ 9 ^ ++	G	47	15	1.1	10	100	120	8	10	10	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19H^686*@G+□	TAZ G 686 * 015 C □ # @ 0 ^ ++	TAZ G 686 * 015 C □ L @ 9 ^ ++	G	68	15	1.1	10	100	120	8	10	10	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19H^476*@H+□	TAZ H 476 * 015 C □ # @ 0 ^ ++	TAZ H 476 * 015 C □ L @ 9 ^ ++	H	47	15	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19H^686*@H+□	TAZ H 686 * 015 C □ # @ 0 ^ ++	TAZ H 686 * 015 C □ L @ 9 ^ ++	H	68	15	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19H^107*@H+□	TAZ H 107 * 015 C □ # @ 0 ^ ++	TAZ H 107 * 015 C □ L @ 9 ^ ++	H	100	15	0.9	15	150	180	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19J^684*@A+□	TAZ A 684 * 020 C □ # @ 0 ^ ++	TAZ A 684 * 020 C □ L @ 9 ^ ++	A	0.68	20	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19J^105*@A+□	TAZ A 105 * 020 C □ # @ 0 ^ ++	TAZ A 105 * 020 C □ L @ 9 ^ ++	A	1	20	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19J^155*@B+□	TAZ B 155 * 020 C □ # @ 0 ^++	TAZ B 155 * 020 C □ L @ 9 ^++	B	1.5	20	9	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.79	0.71	0.32
CWR19J^225*@B+□	TAZ B 225 * 020 C □ # @ 0 ^ ++	TAZ B 225 * 020 C □ L @ 9 ^ ++	B	2.2	20	9	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.79	0.71	0.32
CWR19J^335*@D+□	TAZ D 335 * 020 C □ # @ 0 ^ ++	TAZ D 335 * 020 C □ L @ 9 ^ ++	D	3.3	20	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19J^475*@E+□	TAZ E 475 * 020 C □ # @ 0 ^ ++	TAZ E 475 * 020 C □ L @ 9 ^ ++	E	4.7	20	6	1	10	12	6	8	8	0.090	0.12	0.11	0.05	0.73	0.66	0.29
CWR19J^685*@E+□	TAZ E 685 * 020 C □ # @ 0 ^ ++	TAZ E 685 * 020 C □ L @ 9 ^ ++	E	6.8	20	5	2	20	24	6	8	8	0.090	0.13	0.12	0.05	0.67	0.60	0.27
CWR19J^106*@E+□	TAZ E 106 * 020 C □ # @ 0 ^ ++	TAZ E 106 * 020 C □ L @ 9 ^ ++	E	10	20	5	2	20	24	6	8	8	0.090	0.13	0.12	0.05	0.67	0.60	0.27
CWR19J^106*@F+□	TAZ F 106 * 020 C □ # @ 0 ^ ++	TAZ F 106 * 020 C □ L @ 9 ^ ++	F	10	20	3	2	20	24	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19J^156*@F+□	TAZ F 156 * 020 C □ # @ 0 ^ ++	TAZ F 156 * 020 C □ L @ 9 ^ ++	F	15	20	3	3	30	36	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19J^226*@G+□	TAZ G 226 * 020 C □ # @ 0 ^ ++	TAZ G 226 * 020 C □ L @ 9 ^ ++	G	22	20	2.5	4	40	48	6	8	8	0.125	0.22	0.20	0.09	0.56	0.50	0.22
CWR19J^336*@H+□	TAZ H 336 * 020 C □ # @ 0 ^ ++	TAZ H 336 * 020 C □ L @ 9 ^ ++	H	33	20	0.9	6	60	72	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19J^476*@H+□	TAZ H 476 * 020 C □ # @ 0 ^ ++	TAZ H 476 * 020 C □ L @ 9 ^ ++	H	47	20	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19J^476*@X+□	TAZ X 476 * 020 C □ # @ 0 ^ ++	TAZ X 476 * 020 C □ L @ 9 ^ ++	X	47	20	0.9	10	100	120	8	10	10	0.200	0.47	0.42	0.19	0.42	0.38	0.17
CWR19K^474*@A+□	TAZ A 474 * 025 C □ # @ 0 ^ ++	TAZ A 474 * 025 C □ L @ 9 ^ ++	A	0.47	25	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19K^105*@B+□	TAZ B 105 * 025 C □ # @ 0 ^ ++	TAZ B 105 * 025 C □ L @ 9 ^ ++	B	1	25	10	1	10	12	6	8	8	0.070	0.08	0.08	0.03	0.84	0.75	0.33
CWR19K^225*@D+□	TAZ D 225 * 025 C □ # @ 0 ^ ++	TAZ D 225 * 025 C □ L @ 9 ^ ++	D	2.2	25	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19K^335*@E+□	TAZ E 335 * 025 C □ # @ 0 ^ ++	TAZ E 335 * 025 C □ L @ 9 ^ ++	E	3.3	25	4	1	10	12	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR19K^685*@F+□	TAZ F 685 * 025 C □ # @ 0 ^ ++	TAZ F 685 * 025 C □ L @ 9 ^ ++	F	6.8	25	3	2	20	24	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19K^156*@G+□	TAZ G 156 * 025 C □ # @ 0 ^ ++	TAZ G 156 * 025 C □ L @ 9 ^ ++	G	15	25	1.4	4	40	48	6	8	8	0.125	0.30	0.27	0.12	0.42	0.38	0.17
CWR19K^226*@G+□	TAZ G 226 * 025 C □ # @ 0 ^ ++	TAZ G 226 * 025 C □ L @ 9 ^ ++	G	22	25	1.4	6	60	72	6	8	8	0.125	0.30	0.27	0.12	0.42	0.38	0.17
CWR19K^226*@H+□	TAZ H 226 * 025 C □ # @ 0 ^ ++	TAZ H 226 * 025 C □ L @ 9 ^ ++	H	22	25	0.9	6	60	72	6	8	8	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19K^336*@H+□	TAZ H 336 * 025 C □ # @ 0 ^ ++	TAZ H 336 * 025 C □ L @ 9 ^ ++	H	33	25	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19M^334*@A+□	TAZ A 334 * 035 C □ # @ 0 ^ ++	TAZ A 334 * 035 C □ L @ 9 ^ ++	A	0.33	35	22	1	10	12	6	8	8	0.050	0.05	0.04	0.02	1.05	0.94	0.42
CWR19M^685*@G+□	TAZ G 685 * 035 C □ # @ 0 ^ ++	TAZ G 685 * 035 C □ L @ 9 ^ ++	G	6.8	35	1.5	3	30	36	6	8	8	0.125	0.29	0.26	0.12	0.43	0.39	0.17
CWR19M^106*@H+□	TAZ H 106 * 035 C □ # @ 0 ^ ++	TAZ H 106 * 035 C □ L @ 9 ^ ++	H	10	35	0.9	4	40	48	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level



MARKING

(White marking on black body)

Polarity Stripe (+)

Capacitance Code
Rated Voltage

A low ESR version of CWR09 and CWR19 that is fully qualified to MIL-PRF-55365/11, the CWR29 series represents the most flexible of surface mount form factors and the optimum power handing for all filtering applications. It is offered in nine case sizes (the original A through H of CWR09 and adding the new X case size).

The molded body / compliant termination construction ensures no TCE mismatch with any substrate. This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The parts also carry full polarity and capacitance / voltage marking.

The five smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W_1)	Term. Length (A) +0.25/-0.13 (+0.010/-0.005)	S min	Typical Weight (g)
A	2.54 (0.100)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	0.38 (0.015)	0.016
B	3.81 (0.150)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	1.65 (0.065)	0.025
C	5.08 (0.200)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	2.92 (0.115)	0.035
D	3.81 (0.150)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	1.65 (0.065)	0.045
E	5.08 (0.200)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	2.92 (0.115)	0.065
F	5.59 (0.220)	3.43 (0.135)	1.78 (0.070)	3.30±0.13 (0.130±0.005)	0.76 (0.030)	3.43 (0.135)	0.125
G	6.73 (0.265)	2.79 (0.110)	2.79 (0.110)	2.67±0.13 (0.105±0.005)	1.27 (0.050)	3.56 (0.140)	0.205
H	7.24 (0.285)	3.81 (0.150)	2.79 (0.110)	3.68+0.13/-0.51 (0.145+0.005/-0.020)	1.27 (0.050)	4.06 (0.160)	0.335
X	6.93 Max (0.273)	5.41 Max (0.213)	2.74 Max (0.108)	3.05±0.13 (0.120±0.005)	1.19 (0.047)	N/A	0.420

CWR29-MIL-PRF 55365/11

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage DC (V_R) at 85°C							
µF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)	50V (N)
0.10	104								A
0.15	154								A
0.22	224							A	B
0.33	334						A	A	B
0.47	474					A	A	B	C
0.68	684				A	A/B	B	C	D
1.0	105			A	A	A/B	B/C	D	E
1.5	155		A		A/B	B/C	D	E	F
2.2	225	A		A/B	A/C	B/D	D/E		F
3.3	335	A	A/B	A/C	B/D	D/E	E	F	G
4.7	475	A/B	A/C	B/C/D	B/C/D/E	E	F	G	H
6.8	685	A/C	B/D	B/C/D/E	D/E	E/F	F/G	G/H	
10	106	B/D	B/E	B/C/D/E	D/E/F	E/F	G	H	
15	156	B/E	B/D/E	D/E/F	E/F	F/G	G/H		
22	226	B/D	D/E/F	E	F/G	G/H	G/H		
33	336	D/E/F	E	F/G	F/G/H	H	H		
47	476	E	F/G	F/G/H	G/H	H/X			
68	686	E/G	F/G/H	G	G/H				
100	107	F/H	G	G/H	H				
150	157	G	G	H/X					
220	227	H	H	H					
330	337	H	H						

TAZ Series

CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR29):

TAZ	H	227	*	006	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A M = MIL (JAN) CWR29	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A T = T Level 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

CWR29 P/N CROSS REFERENCE:

CWR29	D	^	227	*	@	H	+	□
Type	**Voltage Code** C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc	**Termination Finish** H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	**Case Size**	**Surge Test Option** A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required	**Packaging** Bulk = Standard \TR = 7" T&R \TR13 = 13" T&R \W = Waffle See page 7 for additional packaging options.

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

TAZ	H	227	*	006	C	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	**Surge Test Option** 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.10 µF to 330 µF								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage (V_R)	≤ 85°C:	4	6	10	15	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	2.7	4	6.7	10	13.3	16.7	23.3	33.3
Surge Voltage (V_S)	≤ 85°C:	5.3	8	13.3	20	26.7	33.3	46.7	66.7
Surge Voltage (V_S)	≤ 125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1	44.5
Temperature Range:	-55°C to +125°C								

TAZ Series

CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

				Parametric Specifications by Rating per MIL-PRF-55365/11										Typical Ripple Data by Rating						
				Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
							+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
CWR29 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR29C^225*@A+□	TAZ A 225 * 004 L □ # @ 0 ^ ++	TAZ A 225 * 004 L □ L @ 9 ^ ++	A	2.2	4	4	1	10	12	6	8	8	0.050	0.11	0.10	0.04	0.45	0.40	0.18
CWR29C^335*@A+□	TAZ A 335 * 004 L □ # @ 0 ^ ++	TAZ A 335 * 004 L □ L @ 9 ^ ++	A	3.3	4	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29C^475*@A+□	TAZ A 475 * 004 L □ # @ 0 ^ ++	TAZ A 475 * 004 L □ L @ 9 ^ ++	A	4.7	4	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29C^475*@B+□	TAZ B 475 * 004 L □ # @ 0 ^ ++	TAZ B 475 * 004 L □ L @ 9 ^ ++	B	4.7	4	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29C^685*@A+□	TAZ A 685 * 004 L □ # @ 0 ^ ++	TAZ A 685 * 004 L □ L @ 9 ^ ++	A	6.8	4	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29C^685*@C+□	TAZ C 685 * 004 L □ # @ 0 ^ ++	TAZ C 685 * 004 L □ L @ 9 ^ ++	C	6.8	4	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29C^106*@B+□	TAZ B 106 * 004 L □ # @ 0 ^ ++	TAZ B 106 * 004 L □ L @ 9 ^ ++	B	10	4	3.2	1	10	12	8	10	10	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29C^106*@D+□	TAZ D 106 * 004 L □ # @ 0 ^ ++	TAZ D 106 * 004 L □ L @ 9 ^ ++	D	10	4	1.3	1	10	12	8	8	10	0.080	0.25	0.22	0.10	0.32	0.29	0.13
CWR29C^156*@B+□	TAZ B 156 * 004 L □ # @ 0 ^ ++	TAZ B 156 * 004 L □ L @ 9 ^ ++	B	15	4	3.2	1	10	12	8	10	10	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29C^156*@E+□	TAZ E 156 * 004 L □ # @ 0 ^ ++	TAZ E 156 * 004 L □ L @ 9 ^ ++	E	15	4	1	1	10	12	8	10	12	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29C^226*@B+□	TAZ B 226 * 004 L □ # @ 0 ^ ++	TAZ B 226 * 004 L □ L @ 9 ^ ++	B	22	4	3.2	1	10	12	8	10	10	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29C^226*@D+□	TAZ D 226 * 004 L □ # @ 0 ^ ++	TAZ D 226 * 004 L □ L @ 9 ^ ++	D	22	4	1.3	1	10	12	8	10	12	0.080	0.25	0.22	0.10	0.32	0.29	0.13
CWR29C^336*@D+□	TAZ D 336 * 004 L □ # @ 0 ^ ++	TAZ D 336 * 004 L □ L @ 9 ^ ++	D	33	4	1.3	2	20	24	8	10	12	0.080	0.25	0.22	0.10	0.32	0.29	0.13
CWR29C^336*@E+□	TAZ E 336 * 004 L □ # @ 0 ^ ++	TAZ E 336 * 004 L □ L @ 9 ^ ++	E	33	4	0.9	2	20	24	8	10	12	0.090	0.32	0.28	0.13	0.28	0.26	0.11
CWR29C^336*@F+□	TAZ F 336 * 004 L □ # @ 0 ^ ++	TAZ F 336 * 004 L □ L @ 9 ^ ++	F	33	4	0.6	2	20	24	8	10	12	0.100	0.41	0.37	0.16	0.24	0.22	0.10
CWR29C^476*@E+□	TAZ E 476 * 004 L □ # @ 0 ^ ++	TAZ E 476 * 004 L □ L @ 9 ^ ++	E	47	4	0.9	2	20	24	8	10	12	0.090	0.32	0.28	0.13	0.28	0.26	0.11
CWR29C^686*@E+□	TAZ E 686 * 004 L □ # @ 0 ^ ++	TAZ E 686 * 004 L □ L @ 9 ^ ++	E	68	4	0.9	3	30	36	8	10	12	0.090	0.32	0.28	0.13	0.28	0.26	0.11
CWR29C^686*@G+□	TAZ G 686 * 004 L □ # @ 0 ^ ++	TAZ G 686 * 004 L □ L @ 9 ^ ++	G	68	4	0.275	3	30	36	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29C^107*@F+□	TAZ F 107 * 004 L □ # @ 0 ^ ++	TAZ F 107 * 004 L □ L @ 9 ^ ++	F	100	4	0.55	4	40	48	10	12	12	0.100	0.43	0.38	0.17	0.23	0.21	0.09
CWR29C^107*@H+□	TAZ H 107 * 004 L □ # @ 0 ^ ++	TAZ H 107 * 004 L □ L @ 9 ^ ++	H	100	4	0.18	4	40	48	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29C^157*@G+□	TAZ G 157 * 004 L □ # @ 0 ^ ++	TAZ G 157 * 004 L □ L @ 9 ^ ++	G	150	4	0.25	6	60	72	10	12	12	0.125	0.71	0.64	0.28	0.18	0.16	0.07
CWR29C^227*@H+□	TAZ H 227 * 004 L □ # @ 0 ^ ++	TAZ H 227 * 004 L □ L @ 9 ^ ++	H	220	4	0.2	8	80	96	10	12	12	0.150	0.87	0.78	0.35	0.17	0.16	0.07
CWR29C^337*@H+□	TAZ H 337 * 004 L □ # @ 0 ^ ++	TAZ H 337 * 004 L □ L @ 9 ^ ++	H	330	4	0.18	10	100	120	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29D^155*@A+□	TAZ A 155 * 006 L □ # @ 0 ^ ++	TAZ A 155 * 006 L □ L @ 9 ^ ++	A	1.5	6	4	1	10	12	6	8	8	0.050	0.11	0.10	0.04	0.45	0.40	0.18
CWR29D^335*@A+□	TAZ A 335 * 006 L □ # @ 0 ^ ++	TAZ A 335 * 006 L □ L @ 9 ^ ++	A	3.3	6	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29D^335*@B+□	TAZ B 335 * 006 L □ # @ 0 ^ ++	TAZ B 335 * 006 L □ L @ 9 ^ ++	B	3.3	6	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29D^475*@A+□	TAZ A 475 * 006 L □ # @ 0 ^ ++	TAZ A 475 * 006 L □ L @ 9 ^ ++	A	4.7	6	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29D^475*@C+□	TAZ C 475 * 006 L □ # @ 0 ^ ++	TAZ C 475 * 006 L □ L @ 9 ^ ++	C	4.7	6	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29D^685*@B+□	TAZ B 685 * 006 L □ # @ 0 ^ ++	TAZ B 685 * 006 L □ L @ 9 ^ ++	B	6.8	6	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29D^685*@D+□	TAZ D 685 * 006 L □ # @ 0 ^ ++	TAZ D 685 * 006 L □ L @ 9 ^ ++	D	6.8	6	1.5	1	10	12	6	8	8	0.080	0.23	0.21	0.09	0.35	0.31	0.14
CWR29D^106*@B+□	TAZ B 106 * 006 L □ # @ 0 ^ ++	TAZ B 106 * 006 L □ L @ 9 ^ ++	B	10	6	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29D^106*@E+□	TAZ E 106 * 006 L □ # @ 0 ^ ++	TAZ E 106 * 006 L □ L @ 9 ^ ++	E	10	6	1	1	10	12	8	10	12	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29D^156*@B+□	TAZ B 156 * 006 L □ # @ 0 ^ ++	TAZ B 156 * 006 L □ L @ 9 ^ ++	B	15	6	3.2	1	10	12	8	10	10	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29D^156*@D+□	TAZ D 156 * 006 L □ # @ 0 ^ ++	TAZ D 156 * 006 L □ L @ 9 ^ ++	D	15	6	1.7	1	10	12	8	10	12	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29D^156*@E+□	TAZ E 156 * 006 L □ # @ 0 ^ ++	TAZ E 156 * 006 L □ L @ 9 ^ ++	E	15	6	0.9	1	10	12	8	10	12	0.090	0.32	0.28	0.13	0.28	0.26	0.11
CWR29D^226*@D+□	TAZ D 226 * 006 L □ # @ 0 ^ ++	TAZ D 226 * 006 L □ L @ 9 ^ ++	D	22	6	1.7	1	10	12	6	8	8	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29D^226*@E+□	TAZ E 226 * 006 L □ # @ 0 ^ ++	TAZ E 226 * 006 L □ L @ 9 ^ ++	E	22	6	1	2	20	24	8	10	12	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29D^226*@F+□	TAZ F 226 * 006 L □ # @ 0 ^ ++	TAZ F 226 * 006 L □ L @ 9 ^ ++	F	22	6	0.6	2	20	24	8	10	12	0.100	0.41	0.37	0.16	0.24	0.22	0.10
CWR29D^336*@E+□	TAZ E 336 * 006 L □ # @ 0 ^ ++	TAZ E 336 * 006 L □ L @ 9 ^ ++	E	33	6	1	2	20	24	6	8	8	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29D^476*@F+□	TAZ F 476 * 006 L □ # @ 0 ^ ++	TAZ F 476 * 006 L □ L @ 9 ^ ++	F	47	6	1	3	30	36	8	10	12	0.100	0.32	0.28	0.13	0.32	0.28	0.13
CWR29D^476*@G+□	TAZ G 476 * 006 L □ # @ 0 ^ ++	TAZ G 476 * 006 L □ L @ 9 ^ ++	G	47	6	0.275	3	30	36	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29D^686*@F+□	TAZ F 686 * 006 L □ # @ 0 ^ ++	TAZ F 686 * 006 L □ L @ 9 ^ ++	F	68	6	0.4	4	40	48	10	12	12	0.100	0.50	0.45	0.20	0.20	0.18	0.08
CWR29D^686*@G+□	TAZ G 686 * 006 L □ # @ 0 ^ ++	TAZ G 686 * 006 L □ L @ 9 ^ ++	G	68	6	0.25	4	40	48	10	12	12	0.125	0.71	0.64	0.28	0.18	0.16	0.07
CWR29D^686*@H+□	TAZ H 686 * 006 L □ # @ 0 ^ ++	TAZ H 686 * 006 L □ L @ 9 ^ ++	H	68	6	0.18	4	40	48	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29D^107*@G+□	TAZ G 107 * 006 L □ # @ 0 ^ ++	TAZ G 107 * 006 L □ L @ 9 ^ ++	G	100	6	0.275	6	60	72	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29D^157*@G+□	TAZ G 157 * 006 L □ # @ 0 ^ ++	TAZ G 157 * 006 L □ L @ 9 ^ ++	G	150	6	0.275	10	100	120	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29D^227*@H+□	TAZ H 227 * 006 L □ # @ 0 ^ ++	TAZ H 227 * 006 L □ L @ 9 ^ ++	H	220	6	0.18	10	100	120	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29D^337*@H+□	TAZ H 337 * 006 L □ # @ 0 ^ ++	TAZ H 337 * 006 L □ L @ 9 ^ ++	H	330	6	0.18	20	200	240	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29F^105*@A+□	TAZ A 105 * 010 L □ # @ 0 ^ ++	TAZ A 105 * 010 L □ L @ 9 ^ ++	A	1	10	5	1	10	12	6	8	8	0.050	0.10	0.09	0.04	0.50	0.45	0.20
CWR29F^225*@A+□	TAZ A 225 * 010 L □ # @ 0 ^ ++	TAZ A 225 * 010 L □ L @ 9 ^ ++	A	2.2	10	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29F^225*@B+□	TAZ B 225 * 010 L □ # @ 0 ^ ++	TAZ B 225 * 010 L □ L @ 9 ^ ++	B	2.2	10	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29F^335*@A+□	TAZ A 335 * 010 L □ # @ 0 ^ ++	TAZ A 335 * 010 L □ L @ 9 ^ ++	A	3.3	10	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29F^335*@C+□	TAZ C 335 * 010 L □ # @ 0 ^ ++	TAZ C 335 * 010 L □ L @ 9 ^ ++	C	3.3	10	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29F^475*@B+□	TAZ B 475 * 010 L □ # @ 0 ^ ++	TAZ B 475 * 010 L □ L @ 9 ^ ++	B	4.7	10	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29F^475*@C+□	TAZ C 475 * 010 L □ # @ 0 ^ ++	TAZ C 475 * 010 L □ L @ 9 ^ ++	C	4.7	10	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

				Parametric Specifications by Rating per MIL-PRF-55365/11										Typical Ripple Data by Rating						
				Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
				@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
CWR29 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR29F^475*@D+□	TAZ D 475 * 010 L □ # @ 0 ^ ++	TAZ D 475 * 010 L L @ 9 ^ ++	D	4.7	10	1.5	1	10	12	6	8	8	0.080	0.23	0.21	0.09	0.35	0.31	0.14
CWR29F^685*@B+□	TAZ B 685 * 010 L □ # @ 0 ^ ++	TAZ B 685 * 010 L L @ 9 ^ ++	B	6.8	10	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29F^685*@C+□	TAZ C 685 * 010 L □ # @ 0 ^ ++	TAZ C 685 * 010 L L @ 9 ^ ++	C	6.8	10	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29F^685*@D+□	TAZ D 685 * 010 L □ # @ 0 ^ ++	TAZ D 685 * 010 L L @ 9 ^ ++	D	6.8	10	1.7	1	10	12	6	8	8	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29F^685*@E+□	TAZ E 685 * 010 L □ # @ 0 ^ ++	TAZ E 685 * 010 L L @ 9 ^ ++	E	6.8	10	1	1	10	12	6	8	8	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29F^106*@B+□	TAZ B 106 * 010 L □ # @ 0 ^ ++	TAZ B 106 * 010 L L @ 9 ^ ++	B	10	10	3.2	1	10	12	8	10	10	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29F^106*@C+□	TAZ C 106 * 010 L □ # @ 0 ^ ++	TAZ C 106 * 010 L L @ 9 ^ ++	C	10	10	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29F^106*@D+□	TAZ D 106 * 010 L □ # @ 0 ^ ++	TAZ D 106 * 010 L L @ 9 ^ ++	D	10	10	1.3	1	10	12	6	8	8	0.080	0.25	0.22	0.10	0.32	0.29	0.13
CWR29F^106*@E+□	TAZ E 106 * 010 L □ # @ 0 ^ ++	TAZ E 106 * 010 L L @ 9 ^ ++	E	10	10	1	1	10	12	6	8	8	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29F^156*@D+□	TAZ D 156 * 010 L □ # @ 0 ^ ++	TAZ D 156 * 010 L L @ 9 ^ ++	D	15	10	1.7	2	20	24	6	8	8	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29F^156*@E+□	TAZ E 156 * 010 L □ # @ 0 ^ ++	TAZ E 156 * 010 L L @ 9 ^ ++	E	15	10	0.9	2	20	24	8	10	10	0.090	0.32	0.28	0.13	0.28	0.26	0.11
CWR29F^156*@F+□	TAZ F 156 * 010 L □ # @ 0 ^ ++	TAZ F 156 * 010 L L @ 9 ^ ++	F	15	10	0.7	2	20	24	8	8	10	0.100	0.38	0.34	0.15	0.26	0.24	0.11
CWR29F^226*@E+□	TAZ E 226 * 010 L □ # @ 0 ^ ++	TAZ E 226 * 010 L L @ 9 ^ ++	E	22	10	0.6	3	30	36	8	10	10	0.090	0.39	0.35	0.15	0.23	0.21	0.09
CWR29F^336*@F+□	TAZ F 336 * 010 L □ # @ 0 ^ ++	TAZ F 336 * 010 L L @ 9 ^ ++	F	33	10	0.4	3	30	36	8	10	10	0.100	0.50	0.45	0.20	0.20	0.18	0.08
CWR29F^336*@G+□	TAZ G 336 * 010 L □ # @ 0 ^ ++	TAZ G 336 * 010 L L @ 9 ^ ++	G	33	10	0.275	3	30	36	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29F^476*@F+□	TAZ F 476 * 010 L □ # @ 0 ^ ++	TAZ F 476 * 010 L L @ 9 ^ ++	F	47	10	0.4	4	40	48	10	12	12	0.100	0.50	0.45	0.20	0.20	0.18	0.08
CWR29F^476*@G+□	TAZ G 476 * 010 L □ # @ 0 ^ ++	TAZ G 476 * 010 L L @ 9 ^ ++	G	47	10	0.25	4	40	48	10	12	12	0.125	0.71	0.64	0.28	0.18	0.16	0.07
CWR29F^476*@H+□	TAZ H 476 * 010 L □ # @ 0 ^ ++	TAZ H 476 * 010 L L @ 9 ^ ++	H	47	10	0.18	5	50	60	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29F^686*@G+□	TAZ G 686 * 010 L □ # @ 0 ^ ++	TAZ G 686 * 010 L L @ 9 ^ ++	G	68	10	0.275	6	60	72	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29F^107*@G+□	TAZ G 107 * 010 L □ # @ 0 ^ ++	TAZ G 107 * 010 L L @ 9 ^ ++	G	100	10	0.275	10	100	120	10	12	12	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29F^107*@H+□	TAZ H 107 * 010 L □ # @ 0 ^ ++	TAZ H 107 * 010 L L @ 9 ^ ++	H	100	10	0.18	10	100	120	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29F^157*@H+□	TAZ H 157 * 010 L □ # @ 0 ^ ++	TAZ H 157 * 010 L L @ 9 ^ ++	H	150	10	0.18	15	150	180	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29F^157*@X+□	TAZ X 157 * 010 L □ # @ 0 ^ ++	TAZ X 157 * 010 L L @ 9 ^ ++	X	150	10	0.065	15	150	180	10	12	12	0.200	1.75	1.58	0.70	0.11	0.10	0.05
CWR29F^227*@H+□	TAZ H 227 * 010 L □ # @ 0 ^ ++	TAZ H 227 * 010 L L @ 9 ^ ++	H	220	10	0.18	20	200	240	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29H^684*@A+□	TAZ A 684 * 015 L □ # @ 0 ^ ++	TAZ A 684 * 015 L L @ 9 ^ ++	A	0.68	15	6	1	10	12	6	8	8	0.050	0.09	0.08	0.04	0.55	0.49	0.22
CWR29H^105*@A+□	TAZ A 105 * 015 L □ # @ 0 ^ ++	TAZ A 105 * 015 L L @ 9 ^ ++	A	1	15	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29H^155*@A+□	TAZ A 155 * 015 L □ # @ 0 ^ ++	TAZ A 155 * 015 L L @ 9 ^ ++	A	1.5	15	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29H^155*@B+□	TAZ B 155 * 015 L □ # @ 0 ^ ++	TAZ B 155 * 015 L L @ 9 ^ ++	B	1.5	15	3.2	1	10	12	6	8	8	0.070	0.15	0.13	0.06	0.47	0.43	0.19
CWR29H^225*@A+□	TAZ A 225 * 015 L □ # @ 0 ^ ++	TAZ A 225 * 015 L L @ 9 ^ ++	A	2.2	15	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29H^225*@C+□	TAZ C 225 * 015 L □ # @ 0 ^ ++	TAZ C 225 * 015 L L @ 9 ^ ++	C	2.2	15	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29H^335*@B+□	TAZ B 335 * 015 L □ # @ 0 ^ ++	TAZ B 335 * 015 L L @ 9 ^ ++	B	3.3	15	3.6	1	10	12	6	8	8	0.070	0.14	0.13	0.06	0.50	0.45	0.20
CWR29H^335*@D+□	TAZ D 335 * 015 L □ # @ 0 ^ ++	TAZ D 335 * 015 L L @ 9 ^ ++	D	3.3	15	1.7	1	10	12	6	8	8	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29H^475*@B+□	TAZ B 475 * 015 L □ # @ 0 ^ ++	TAZ B 475 * 015 L L @ 9 ^ ++	B	4.7	15	2	1	10	12	6	8	8	0.070	0.19	0.17	0.07	0.37	0.34	0.15
CWR29H^475*@C+□	TAZ C 475 * 015 L □ # @ 0 ^ ++	TAZ C 475 * 015 L L @ 9 ^ ++	C	4.7	15	2.2	1	10	12	6	8	8	0.075	0.18	0.17	0.07	0.41	0.37	0.16
CWR29H^475*@D+□	TAZ D 475 * 015 L □ # @ 0 ^ ++	TAZ D 475 * 015 L L @ 9 ^ ++	D	4.7	15	2	1	10	12	6	8	8	0.080	0.20	0.18	0.08	0.40	0.36	0.16
CWR29H^475*@E+□	TAZ E 475 * 015 L □ # @ 0 ^ ++	TAZ E 475 * 015 L L @ 9 ^ ++	E	4.7	15	1.2	1	10	12	6	8	8	0.090	0.27	0.25	0.11	0.33	0.30	0.13
CWR29H^685*@D+□	TAZ D 685 * 015 L □ # @ 0 ^ ++	TAZ D 685 * 015 L L @ 9 ^ ++	D	6.8	15	2	1	10	12	6	8	8	0.080	0.20	0.18	0.08	0.40	0.36	0.16
CWR29H^685*@E+□	TAZ E 685 * 015 L □ # @ 0 ^ ++	TAZ E 685 * 015 L L @ 9 ^ ++	E	6.8	15	0.9	1	10	12	8	10	12	0.090	0.32	0.28	0.13	0.28	0.26	0.11
CWR29H^106*@D+□	TAZ D 106 * 015 L □ # @ 0 ^ ++	TAZ D 106 * 015 L L @ 9 ^ ++	D	10	15	2	2	20	24	6	8	8	0.080	0.20	0.18	0.08	0.40	0.36	0.16
CWR29H^106*@E+□	TAZ E 106 * 015 L □ # @ 0 ^ ++	TAZ E 106 * 015 L L @ 9 ^ ++	E	10	15	1.2	2	20	24	6	8	8	0.090	0.27	0.25	0.11	0.33	0.30	0.13
CWR29H^106*@F+□	TAZ F 106 * 015 L □ # @ 0 ^ ++	TAZ F 106 * 015 L L @ 9 ^ ++	F	10	15	0.667	2	20	24	6	8	8	0.100	0.39	0.35	0.15	0.26	0.23	0.10
CWR29H^156*@E+□	TAZ E 156 * 015 L □ # @ 0 ^ ++	TAZ E 156 * 015 L L @ 9 ^ ++	E	15	15	1.2	2	20	24	6	8	8	0.090	0.27	0.25	0.11	0.33	0.30	0.13
CWR29H^156*@F+□	TAZ F 156 * 015 L □ # @ 0 ^ ++	TAZ F 156 * 015 L L @ 9 ^ ++	F	15	15	0.8	2	20	24	8	10	10	0.100	0.35	0.32	0.14	0.28	0.25	0.11
CWR29H^226*@F+□	TAZ F 226 * 015 L □ # @ 0 ^ ++	TAZ F 226 * 015 L L @ 9 ^ ++	F	22	15	0.8	3	30	36	8	10	10	0.100	0.35	0.32	0.14	0.28	0.25	0.11
CWR29H^226*@G+□	TAZ G 226 * 015 L □ # @ 0 ^ ++	TAZ G 226 * 015 L L @ 9 ^ ++	G	22	15	0.275	4	40	48	6	8	8	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29H^336*@F+□	TAZ F 336 * 015 L □ # @ 0 ^ ++	TAZ F 336 * 015 L L @ 9 ^ ++	F	33	15	0.8	5	50	60	6	8	8	0.100	0.35	0.32	0.14	0.28	0.25	0.11
CWR29H^336*@G+□	TAZ G 336 * 015 L □ # @ 0 ^ ++	TAZ G 336 * 015 L L @ 9 ^ ++	G	33	15	0.275	6	60	72	8	10	10	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29H^336*@H+□	TAZ H 336 * 015 L □ # @ 0 ^ ++	TAZ H 336 * 015 L L @ 9 ^ ++	H	33	15	0.18	5	50	60	8	8	10	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29H^476*@G+□	TAZ G 476 * 015 L □ # @ 0 ^ ++	TAZ G 476 * 015 L L @ 9 ^ ++	G	47	15	0.275	10	100	120	8	10	10	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29H^476*@H+□	TAZ H 476 * 015 L □ # @ 0 ^ ++	TAZ H 476 * 015 L L @ 9 ^ ++	H	47	15	0.18	10	100	120	8	10	10	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29H^686*@G+□	TAZ G 686 * 015 L □ # @ 0 ^ ++	TAZ G 686 * 015 L L @ 9 ^ ++	G	68	15	0.275	10	100	120	8	10	10	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29H^686*@H+□	TAZ H 686 * 015 L □ # @ 0 ^++	TAZ H 686 * 015 L L @ 9 ^ ++	H	68	15	0.18	10	100	120	8	10	10	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29H^107*@H+□	TAZ H 107 * 015 L □ # @ 0 ^ ++	TAZ H 107 * 015 L L @ 9 ^ ++	H	100	15	0.18	15	150	180	10	12	12	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29J^474*@A+□	TAZ A 474 * 020 L □ # @ 0 ^ ++	TAZ A 474 * 020 L L @ 9 ^ ++	A	0.47	20	7.5	1	10	12	8	8	10	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29J^684*@A+□	TAZ A 684 * 020 L □ # @ 0 ^ ++	TAZ A 684 * 020 L L @ 9 ^ ++	A	0.68	20	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE				Parametric Specifications by Rating per MIL-PRF-55365/11										Typical Ripple Data by Rating						
				Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
				@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
CWR29 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF	V	Ohms	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A	A	A	V	V	V
				@ 25°C	@ +85°C	@ +25°C								(100kHz)	(100kHz)	(100kHz)	(100kHz)	(100kHz)	(100kHz)
CWR29J^684*@B+□	TAZ B 684 * 020 L □ # @ 0 ^ ++	TAZ B 684 * 020 L L @ 9 ^ ++	B	0.68	20	5.6	1	10	12	6	8	8	0.070	0.11	0.10	0.04	0.63	0.56	0.25
CWR29J^105*@A+□	TAZ A 105 * 020 L □ # @ 0 ^ ++	TAZ A 105 * 020 L L @ 9 ^ ++	A	1	20	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29J^105*@B+□	TAZ B 105 * 020 L □ # @ 0 ^ ++	TAZ B 105 * 020 L L @ 9 ^ ++	B	1	20	4.8	1	10	12	6	8	8	0.070	0.12	0.11	0.05	0.58	0.52	0.23
CWR29J^155*@B+□	TAZ B 155 * 020 L □ # @ 0 ^ ++	TAZ B 155 * 020 L L @ 9 ^ ++	B	1.5	20	3.6	1	10	12	6	8	8	0.070	0.14	0.13	0.06	0.50	0.45	0.20
CWR29J^155*@C+□	TAZ C 155 * 020 L □ # @ 0 ^ ++	TAZ C 155 * 020 L L @ 9 ^ ++	C	1.5	20	2.4	1	10	12	6	8	8	0.075	0.18	0.16	0.07	0.42	0.38	0.17
CWR29J^225*@B+□	TAZ B 225 * 020 L □ # @ 0 ^ ++	TAZ B 225 * 020 L L @ 9 ^ ++	B	2.2	20	3.6	1	10	12	6	8	8	0.070	0.14	0.13	0.06	0.50	0.45	0.20
CWR29J^225*@D+□	TAZ D 225 * 020 L □ # @ 0 ^ ++	TAZ D 225 * 020 L L @ 9 ^ ++	D	2.2	20	1.7	1	10	12	6	8	8	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29J^335*@D+□	TAZ D 335 * 020 L □ # @ 0 ^ ++	TAZ D 335 * 020 L L @ 9 ^ ++	D	3.3	20	2	1	10	12	6	8	8	0.080	0.20	0.18	0.08	0.40	0.36	0.16
CWR29J^335*@E+□	TAZ E 335 * 020 L □ # @ 0 ^ ++	TAZ E 335 * 020 L L @ 9 ^ ++	E	3.3	20	1.2	1	10	12	6	8	8	0.090	0.27	0.25	0.11	0.33	0.30	0.13
CWR29J^475*@E+□	TAZ E 475 * 020 L □ # @ 0 ^ ++	TAZ E 475 * 020 L L @ 9 ^ ++	E	4.7	20	1.7	1	10	12	6	8	8	0.090	0.23	0.21	0.09	0.39	0.35	0.16
CWR29J^685*@E+□	TAZ E 685 * 020 L □ # @ 0 ^ ++	TAZ E 685 * 020 L L @ 9 ^ ++	E	6.8	20	1.5	2	20	24	6	8	8	0.090	0.24	0.22	0.10	0.37	0.33	0.15
CWR29J^685*@F+□	TAZ F 685 * 020 L □ # @ 0 ^ ++	TAZ F 685 * 020 L L @ 9 ^ ++	F	6.8	20	0.7	2	20	24	6	8	8	0.100	0.38	0.34	0.15	0.26	0.24	0.11
CWR29J^106*@E+□	TAZ E 106 * 020 L □ # @ 0 ^ ++	TAZ E 106 * 020 L L @ 9 ^ ++	E	10	20	1.5	2	20	24	6	8	8	0.090	0.24	0.22	0.10	0.37	0.33	0.15
CWR29J^106*@F+□	TAZ F 106 * 020 L □ # @ 0 ^ ++	TAZ F 106 * 020 L L @ 9 ^ ++	F	10	20	0.8	2	20	24	6	8	8	0.100	0.35	0.32	0.14	0.28	0.25	0.11
CWR29J^156*@F+□	TAZ F 156 * 020 L □ # @ 0 ^ ++	TAZ F 156 * 020 L L @ 9 ^ ++	F	15	20	0.8	3	30	36	6	8	8	0.100	0.35	0.32	0.14	0.28	0.25	0.11
CWR29J^156*@G+□	TAZ G 156 * 020 L □ # @ 0 ^ ++	TAZ G 156 * 020 L L @ 9 ^ ++	G	15	20	0.275	3	30	36	6	8	8	0.125	0.67	0.61	0.27	0.19	0.17	0.07
CWR29J^226*@G+□	TAZ G 226 * 020 L □ # @ 0 ^ ++	TAZ G 226 * 020 L L @ 9 ^ ++	G	22	20	0.625	4	40	48	6	8	8	0.125	0.45	0.40	0.18	0.28	0.25	0.11
CWR29J^226*@H+□	TAZ H 226 * 020 L □ # @ 0 ^ ++	TAZ H 226 * 020 L L @ 9 ^ ++	H	22	20	0.18	4	40	48	6	8	8	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29J^336*@H+□	TAZ H 336 * 020 L □ # @ 0 ^ ++	TAZ H 336 * 020 L L @ 9 ^ ++	H	33	20	0.18	6	60	72	8	10	10	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29J^476*@H+□	TAZ H 476 * 020 L □ # @ 0 ^ ++	TAZ H 476 * 020 L L @ 9 ^ ++	H	47	20	0.18	10	100	120	8	10	10	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29J^476*@X+□	TAZ X 476 * 020 L □ # @ 0 ^ ++	TAZ X 476 * 020 L L @ 9 ^ ++	X	47	20	0.11	10	100	120	8	10	10	0.200	1.35	1.21	0.54	0.15	0.13	0.06
CWR29K^334*@A+□	TAZ A 334 * 025 L □ # @ 0 ^ ++	TAZ A 334 * 025 L L @ 9 ^ ++	A	0.33	25	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29K^474*@A+□	TAZ A 474 * 025 L □ # @ 0 ^ ++	TAZ A 474 * 025 L L @ 9 ^ ++	A	0.47	25	7.5	1	10	12	6	8	8	0.050	0.08	0.07	0.03	0.61	0.55	0.24
CWR29K^684*@B+□	TAZ B 684 * 025 L □ # @ 0 ^ ++	TAZ B 684 * 025 L L @ 9 ^ ++	B	0.68	25	4	1	10	12	6	8	8	0.070	0.13	0.12	0.05	0.53	0.48	0.21
CWR29K^105*@B+□	TAZ B 105 * 025 L □ # @ 0 ^ ++	TAZ B 105 * 025 L L @ 9 ^ ++	B	1	25	4	1	10	12	6	8	8	0.070	0.13	0.12	0.05	0.53	0.48	0.21
CWR29K^105*@C+□	TAZ C 105 * 025 L □ # @ 0 ^ ++	TAZ C 105 * 025 L L @ 9 ^ ++	C	1	25	2.6	1	10	12	6	8	8	0.075	0.17	0.15	0.07	0.44	0.40	0.18
CWR29K^155*@D+□	TAZ D 155 * 025 L □ # @ 0 ^ ++	TAZ D 155 * 025 L L @ 9 ^ ++	D	1.5	25	1.7	1	10	12	6	8	8	0.080	0.22	0.20	0.09	0.37	0.33	0.15
CWR29K^225*@D+□	TAZ D 225 * 025 L □ # @ 0 ^ ++	TAZ D 225 * 025 L L @ 9 ^ ++	D	2.2	25	2	1	10	12	6	8	8	0.080	0.20	0.18	0.08	0.40	0.36	0.16
CWR29K^225*@E+□	TAZ E 225 * 025 L □ # @ 0 ^ ++	TAZ E 225 * 025 L L @ 9 ^ ++	E	2.2	25	1	1	10	12	6	8	8	0.090	0.30	0.27	0.12	0.30	0.27	0.12
CWR29K^335*@E+□	TAZ E 335 * 025 L □ # @ 0 ^ ++	TAZ E 335 * 025 L L @ 9 ^ ++	E	3.3	25	1.2	1	10	12	6	8	8	0.090	0.27	0.25	0.11	0.33	0.30	0.13
CWR29K^475*@F+□	TAZ F 475 * 025 L □ # @ 0 ^ ++	TAZ F 475 * 025 L L @ 9 ^ ++	F	4.7	25	0.7	2	20	24	6	8	8	0.100	0.38	0.34	0.15	0.26	0.24	0.11
CWR29K^685*@F+□	TAZ F 685 * 025 L □ # @ 0 ^ ++	TAZ F 685 * 025 L L @ 9 ^ ++	F	6.8	25	0.8	2	20	24	6	8	8	0.100	0.35	0.32	0.14	0.28	0.25	0.11
CWR29K^685*@G+□	TAZ G 685 * 025 L □ # @ 0 ^ ++	TAZ G 685 * 025 L L @ 9 ^ ++	G	6.8	25	0.3	2	20	24	6	8	8	0.125	0.65	0.58	0.26	0.19	0.17	0.08
CWR29K^106*@G+□	TAZ G 106 * 025 L □ # @ 0 ^ ++	TAZ G 106 * 025 L L @ 9 ^ ++	G	10	25	0.35	3	30	36	6	8	8	0.125	0.60	0.54	0.24	0.21	0.19	0.08
CWR29K^156*@G+□	TAZ G 156 * 025 L □ # @ 0 ^ ++	TAZ G 156 * 025 L L @ 9 ^ ++	G	15	25	0.35	4	40	48	6	8	8	0.125	0.60	0.54	0.24	0.21	0.19	0.08
CWR29K^156*@H+□	TAZ H 156 * 025 L □ # @ 0 ^ ++	TAZ H 156 * 025 L L @ 9 ^ ++	H	15	25	0.2	4	40	48	6	8	8	0.150	0.87	0.78	0.35	0.17	0.16	0.07
CWR29K^226*@G+□	TAZ G 226 * 025 L □ # @ 0 ^ ++	TAZ G 226 * 025 L L @ 9 ^ ++	G	22	25	0.35	6	60	72	6	8	8	0.125	0.60	0.54	0.24	0.21	0.19	0.08
CWR29K^226*@H+□	TAZ H 226 * 025 L □ # @ 0 ^ ++	TAZ H 226 * 025 L L @ 9 ^ ++	H	22	25	0.18	6	60	72	6	8	8	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29K^336*@H+□	TAZ H 336 * 025 L □ # @ 0 ^ ++	TAZ H 336 * 025 L L @ 9 ^ ++	H	33	25	0.18	10	100	120	8	10	10	0.150	0.91	0.82	0.37	0.16	0.15	0.07
CWR29M^224*@A+□	TAZ A 224 * 035 L □ # @ 0 ^ ++	TAZ A 224 * 035 L L @ 9 ^ ++	A	0.22	35	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR29M^334*@A+□	TAZ A 334 * 035 L □ # @ 0 ^ ++	TAZ A 334 * 035 L L @ 9 ^ ++	A	0.33	35	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR29M^474*@B+□	TAZ B 474 * 035 L □ # @ 0 ^ ++	TAZ B 474 * 035 L L @ 9 ^ ++	B	0.47	35	6.8	1	10	12	6	8	8	0.070	0.10	0.09	0.04	0.69	0.62	0.28
CWR29M^684*@C+□	TAZ C 684 * 035 L □ # @ 0 ^ ++	TAZ C 684 * 035 L L @ 9 ^ ++	C	0.68	35	4	1	10	12	6	8	8	0.075	0.14	0.12	0.05	0.55	0.49	0.22
CWR29M^105*@D+□	TAZ D 105 * 035 L □ # @ 0 ^ ++	TAZ D 105 * 035 L L @ 9 ^ ++	D	1	35	2.2	1	10	12	6	8	8	0.080	0.19	0.17	0.08	0.42	0.38	0.17
CWR29M^155*@E+□	TAZ E 155 * 035 L □ # @ 0 ^ ++	TAZ E 155 * 035 L L @ 9 ^ ++	E	1.5	35	1.3	1	10	12	6	8	8	0.090	0.26	0.24	0.11	0.34	0.31	0.14
CWR29M^335*@F+□	TAZ F 335 * 035 L □ # @ 0 ^ ++	TAZ F 335 * 035 L L @ 9 ^ ++	F	3.3	35	0.7	1	10	12	6	8	8	0.100	0.38	0.34	0.15	0.26	0.24	0.11
CWR29M^475*@G+□	TAZ G 475 * 035 L □ # @ 0 ^ ++	TAZ G 475 * 035 L L @ 9 ^ ++	G	4.7	35	0.375	2	20	24	6	8	8	0.125	0.58	0.52	0.23	0.22	0.19	0.09
CWR29M^685*@G+□	TAZ G 685 * 035 L □ # @ 0 ^ ++	TAZ G 685 * 035 L L @ 9 ^ ++	G	6.8	35	0.375	3	30	36	6	8	8	0.125	0.58	0.52	0.23	0.22	0.19	0.09
CWR29M^685*@H+□	TAZ H 685 * 035 L □ # @ 0 ^ ++	TAZ H 685 * 035 L L @ 9 ^ ++	H	6.8	35	0.5	3	30	36	6	8	8	0.150	0.55	0.49	0.22	0.27	0.25	0.11
CWR29M^106*@H+□	TAZ H 106 * 035 L □ # @ 0 ^ ++	TAZ H 106 * 035 L L @ 9 ^ ++	H	10	35	0.5	4	40	48	8	10	10	0.150	0.55	0.49	0.22	0.27	0.25	0.11
CWR29N^104*@A+□	TAZ A 104 * 050 L □ # @ 0 ^ ++	TAZ A 104 * 050 L L @ 9 ^ ++	A	0.1	50	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31
CWR29N^154*@A+□	TAZ A 154 * 050 L □ # @ 0 ^ ++	TAZ A 154 * 050 L L @ 9 ^ ++	A	0.15	50	12	1	10	12	6	8	8	0.050	0.06	0.06	0.03	0.77	0.70	0.31

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE				Parametric Specifications by Rating per MIL-PRF-55365/11										Typical Ripple Data by Rating						
				Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz		DCL max				DF Max		Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
							+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C								
CWR29 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR29N^224*@B+□	TAZ B 224 * 050 L □ # @ 0 ^ ++	TAZ B 224 * 050 L L @ 9 ^ ++	B	0.22	50	6.8	1	10	12	6	8	8	0.070	0.10	0.09	0.04	0.69	0.62	0.28
CWR29N^334*@B+□	TAZ B 334 * 050 L □ # @ 0 ^ ++	TAZ B 334 * 050 L L @ 9 ^ ++	B	0.33	50	4.8	1	10	12	6	8	8	0.070	0.12	0.11	0.05	0.58	0.52	0.23
CWR29N^474*@C+□	TAZ C 474 * 050 L □ # @ 0 ^ ++	TAZ C 474 * 050 L L @ 9 ^ ++	C	0.47	50	3.2	1	10	12	6	8	8	0.075	0.15	0.14	0.06	0.49	0.44	0.20
CWR29N^684*@D+□	TAZ D 684 * 050 L □ # @ 0 ^ ++	TAZ D 684 * 050 L L @ 9 ^ ++	D	0.68	50	2.3	1	10	12	6	8	8	0.080	0.19	0.17	0.07	0.43	0.39	0.17
CWR29N^105*@E+□	TAZ E 105 * 050 L □ # @ 0 ^ ++	TAZ E 105 * 050 L L @ 9 ^ ++	E	1	50	1.7	1	10	12	6	8	8	0.090	0.23	0.21	0.09	0.39	0.35	0.16
CWR29N^155*@F+□	TAZ F 155 * 050 L □ # @ 0 ^ ++	TAZ F 155 * 050 L L @ 9 ^ ++	F	1.5	50	1.1	1	10	12	6	8	8	0.100	0.30	0.27	0.12	0.33	0.30	0.13
CWR29N^225*@F+□	TAZ F 225 * 050 L □ # @ 0 ^ ++	TAZ F 225 * 050 L L @ 9 ^ ++	F	2.2	50	0.7	2	20	24	6	8	8	0.100	0.38	0.34	0.15	0.26	0.24	0.11
CWR29N^335*@G+□	TAZ G 335 * 050 L □ # @ 0 ^ ++	TAZ G 335 * 050 L L @ 9 ^ ++	G	3.3	50	0.5	2	20	24	6	8	8	0.125	0.50	0.45	0.20	0.25	0.23	0.10
CWR29N^475*@H+□	TAZ H 475 * 050 L □ # @ 0 ^ ++	TAZ H 475 * 050 L L @ 9 ^ ++	H	4.7	50	0.5	3	30	36	6	8	8	0.150	0.55	0.49	0.22	0.27	0.25	0.11

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

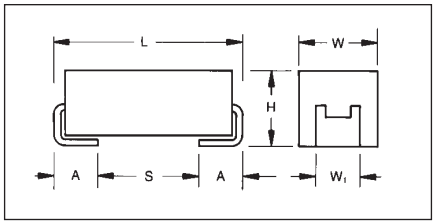
HRC5000 Medical Implantable Grade

The TAZ HRC5000 Medical Grade series is designed for use in medical implantable applications. These are based off of the MIL-PRF-55365 case sizes and feature extremely low DC leakage levels well below typical values.

These components are manufactured and tested in the AVX Biddeford Maine factory which is ISO 13485 certified. Weibull grading and surge current testing options per MIL-PRF-55365 are available along with several plating options including tin/lead solder, 100% tin, or gold terminations.

To request an additional rating not listed here, or for more information on HRC5000 testing details, please contact the factory.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



MARKING

(White marking on black body)

Polarity Stripe (+)

Capacitance Code
Rated Voltage

CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W_1)	Term. Length (A) +0.25/-0.13 (+0.010/-0.005)	S min	Typical Weight (g)
A	2.54 (0.100)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	0.38 (0.015)	0.016
B	3.81 (0.150)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	1.65 (0.065)	0.025
C	5.08 (0.200)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	2.92 (0.115)	0.035
D	3.81 (0.150)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	1.65 (0.065)	0.045
E	5.08 (0.200)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	2.92 (0.115)	0.065
F	5.59 (0.220)	3.43 (0.135)	1.78 (0.070)	3.30±0.13 (0.130±0.005)	0.76 (0.030)	3.43 (0.135)	0.125
G	6.73 (0.265)	2.79 (0.110)	2.79 (0.110)	2.67±0.13 (0.105±0.005)	1.27 (0.050)	3.56 (0.140)	0.205
H	7.24 (0.285)	3.81 (0.150)	2.79 (0.110)	3.68+0.13/-0.51 (0.145+0.005/-0.020)	1.27 (0.050)	4.06 (0.160)	0.335

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage								
µF	Code	4V	6V	10V	12V	15V	20V	25V	35V	50V
0.10	104									A
0.15	154									A
0.22	224								A	
0.33	334							A		
0.47	474						A		B	
0.68	684					A				
1	105			A		A	A/B	B	D	E
1.5	155		A	A		B	D			
2.2	225	A	A	A/B		A/B/C	B/D	D/E		F
3.3	335		A/B	A/B		B/D	E	E	F	G
4.7	475	A/B	A	B/D		B/D/E	D/E	F		
6	605									
6.8	685	A	D	B/D/E			D/E	F		
10	106	D	B/D/E	B/D/E		D/E/F	E	G	H	
14	146			E						
15	156		B/D/F	D/E/F		E	F/G			
22	226		F	D/E/F	E	F/G	G/H	H		
33	336	E/F	E	F/G		F/H				
47	476	E	E/F/G	F/G/H		G	H			
68	686	E/G	E/F/G/H	G						
100	107	F	G	H		H				
150	157		G	H						
220	227			H						
300	307		H							
330	337		H							

TAZ Series

HRC5000 Medical Implantable Grade

HOW TO ORDER

TAZ	E	106	*	010	C	□	L	@	5	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** J = ±5% K = ±10% M = ±20%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**ESR** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R W = Waffle	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 5 = HRC5000	**Termination Finish** H = Solder Plated 0 = Solder Fused 9 = Gold Plated 7 =100% Tin	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 Cycles, -55ºC & +85ºC before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX HRC5000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.10 µF to 330 µF								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage (V_R)	≤ 85°C:	4	6	10	15	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	2.7	4	6.7	10	13.3	16.7	23.3	33.3
Surge Voltage (V_S)	≤ 85°C:	5.3	8	13.3	20	26.7	33.3	46.7	66.7
Surge Voltage (V_S)	≤ 125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1	44.5
Temperature Range:	-55°C to +125°C								

TAZ Series

HRC5000 Medical Implantable Grade

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25ºC Ripple Current	85ºC Ripple Current	125ºC Ripple Current	25ºC Ripple Voltage	85ºC Ripple Voltage	125ºC Ripple Voltage
AVX P/N	Case	µF @ 25ºC	V @ +85ºC	Ohms @ +25ºC	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TAZA225*004L□L@5^++	A	2.2	4	4	0.100	1.000	1.200	6	8	8	0.050	0.112	0.101	0.045	0.447	0.402	0.179
TAZA475*004L□L@5^++	A	4.7	4	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZB475*004L□L@5^++	B	4.7	4	3.2	0.100	1.000	1.200	6	8	8	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZA685*004L□L@5^++	A	6.8	4	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZD106*004L□L@5^++	D	10	4	1.3	0.100	1.000	1.200	8	8	10	0.080	0.248	0.223	0.099	0.322	0.290	0.129
TAZE336*004L□L@5^++	E	33	4	0.9	0.330	3.300	3.960	8	10	12	0.090	0.316	0.285	0.126	0.285	0.256	0.114
TAZF336*004L□L@5^++	F	33	4	0.6	0.330	3.300	3.960	8	10	12	0.100	0.408	0.367	0.163	0.245	0.220	0.098
TAZE476*004L□L@5^++	E	47	4	0.9	0.470	4.700	5.640	8	10	12	0.090	0.316	0.285	0.126	0.285	0.256	0.114
TAZE686*004L□L@5^++	E	68	4	0.9	0.680	6.800	8.160	8	10	12	0.090	0.316	0.285	0.126	0.285	0.256	0.114
TAZG686*004L□L@5^++	G	68	4	0.275	0.680	6.800	8.160	10	12	12	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZF107*004L□L@5^++	F	100	4	0.55	1.000	10.000	12.000	10	12	12	0.100	0.426	0.384	0.171	0.235	0.211	0.094
TAZA155*006L□L@5^++	A	1.5	6	4	0.100	1.000	1.200	6	8	8	0.050	0.112	0.101	0.045	0.447	0.402	0.179
TAZA225*006C□L@5^++	A	2.2	6	12	0.100	1.000	1.200	6	8	8	0.050	0.065	0.058	0.026	0.775	0.697	0.310
TAZA335*006L□L@5^++	A	3.3	6	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZB335*006L□L@5^++	B	3.3	6	3.2	0.100	1.000	1.200	6	8	8	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZA475*006L□L@5^++	A	4.7	6	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZD685*006L□L@5^++	D	6.8	6	1.5	0.102	1.020	1.224	6	8	8	0.080	0.231	0.208	0.092	0.346	0.312	0.139
TAZB106*006L□L@5^++	B	10	6	3.2	0.150	1.500	1.800	6	8	8	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZD106*006C□L@5^++	D	10	6	6	0.150	1.500	1.800	6	8	8	0.080	0.115	0.104	0.046	0.693	0.624	0.277
TAZE106*006L□L@5^++	E	10	6	1	0.150	1.500	1.800	8	10	12	0.090	0.300	0.270	0.120	0.300	0.270	0.120
TAZB156*006L□L@5^++	B	15	6	3.2	0.225	2.250	2.700	8	10	10	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZD156*006L□L@5^++	D	15	6	1.7	0.225	2.250	2.700	8	10	12	0.080	0.217	0.195	0.087	0.369	0.332	0.148
TAZF156*006C□L@5^++	F	15	6	0.3	0.225	2.250	2.700	6	8	8	0.100	0.577	0.520	0.231	0.173	0.156	0.069
TAZF226*006L□L@5^++	F	22	6	0.6	0.330	3.300	3.960	8	10	12	0.100	0.408	0.367	0.163	0.245	0.220	0.098
TAZE336*006L□L@5^++	E	33	6	1	0.495	4.950	5.940	6	8	8	0.090	0.300	0.270	0.120	0.300	0.270	0.120
TAZE476*006C□L@5^++	E	47	6	5	0.705	7.050	8.460	6	8	8	0.090	0.134	0.121	0.054	0.671	0.604	0.268
TAZF476*006L□L@5^++	F	47	6	1	0.705	7.050	8.460	8	10	12	0.100	0.316	0.285	0.126	0.316	0.285	0.126
TAZG476*006L□L@5^++	G	47	6	0.275	0.705	7.050	8.460	10	12	12	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZE686*006C□L@5^++	E	68	6	2	1.020	10.200	12.240	10	12	12	0.090	0.212	0.191	0.085	0.424	0.382	0.170
TAZF686*006L□L@5^++	F	68	6	0.4	1.020	10.200	12.240	10	12	12	0.100	0.500	0.450	0.200	0.200	0.180	0.080
TAZG686*006L□L@5^++	G	68	6	0.25	1.020	10.200	12.240	10	12	12	0.125	0.707	0.636	0.283	0.177	0.159	0.071
TAZH686*006L□L@5^++	H	68	6	0.18	1.020	10.200	12.240	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZG107*006L□L@5^++	G	100	6	0.275	1.500	15.000	18.000	10	12	12	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZG157*006L□L@5^++	G	150	6	0.275	2.250	22.500	27.000	10	12	12	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZH307*006C□L@5^++	H	300	6	0.9	4.500	45.000	54.000	15	18	18	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TAZH337*006L□L@5^++	H	330	6	0.18	4.950	49.500	59.400	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZR334*010C□L@5^++	R	0.33	10	50	0.100	1.000	1.200	6	8	8	0.030	0.024	0.022	0.010	1.225	1.102	0.490
TAZA105*010L□L@5^++	A	1	10	5	0.100	1.000	1.200	6	8	8	0.050	0.100	0.090	0.040	0.500	0.450	0.200
TAZA155*010C□L@5^++	A	1.5	10	12	0.100	1.000	1.200	6	8	8	0.050	0.065	0.058	0.026	0.775	0.697	0.310
TAZA225*010L□L@5^++	A	2.2	10	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZB225*010L□L@5^++	B	2.2	10	3.2	0.100	1.000	1.200	6	8	8	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZA335*010L□L@5^++	A	3.3	10	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZB335*010C□L@5^++	B	3.3	10	18	0.100	1.000	1.200	6	8	8	0.070	0.062	0.056	0.025	1.122	1.010	0.449

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

HRC5000 Medical Implantable Grade

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25ºC Ripple Current	85ºC Ripple Current	125ºC Ripple Current	25ºC Ripple Voltage	85ºC Ripple Voltage	125ºC Ripple Voltage
AVX P/N	Case	µF @ 25ºC	V @ +85ºC	Ohms @ +25ºC	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TAZB475*010L□L@5^++	B	4.7	10	3.2	0.200	2.000	2.400	6	8	8	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZD475*010L□L@5^++	D	4.7	10	1.5	0.200	2.000	2.400	6	8	8	0.080	0.231	0.208	0.092	0.346	0.312	0.139
TAZB685*010L□L@5^++	B	6.8	10	3.2	0.170	1.700	2.040	6	8	8	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZD685*010L□L@5^++	D	6.8	10	1.7	0.170	1.700	2.040	6	8	8	0.080	0.217	0.195	0.087	0.369	0.332	0.148
TAZE685*010L□L@5^++	E	6.8	10	1	0.170	1.700	2.040	6	8	8	0.090	0.300	0.270	0.120	0.300	0.270	0.120
TAZB106*010L□L@5^++	B	10	10	3.2	0.250	2.500	3.000	8	10	10	0.070	0.148	0.133	0.059	0.473	0.426	0.189
TAZD106*010L□L@5^++	D	10	10	1.3	0.250	2.500	3.000	6	8	8	0.080	0.248	0.223	0.099	0.322	0.290	0.129
TAZE106*010L□L@5^++	E	10	10	1	0.250	2.500	3.000	6	8	8	0.090	0.300	0.270	0.120	0.300	0.270	0.120
TAZE146*010C□L@5^++	E	14	10	3	0.350	3.500	4.200	6	8	8	0.090	0.173	0.156	0.069	0.520	0.468	0.208
TAZD156*010L□L@5^++	D	15	10	1.7	0.375	3.750	4.500	6	8	8	0.080	0.217	0.195	0.087	0.369	0.332	0.148
TAZE156*010L□L@5^++	E	15	10	0.9	0.375	3.750	4.500	8	10	10	0.090	0.316	0.285	0.126	0.285	0.256	0.114
TAZF156*010L□L@5^++	F	15	10	0.7	0.375	3.750	4.500	8	8	10	0.100	0.378	0.340	0.151	0.265	0.238	0.106
TAZD226*010C□L@5^++	D	22	10	8	0.550	5.500	6.600	6	8	8	0.080	0.100	0.090	0.040	0.800	0.720	0.320
TAZE226*010L□L@5^++	E	22	10	0.6	0.550	5.500	6.600	8	10	10	0.090	0.387	0.349	0.155	0.232	0.209	0.093
TAZF226*010C□L@5^++	F	22	10	3	0.550	5.500	6.600	8	10	10	0.100	0.183	0.164	0.073	0.548	0.493	0.219
TAZF336*010L□L@5^++	F	33	10	0.4	0.825	8.250	9.900	8	10	10	0.100	0.500	0.450	0.200	0.200	0.180	0.080
TAZG336*010L□L@5^++	G	33	10	0.275	0.825	8.250	9.900	10	12	12	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZF476*010L□L@5^++	F	47	10	0.4	1.175	11.750	14.100	10	12	12	0.100	0.500	0.450	0.200	0.200	0.180	0.080
TAZG476*010L□L@5^++	G	47	10	0.25	1.175	11.750	14.100	10	12	12	0.125	0.707	0.636	0.283	0.177	0.159	0.071
TAZH476*010L□L@5^++	H	47	10	0.18	1.175	11.750	14.100	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZG686*010L□L@5^++	G	68	10	0.275	1.700	17.000	20.400	10	12	12	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZH107*010L□L@5^++	H	100	10	0.18	2.500	25.000	30.000	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZH157*010L□L@5^++	H	150	10	0.18	3.750	37.500	45.000	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZH227*010L□L@5^++	H	220	10	0.18	5.500	55.000	66.000	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZE226*012C□L@5^++	E	22	12	0.5	0.660	6.600	7.920	6	8	8	0.090	0.424	0.382	0.170	0.212	0.191	0.085
TAZA684*015L□L@5^++	A	0.68	15	6	0.100	1.000	1.200	6	8	8	0.050	0.091	0.082	0.037	0.548	0.493	0.219
TAZA105*015L□L@5^++	A	1	15	7.5	0.100	1.000	1.200	6	8	8	0.050	0.082	0.073	0.033	0.612	0.551	0.245
TAZA225*015L□L@5^++	A	2.2	15	7.5	0.200	2.000	2.400	6	8	8	0.050	0.082	0.073	0.033	0.612	0.551	0.245
TAZB225*015C□L@5^++	B	2.2	15	5.5	0.100	1.000	1.200	6	8	8	0.070	0.113	0.102	0.045	0.620	0.558	0.248
TAZB335*015L□L@5^++	B	3.3	15	3.6	0.290	2.900	3.480	6	8	8	0.070	0.139	0.125	0.056	0.502	0.452	0.201
TAZD335*015L□L@5^++	D	3.3	15	1.7	0.124	1.238	1.485	6	8	8	0.080	0.217	0.195	0.087	0.369	0.332	0.148
TAZB475*015L□L@5^++	B	4.7	15	2	0.250	2.500	3.000	6	8	8	0.070	0.187	0.168	0.075	0.374	0.337	0.150
TAZD475*015L□L@5^++	D	4.7	15	2	0.250	2.500	3.000	6	8	8	0.080	0.200	0.180	0.080	0.400	0.360	0.160
TAZE475*015L□L@5^++	E	4.7	15	1.2	0.245	2.450	2.940	6	8	8	0.090	0.274	0.246	0.110	0.329	0.296	0.131
TAZD106*015L□L@5^++	D	10	15	2	0.375	3.750	4.500	6	8	8	0.080	0.200	0.180	0.080	0.400	0.360	0.160
TAZE106*015L□L@5^++	E	10	15	1.2	0.375	3.750	4.500	6	8	8	0.090	0.274	0.246	0.110	0.329	0.296	0.131
TAZF106*015L□L@5^++	F	10	15	0.667	0.375	3.750	4.500	6	8	8	0.100	0.387	0.348	0.155	0.258	0.232	0.103
TAZE156*015L□L@5^++	E	15	15	1.2	0.563	5.625	6.750	6	8	8	0.090	0.274	0.246	0.110	0.329	0.296	0.131
TAZF226*015L□L@5^++	F	22	15	0.8	0.825	8.250	9.900	8	10	10	0.100	0.354	0.318	0.141	0.283	0.255	0.113
TAZG226*015L□L@5^++	G	22	15	0.275	0.825	8.250	9.900	6	8	8	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZF336*015L□L@5^++	F	33	15	0.8	1.238	12.375	14.850	6	8	8	0.100	0.354	0.318	0.141	0.283	0.255	0.113
TAZH336*015L□L@5^++	H	33	15	0.18	1.238	12.375	14.850	8	8	10	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZG476*015L□L@5^++	G	47	15	0.275	1.763	17.625	21.150	8	10	10	0.125	0.674	0.607	0.270	0.185	0.167	0.074

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

HRC5000 Medical Implantable Grade

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25ºC Ripple Current	85ºC Ripple Current	125ºC Ripple Current	25ºC Ripple Voltage	85ºC Ripple Voltage	125ºC Ripple Voltage
AVX P/N	Case	µF @ 25ºC	V @ +85ºC	Ohms @ +25ºC	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TAZH107*015L□L@5^++	H	100	15	0.18	3.750	37.500	45.000	10	12	12	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZA474*020L□L@5^++	A	0.47	20	7.5	0.100	1.000	1.200	8	8	10	0.050	0.082	0.073	0.033	0.612	0.551	0.245
TAZA105*020L□L@5^++	A	1	20	7.5	0.100	1.000	1.200	6	8	8	0.050	0.082	0.073	0.033	0.612	0.551	0.245
TAZB105*020L□L@5^++	B	1	20	4.8	0.100	1.000	1.200	6	8	8	0.070	0.121	0.109	0.048	0.580	0.522	0.232
TAZB155*020L□L@5^++	B	1.5	20	3.6	0.100	1.000	1.200	6	8	8	0.070	0.139	0.125	0.056	0.502	0.452	0.201
TAZB225*020L□L@5^++	B	2.2	20	3.6	0.110	1.100	1.320	6	8	8	0.070	0.139	0.125	0.056	0.502	0.452	0.201
TAZD225*020L□L@5^++	D	2.2	20	1.7	0.225	2.250	2.700	6	8	8	0.080	0.217	0.195	0.087	0.369	0.332	0.148
TAZE335*020L□L@5^++	E	3.3	20	1.2	0.165	1.650	1.980	6	8	8	0.090	0.274	0.246	0.110	0.329	0.296	0.131
TAZD475*020C□L@5^++	D	4.7	20	6	0.235	2.350	2.820	6	8	8	0.080	0.115	0.104	0.046	0.693	0.624	0.277
TAZE475*020L□L@5^++	E	4.7	20	1.7	0.235	2.350	2.820	6	8	8	0.090	0.230	0.207	0.092	0.391	0.352	0.156
TAZD685*020C□L@5^++	D	6.8	20	4	0.450	4.500	5.400	6	8	8	0.080	0.141	0.127	0.057	0.566	0.509	0.226
TAZE685*020L□L@5^++	E	6.8	20	1.5	0.450	4.500	5.400	6	8	8	0.090	0.245	0.220	0.098	0.367	0.331	0.147
TAZE106*020L□L@5^++	E	10	20	1.5	0.500	5.000	6.000	6	8	8	0.090	0.245	0.220	0.098	0.367	0.331	0.147
TAZF156*020L□L@5^++	F	15	20	0.8	0.750	7.500	9.000	6	8	8	0.100	0.354	0.318	0.141	0.283	0.255	0.113
TAZG156*020L□L@5^++	G	15	20	0.275	0.750	7.500	9.000	6	8	8	0.125	0.674	0.607	0.270	0.185	0.167	0.074
TAZG226*020L□L@5^++	G	22	20	0.625	1.100	11.000	13.200	6	8	8	0.125	0.447	0.402	0.179	0.280	0.252	0.112
TAZH226*020L□L@5^++	H	22	20	0.18	1.100	11.000	13.200	6	8	8	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZH476*020L□L@5^++	H	47	20	0.18	2.350	23.500	28.200	8	10	10	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZA334*025L□L@5^++	A	0.33	25	15	0.100	1.000	1.200	6	8	8	0.050	0.058	0.052	0.023	0.866	0.779	0.346
TAZB105*025L□L@5^++	B	1	25	4	0.160	1.600	1.920	6	8	8	0.070	0.132	0.119	0.053	0.529	0.476	0.212
TAZD155*025L□L@5^++	D	1.5	25	1.7	0.200	2.000	2.400	6	8	8	0.080	0.217	0.195	0.087	0.369	0.332	0.148
TAZD225*025L□L@5^++	D	2.2	25	2	0.215	2.150	2.580	6	8	8	0.080	0.200	0.180	0.080	0.400	0.360	0.160
TAZE225*025L□L@5^++	E	2.2	25	1	0.230	2.300	2.760	6	8	8	0.090	0.300	0.270	0.120	0.300	0.270	0.120
TAZE335*025L□L@5^++	E	3.3	25	1.2	0.245	2.450	2.940	6	8	8	0.090	0.274	0.246	0.110	0.329	0.296	0.131
TAZF475*025L□L@5^++	F	4.7	25	0.7	0.294	2.938	3.525	6	8	8	0.100	0.378	0.340	0.151	0.265	0.238	0.106
TAZF685*025L□L@5^++	F	6.8	25	0.8	0.425	4.250	5.100	6	8	8	0.100	0.354	0.318	0.141	0.283	0.255	0.113
TAZG106*025L□L@5^++	G	10	25	0.35	0.625	6.250	7.500	6	8	8	0.125	0.598	0.538	0.239	0.209	0.188	0.084
TAZH226*025L□L@5^++	H	22	25	0.18	1.375	13.750	16.500	6	8	8	0.150	0.913	0.822	0.365	0.164	0.148	0.066
TAZA224*035L□L@5^++	A	0.22	35	12	0.100	1.000	1.200	6	8	8	0.050	0.065	0.058	0.026	0.775	0.697	0.310
TAZB474*035L□L@5^++	B	0.47	35	6.8	0.100	1.000	1.200	6	8	8	0.070	0.101	0.091	0.041	0.690	0.621	0.276
TAZD105*035L□L@5^++	D	1	35	2.2	0.100	1.000	1.200	6	8	8	0.080	0.191	0.172	0.076	0.420	0.378	0.168
TAZF335*035L□L@5^++	F	3.3	35	0.7	0.289	2.888	3.465	6	8	8	0.100	0.378	0.340	0.151	0.265	0.238	0.106
TAZH106*035L□L@5^++	H	10	35	0.5	0.875	8.750	10.500	8	10	10	0.150	0.548	0.493	0.219	0.274	0.246	0.110
TAZA104*050L□L@5^++	A	0.1	50	12	0.100	1.000	1.200	6	8	8	0.050	0.065	0.058	0.026	0.775	0.697	0.310
TAZA154*050L□L@5^++	A	0.15	50	12	0.100	1.000	1.200	6	8	8	0.050	0.065	0.058	0.026	0.775	0.697	0.310
TAZE105*050L□L@5^++	E	1	50	1.7	0.125	1.250	1.500	6	8	8	0.090	0.230	0.207	0.092	0.391	0.352	0.156
TAZF225*050L□L@5^++	F	2.2	50	0.7	0.275	2.750	3.300	6	8	8	0.100	0.378	0.340	0.151	0.265	0.238	0.106
TAZG335*050L□L@5^++	G	3.3	50	0.5	0.413	4.125	4.950	6	8	8	0.125	0.500	0.450	0.200	0.250	0.225	0.100

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TCP Series - DSCC 09009

TCP Series Low ESR Tantalum Modules

TCP Series tantalum modules represent high packing density for applications utilizing multiple components in a parallel configuration, and are available with testing to DSCC 09009.

These modules feature stacked assemblies of CWR29 capacitors which provide ultra low ESR and utilize established reliability capacitors (Weibull Grade voltage conditioning) in accordance with MIL-PRF-55365. They can also be supplied with SRC9000 Space Level components.

The stacked construction of fully molded capacitors is compatible with a wide range of SMT board assembly processes including reflow solder or conductive epoxy.

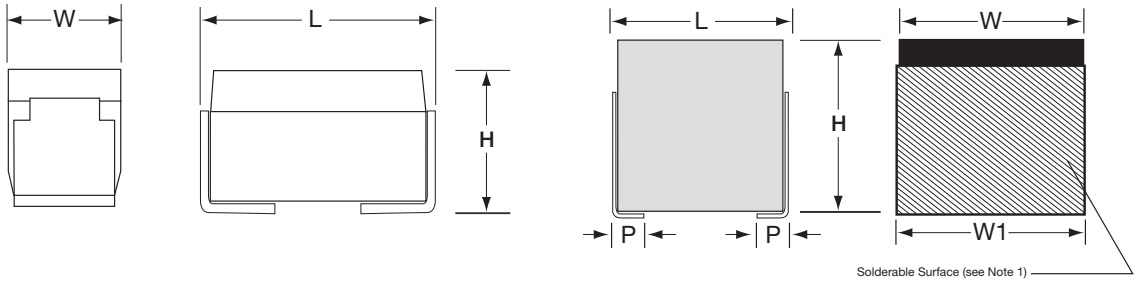
There are two termination finishes available: hot solder dipped ("C") and gold plated ("B").

The molding compound has been selected to meet the requirements of UL94V-0 and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

Note: Additional form factors and ratings are available. Contact plant for details.

DIMENSIONS



CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W_1) ±0.38 (0.015)	Term. Length (P) For Reference Only
2H	7.82 (0.308)	4.06 (0.160)	6.10 (0.240)	4.06 (0.160)	1.52 (0.060)
4H	7.82 (0.308)	8.13 (0.320)	6.10 (0.240)	8.13 (0.320)	1.52 (0.060)
6H	7.82 (0.308)	8.13 (0.320)	9.14 (0.360)	8.13 (0.320)	1.52 (0.060)

Additional form factors and ratings are available – contact plant for details.

CAPACITANCE AND RATED VOLTAGE CASE SIZE (ESR IN mΩ)

Capacitance		Rated voltage DC (V_R) to 85°C						
µF	Code	6V	10V	15V	20V	25V	35V	50V
9.4	945							2H (200)
18.8	196							4H (100)
20	206						2H (200)	
28.2	286							6H (67)
40	406						4H (100)	
60	606						6H (67)	
66	666					2H (85)		
94	946				2H (75)			
132	137					4H (43)		
188	197				4H (38)			
198	207					6H (28)		
200	207			2H (63)				
282	287				6H (25)			
400	407			4H (31)				
440	447		2H (50)					
600	607			6H (21)				
660	667	2H (50)						
880	887		4H (25)					
1,320	138	4H (25)	6H (17)					
1,980	208	6H (17)						

TCP Series - DSCC 09009

TCP Series Low ESR Tantalum Modules

HOW TO ORDER

TC	2H	945	K	050	L	R	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** L = Low ESR	**Packaging** B = Bulk R = 7" T&R	**Inspection Level** S = Std. Conformance L = Group A D = DSCC DWG	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A 9 = SRC9000	**Termination Finish** 8 = Hot Solder Dipped 9 = Gold Plated LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 cycles, -55ºC & +85ºC before Weibull

DSCC DWG P/N:

09009	-01	K	B	C	A
DSCC DWG 09009	**Dash Number** See Rating Tables	**Capacitance Tolerance** K = ±10% M = ±20%	**Reliability Grade** B = B Weibull C = C Weibull D = D Weibull	**Termination Finish** B = Gold Plated (10 microinch minimum) C = Hot Solder Dip (60 microinch minimum) LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required Per MIL-PRF-55365

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of 25°C						
Capacitance Range:		9.4 µF to 1,980 µF						
Capacitance Tolerance:		±5%; ±10%; ±20%						
Rated Voltage (V_R)	≤ 85°C:	6	10	15	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	4	6.7	10	13.3	16.7	23.3	33.3
Surge Voltage (V_S)	≤ 85°C:	8	13.3	20	26.7	33.3	46.7	66.7
Surge Voltage (V_S)	≤ 125°C:	5.3	8.7	13.3	17.8	22.2	31.1	44.5
Temperature Range:		-55°C to +125°C						

TCP Series

TCP Series Low ESR Tantalum Modules

RATINGS & PART NUMBER REFERENCE

2-STACK			Parametric Specifications by Rating									Typical Ripple Data by Rating					
AVX P/N		Case	Cap µF	Volt V	ESR @ 100 kHz	DC Leakage (max) µA			Disspation Factor (max) %			100kHz Ripple Current Rating			100kHz Ripple Voltage Rating		
												A	A	A	V	V	V
					+25°C mΩ	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	+25°C	+85°C	+125°C	+25°C	+85°C	+125°C
TC2H 667	*006L#D^00++	2H	660	6	50	39.6	396	495	10	12	12	2.4	2.2	1.0	0.12	0.11	0.05
TC2H 447	*010L#D^00++	2H	440	10	50	44	440	550	10	12	12	2.4	2.2	1.0	0.12	0.11	0.05
TC2H 207	*015L#D^00++	2H	200	15	63	30	300	375	10	12	12	2.2	2.0	0.9	0.14	0.12	0.05
TC2H 946	*020L#D^00++	2H	94	20	75	18.8	188	235	8	10	10	2.0	1.8	0.8	0.15	0.14	0.06
TC2H 666	*025L#D^00++	2H	66	25	85	16.5	165	206	8	10	10	1.9	1.7	0.8	0.16	0.14	0.06
TC2H 206	*035L#D^00++	2H	20	35	200	7	70	88	8	10	10	1.2	1.1	0.5	0.24	0.22	0.10
TC2H 945	*050L#D^00++	2H	9.4	50	200	4.7	47	59	6	8	8	1.2	1.1	0.5	0.24	0.22	0.10

4-STACK			Parametric Specifications by Rating									Typical Ripple Data by Rating					
AVX P/N		Case	Cap µF	Volt V	ESR @ 100 kHz	DC Leakage (max) µA			Disspation Factor (max) %			100kHz Ripple Current Rating			100kHz Ripple Voltage Rating		
												A	A	A	V	V	V
					+25°C mΩ	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	+25°C	+85°C	+125°C	+25°C	+85°C	+125°C
TC4H 138	*006L#D^00++	4H	1320	6	25	79.2	792	990	10	12	12	4.2	3.8	1.7	0.11	0.10	0.04
TC4H 887	*010L#D^00++	4H	880	10	25	88	880	1100	10	12	12	4.2	3.8	1.7	0.11	0.10	0.04
TC4H 407	*015L#D^00++	4H	400	15	31	60	600	750	10	12	12	3.8	3.4	1.5	0.12	0.11	0.05
TC4H 197	*020L#D^00++	4H	188	20	38	37.6	376	470	8	10	10	3.5	3.2	1.4	0.13	0.12	0.05
TC4H 137	*025L#D^00++	4H	132	25	43	33	330	413	8	10	10	3.2	2.9	1.3	0.14	0.13	0.06
TC4H 406	*035L#D^00++	4H	40	35	100	14	140	175	8	10	10	2.1	1.9	0.8	0.21	0.19	0.08
TC4H 196	*050L#D^00++	4H	18.8	50	100	9.4	94	118	6	8	8	2.1	1.9	0.8	0.21	0.19	0.08

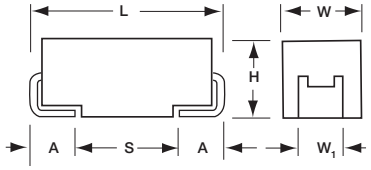
6-STACK			Parametric Specifications by Rating									Typical Ripple Data by Rating					
AVX P/N		Case	Cap µF	Volt V	ESR @ 100 kHz	DC Leakage (max) µA			Disspation Factor (max) %			100kHz Ripple Current Rating			100kHz Ripple Voltage Rating		
												A	A	A	V	V	V
					+25°C mΩ	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	+25°C	+85°C	+125°C	+25°C	+85°C	+125°C
TC6H 208	*006L#D^00++	6H	1980	6	17	118.8	1188	1485	10	12	12	5.9	5.3	2.4	0.10	0.09	0.04
TC6H 138	*010L#D^00++	6H	1320	10	17	132	1320	1650	10	12	12	5.9	5.3	2.4	0.10	0.09	0.04
TC6H 607	*015L#D^00++	6H	600	15	21	90	900	1125	10	12	12	5.2	4.7	2.1	0.11	0.10	0.04
TC6H 287	*020L#D^00++	6H	282	20	25	56.4	564	705	8	10	10	4.8	4.3	1.9	0.12	0.11	0.05
TC6H 207	*025L#D^00++	6H	198	25	28	49.5	495	619	8	10	10	4.5	4.1	1.8	0.13	0.11	0.05
TC6H 606	*035L#D^00++	6H	60	35	67	21	210	263	8	10	10	2.9	2.6	1.2	0.19	0.17	0.08
TC6H 286	*050L#D^00++	6H	28.2	50	67	14.1	141	176	6	8	8	2.9	2.6	1.2	0.19	0.17	0.08

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level



Fully qualified to MIL-PRF-55365/8, the CWR11 is the military version of EIA-535BAAC, with four case sizes designed for maximum packaging efficiency on 8mm & 12mm tape for high volume production (ensuring no TCE mismatch with any substrate). This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The part also carries full polarity, capacitance / voltage and JAN brand marking.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

MARKING

(Brown marking on gold body)

Polarity Stripe (+)

"J" for "JAN" Brand
Capacitance Code

Rated Voltage
Manufacturer's ID

CASE DIMENSIONS: millimeters (inches)

Case Code	EIA Metric	Length (L)	Width (W)	Height (H)	Term. Width (W_1) ±0.10 (±0.004)	Term. Length A ±0.30(±0.012)	S min
A	3216-18	3.20±0.20 (0.126±0.008)	1.60±0.20 (0.063±0.008)	1.60±0.20 (0.063±0.008)	1.20 (0.047)	0.80 (0.031)	1.80 (0.071)
B	3528-21	3.50±0.20 (0.138±0.008)	2.80±0.20 (0.110±0.008)	1.90±0.20 (0.075±0.008)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	6032-28	6.00±0.30 (0.236±0.012)	3.20±0.30 (0.126±0.012)	2.50±0.30 (0.098±0.012)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	7343-31	7.30±0.30 (0.287±0.012)	4.30±0.30 (0.169±0.012)	2.80±0.30 (0.110±0.012)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

CAPACITANCE AND RATED VOLTAGE, V_R (MIL VOLTAGE CODE) RANGE CASE SIZE

Capacitance		Rated voltage DC (V_R) to 85°C							
µF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)	50V (N)
0.10	104							A	A
0.15	154							A	B
0.22	224							A	B
0.33	334						A	A	B
0.47	474					A	A	B	C
0.68	684				A	A	B	B	C
1.0	105			A	A	A	B	B	C
1.5	155		A	A	A	B	B	C	D
2.2	225	A	A	A	B	B	C	C	D
3.3	335		A	B	B	B	C	C	D
4.7	475	A	B	B	B	C	C	D	D
6.8	685	B	B	B		C	D	D	
10	106	B	B		C		D		
15	156	B	C	C		D	D		
22	226		C		D	D			
33	336	C		D	D				
47	476		D	D					
68	686	D	D						
100	107	D							

TBJ Series

CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR11):

TBJ	D	686	*	006	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A M = MIL (JAN) CWR11	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A T = T Level 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

CWR11 P/N CROSS REFERENCE:

CWR11	D	^	686	*	@	+	□
Type	**Voltage Code** C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc	**Termination Finish** H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	**Surge Test Option** A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull If blank, None required	**Packaging** Bulk = Standard \TR = 7" T&R \TR13 = 13" T&R \W = Waffle See page 7 for additional packaging options.

SPACE LEVEL OPTIONS TO SRC9000*:

TBJ	D	686	*	006	C	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 45 = 10 cycles, -55°C & +85°C before Weibull

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.10 µF to 100 µF								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage (V_R)	≤ 85°C:	4	6	10	16	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	2.7	4	6.7	10	13.3	16.7	23.3	33.3
Surge Voltage (V_S)	≤ 85°C:	5.3	8	13.3	20	26.7	33.3	46.7	66.7
Surge Voltage (V_S)	≤ 125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1	44.5
Temperature Range:	-55°C to +125°C								

TBJ Series

CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

				Parametric Specifications by Rating per MIL-PRF-55365/8										Typical Ripple Data by Rating						
				Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
				+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C											
CWR11 P/N	AVX COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR11C^225*@+□	TBJA 225 * 004 C □ # @ 0 ^ ++	TBJ A 225 * 004 C □ L @ 9 ^ ++	A	2.2	4	8	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11C^475*@+□	TBJ A 475 * 004 C □ # @ 0 ^ ++	TBJ A 475 * 004 C □ L @ 9 ^ ++	A	4.7	4	8	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11C^685*@+□	TBJ B 685 * 004 C □ # @ 0 ^ ++	TBJ B 685 * 004 C □ L @ 9 ^ ++	B	6.8	4	5.5	0.5	5	6	6	9	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27
CWR11C^106*@+□	TBJ B 106 * 004 C □ # @ 0 ^ ++	TBJ B 106 * 004 C □ L @ 9 ^ ++	B	10	4	4	0.5	5	6	6	9	9	0.085	0.15	0.13	0.06	0.58	0.52	0.23
CWR11C^156*@+□	TBJ B 156 * 004 C □ # @ 0 ^ ++	TBJ B 156 * 004 C □ L @ 9 ^ ++	B	15	4	3.5	0.6	6	7.2	6	9	9	0.085	0.16	0.14	0.06	0.55	0.49	0.22
CWR11C^336*@+□	TBJ C 336 * 004 C □ # @ 0 ^ ++	TBJ C 336 * 004 C □ L @ 9 ^ ++	C	33	4	2.2	1.3	13	15.6	6	9	9	0.110	0.22	0.20	0.09	0.49	0.44	0.20
CWR11C^686*@+□	TBJ D 686 * 004 C □ # @ 0 ^ ++	TBJ D 686 * 004 C □ L @ 9 ^ ++	D	68	4	1.1	2.7	27	32.4	6	9	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16
CWR11C^107*@+□	TBJ D 107 * 004 C □ # @ 0 ^ ++	TBJ D 107 * 004 C □ L @ 9 ^ ++	D	100	4	0.9	4	40	48	8	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR11D^155*@+□	TBJ A 155 * 006 C □ # @ 0 ^ ++	TBJ A 155 * 006 C □ L @ 9 ^ ++	A	1.5	6	8	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11D^225*@+□	TBJ A 225 * 006 C □ # @ 0 ^ ++	TBJ A 225 * 006 C □ L @ 9 ^ ++	A	2.2	6	8	0.5	5	6	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11D^335*@+□	TBJ A 335 * 006 C □ # @ 0 ^ ++	TBJ A 335 * 006 C □ L @ 9 ^ ++	A	3.3	6	8	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11D^475*@+□	TBJ B 475 * 006 C □ # @ 0 ^ ++	TBJ B 475 * 006 C □ L @ 9 ^ ++	B	4.7	6	5.5	0.5	5	6	6	9	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27
CWR11D^685*@+□	TBJ B 685 * 006 C □ # @ 0 ^ ++	TBJ B 685 * 006 C □ L @ 9 ^ ++	B	6.8	6	4.5	0.5	5	6	6	9	9	0.085	0.14	0.12	0.05	0.62	0.56	0.25
CWR11D^106*@+□	TBJ B 106 * 006 C □ # @ 0 ^ ++	TBJ B 106 * 006 C □ L @ 9 ^ ++	B	10	6	3.5	0.6	6	7.2	6	9	9	0.085	0.16	0.14	0.06	0.55	0.49	0.22
CWR11D^156*@+□	TBJ C 156 * 006 C □ # @ 0 ^ ++	TBJ C 156 * 006 C □ L @ 9 ^ ++	C	15	6	3	0.9	9	10.8	6	9	9	0.110	0.19	0.17	0.08	0.57	0.52	0.23
CWR11D^226*@+□	TBJ C 226 * 006 C □ # @ 0 ^ ++	TBJ C 226 * 006 C □ L @ 9 ^ ++	C	22	6	2.2	1.4	14	16.8	6	9	9	0.110	0.22	0.20	0.09	0.49	0.44	0.20
CWR11D^476*@+□	TBJ D 476 * 006 C □ # @ 0 ^ ++	TBJ D 476 * 006 C □ L @ 9 ^ ++	D	47	6	1.1	2.8	28	33.6	6	9	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16
CWR11D^686*@+□	TBJ D 686 * 006 C □ # @ 0 ^ ++	TBJ D 686 * 006 C □ L @ 9 ^ ++	D	68	6	0.9	4.3	43	51.6	6	9	9	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR11F^105*@+□	TBJ A 105 * 010 C □ # @ 0 ^ ++	TBJ A 105 * 010 C □ L @ 9 ^ ++	A	1	10	10	0.5	5	6	4	6	6	0.075	0.09	0.08	0.03	0.87	0.78	0.35
CWR11F^155*@+□	TBJ A 155 * 010 C □ # @ 0 ^ ++	TBJ A 155 * 010 C □ L @ 9 ^ ++	A	1.5	10	8	0.5	5	6	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11F^225*@+□	TBJ A 225 * 010 C □ # @ 0 ^ ++	TBJ A 225 * 010 C □ L @ 9 ^ ++	A	2.2	10	8	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11F^335*@+□	TBJ B 335 * 010 C □ # @ 0 ^ ++	TBJ B 335 * 010 C □ L @ 9 ^ ++	B	3.3	10	5.5	0.5	5	6	6	9	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27
CWR11F^475*@+□	TBJ B 475 * 010 C □ # @ 0 ^ ++	TBJ B 475 * 010 C □ L @ 9 ^ ++	B	4.7	10	4.5	0.5	5	6	6	9	9	0.085	0.14	0.12	0.05	0.62	0.56	0.25
CWR11F^685*@+□	TBJ B 685 * 010 C □ # @ 0 ^ ++	TBJ B 685 * 010 C □ L @ 9 ^ ++	B	6.8	10	3.5	0.7	7	8.4	6	9	9	0.085	0.16	0.14	0.06	0.55	0.49	0.22
CWR11F^156*@+□	TBJ C 156 * 010 C □ # @ 0 ^ ++	TBJ C 156 * 010 C □ L @ 9 ^ ++	C	15	10	2.5	1.5	15	18	6	6	9	0.110	0.21	0.19	0.08	0.52	0.47	0.21
CWR11F^336*@+□	TBJ D 336 * 010 C □ # @ 0 ^ ++	TBJ D 336 * 010 C □ L @ 9 ^ ++	D	33	10	1.1	3.3	33	39.6	6	9	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16
CWR11F^476*@+□	TBJ D 476 * 010 C □ # @ 0 ^ ++	TBJ D 476 * 010 C □ L @ 9 ^ ++	D	47	10	0.9	4.7	47	56.4	6	9	9	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR11H^684*@+□	TBJ A 684 * 015 C □ # @ 0 ^ ++	TBJ A 684 * 015 C □ L @ 9 ^ ++	A	0.68	15	12	0.5	5	6	4	6	6	0.075	0.08	0.07	0.03	0.95	0.85	0.38
CWR11H^105*@+□	TBJ A 105 * 015 C □ # @ 0 ^ ++	TBJ A 105 * 015 C □ L @ 9 ^ ++	A	1	15	10	0.5	5	6	4	6	6	0.075	0.09	0.08	0.03	0.87	0.78	0.35
CWR11H^155*@+□	TBJ A 155 * 015 C □ # @ 0 ^ ++	TBJ A 155 * 015 C □ L @ 9 ^ ++	A	1.5	15	8	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
CWR11H^225*@+□	TBJ B 225 * 015 C □ # @ 0 ^ ++	TBJ B 225 * 015 C □ L @ 9 ^ ++	B	2.2	15	5.5	0.5	5	6	6	9	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27
CWR11H^335*@+□	TBJ B 335 * 015 C □ # @ 0 ^ ++	TBJ B 335 * 015 C □ L @ 9 ^ ++	B	3.3	15	5	0.5	5	6	6	8	9	0.085	0.13	0.12	0.05	0.65	0.59	0.26
CWR11H^475*@+□	TBJ B 475 * 015 C □ # @ 0 ^ ++	TBJ B 475 * 015 C □ L @ 9 ^ ++	B	4.7	15	4	0.7	7	8.4	6	9	9	0.085	0.15	0.13	0.06	0.58	0.52	0.23
CWR11H^106*@+□	TBJ C 106 * 015 C □ # @ 0 ^ ++	TBJ C 106 * 015 C □ L @ 9 ^ ++	C	10	15	2.5	1.6	16	19.2	6	8	9	0.110	0.21	0.19	0.08	0.52	0.47	0.21
CWR11H^226*@+□	TBJ D 226 * 015 C □ # @ 0 ^ ++	TBJ D 226 * 015 C □ L @ 9 ^ ++	D	22	15	1.1	3.3	33	39.6	6	8	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16
CWR11H^336*@+□	TBJ D 336 * 015 C □ # @ 0 ^ ++	TBJ D 336 * 015 C □ L @ 9 ^ ++	D	33	15	0.9	5.3	53	63.6	6	9	9	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR11J^474*@+□	TBJ A 474 * 020 C □ # @ 0 ^ ++	TBJ A 474 * 020 C □ L @ 9 ^ ++	A	0.47	20	14	0.5	5	6	4	6	6	0.075	0.07	0.07	0.03	1.02	0.92	0.41
CWR11J^684*@+□	TBJ A 684 * 020 C □ # @ 0 ^ ++	TBJ A 684 * 020 C □ L @ 9 ^ ++	A	0.68	20	12	0.5	5	6	4	6	6	0.075	0.08	0.07	0.03	0.95	0.85	0.38
CWR11J^105*@+□	TBJ A 105 * 020 C □ # @ 0 ^ ++	TBJ A 105 * 020 C □ L @ 9 ^ ++	A	1	20	10	0.5	5	6	4	6	6	0.075	0.09	0.08	0.03	0.87	0.78	0.35
CWR11J^155*@+□	TBJ B 155 * 020 C □ # @ 0 ^ ++	TBJ B 155 * 020 C □ L @ 9 ^ ++	B	1.5	20	6	0.5	5	6	6	9	9	0.085	0.12	0.11	0.05	0.71	0.64	0.29
CWR11J^225*@+□	TBJ B 225 * 020 C □ # @ 0 ^ ++	TBJ B 225 * 020 C □ L @ 9 ^ ++	B	2.2	20	5	0.5	5	6	6	8	9	0.085	0.13	0.12	0.05	0.65	0.59	0.26
CWR11J^335*@+□	TBJ B 335 * 020 C □ # @ 0 ^ ++	TBJ B 335 * 020 C □ L @ 9 ^ ++	B	3.3	20	4	0.7	7	8.4	6	9	9	0.085	0.15	0.13	0.06	0.58	0.52	0.23
CWR11J^475*@+□	TBJ C 475 * 020 C □ # @ 0 ^ ++	TBJ C 475 * 020 C □ L @ 9 ^ ++	C	4.7	20	3	1	10	12	6	8	9	0.110	0.19	0.17	0.08	0.57	0.52	0.23
CWR11J^685*@+□	TBJ C 685 * 020 C □ # @ 0 ^ ++	TBJ C 685 * 020 C □ L @ 9 ^ ++	C	6.8	20	2.4	1.4	14	16.8	6	9	9	0.110	0.21	0.19	0.09	0.51	0.46	0.21
CWR11J^156*@+□	TBJ D 156 * 020 C □ # @ 0 ^ ++	TBJ D 156 * 020 C □ L @ 9 ^ ++	D	15	20	1.1	3	30	36	6	8	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16
CWR11J^226*@+□	TBJ D 226 * 020 C □ # @ 0 ^ ++	TBJ D 226 * 020 C □ L @ 9 ^ ++	D	22	20	0.9	4.4	44	52.8	6	9	9	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR11K^334*@+□	TBJ A 334 * 025 C □ # @ 0 ^ ++	TBJ A 334 * 025 C □ L @ 9 ^ ++	A	0.33	25	15	0.5	5	6	4	6	6	0.075	0.07	0.06	0.03	1.06	0.95	0.42
CWR11K^474*@+□	TBJ A 474 * 025 C □ # @ 0 ^ ++	TBJ A 474 * 025 C □ L @ 9 ^ ++	A	0.47	25	14	0.5	5	6	4	6	6	0.075	0.07	0.07	0.03	1.02	0.92	0.41
CWR11K^684*@+□	TBJ B 684 * 025 C □ # @ 0 ^ ++	TBJ B 684 * 025 C □ L @ 9 ^ ++	B	0.68	25	7.5	0.5	5	6	4	6	6	0.085	0.11	0.10	0.04	0.80	0.72	0.32
CWR11K^105*@+□	TBJ B 105 * 025 C □ # @ 0 ^ ++	TBJ B 105 * 025 C □ L @ 9 ^ ++	B	1	25	6.5	0.5	5	6	4	6	6	0.085	0.11	0.10	0.05	0.74	0.67	0.30
CWR11K^155*@+□	TBJ B 155 * 025 C □ # @ 0 ^ ++	TBJ B 155 * 025 C □ L @ 9 ^ ++	B	1.5	25	6.5	0.5	5	6	6	8	9	0.085	0.11	0.10	0.05	0.74	0.67	0.30
CWR11K^225*@+□	TBJ C 225 * 025 C □ # @ 0 ^ ++	TBJ C 225 * 025 C □ L @ 9 ^ ++	C	2.2	25	3.5	0.6	6	7.2	6	9	9	0.110	0.18	0.16	0.07	0.62	0.56	0.25
CWR11K^335*@+□	TBJ C 335 * 025 C □ # @ 0 ^ ++	TBJ C 335 * 025 C □ L @ 9 ^ ++	C	3.3	25	3.5	0.9	9	10.8	6	8	9	0.110	0.18	0.16	0.07	0.62	0.56	0.25
CWR11K^475*@+□	TBJ C 475 * 025 C □ # @ 0 ^ ++	TBJ C 475 * 025 C □ L @ 9 ^ ++	C	4.7	25	2.5	1.2	12	14.4	6	9	9	0.110	0.21	0.19	0.08	0.52	0.47	0.21
CWR11K^685*@+□	TBJ D 685 * 025 C □ # @ 0 ^ ++	TBJ D 685 * 025 C □ L @ 9 ^ ++	D	6.8	25	1.4	1.7	17	20.4	6	9	9	0.150	0.33	0.29	0.13	0.46	0.41	0.18

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

RATING & PART NUMBER REFERENCE

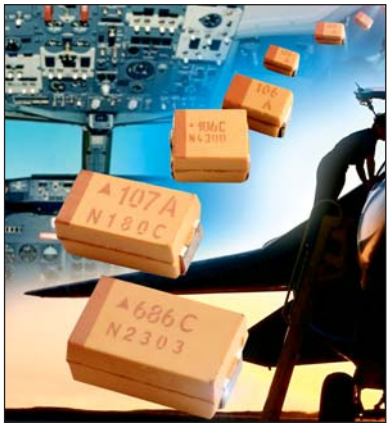
				Parametric Specifications by Rating per MIL-PRF-55365/8										Typical Ripple Data by Rating						
				Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
				@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
CWR11 P/N	AVX COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR11K^106*@+□	TBJ D 106 * 025 C □ # @ 0 ^ ++	TBJ D 106 * 025 C □ L @ 9 ^ ++	D	10	25	1.2	2.5	25	30	6	8	9	0.150	0.35	0.32	0.14	0.42	0.38	0.17
CWR11K^156*@+□	TBJ D 156 * 025 C □ # @ 0 ^ ++	TBJ D 156 * 025 C □ L @ 9 ^ ++	D	15	25	1	3.8	38	45.6	6	9	9	0.150	0.39	0.35	0.15	0.39	0.35	0.15
CWR11M^104*@+□	TBJ A 104 * 035 C □ # @ 0 ^ ++	TBJ A 104 * 035 C □ L @ 9 ^ ++	A	0.1	35	24	0.5	5	6	4	6	6	0.075	0.06	0.05	0.02	1.34	1.21	0.54
CWR11M^154*@+□	TBJ A 154 * 035 C □ # @ 0 ^ ++	TBJ A 154 * 035 C □ L @ 9 ^ ++	A	0.15	35	21	0.5	5	6	4	6	6	0.075	0.06	0.05	0.02	1.25	1.13	0.50
CWR11M^224*@+□	TBJ A 224 * 035 C □ # @ 0 ^ ++	TBJ A 224 * 035 C □ L @ 9 ^ ++	A	0.22	35	18	0.5	5	6	4	6	6	0.075	0.06	0.06	0.03	1.16	1.05	0.46
CWR11M^334*@+□	TBJ A 334 * 035 C □ # @ 0 ^ ++	TBJ A 334 * 035 C □ L @ 9 ^ ++	A	0.33	35	15	0.5	5	6	4	6	6	0.075	0.07	0.06	0.03	1.06	0.95	0.42
CWR11M^474*@+□	TBJ B 474 * 035 C □ # @ 0 ^ ++	TBJ B 474 * 035 C □ L @ 9 ^ ++	B	0.47	35	10	0.5	5	6	4	6	6	0.085	0.09	0.08	0.04	0.92	0.83	0.37
CWR11M^684*@+□	TBJ B 684 * 035 C □ # @ 0 ^ ++	TBJ B 684 * 035 C □ L @ 9 ^ ++	B	0.68	35	8	0.5	5	6	4	6	6	0.085	0.10	0.09	0.04	0.82	0.74	0.33
CWR11M^105*@+□	TBJ B 105 * 035 C □ # @ 0 ^ ++	TBJ B 105 * 035 C □ L @ 9 ^ ++	B	1	35	6.5	0.5	5	6	4	6	6	0.085	0.11	0.10	0.05	0.74	0.67	0.30
CWR11M^155*@+□	TBJ C 155 * 035 C □ # @ 0 ^ ++	TBJ C 155 * 035 C □ L @ 9 ^ ++	C	1.5	35	4.5	0.5	5	6	6	8	9	0.110	0.16	0.14	0.06	0.70	0.63	0.28
CWR11M^225*@+□	TBJ C 225 * 035 C □ # @ 0 ^ ++	TBJ C 225 * 035 C □ L @ 9 ^ ++	C	2.2	35	3.5	0.8	8	9.6	6	8	9	0.110	0.18	0.16	0.07	0.62	0.56	0.25
CWR11M^335*@+□	TBJ C 335 * 035 C □ # @ 0 ^ ++	TBJ C 335 * 035 C □ L @ 9 ^ ++	C	3.3	35	2.5	1.2	12	14.4	6	8	9	0.110	0.21	0.19	0.08	0.52	0.47	0.21
CWR11M^475*@+□	TBJ D 475 * 035 C □ # @ 0 ^ ++	TBJ D 475 * 035 C □ L @ 9 ^ ++	D	4.7	35	1.5	1.7	17	20.4	6	8	9	0.150	0.32	0.28	0.13	0.47	0.43	0.19
CWR11M^685*@+□	TBJ D 685 * 035 C □ # @ 0 ^ ++	TBJ D 685 * 035 C □ L @ 9 ^ ++	D	6.8	35	1.3	2.4	24	28.8	6	9	9	0.150	0.34	0.31	0.14	0.44	0.40	0.18
CWR11N^104*@+□	TBJ A 104 * 050 C □ # @ 0 ^ ++	TBJ A 104 * 050 C □ L @ 9 ^ ++	A	0.1	50	22	0.5	5	12	6	8	8	0.075	0.06	0.05	0.02	1.28	1.16	0.51
CWR11N^154*@+□	TBJ B 154 * 050 C □ # @ 0 ^ ++	TBJ B 154 * 050 C □ L @ 9 ^ ++	B	0.15	50	17	0.5	5	6	4	6	6	0.085	0.07	0.06	0.03	1.20	1.08	0.48
CWR11N^224*@+□	TBJ B 224 * 050 C □ # @ 0 ^ ++	TBJ B 224 * 050 C □ L @ 9 ^ ++	B	0.22	50	14	0.5	5	6	4	6	6	0.085	0.08	0.07	0.03	1.09	0.98	0.44
CWR11N^334*@+□	TBJ B 334 * 050 C □ # @ 0 ^ ++	TBJ B 334 * 050 C □ L @ 9 ^ ++	B	0.33	50	12	0.5	5	6	4	6	6	0.085	0.08	0.08	0.03	1.01	0.91	0.40
CWR11N^474*@+□	TBJ C 474 * 050 C □ # @ 0 ^ ++	TBJ C 474 * 050 C □ L @ 9 ^ ++	C	0.47	50	8	0.5	5	6	4	6	6	0.110	0.12	0.11	0.05	0.94	0.84	0.38
CWR11N^684*@+□	TBJ C 684 * 050 C □ # @ 0 ^ ++	TBJ C 684 * 050 C □ L @ 9 ^ ++	C	0.68	50	7	0.5	5	6	4	6	6	0.110	0.13	0.11	0.05	0.88	0.79	0.35
CWR11N^105*@+□	TBJ C 105 * 050 C □ # @ 0 ^ ++	TBJ C 105 * 050 C □ L @ 9 ^ ++	C	1	50	6	0.5	5	6	4	6	6	0.110	0.14	0.12	0.05	0.81	0.73	0.32
CWR11N^155*@+□	TBJ D 155 * 050 C □ # @ 0 ^ ++	TBJ D 155 * 050 C □ L @ 9 ^ ++	D	1.5	50	4	0.8	8	9.6	6	8	9	0.150	0.19	0.17	0.08	0.77	0.70	0.31
CWR11N^225*@+□	TBJ D 225 * 050 C □ # @ 0 ^ ++	TBJ D 225 * 050 C □ L @ 9 ^ ++	D	2.2	50	2.5	1.1	11	13.2	6	8	9	0.150	0.24	0.22	0.10	0.61	0.55	0.24
CWR11N^335*@+□	TBJ D 335 * 050 C □ # @ 0 ^ ++	TBJ D 335 * 050 C □ L @ 9 ^ ++	D	3.3	50	2	1.7	17	20.4	6	9	9	0.150	0.27	0.25	0.11	0.55	0.49	0.22
CWR11N^475*@+□	TBJ D 475 * 050 C □ # @ 0 ^ ++	TBJ D 475 * 050 C □ L @ 9 ^ ++	D	4.7	50	1.5	2.4	24	28.8	6	9	9	0.150	0.32	0.28	0.13	0.47	0.43	0.19

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

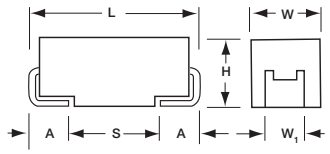


The TBJ COTS-Plus series, based on the CWR11 form factor, is a high reliability series encompassing the current range of EIA Low ESR ratings. These ratings are available with Weibull grading (B and C), surge current testing (A, B, C) per MIL-PRF-55365 Rev. G, and optional Group A from MIL-PRF-55365.

For Space Level applications, AVX SRC9000 qualification is recommended. Please refer to the TBJ COTS-Plus SRC9000 Datasheet for part number availability.

There are five termination finishes available: solder plated, fused solder plated, hot solder dipped, 100% Tin and gold plated (these correspond to "H", "K", "C", "7" and "B" termination, respectively). The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



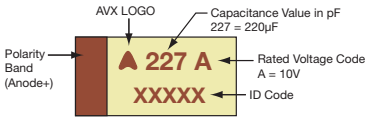
CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
V	2924	7361-38	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)

W_1 dimension applies to the termination width for A dimensional area only.

MARKING

A, B, C, D, E, V CASE



HOW TO ORDER

AVX PART NUMBER:

TBJ	D	227	*	035	C	B	S	Z	0	0	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code** 002 = 2Vdc 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**ESR** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle	**Inspection Level** S = Std. Conformance L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 cycles, -55ºC & +85ºC before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:		0.10 µF to 1500 µF								
Capacitance Tolerance:		±10%; ±20%								
Rated Voltage (V_R)	≤ 85°C:	2	4	6	10	16	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	1.4	2.7	4	7	10	13	17	23	33
Surge Voltage (V_S)	≤ 85°C:	2.6	5.2	8	13	20	26	32	46	65
Surge Voltage (V_S)	≤ 125°C:	1.7	3.4	5	8	13	16	20	28	40
Temperature Range:		-55°C to +125°C								

TBJ Series

COTS-Plus

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C									
µF	Code	2V	4V	6V	10V	15V	16V	20V	25V	35V	50V
0.10	104									A(24000)	A(22000)
0.15	154									A(21000)	A(9000, 21000) B(17000)
0.22	224									A(6000, 18000)	A(7000, 18000) B(14000)
0.33	334									A(6000, 15000)	B(12000)
0.47	474							A(14000)	A(7000, 14000)	A(6000, 12000) B(4000, 10000)	C(8000)
0.68	684					A(12000)	A(12000)	A(12000)	A(6000, 10000) B(7500)	A(6000, 8000) B(8000)	A(7900) C(7000)
1.0	105				A(10000)	A(10000)	A(10000)	A(3000, 10000)	A(8000) B(6500)	A(3000, 7500) B(2000, 6500)	C(2500, 6000)
1.5	155			A(8000)	A(8000)	A(8000)		A(6500) B(6000)	A(3000, 7500) B(1800, 6500)	A(7500) B(2500, 5200) C(4500)	C(1500, 5000) D(4000)
2.2	225		A(8000)	A(8000)	A(1800, 8000)	B(5500)	A(1800, 5500) B(5000)	A(3000, 5300) B(5000)	A(7000) B(900, 4500) C(3500)	A(1500, 4500) B(2000, 4200) C(1000, 3500)	D(1200, 2500)
3.3	335			A(8000)	A(5500) B(5500)	B(5000)	A(3500, 5000)` B(4500)	A(2500) B(1300, 4000)	A(1000, 1500) B(750, 3500) C(3500)	B(1000, 3500) C(700, 2500)	D(800, 2000)
4.7	475		A(8000)	A(6000) B(5500)	A(1400, 5000) B(4500)	B(4000)	A(2000, 4000) B(800, 3100)	A(1800, 4000) B(750, 3000) C(3000)	A(2800) B(1500, 2800) C(2500)	B(700, 3100) C(600, 2200) D(500, 1500)	D(300, 1500)
6.8	685		A(6500) B(5500)	A(1800, 5000) B(4500)	A(1800, 4000) B(3500)		A(1500, 2500) B(60, 2500) C(2500)	A(1000) B(600, 2500) C(700, 2400)	B(700, 2800) C(500, 2000) D(1400)	C (350, 1800) D(500, 1300)	D(500, 1000)
10	106		A(6000) B(4000)	A(1500, 4000) B(3500)	A(1800, 3000) B(2500) C(2500)	C(2500)	A(1000, 3000) B(500, 2800) C(500, 2500)	B(1000, 2100) C (500, 1900)	C (500, 1800) D(1200)	C (600, 1600) D (300,1000) E(200, 250)	E(400, 500) V(650)
15	156		A(4000) B(3500)	A(1500, 3500) B(3500) C(3000)	A(1000, 3200) B(450,2800) C(2500)		B(800, 2500) C(1800)	B(500, 2000) C(400, 1700) D(1100)	C(220, 300) D(300, 1000)	C(350, 1400) D(300, 900)	D(600) E(250, 600)
22	226		A(3500)	A(500, 3000) B(375, 2500) C(2200)	B(700, 2400) C(300, 1000)	D(1100)	B(600, 2300) C(375, 1600) D(1100)	B(400, 600) C(150, 1600) D(200, 900)	C(275, 1400) D(200, 900)	D(400, 900) E(300, 900)	V(390, 600)
33	336		A(3000) B(2800) C(2200)	A(600) B(600, 2200) C(1800)	A(700, 1700) B(250, 1800) C(150, 1600) D(1100)	D(900)	B(350) C(300, 1500) D(200, 900)	C(300, 1500) D(100, 900)	D(100, 900) E(300, 900)	D(300, 900) E(100, 250) V(200)	
47	476		A(500) B(2400)	A(800) B(250, 350) C(300, 1600) D(1100)	B(250, 350) C(200, 1200) D(100, 900)		C(350, 1500) D(150, 900)	D(100, 200) E(70, 250)	D(250, 900) E(80, 100)	E(200, 250) V(200, 400)	
68	686		C(1600) D(1100)	B(250, 1800) C(150, 1600) D(900)	B(600) C(80, 1200) D(100, 900)		C(125, 200) D(70, 900)	D(70, 900) E(150, 900)	E(125, 200) V(95)	V(150, 200)	
100	107		A(1400) B(200, 1600) C(1300)	B(250, 400) C(150, 900) D(900)	B(400) C(200, 1200) D(100, 900) E(125)		D(125, 900) E(100, 900)	D(85, 100) E(100, 150) V(85, 200)	V(100)		
150	157	B(150)	B(250) C(70,80)	C(50, 90) D(50, 900)	D(150, 900) E(100)		D(150, 900) E(100, 300) V(45, 75)	E(300) V(80)			
220	227	B(150, 200) D(45)	D(40,900)	C(70, 1200) D(100, 900) E(100)	D(150, 900) E(100, 900)		E(100, 150) V(75, 150)				
330	337		C(100) D(35, 45) E(900)	D(45, 50) E(100, 900) V(100)	D(150, 900) E(60, 900) V(60, 100)						
470	477	D(35)	D(45, 100) E(35)	D(45, 60) E(50, 900) V(55, 100)	E(50, 900) V(60, 100)						
680	687	D(35, 50) E(35, 50)	D(45, 60) E(40, 60)	E(45, 60) V(35, 40)							
1000	108	E(30, 40)	E(60) V(25, 35)	V(40, 50)							
1500	158	D(100) E(50) V(30, 40)	E(50, 75) V(50, 75)								

Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max				Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)		W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJB157*002L□#@0^++	B	150	2	0.15	3	30	60	10	12	14		0.085	0.753	0.677	0.301	0.113	0.102	0.045
TBJB227*002C□#@0^++	B	220	2	0.2	4.4	44	88	16	19	21		0.085	0.652	0.587	0.261	0.130	0.117	0.052
TBJB227*002L□#@0^++	B	220	2	0.15	4.4	44	88	16	19	21		0.085	0.753	0.677	0.301	0.113	0.102	0.045
TBJD227*002L□#@0^++	D	220	2	0.045	4.4	44	88	8	10	12		0.150	1.826	1.643	0.730	0.082	0.074	0.033
TBJD477*002L□#@0^++	D	470	2	0.035	9.4	94	188	8	10	12		0.150	2.070	1.863	0.828	0.072	0.065	0.029
TBJD687*002C□#@0^++	D	680	2	0.05	13.6	136	272	16	19	21		0.150	1.732	1.559	0.693	0.087	0.078	0.035
TBJD687*002L□#@0^++	D	680	2	0.035	13.6	136	272	16	19	21		0.150	2.070	1.863	0.828	0.072	0.065	0.029
TBJE687*002C□#@0^++	E	680	2	0.05	13.6	136	272	10	12	14		0.165	1.817	1.635	0.727	0.091	0.082	0.036
TBJE687*002L□#@0^++	E	680	2	0.035	13.6	136	272	10	12	14		0.165	2.171	1.954	0.868	0.076	0.068	0.030
TBJE108*002C□#@0^++	E	1000	2	0.04	20	200	400	14	17	20		0.165	2.031	1.828	0.812	0.081	0.073	0.032
TBJE108*002L□#@0^++	E	1000	2	0.03	20	200	400	14	17	20		0.165	2.345	2.111	0.938	0.070	0.063	0.028
TBJD158*002L□#@0^++	D	1500	2	0.1	30	300	600	60	90	90		0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJE158*002L□#@0^++	E	1500	2	0.05	30	300	600	20	24	28		0.165	1.817	1.635	0.727	0.091	0.082	0.036
TBJV158*002C□#@0^++	V	1500	2	0.04	30	300	600	20	24	28		0.250	2.500	2.250	1.000	0.100	0.090	0.040
TBJV158*002L□#@0^++	V	1500	2	0.03	30	300	600	20	24	28		0.250	2.887	2.598	1.155	0.087	0.078	0.035
TBJA225*004C□#@0^++	A	2.2	4	8	0.088	0.88	1.76	6	9	9		0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA475*004C□#@0^++	A	4.7	4	8	0.188	1.88	3.76	6	9	9		0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA685*004C□#@0^++	A	6.8	4	6.5	0.272	2.72	5.44	6	9	10		0.075	0.107	0.097	0.043	0.698	0.628	0.279
TBJB685*004C□#@0^++	B	6.8	4	5.5	0.272	2.72	5.44	6	9	9		0.085	0.124	0.112	0.050	0.684	0.615	0.273
TBJA106*004C□#@0^++	A	10	4	6	0.4	4	8	6	9	10		0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJB106*004C□#@0^++	B	10	4	4	0.4	4	8	6	9	9		0.085	0.146	0.131	0.058	0.583	0.525	0.233
TBJA156*004C□#@0^++	A	15	4	4	0.6	6	12	6	9	10		0.075	0.137	0.123	0.055	0.548	0.493	0.219
TBJB156*004C□#@0^++	B	15	4	3.5	0.6	6	12	6	9	9		0.085	0.156	0.140	0.062	0.545	0.491	0.218
TBJA226*004C□#@0^++	A	22	4	3.5	0.88	8.8	17.6	6	9	10		0.075	0.146	0.132	0.059	0.512	0.461	0.205
TBJA336*004C□#@0^++	A	33	4	3	1.32	13.2	26.4	6	9	9		0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJB336*004C□#@0^++	B	33	4	2.8	1.32	13.2	26.4	6	9	10		0.085	0.174	0.157	0.070	0.488	0.439	0.195
TBJC336*004C□#@0^++	C	33	4	2.2	1.32	13.2	26.4	6	9	9		0.110	0.224	0.201	0.089	0.492	0.443	0.197
TBJA476*004L□#@0^++	A	47	4	0.5	1.88	18.8	37.6	8	10	12		0.075	0.387	0.349	0.155	0.194	0.174	0.077
TBJB476*004C□#@0^++	B	47	4	2.4	1.88	18.8	37.6	6	9	10		0.085	0.188	0.169	0.075	0.452	0.406	0.181
TBJC686*004C□#@0^++	C	68	4	1.6	2.72	27.2	54.4	6	9	10		0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJD686*004C□#@0^++	D	68	4	1.1	2.72	27.2	54.4	6	9	9		0.150	0.369	0.332	0.148	0.406	0.366	0.162
TBJA107*004C□#@0^++	A	100	4	1.4	4	40	80	30	36	42		0.075	0.231	0.208	0.093	0.324	0.292	0.130
TBJB107*004C□#@0^++	B	100	4	1.6	4	40	80	8	10	12		0.085	0.230	0.207	0.092	0.369	0.332	0.148
TBJB107*004L□#@0^++	B	100	4	0.2	4	40	80	8	10	12		0.085	0.652	0.587	0.261	0.130	0.117	0.052
TBJC107*004C□#@0^++	C	100	4	1.3	4	40	80	6	9	10		0.110	0.291	0.262	0.116	0.378	0.340	0.151
TBJB157*004L□#@0^++	B	150	4	0.25	6	60	120	10	12	12		0.085	0.583	0.525	0.233	0.146	0.131	0.058
TBJC157*004C□#@0^++	C	150	4	0.08	6	60	120	6	9	10		0.110	1.173	1.055	0.469	0.094	0.084	0.038
TBJC157*004L□#@0^++	C	150	4	0.07	6	60	120	6	9	10		0.110	1.254	1.128	0.501	0.088	0.079	0.035
TBJD227*004C□#@0^++	D	220	4	0.9	8.8	88	176	8	10	12		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD227*004L□#@0^++	D	220	4	0.04	8.8	88	176	8	10	12		0.150	1.936	1.743	0.775	0.077	0.070	0.031
TBJC337*004L□#@0^++	C	330	4	0.1	13.2	132	264	8	10	12		0.110	1.049	0.944	0.420	0.105	0.094	0.042
TBJD337*004C□#@0^++	D	330	4	0.045	13.2	132	264	8	10	12		0.150	1.826	1.643	0.730	0.082	0.074	0.033
TBJD337*004L□#@0^++	D	330	4	0.035	13.2	132	264	8	10	12		0.150	2.070	1.863	0.828	0.072	0.065	0.029
TBJE337*004C□#@0^++	E	330	4	0.9	13.2	132	264	8	10	12		0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJD477*004C□#@0^++	D	470	4	0.1	18.8	188	376	12	14	16		0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJD477*004L□#@0^++	D	470	4	0.045	18.8	188	376	12	14	16		0.150	1.826	1.643	0.730	0.082	0.074	0.033
TBJE477*004L□#@0^++	E	470	4	0.035	18.8	188	376	12	14	16		0.165	2.171	1.954	0.868	0.076	0.068	0.030
TBJD687*004C□#@0^++	D	680	4	0.06	27.2	272	544	14	17	20		0.150	1.581	1.423	0.632	0.095	0.085	0.038
TBJD687*004L□#@0^++	D	680	4	0.045	27.2	272	544	14	17	20		0.150	1.826	1.643	0.730	0.082	0.074	0.033
TBJE687*004C□#@0^++	E	680	4	0.06	27.2	272	544	10	12	14		0.165	1.658	1.492	0.663	0.099	0.090	0.040
TBJE687*004L□#@0^++	E	680	4	0.04	27.2	272	544	10	12	14		0.165	2.031	1.828	0.812	0.081	0.073	0.032
TBJE108*004L□#@0^++	E	1000	4	0.06	40	400	800	14	17	20		0.165	1.658	1.492	0.663	0.099	0.090	0.040
TBJV108*004C□#@0^++	V	1000	4	0.035	40	400	800	16	19	21		0.250	2.673	2.405	1.069	0.094	0.084	0.037
TBJV108*004L□#@0^++	V	1000	4	0.025	40	400	800	16	18	20		0.250	3.162	2.846	1.265	0.079	0.071	0.032
TBJE158*004C□#@0^++	E	1500	4	0.075	60	600	1200	30	36	42		0.165	1.483	1.335	0.593	0.111	0.100	0.044
TBJE158*004L□#@0^++	E	1500	4	0.05	60	600	1200	30	36	42		0.165	1.817	1.635	0.727	0.091	0.082	0.036

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4									Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJV158*004C□#@0^++	V	1500	4	0.075	60	600	1200	30	36	42	0.250	1.826	1.643	0.730	0.137	0.123	0.055
TBJV158*004L□#@0^++	V	1500	4	0.05	60	600	1200	30	36	42	0.250	2.236	2.012	0.894	0.112	0.101	0.045
TBJA155*006C□#@0^++	A	1.5	6	8	0.09	0.9	1.08	6	9	9	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA225*006C□#@0^++	A	2.2	6	8	0.132	1.32	1.584	6	9	9	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA335*006C□#@0^++	A	3.3	6	8	0.198	1.98	2.376	6	9	9	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA475*006C□#@0^++	A	4.7	6	6	0.282	2.82	5.64	6	9	10	0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJB475*006C□#@0^++	B	4.7	6	5.5	0.282	2.82	3.384	6	9	9	0.085	0.124	0.112	0.050	0.684	0.615	0.273
TBJA685*006C□#@0^++	A	6.8	6	5	0.408	4.08	8.16	6	9	10	0.075	0.122	0.110	0.049	0.612	0.551	0.245
TBJA685*006L□#@0^++	A	6.8	6	1.8	0.408	4.08	8.16	6	9	10	0.075	0.204	0.184	0.082	0.367	0.331	0.147
TBJB685*006C□#@0^++	B	6.8	6	4.5	0.408	4.08	4.896	6	9	9	0.085	0.137	0.124	0.055	0.618	0.557	0.247
TBJA106*006C□#@0^++	A	10	6	4	0.6	6	12	6	9	10	0.075	0.137	0.123	0.055	0.548	0.493	0.219
TBJA106*006L□#@0^++	A	10	6	1.5	0.6	6	12	6	9	10	0.075	0.224	0.201	0.089	0.335	0.302	0.134
TBJB106*006C□#@0^++	B	10	6	3.5	0.6	6	7.2	6	9	9	0.085	0.156	0.140	0.062	0.545	0.491	0.218
TBJA156*006C□#@0^++	A	15	6	3.5	0.9	9	18	6	9	10	0.075	0.146	0.132	0.059	0.512	0.461	0.205
TBJA156*006L□#@0^++	A	15	6	1.5	0.9	9	18	6	9	10	0.075	0.224	0.201	0.089	0.335	0.302	0.134
TBJB156*006C□#@0^++	B	15	6	3.5	0.225	2.25	4.5	6	9	10	0.085	0.156	0.140	0.062	0.545	0.491	0.218
TBJC156*006C□#@0^++	C	15	6	3	0.9	9	10.8	6	6	9	0.110	0.191	0.172	0.077	0.574	0.517	0.230
TBJA226*006C□#@0^++	A	22	6	3	1.32	13.2	26.4	6	6	10	0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJA226*006L□#@0^++	A	22	6	0.5	1.32	13.2	26.4	6	9	10	0.075	0.387	0.349	0.155	0.194	0.174	0.077
TBJB226*006C□#@0^++	B	22	6	2.5	1.32	13.2	26.4	6	9	10	0.085	0.184	0.166	0.074	0.461	0.415	0.184
TBJB226*006L□#@0^++	B	22	6	0.375	1.32	13.2	26.4	6	9	10	0.085	0.476	0.428	0.190	0.179	0.161	0.071
TBJC226*006C□#@0^++	C	22	6	2.2	1.32	13.2	15.84	6	9	9	0.110	0.224	0.201	0.089	0.492	0.443	0.197
TBJA336*006L□#@0^++	A	33	6	0.6	1.98	19.8	39.6	8	10	12	0.075	0.354	0.318	0.141	0.212	0.191	0.085
TBJB336*006C□#@0^++	B	33	6	2.2	1.98	19.8	39.6	6	9	10	0.085	0.197	0.177	0.079	0.432	0.389	0.173
TBJB336*006L□#@0^++	B	33	6	0.6	1.98	19.8	39.6	6	9	10	0.085	0.376	0.339	0.151	0.226	0.203	0.090
TBJC336*006C□#@0^++	C	33	6	1.8	1.98	19.8	39.6	6	9	10	0.110	0.247	0.222	0.099	0.445	0.400	0.178
TBJA476*006L□#@0^++	A	47	6	0.8	2.82	28.2	56.4	10	12	14	0.075	0.306	0.276	0.122	0.245	0.220	0.098
TBJB476*006C□#@0^++	B	47	6	0.35	2.82	28.2	56.4	6	9	10	0.085	0.493	0.444	0.197	0.172	0.155	0.069
TBJB476*006L□#@0^++	B	47	6	0.25	2.82	28.2	56.4	6	9	10	0.085	0.583	0.525	0.233	0.146	0.131	0.058
TBJC476*006C□#@0^++	C	47	6	1.6	2.82	28.2	56.4	6	9	10	0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJC476*006L□#@0^++	C	47	6	0.3	2.82	28.2	56.4	6	9	10	0.110	0.606	0.545	0.242	0.182	0.163	0.073
TBJD476*006C□#@0^++	D	47	6	1.1	2.82	28.2	33.84	6	6	9	0.150	0.369	0.332	0.148	0.406	0.366	0.162
TBJB686*006C□#@0^++	B	68	6	1.8	4.08	40.8	81.6	8	10	12	0.085	0.217	0.196	0.087	0.391	0.352	0.156
TBJB686*006L□#@0^++	B	68	6	0.25	4.08	40.8	81.6	8	9	10	0.085	0.583	0.525	0.233	0.146	0.131	0.058
TBJC686*006C□#@0^++	C	68	6	1.6	4.08	40.8	81.6	6	9	10	0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJC686*006L□#@0^++	C	68	6	0.15	4.08	40.8	81.6	6	9	10	0.110	0.856	0.771	0.343	0.128	0.116	0.051
TBJD686*006C□#@0^++	D	68	6	0.9	4.08	40.8	48.96	6	9	9	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJB107*006C□#@0^++	B	100	6	0.4	6	60	120	10	12	14	0.085	0.461	0.415	0.184	0.184	0.166	0.074
TBJB107*006L□#@0^++	B	100	6	0.25	6	60	120	10	12	14	0.085	0.583	0.525	0.233	0.146	0.131	0.058
TBJC107*006C□#@0^++	C	100	6	0.9	6	60	120	6	9	10	0.110	0.350	0.315	0.140	0.315	0.283	0.126
TBJC107*006L□#@0^++	C	100	6	0.15	6	60	120	6	9	10	0.110	0.856	0.771	0.343	0.128	0.116	0.051
TBJD107*006C□#@0^++	D	100	6	0.9	6	60	120	6	9	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJC157*006C□#@0^++	C	150	6	0.09	9	90	180	6	9	10	0.110	1.106	0.995	0.442	0.099	0.090	0.040
TBJC157*006L□#@0^++	C	150	6	0.05	9	90	180	6	9	10	0.110	1.483	1.335	0.593	0.074	0.067	0.030
TBJD157*006C□#@0^++	D	150	6	0.9	9	90	180	6	9	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD157*006L□#@0^++	D	150	6	0.05	9	90	180	6	9	10	0.150	1.732	1.559	0.693	0.087	0.078	0.035
TBJC227*006C□#@0^++	C	220	6	1.2	13.2	132	264	10	12	14	0.110	0.303	0.272	0.121	0.363	0.327	0.145
TBJC227*006L□#@0^++	C	220	6	0.07	13.2	132	264	8	10	12	0.110	1.254	1.128	0.501	0.088	0.079	0.035
TBJD227*006C□#@0^++	D	220	6	0.9	13.2	132	264	8	10	12	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD227*006L□#@0^++	D	220	6	0.1	13.2	132	264	8	10	12	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJE227*006L□#@0^++	E	220	6	0.1	13.2	132	264	8	10	12	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJD337*006C□#@0^++	D	330	6	0.05	19.8	198	396	8	10	12	0.150	1.732	1.559	0.693	0.087	0.078	0.035
TBJD337*006L□#@0^++	D	330	6	0.045	19.8	198	396	8	10	12	0.150	1.826	1.643	0.730	0.082	0.074	0.033
TBJE337*006C□#@0^++	E	330	6	0.9	19.8	198	396	8	10	12	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE337*006L□#@0^++	E	330	6	0.1	19.8	198	396	8	10	12	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJV337*006L□#@0^++	V	330	6	0.1	19.8	198	396	8	10	12	0.250	1.581	1.423	0.632	0.158	0.142	0.063

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4									Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max +25°C	DCL max +85°C	DCL max +125°C	DF Max +25°C	DF Max +(85/125)°C	DF Max -55°C	Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJD477*006C□#@0^++	D	470	6	0.06	28.2	282	564	12	14	16	0.150	1.581	1.423	0.632	0.095	0.085	0.038
TBJD477*006L□#@0^++	D	470	6	0.045	28.2	282	564	12	14	16	0.150	1.826	1.643	0.730	0.082	0.074	0.033
TBJE477*006C□#@0^++	E	470	6	0.9	28.2	282	564	10	12	14	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE477*006L□#@0^++	E	470	6	0.05	28.2	282	564	10	12	14	0.165	1.817	1.635	0.727	0.091	0.082	0.036
TBJV477*006C□#@0^++	V	470	6	0.1	28.2	282	564	10	12	12	0.250	1.581	1.423	0.632	0.158	0.142	0.063
TBJV477*006L□#@0^++	V	470	6	0.055	28.2	282	564	10	12	14	0.250	2.132	1.919	0.853	0.117	0.106	0.047
TBJE687*006C□#@0^++	E	680	6	0.06	40.8	408	816	10	12	14	0.165	1.658	1.492	0.663	0.099	0.090	0.040
TBJE687*006L□#@0^++	E	680	6	0.045	40.8	408	816	10	12	14	0.165	1.915	1.723	0.766	0.086	0.078	0.034
TBJV687*006C□#@0^++	V	680	6	0.04	40.8	408	816	10	12	14	0.250	2.500	2.250	1.000	0.100	0.090	0.040
TBJV687*006L□#@0^++	V	680	6	0.035	40.8	408	816	14	17	20	0.250	2.673	2.405	1.069	0.094	0.084	0.037
TBJV108*006C□#@0^++	V	1000	6	0.05	60	600	1200	16	19	21	0.250	2.236	2.012	0.894	0.112	0.101	0.045
TBJV108*006L□#@0^++	V	1000	6	0.04	60	600	1200	16	19	21	0.250	2.500	2.250	1.000	0.100	0.090	0.040
TBJA105*010C□#@0^++	A	1	10	10	0.1	1	1.2	4	6	6	0.075	0.087	0.078	0.035	0.866	0.779	0.346
TBJA155*010C□#@0^++	A	1.5	10	8	0.15	1.5	1.8	6	6	9	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA225*010C□#@0^++	A	2.2	10	8	0.22	2.2	2.64	6	9	9	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA225*010L□#@0^++	A	2.2	10	1.8	0.22	2.2	4.4	6	9	10	0.075	0.204	0.184	0.082	0.367	0.331	0.147
TBJA335*010C□#@0^++	A	3.3	10	5.5	0.33	3.3	6.6	6	9	10	0.075	0.117	0.105	0.047	0.642	0.578	0.257
TBJB335*010C□#@0^++	B	3.3	10	5.5	0.33	3.3	3.96	6	9	9	0.085	0.124	0.112	0.050	0.684	0.615	0.273
TBJA475*010C□#@0^++	A	4.7	10	5	0.47	4.7	9.4	6	9	10	0.075	0.122	0.110	0.049	0.612	0.551	0.245
TBJA475*010L□#@0^++	A	4.7	10	1.4	0.47	4.7	9.4	6	9	10	0.075	0.231	0.208	0.093	0.324	0.292	0.130
TBJB475*010C□#@0^++	B	4.7	10	4.5	0.47	4.7	5.64	6	9	9	0.085	0.137	0.124	0.055	0.618	0.557	0.247
TBJA685*010C□#@0^++	A	6.8	10	4	0.68	6.8	13.6	6	9	10	0.075	0.137	0.123	0.055	0.548	0.493	0.219
TBJA685*010L□#@0^++	A	6.8	10	1.8	0.68	6.8	13.6	6	9	10	0.075	0.204	0.184	0.082	0.367	0.331	0.147
TBJB685*010C□#@0^++	B	6.8	10	3.5	0.68	6.8	8.16	6	9	9	0.085	0.156	0.140	0.062	0.545	0.491	0.218
TBJA106*010C□#@0^++	A	10	10	3	1	10	20	6	9	10	0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJA106*010L□#@0^++	A	10	10	1.8	1	10	20	6	9	10	0.075	0.204	0.184	0.082	0.367	0.331	0.147
TBJB106*010C□#@0^++	B	10	10	2.5	1	10	20	6	9	10	0.085	0.184	0.166	0.074	0.461	0.415	0.184
TBJC106*010C□#@0^++	C	10	10	2.5	1	10	20	6	9	10	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJA156*010C□#@0^++	A	15	10	3.2	1.5	15	30	6	9	10	0.075	0.153	0.138	0.061	0.490	0.441	0.196
TBJA156*010L□#@0^++	A	15	10	1	1.5	15	30	6	9	10	0.075	0.274	0.246	0.110	0.274	0.246	0.110
TBJB156*010C□#@0^++	B	15	10	2.8	1.5	15	30	6	9	10	0.085	0.174	0.157	0.070	0.488	0.439	0.195
TBJB156*010L□#@0^++	B	15	10	0.45	1.5	15	30	6	9	10	0.085	0.435	0.391	0.174	0.196	0.176	0.078
TBJC156*010C□#@0^++	C	15	10	2.5	1.5	15	18	6	6	9	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJB226*010C□#@0^++	B	22	10	2.4	2.2	22	44	6	9	10	0.085	0.188	0.169	0.075	0.452	0.406	0.181
TBJB226*010L□#@0^++	B	22	10	0.7	2.2	22	44	6	9	10	0.085	0.348	0.314	0.139	0.244	0.220	0.098
TBJC226*010C□#@0^++	C	22	10	1	2.2	22	44	6	9	10	0.110	0.332	0.298	0.133	0.332	0.298	0.133
TBJC226*010L□#@0^++	C	22	10	0.3	2.2	22	44	6	9	10	0.110	0.606	0.545	0.242	0.182	0.163	0.073
TBJA336*010C□#@0^++	A	33	10	1.7	3.3	33	66	8	10	12	0.075	0.210	0.189	0.084	0.357	0.321	0.143
TBJA336*010L□#@0^++	A	33	10	0.7	3.3	33	66	8	10	12	0.075	0.327	0.295	0.131	0.229	0.206	0.092
TBJB336*010C□#@0^++	B	33	10	1.8	3.3	33	66	6	9	10	0.085	0.217	0.196	0.087	0.391	0.352	0.156
TBJB336*010L□#@0^++	B	33	10	0.25	3.3	33	66	6	8	10	0.085	0.583	0.525	0.233	0.146	0.131	0.058
TBJC336*010C□#@0^++	C	33	10	1.6	3.3	33	66	6	9	10	0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJC336*010L□#@0^++	C	33	10	0.15	3.3	33	66	6	9	10	0.110	0.856	0.771	0.343	0.128	0.116	0.051
TBJD336*010C□#@0^++	D	33	10	1.1	3.3	33	39.6	6	9	9	0.150	0.369	0.332	0.148	0.406	0.366	0.162
TBJB476*010C□#@0^++	B	47	10	0.35	4.7	47	94	8	10	12	0.085	0.493	0.444	0.197	0.172	0.155	0.069
TBJB476*010L□#@0^++	B	47	10	0.25	4.7	47	94	8	10	12	0.085	0.583	0.525	0.233	0.146	0.131	0.058
TBJC476*010C□#@0^++	C	47	10	1.2	4.7	47	94	6	9	10	0.110	0.303	0.272	0.121	0.363	0.327	0.145
TBJC476*010L□#@0^++	C	47	10	0.2	4.7	47	94	6	9	10	0.110	0.742	0.667	0.297	0.148	0.133	0.059
TBJD476*010C□#@0^++	D	47	10	0.9	4.7	47	56.4	6	9	9	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD476*010L□#@0^++	D	47	10	0.1	4.7	47	94	6	9	10	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJB686*010L□#@0^++	B	68	10	0.6	6.8	68	136	8	10	12	0.085	0.376	0.339	0.151	0.226	0.203	0.090
TBJC686*010C□#@0^++	C	68	10	1.2	6.8	68	136	6	10	12	0.110	0.303	0.272	0.121	0.363	0.327	0.145
TBJC686*010L□#@0^++	C	68	10	0.08	6.8	68	136	6	10	12	0.110	1.173	1.055	0.469	0.094	0.084	0.038
TBJD686*010C□#@0^++	D	68	10	0.9	6.8	68	136	6	9	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD686*010L□#@0^++	D	68	10	0.1	6.8	68	136	6	9	10	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJB107*010L□#@0^++	B	100	10	0.4	10	100	200	8	10	12	0.085	0.461	0.415	0.184	0.184	0.166	0.074

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJC107*010C□#@0^++	C	100	10	1.2	10	100	200	8	10	12	0.110	0.303	0.272	0.121	0.363	0.327	0.145
TBJC107*010L□#@0^++	C	100	10	0.2	10	100	200	8	10	12	0.110	0.742	0.667	0.297	0.148	0.133	0.059
TBJD107*010C□#@0^++	D	100	10	0.9	10	100	200	6	9	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD107*010L□#@0^++	D	100	10	0.1	10	100	200	6	9	10	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJE107*010C□#@0^++	E	100	10	0.125	10	100	200	6	9	10	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJD157*010C□#@0^++	D	150	10	0.9	15	150	300	8	10	12	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD157*010L□#@0^++	D	150	10	0.1	15	150	300	8	10	12	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJE157*010C□#@0^++	E	150	10	0.1	15	150	300	8	10	12	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJD227*010C□#@0^++	D	220	10	0.9	22	220	440	8	10	12	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD227*010L□#@0^++	D	220	10	0.15	22	220	440	8	10	12	0.150	1.000	0.900	0.400	0.150	0.135	0.060
TBJE227*010C□#@0^++	E	220	10	0.9	22	220	440	8	10	12	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE227*010L□#@0^++	E	220	10	0.1	22	220	440	8	10	12	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJD337*010L□#@0^++	D	330	10	0.15	33	330	660	8	10	12	0.150	1.000	0.900	0.400	0.150	0.135	0.060
TBJE337*010C□#@0^++	E	330	10	0.9	33	330	660	8	10	12	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE337*010L□#@0^++	E	330	10	0.06	33	330	660	8	10	12	0.165	1.658	1.492	0.663	0.099	0.090	0.040
TBJV337*010C□#@0^++	V	330	10	0.1	33	330	660	8	10	12	0.250	1.581	1.423	0.632	0.158	0.142	0.063
TBJV337*010L□#@0^++	V	330	10	0.06	33	330	660	10	10	12	0.250	2.041	1.837	0.816	0.122	0.110	0.049
TBJE477*010C□#@0^++	E	470	10	0.9	47	470	940	10	12	14	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE477*010L□#@0^++	E	470	10	0.05	47	470	940	10	12	14	0.165	1.817	1.635	0.727	0.091	0.082	0.036
TBJV477*010C□#@0^++	V	470	10	0.1	47	470	940	10	12	14	0.250	1.581	1.423	0.632	0.158	0.142	0.063
TBJV477*010L□#@0^++	V	470	10	0.06	47	470	940	10	12	14	0.250	2.041	1.837	0.816	0.122	0.110	0.049
TBJA684*015C□#@0^++	A	0.68	15	12	0.102	1.02	1.224	4	6	6	0.075	0.079	0.071	0.032	0.949	0.854	0.379
TBJA105*015C□#@0^++	A	1	15	10	0.15	1.5	1.8	4	6	6	0.075	0.087	0.078	0.035	0.866	0.779	0.346
TBJA155*015C□#@0^++	A	1.5	15	8	0.225	2.25	2.7	6	9	9	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJB225*015C□#@0^++	B	2.2	15	5.5	0.33	3.3	3.96	6	9	9	0.085	0.124	0.112	0.050	0.684	0.615	0.273
TBJB335*015C□#@0^++	B	3.3	15	5	0.495	4.95	5.94	6	8	9	0.085	0.130	0.117	0.052	0.652	0.587	0.261
TBJB475*015C□#@0^++	B	4.7	15	4	0.705	7.05	8.46	6	8	8	0.085	0.146	0.131	0.058	0.583	0.525	0.233
TBJC106*015C□#@0^++	C	10	15	2.5	1.5	15	18	6	8	9	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJD226*015C□#@0^++	D	22	15	1.1	3.3	33	39.6	6	8	9	0.150	0.369	0.332	0.148	0.406	0.366	0.162
TBJD336*015C□#@0^++	D	33	15	0.9	4.95	49.5	59.4	6	8	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD157*015L□#@0^++	D	150	15	0.05	5.625	56.25	112.5	6	9	10	0.150	1.732	1.559	0.693	0.087	0.078	0.035
TBJA684*016C□#@0^++	A	0.68	16	12	0.109	1.088	2.176	4	6	6	0.075	0.079	0.071	0.032	0.949	0.854	0.379
TBJA105*016C□#@0^++	A	1	16	10	0.16	1.6	3.2	4	6	6	0.075	0.087	0.078	0.035	0.866	0.779	0.346
TBJA225*016C□#@0^++	A	2.2	16	5.5	0.352	3.52	7.04	6	9	10	0.075	0.117	0.105	0.047	0.642	0.578	0.257
TBJA225*016L□#@0^++	A	2.2	16	1.8	0.352	3.52	7.04	6	9	10	0.075	0.204	0.184	0.082	0.367	0.331	0.147
TBJB225*016C□#@0^++	B	2.2	16	5	0.352	3.52	7.04	6	8	8	0.085	0.130	0.117	0.052	0.652	0.587	0.261
TBJA335*016C□#@0^++	A	3.3	16	5	0.528	5.28	10.56	6	9	10	0.075	0.122	0.110	0.049	0.612	0.551	0.245
TBJA335*016L□#@0^++	A	3.3	16	3.5	0.528	5.28	10.56	6	9	10	0.075	0.146	0.132	0.059	0.512	0.461	0.205
TBJB335*016C□#@0^++	B	3.3	16	4.5	0.528	5.28	10.56	6	9	10	0.085	0.137	0.124	0.055	0.618	0.557	0.247
TBJA475*016C□#@0^++	A	4.7	16	4	0.752	7.52	15.04	6	9	10	0.075	0.137	0.123	0.055	0.548	0.493	0.219
TBJA475*016L□#@0^++	A	4.7	16	2	0.752	7.52	15.04	6	9	10	0.075	0.194	0.174	0.077	0.387	0.349	0.155
TBJB475*016C□#@0^++	B	4.7	16	3.1	0.752	7.52	15.04	6	8	8	0.085	0.166	0.149	0.066	0.513	0.462	0.205
TBJB475*016L□#@0^++	B	4.7	16	0.8	0.752	7.52	15.04	6	9	10	0.085	0.326	0.293	0.130	0.261	0.235	0.104
TBJA685*016C□#@0^++	A	6.8	16	2.5	1.088	10.88	21.76	6	9	10	0.075	0.173	0.156	0.069	0.433	0.390	0.173
TBJA685*016L□#@0^++	A	6.8	16	1.5	1.088	10.88	21.76	6	9	10	0.075	0.224	0.201	0.089	0.335	0.302	0.134
TBJB685*016C□#@0^++	B	6.8	16	2.5	1.088	10.88	21.76	6	9	10	0.085	0.184	0.166	0.074	0.461	0.415	0.184
TBJB685*016L□#@0^++	B	6.8	16	0.6	1.088	10.88	21.76	6	9	10	0.085	0.376	0.339	0.151	0.226	0.203	0.090
TBJC685*016C□#@0^++	C	6.8	16	2.5	1.088	10.88	21.76	6	9	10	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJA106*016C□#@0^++	A	10	16	3	1.6	16	32	8	10	12	0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJA106*016L□#@0^++	A	10	16	1	1.6	16	32	8	10	12	0.075	0.274	0.246	0.110	0.274	0.246	0.110
TBJB106*016C□#@0^++	B	10	16	2.8	1.6	16	32	6	9	10	0.085	0.174	0.157	0.070	0.488	0.439	0.195
TBJB106*016L□#@0^++	B	10	16	0.5	1.6	16	32	6	9	10	0.085	0.412	0.371	0.165	0.206	0.186	0.082
TBJC106*016C□#@0^++	C	10	16	2.5	1.6	16	32	6	8	10	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJC106*016L□#@0^++	C	10	16	0.5	1.6	16	32	6	9	10	0.110	0.469	0.422	0.188	0.235	0.211	0.094
TBJB156*016C□#@0^++	B	15	16	2.5	2.4	24	48	6	9	10	0.085	0.184	0.166	0.074	0.461	0.415	0.184
TBJB156*016L□#@0^++	B	15	16	0.8	2.4	24	48	6	9	10	0.085	0.326	0.293	0.130	0.261	0.235	0.104

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max				Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)		W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJC156*016C□#@0^++	C	15	16	1.8	2.4	24	48	6	9	10		0.110	0.247	0.222	0.099	0.445	0.400	0.178
TBJB226*016C□#@0^++	B	22	16	2.3	3.52	35.2	70.4	6	9	10		0.085	0.192	0.173	0.077	0.442	0.398	0.177
TBJB226*016L□#@0^++	B	22	16	0.6	3.52	35.2	70.4	6	9	10		0.085	0.376	0.339	0.151	0.226	0.203	0.090
TBJC226*016C□#@0^++	C	22	16	1.6	3.52	35.2	70.4	6	9	10		0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJC226*016L□#@0^++	C	22	16	0.375	3.52	35.2	70.4	6	9	10		0.110	0.542	0.487	0.217	0.203	0.183	0.081
TBJD226*016C□#@0^++	D	22	16	1.1	3.52	35.2	70.4	6	8	9		0.150	0.369	0.332	0.148	0.406	0.366	0.162
TBJB336*016L□#@0^++	B	33	16	0.35	5.28	52.8	105.6	8	10	12		0.085	0.493	0.444	0.197	0.172	0.155	0.069
TBJC336*016C□#@0^++	C	33	16	1.5	5.28	52.8	105.6	6	9	10		0.110	0.271	0.244	0.108	0.406	0.366	0.162
TBJC336*016L□#@0^++	C	33	16	0.3	5.28	52.8	105.6	6	9	10		0.110	0.606	0.545	0.242	0.182	0.163	0.073
TBJD336*016C□#@0^++	D	33	16	0.9	5.28	52.8	105.6	6	9	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD336*016L□#@0^++	D	33	16	0.2	5.28	52.8	105.6	6	9	10		0.150	0.866	0.779	0.346	0.173	0.156	0.069
TBJC476*016C□#@0^++	C	47	16	1.5	7.52	75.2	150.4	6	9	10		0.110	0.271	0.244	0.108	0.406	0.366	0.162
TBJC476*016L□#@0^++	C	47	16	0.35	7.52	75.2	150.4	6	9	10		0.110	0.561	0.505	0.224	0.196	0.177	0.078
TBJD476*016C□#@0^++	D	47	16	0.9	7.52	75.2	150.4	6	9	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD476*016L□#@0^++	D	47	16	0.15	7.52	75.2	150.4	6	9	10		0.150	1.000	0.900	0.400	0.150	0.135	0.060
TBJC686*016C□#@0^++	C	68	16	0.2	10.88	108.8	217.6	6	9	10		0.110	0.742	0.667	0.297	0.148	0.133	0.059
TBJC686*016L□#@0^++	C	68	16	0.125	10.88	108.8	217.6	6	9	10		0.110	0.938	0.844	0.375	0.117	0.106	0.047
TBJD686*016C□#@0^++	D	68	16	0.9	10.88	108.8	217.6	6	9	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD686*016L□#@0^++	D	68	16	0.07	10.88	108.8	217.6	6	9	10		0.150	1.464	1.317	0.586	0.102	0.092	0.041
TBJD107*016C□#@0^++	D	100	16	0.9	16	160	320	6	9	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD107*016L□#@0^++	D	100	16	0.125	16	160	320	6	9	10		0.150	1.095	0.986	0.438	0.137	0.123	0.055
TBJE107*016C□#@0^++	E	100	16	0.9	16	160	320	6	9	10		0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE107*016L□#@0^++	E	100	16	0.1	16	160	320	6	9	10		0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJD157*016C□#@0^++	D	150	16	0.9	24	240	480	6	9	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD157*016L□#@0^++	D	150	16	0.15	24	240	480	6	9	10		0.150	1.000	0.900	0.400	0.150	0.135	0.060
TBJE157*016C□#@0^++	E	150	16	0.3	24	240	480	6	9	10		0.165	0.742	0.667	0.297	0.222	0.200	0.089
TBJE157*016L□#@0^++	E	150	16	0.1	24	240	480	6	9	10		0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJV157*016C□#@0^++	V	150	16	0.075	24	240	480	8	10	12		0.250	1.826	1.643	0.730	0.137	0.123	0.055
TBJV157*016L□#@0^++	V	150	16	0.045	24	240	480	6	8	10		0.250	2.357	2.121	0.943	0.106	0.095	0.042
TBJE227*016C□#@0^++	E	220	16	0.15	35.2	352	704	10	12	14		0.165	1.049	0.944	0.420	0.157	0.142	0.063
TBJE227*016L□#@0^++	E	220	16	0.1	35.2	352	704	10	12	14		0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJV227*016C□#@0^++	V	220	16	0.15	35.2	352	704	8	10	12		0.250	1.291	1.162	0.516	0.194	0.174	0.077
TBJV227*016L□#@0^++	V	220	16	0.075	35.2	352	704	8	10	12		0.250	1.826	1.643	0.730	0.137	0.123	0.055
TBJA474*020C□#@0^++	A	0.47	20	14	0.5	5	10	4	6	6		0.075	0.073	0.066	0.029	1.025	0.922	0.410
TBJA684*020C□#@0^++	A	0.68	20	12	0.136	1.36	1.632	4	6	6		0.075	0.079	0.071	0.032	0.949	0.854	0.379
TBJA105*020C□#@0^++	A	1	20	10	0.2	2	2.4	4	6	6		0.075	0.087	0.078	0.035	0.866	0.779	0.346
TBJA105*020L□#@0^++	A	1	20	3	0.2	2	4	4	6	6		0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJA155*020C□#@0^++	A	1.5	20	6.5	0.3	3	6	4	8	10		0.075	0.107	0.097	0.043	0.698	0.628	0.279
TBJB155*020C□#@0^++	B	1.5	20	6	0.3	3	3.6	6	9	9		0.085	0.119	0.107	0.048	0.714	0.643	0.286
TBJA225*020C□#@0^++	A	2.2	20	5.3	0.44	4.4	8.8	6	8	8		0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJA225*020L□#@0^++	A	2.2	20	3	0.44	4.4	8.8	6	9	10		0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJB225*020C□#@0^++	B	2.2	20	5	0.44	4.4	5.28	6	8	9		0.085	0.130	0.117	0.052	0.652	0.587	0.261
TBJA335*020L□#@0^++	A	3.3	20	2.5	0.66	6.6	13.2	6	9	10		0.075	0.173	0.156	0.069	0.433	0.390	0.173
TBJB335*020C□#@0^++	B	3.3	20	4	0.66	6.6	7.92	6	9	9		0.085	0.146	0.131	0.058	0.583	0.525	0.233
TBJB335*020L□#@0^++	B	3.3	20	1.3	0.66	6.6	13.2	6	9	10		0.085	0.256	0.230	0.102	0.332	0.299	0.133
TBJA475*020C□#@0^++	A	4.7	20	4	0.94	9.4	18.8	6	8	10		0.075	0.137	0.123	0.055	0.548	0.493	0.219
TBJA475*020L□#@0^++	A	4.7	20	1.8	0.94	9.4	18.8	6	8	10		0.075	0.204	0.184	0.082	0.367	0.331	0.147
TBJB475*020C□#@0^++	B	4.7	20	3	0.94	9.4	18.8	6	8	10		0.085	0.168	0.151	0.067	0.505	0.454	0.202
TBJB475*020L□#@0^++	B	4.7	20	0.75	0.94	9.4	18.8	6	9	10		0.085	0.337	0.303	0.135	0.252	0.227	0.101
TBJC475*020C□#@0^++	C	4.7	20	3	0.94	9.4	11.28	6	8	9		0.110	0.191	0.172	0.077	0.574	0.517	0.230
TBJA685*020L□#@0^++	A	6.8	20	1	1.36	13.6	27.2	6	9	10		0.075	0.274	0.246	0.110	0.274	0.246	0.110
TBJB685*020C□#@0^++	B	6.8	20	2.5	1.36	13.6	27.2	6	8	10		0.085	0.184	0.166	0.074	0.461	0.415	0.184
TBJB685*020L□#@0^++	B	6.8	20	0.6	1.36	13.6	27.2	6	9	10		0.085	0.376	0.339	0.151	0.226	0.203	0.090
TBJC685*020C□#@0^++	C	6.8	20	2.4	1.36	13.6	16.32	6	9	9		0.110	0.214	0.193	0.086	0.514	0.462	0.206
TBJC685*020L□#@0^++	C	6.8	20	0.7	1.36	13.6	27.2	6	9	10		0.110	0.396	0.357	0.159	0.277	0.250	0.111
TBJB106*020C□#@0^++	B	10	20	2.1	2	20	40	6	8	10		0.085	0.201	0.181	0.080	0.422	0.380	0.169

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

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TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJB106*020L□#@0^++	B	10	20	1	2	20	40	6	8	10	0.085	0.292	0.262	0.117	0.292	0.262	0.117
TBJC106*020C□#@0^++	C	10	20	1.9	2	20	40	6	8	10	0.110	0.241	0.217	0.096	0.457	0.411	0.183
TBJC106*020L□#@0^++	C	10	20	0.5	2	20	40	6	9	10	0.110	0.469	0.422	0.188	0.235	0.211	0.094
TBJB156*020C□#@0^++	B	15	20	2	3	30	60	6	8	10	0.085	0.206	0.186	0.082	0.412	0.371	0.165
TBJB156*020L□#@0^++	B	15	20	0.5	3	30	60	6	9	10	0.085	0.412	0.371	0.165	0.206	0.186	0.082
TBJC156*020C□#@0^++	C	15	20	1.7	3	30	60	6	8	10	0.110	0.254	0.229	0.102	0.432	0.389	0.173
TBJC156*020L□#@0^++	C	15	20	0.4	3	30	60	6	8	10	0.110	0.524	0.472	0.210	0.210	0.189	0.084
TBJD156*020C□#@0^++	D	15	20	1.1	3	30	36	6	8	9	0.150	0.369	0.332	0.148	0.406	0.366	0.162
TBJB226*020C□#@0^++	B	22	20	0.6	4.4	44	88	6	9	10	0.085	0.376	0.339	0.151	0.226	0.203	0.090
TBJB226*020L□#@0^++	B	22	20	0.4	4.4	44	88	6	9	10	0.085	0.461	0.415	0.184	0.184	0.166	0.074
TBJC226*020C□#@0^++	C	22	20	1.6	4.4	44	88	6	8	10	0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJC226*020L□#@0^++	C	22	20	0.15	4.4	44	88	6	8	10	0.110	0.856	0.771	0.343	0.128	0.116	0.051
TBJD226*020C□#@0^++	D	22	20	0.9	4.4	44	52.8	6	9	9	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD226*020L□#@0^++	D	22	20	0.2	4.4	44	88	6	9	10	0.150	0.866	0.779	0.346	0.173	0.156	0.069
TBJC336*020C□#@0^++	C	33	20	1.5	6.6	66	132	6	8	10	0.110	0.271	0.244	0.108	0.406	0.366	0.162
TBJC336*020L□#@0^++	C	33	20	0.3	6.6	66	132	6	9	10	0.110	0.606	0.545	0.242	0.182	0.163	0.073
TBJD336*020C□#@0^++	D	33	20	0.9	6.6	66	132	6	8	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD336*020L□#@0^++	D	33	20	0.1	6.6	66	132	6	8	10	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJD476*020C□#@0^++	D	47	20	0.2	9.4	94	188	6	8	10	0.150	0.866	0.779	0.346	0.173	0.156	0.069
TBJD476*020L□#@0^++	D	47	20	0.1	9.4	94	188	6	8	10	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJE476*020C□#@0^++	E	47	20	0.25	9.4	94	188	6	8	8	0.165	0.812	0.731	0.325	0.203	0.183	0.081
TBJE476*020L□#@0^++	E	47	20	0.07	9.4	94	188	6	9	10	0.165	1.535	1.382	0.614	0.107	0.097	0.043
TBJD686*020C□#@0^++	D	68	20	0.9	13.6	136	272	6	8	10	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD686*020L□#@0^++	D	68	20	0.07	13.6	136	272	6	9	10	0.150	1.464	1.317	0.586	0.102	0.092	0.041
TBJE686*020C□#@0^++	E	68	20	0.9	13.6	136	272	6	8	10	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE686*020L□#@0^++	E	68	20	0.15	13.6	136	272	6	8	10	0.165	1.049	0.944	0.420	0.157	0.142	0.063
TBJD107*020C□#@0^++	D	100	20	0.1	20	200	400	6	9	10	0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJD107*020L□#@0^++	D	100	20	0.085	20	200	400	6	9	10	0.150	1.328	1.196	0.531	0.113	0.102	0.045
TBJE107*020C□#@0^++	E	100	20	0.15	20	200	400	6	9	10	0.165	1.049	0.944	0.420	0.157	0.142	0.063
TBJE107*020L□#@0^++	E	100	20	0.1	20	200	400	6	9	10	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJV107*020C□#@0^++	V	100	20	0.2	20	200	400	8	10	12	0.250	1.118	1.006	0.447	0.224	0.201	0.089
TBJV107*020L□#@0^++	V	100	20	0.085	20	200	400	8	10	12	0.250	1.715	1.543	0.686	0.146	0.131	0.058
TBJE157*020C□#@0^++	E	150	20	0.3	30	300	600	8	10	10	0.165	0.742	0.667	0.297	0.222	0.200	0.089
TBJV157*020L□#@0^++	V	150	20	0.08	30	300	600	8	10	12	0.250	1.768	1.591	0.707	0.141	0.127	0.057
TBJA334*025C□#@0^++	A	0.33	25	15	0.083	0.825	0.99	4	6	6	0.075	0.071	0.064	0.028	1.061	0.955	0.424
TBJA474*025C□#@0^++	A	0.47	25	14	0.118	1.175	1.41	4	6	6	0.075	0.073	0.066	0.029	1.025	0.922	0.410
TBJA474*025L□#@0^++	A	0.47	25	7	0.118	1.175	2.35	4	6	6	0.075	0.104	0.093	0.041	0.725	0.652	0.290
TBJA684*025C□#@0^++	A	0.68	25	10	0.68	6.8	13.6	4	6	8	0.075	0.087	0.078	0.035	0.866	0.779	0.346
TBJA684*025L□#@0^++	A	0.68	25	6	0.17	1.7	3.4	4	6	6	0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJB684*025C□#@0^++	B	0.68	25	7.5	0.17	1.7	2.04	4	6	6	0.085	0.106	0.096	0.043	0.798	0.719	0.319
TBJA105*025C□#@0^++	A	1	25	8	0.25	2.5	5	4	6	8	0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJB105*025C□#@0^++	B	1	25	6.5	0.25	2.5	3	4	6	6	0.085	0.114	0.103	0.046	0.743	0.669	0.297
TBJA155*025C□#@0^++	A	1.5	25	7.5	0.375	3.75	7.5	6	8	10	0.075	0.100	0.090	0.040	0.750	0.675	0.300
TBJA155*025L□#@0^++	A	1.5	25	3	0.375	3.75	7.5	6	8	10	0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJB155*025C□#@0^++	B	1.5	25	6.5	0.375	3.75	4.5	6	8	9	0.085	0.114	0.103	0.046	0.743	0.669	0.297
TBJB155*025L□#@0^++	B	1.5	25	1.8	0.375	3.75	7.5	6	9	10	0.085	0.217	0.196	0.087	0.391	0.352	0.156
TBJB225*025C□#@0^++	B	2.2	25	4.5	0.55	5.5	11	6	8	10	0.085	0.137	0.124	0.055	0.618	0.557	0.247
TBJB225*025L□#@0^++	B	2.2	25	0.9	0.55	5.5	11	6	9	10	0.085	0.307	0.277	0.123	0.277	0.249	0.111
TBJC225*025C□#@0^++	C	2.2	25	3.5	0.55	5.5	6.6	6	9	9	0.110	0.177	0.160	0.071	0.620	0.558	0.248
TBJA335*025C□#@0^++	A	3.3	25	1.5	0.825	8.25	16.5	6	9	10	0.075	0.224	0.201	0.089	0.335	0.302	0.134
TBJA335*025L□#@0^++	A	3.3	25	1	0.825	8.25	16.5	6	9	10	0.075	0.274	0.246	0.110	0.274	0.246	0.110
TBJB335*025C□#@0^++	B	3.3	25	3.5	0.825	8.25	16.5	6	8	10	0.085	0.156	0.140	0.062	0.545	0.491	0.218
TBJB335*025L□#@0^++	B	3.3	25	0.75	0.825	8.25	16.5	6	9	10	0.085	0.337	0.303	0.135	0.252	0.227	0.101
TBJC335*025C□#@0^++	C	3.3	25	3.5	0.825	8.25	9.9	6	8	9	0.110	0.177	0.160	0.071	0.620	0.558	0.248
TBJA475*025C□#@0^++	A	4.7	25	2.8	1.175	11.75	23.5	6	9	10	0.075	0.164	0.147	0.065	0.458	0.412	0.183
TBJB475*025C□#@0^++	B	4.7	25	2.8	1.175	11.75	23.5	6	8	10	0.085	0.174	0.157	0.070	0.488	0.439	0.195

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max				Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C								
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)		W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJB475*025L□#@0^++	B	4.7	25	1.5	1.175	11.75	23.5	6	8	10		0.085	0.238	0.214	0.095	0.357	0.321	0.143
TBJC475*025C□#@0^++	C	4.7	25	2.5	1.175	11.75	14.1	6	9	9		0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJB685*025C□#@0^++	B	6.8	25	2.8	1.7	17	34	6	8	10		0.085	0.174	0.157	0.070	0.488	0.439	0.195
TBJB685*025L□#@0^++	B	6.8	25	0.7	1.7	17	34	6	9	10		0.085	0.348	0.314	0.139	0.244	0.220	0.098
TBJC685*025C□#@0^++	C	6.8	25	2	1.7	17	34	6	8	10		0.110	0.235	0.211	0.094	0.469	0.422	0.188
TBJC685*025L□#@0^++	C	6.8	25	0.5	1.7	17	34	6	9	10		0.110	0.469	0.422	0.188	0.235	0.211	0.094
TBJD685*025C□#@0^++	D	6.8	25	1.4	1.7	17	20.4	6	9	9		0.150	0.327	0.295	0.131	0.458	0.412	0.183
TBJC106*025C□#@0^++	C	10	25	1.8	2.5	25	50	6	8	10		0.110	0.247	0.222	0.099	0.445	0.400	0.178
TBJC106*025L□#@0^++	C	10	25	0.5	2.5	25	50	6	8	10		0.110	0.469	0.422	0.188	0.235	0.211	0.094
TBJD106*025C□#@0^++	D	10	25	1.2	2.5	25	30	6	8	9		0.150	0.354	0.318	0.141	0.424	0.382	0.170
TBJC156*025C□#@0^++	C	15	25	0.3	3.75	37.5	75	6	9	10		0.110	0.606	0.545	0.242	0.182	0.163	0.073
TBJC156*025L□#@0^++	C	15	25	0.22	3.75	37.5	75	6	9	10		0.110	0.707	0.636	0.283	0.156	0.140	0.062
TBJD156*025C□#@0^++	D	15	25	1	3.75	37.5	45	6	9	9		0.150	0.387	0.349	0.155	0.387	0.349	0.155
TBJD156*025L□#@0^++	D	15	25	0.3	3.75	37.5	75	6	8	9		0.150	0.707	0.636	0.283	0.212	0.191	0.085
TBJC226*025C□#@0^++	C	22	25	1.4	5.5	55	110	6	8	10		0.110	0.280	0.252	0.112	0.392	0.353	0.157
TBJC226*025L□#@0^++	C	22	25	0.275	5.5	55	110	6	8	10		0.110	0.632	0.569	0.253	0.174	0.157	0.070
TBJD226*025C□#@0^++	D	22	25	0.9	5.5	55	110	6	8	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD226*025L□#@0^++	D	22	25	0.2	5.5	55	110	6	8	10		0.150	0.866	0.779	0.346	0.173	0.156	0.069
TBJD336*025C□#@0^++	D	33	25	0.9	8.25	82.5	165	6	8	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD336*025L□#@0^++	D	33	25	0.1	8.25	82.5	165	6	8	10		0.150	1.225	1.102	0.490	0.122	0.110	0.049
TBJE336*025C□#@0^++	E	33	25	0.9	8.25	82.5	165	6	8	10		0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE336*025L□#@0^++	E	33	25	0.3	8.25	82.5	165	6	8	10		0.165	0.742	0.667	0.297	0.222	0.200	0.089
TBJD476*025C□#@0^++	D	47	25	0.9	11.75	117.5	235	6	8	10		0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD476*025L□#@0^++	D	47	25	0.25	11.75	117.5	235	6	8	10		0.150	0.775	0.697	0.310	0.194	0.174	0.077
TBJE476*025C□#@0^++	E	47	25	0.1	11.75	117.5	235	6	9	10		0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJE476*025L□#@0^++	E	47	25	0.08	11.75	117.5	235	6	9	10		0.165	1.436	1.293	0.574	0.115	0.103	0.046
TBJE686*025C□#@0^++	E	68	25	0.2	17	170	340	6	9	10		0.165	0.908	0.817	0.363	0.182	0.163	0.073
TBJE686*025L□#@0^++	E	68	25	0.125	17	170	340	6	9	10		0.165	1.149	1.034	0.460	0.144	0.129	0.057
TBJV686*025L□#@0^++	V	68	25	0.095	17	170	340	6	9	10		0.250	1.622	1.460	0.649	0.154	0.139	0.062
TBJV107*025L□#@0^++	V	100	25	0.1	25	250	500	8	10	12		0.250	1.581	1.423	0.632	0.158	0.142	0.063
TBJA104*035C□#@0^++	A	0.1	35	24	0.035	0.35	0.42	4	6	6		0.075	0.056	0.050	0.022	1.342	1.207	0.537
TBJA154*035C□#@0^++	A	0.15	35	21	0.5	5	10	4	6	6		0.075	0.060	0.054	0.024	1.255	1.129	0.502
TBJA224*035C□#@0^++	A	0.22	35	18	0.5	5	10	4	6	6		0.075	0.065	0.058	0.026	1.162	1.046	0.465
TBJA224*035L□#@0^++	A	0.22	35	6	0.077	0.77	1.54	4	6	6		0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJA334*035C□#@0^++	A	0.33	35	15	0.5	5	10	4	6	6		0.075	0.071	0.064	0.028	1.061	0.955	0.424
TBJA334*035L□#@0^++	A	0.33	35	6	0.116	1.155	2.31	4	6	6		0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJA474*035C□#@0^++	A	0.47	35	12	0.165	1.645	3.29	4	6	8		0.075	0.079	0.071	0.032	0.949	0.854	0.379
TBJA474*035L□#@0^++	A	0.47	35	6	0.165	1.645	3.29	4	6	6		0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJB474*035C□#@0^++	B	0.47	35	10	0.165	1.645	1.974	4	6	6		0.085	0.092	0.083	0.037	0.922	0.830	0.369
TBJB474*035L□#@0^++	B	0.47	35	4	0.165	1.645	3.29	4	6	6		0.085	0.146	0.131	0.058	0.583	0.525	0.233
TBJA684*035C□#@0^++	A	0.68	35	8	0.238	2.38	4.76	4	6	8		0.075	0.097	0.087	0.039	0.775	0.697	0.310
TBJA684*035L□#@0^++	A	0.68	35	6	0.238	2.38	4.76	4	6	6		0.075	0.112	0.101	0.045	0.671	0.604	0.268
TBJB684*035C□#@0^++	B	0.68	35	8	0.238	2.38	2.856	4	6	6		0.085	0.103	0.093	0.041	0.825	0.742	0.330
TBJA105*035C□#@0^++	A	1	35	7.5	0.35	3.5	7	4	6	6		0.075	0.100	0.090	0.040	0.750	0.675	0.300
TBJA105*035L□#@0^++	A	1	35	3	0.35	3.5	7	4	6	6		0.075	0.158	0.142	0.063	0.474	0.427	0.190
TBJB105*035C□#@0^++	B	1	35	6.5	0.35	3.5	4.2	4	6	6		0.085	0.114	0.103	0.046	0.743	0.669	0.297
TBJB105*035L□#@0^++	B	1	35	2	0.35	3.5	7	4	6	6		0.085	0.206	0.186	0.082	0.412	0.371	0.165
TBJA155*035C□#@0^++	A	1.5	35	7.5	0.525	5.25	10.5	6	8	9		0.075	0.100	0.090	0.040	0.750	0.675	0.300
TBJB155*035C□#@0^++	B	1.5	35	5.2	0.525	5.25	10.5	6	8	9		0.085	0.128	0.115	0.051	0.665	0.598	0.266
TBJB155*035L□#@0^++	B	1.5	35	2.5	0.525	5.25	10.5	6	9	10		0.085	0.184	0.166	0.074	0.461	0.415	0.184
TBJC155*035C□#@0^++	C	1.5	35	4.5	0.525	5.25	6.3	6	8	9		0.110	0.156	0.141	0.063	0.704	0.633	0.281
TBJA225*035C□#@0^++	A	2.2	35	4.5	0.77	7.7	15.4	6	9	9		0.075	0.129	0.116	0.052	0.581	0.523	0.232
TBJA225*035L□#@0^++	A	2.2	35	1.5	0.77	7.7	15.4	6	9	10		0.075	0.224	0.201	0.089	0.335	0.302	0.134
TBJB225*035C□#@0^++	B	2.2	35	4.2	0.77	7.7	15.4	6	8	9		0.085	0.142	0.128	0.057	0.597	0.538	0.239
TBJB225*035L□#@0^++	B	2.2	35	2	0.77	7.7	15.4	6	8	9		0.085	0.206	0.186	0.082	0.412	0.371	0.165
TBJC225*035C□#@0^++	C	2.2	35	3.5	0.77	7.7	9.24	6	8	9		0.110	0.177	0.160	0.071	0.620	0.558	0.248

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

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TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJC225*035L□#@0^++	C	2.2	35	1	0.77	7.7	15.4	6	9	10	0.110	0.332	0.298	0.133	0.332	0.298	0.133
TBJB335*035C□#@0^++	B	3.3	35	3.5	1.155	11.55	23.1	6	8	9	0.085	0.156	0.140	0.062	0.545	0.491	0.218
TBJB335*035L□#@0^++	B	3.3	35	1	1.155	11.55	23.1	6	9	10	0.085	0.292	0.262	0.117	0.292	0.262	0.117
TBJC335*035C□#@0^++	C	3.3	35	2.5	1.155	11.55	13.86	6	8	9	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJC335*035L□#@0^++	C	3.3	35	0.7	1.155	11.55	23.1	6	9	10	0.110	0.396	0.357	0.159	0.277	0.250	0.111
TBJB475*035C□#@0^++	B	4.7	35	3.1	1.645	16.45	32.9	6	8	9	0.085	0.166	0.149	0.066	0.513	0.462	0.205
TBJB475*035L□#@0^++	B	4.7	35	0.7	1.645	16.45	32.9	6	8	8	0.085	0.348	0.314	0.139	0.244	0.220	0.098
TBJC475*035C□#@0^++	C	4.7	35	2.2	1.645	16.45	32.9	6	8	9	0.110	0.224	0.201	0.089	0.492	0.443	0.197
TBJC475*035L□#@0^++	C	4.7	35	0.6	1.645	16.45	32.9	6	8	9	0.110	0.428	0.385	0.171	0.257	0.231	0.103
TBJD475*035C□#@0^++	D	4.7	35	1.5	1.645	16.45	19.74	6	8	9	0.150	0.316	0.285	0.126	0.474	0.427	0.190
TBJD475*035L□#@0^++	D	4.7	35	0.5	1.645	16.45	32.9	6	8	9	0.150	0.548	0.493	0.219	0.274	0.246	0.110
TBJC685*035C□#@0^++	C	6.8	35	1.8	2.38	23.8	47.6	6	9	9	0.110	0.247	0.222	0.099	0.445	0.400	0.178
TBJC685*035L□#@0^++	C	6.8	35	0.35	2.38	23.8	47.6	6	9	10	0.110	0.561	0.505	0.224	0.196	0.177	0.078
TBJD685*035C□#@0^++	D	6.8	35	1.3	2.38	23.8	28.56	6	9	9	0.150	0.340	0.306	0.136	0.442	0.397	0.177
TBJD685*035L□#@0^++	D	6.8	35	0.5	2.38	23.8	47.6	6	9	9	0.150	0.548	0.493	0.219	0.274	0.246	0.110
TBJC106*035C□#@0^++	C	10	35	1.6	3.5	35	70	6	9	9	0.110	0.262	0.236	0.105	0.420	0.378	0.168
TBJC106*035L□#@0^++	C	10	35	0.6	3.5	35	70	6	9	9	0.110	0.428	0.385	0.171	0.257	0.231	0.103
TBJD106*035C□#@0^++	D	10	35	1	3.5	35	70	6	9	9	0.150	0.387	0.349	0.155	0.387	0.349	0.155
TBJD106*035L□#@0^++	D	10	35	0.3	3.5	35	70	6	9	9	0.150	0.707	0.636	0.283	0.212	0.191	0.085
TBJE106*035C□#@0^++	E	10	35	0.25	3.5	35	70	6	9	10	0.165	0.812	0.731	0.325	0.203	0.183	0.081
TBJE106*035L□#@0^++	E	10	35	0.2	3.5	35	70	6	9	10	0.165	0.908	0.817	0.363	0.182	0.163	0.073
TBJC156*035C□#@0^++	C	15	35	1.4	5.25	52.5	105	6	9	9	0.110	0.280	0.252	0.112	0.392	0.353	0.157
TBJC156*035L□#@0^++	C	15	35	0.35	5.25	52.5	105	6	9	10	0.110	0.561	0.505	0.224	0.196	0.177	0.078
TBJD156*035C□#@0^++	D	15	35	0.9	5.25	52.5	105	6	9	9	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD156*035L□#@0^++	D	15	35	0.3	5.25	52.5	105	6	9	9	0.150	0.707	0.636	0.283	0.212	0.191	0.085
TBJD226*035C□#@0^++	D	22	35	0.9	7.7	77	154	6	9	9	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD226*035L□#@0^++	D	22	35	0.4	7.7	77	154	6	9	9	0.150	0.612	0.551	0.245	0.245	0.220	0.098
TBJE226*035C□#@0^++	E	22	35	0.9	7.7	77	154	6	9	9	0.165	0.428	0.385	0.171	0.385	0.347	0.154
TBJE226*035L□#@0^++	E	22	35	0.3	7.7	77	154	6	9	9	0.165	0.742	0.667	0.297	0.222	0.200	0.089
TBJD336*035C□#@0^++	D	33	35	0.9	11.55	115.5	231	6	9	9	0.150	0.408	0.367	0.163	0.367	0.331	0.147
TBJD336*035L□#@0^++	D	33	35	0.3	11.55	115.5	231	6	9	9	0.150	0.707	0.636	0.283	0.212	0.191	0.085
TBJE336*035C□#@0^++	E	33	35	0.25	11.55	115.5	231	6	9	10	0.165	0.812	0.731	0.325	0.203	0.183	0.081
TBJE336*035L□#@0^++	E	33	35	0.1	11.55	115.5	231	6	8	10	0.165	1.285	1.156	0.514	0.128	0.116	0.051
TBJV336*035L□#@0^++	V	33	35	0.2	11.55	115.5	231	6	9	10	0.250	1.118	1.006	0.447	0.224	0.201	0.089
TBJE476*035C□#@0^++	E	47	35	0.25	16.45	164.5	329	6	8	10	0.165	0.812	0.731	0.325	0.203	0.183	0.081
TBJE476*035L□#@0^++	E	47	35	0.2	16.45	164.5	329	6	9	9	0.165	0.908	0.817	0.363	0.182	0.163	0.073
TBJV476*035C□#@0^++	V	47	35	0.4	16.45	164.5	329	6	9	10	0.250	0.791	0.712	0.316	0.316	0.285	0.126
TBJV476*035L□#@0^++	V	47	35	0.2	16.45	164.5	329	6	10	10	0.250	1.118	1.006	0.447	0.224	0.201	0.089
TBJV686*035C□#@0^++	V	68	35	0.2	23.8	238	476	6	9	10	0.250	1.118	1.006	0.447	0.224	0.201	0.089
TBJV686*035L□#@0^++	V	68	35	0.15	23.8	238	476	6	9	10	0.250	1.291	1.162	0.516	0.194	0.174	0.077
TBJA104*050C□#@0^++	A	0.1	50	22	0.05	0.5	0.6	6	8	8	0.075	0.058	0.053	0.023	1.285	1.156	0.514
TBJA154*050C□#@0^++	A	0.15	50	21	0.02	0.2	0.4	4	6	6	0.075	0.060	0.054	0.024	1.255	1.129	0.502
TBJA154*050L□#@0^++	A	0.15	50	9	0.075	0.75	1.5	4	6	6	0.075	0.091	0.082	0.037	0.822	0.739	0.329
TBJB154*050C□#@0^++	B	0.15	50	17	0.075	0.75	0.9	4	6	6	0.085	0.071	0.064	0.028	1.202	1.082	0.481
TBJA224*050C□#@0^++	A	0.22	50	18	0.11	1.1	2.2	4	6	6	0.075	0.065	0.058	0.026	1.162	1.046	0.465
TBJA224*050L□#@0^++	A	0.22	50	7	0.11	1.1	2.2	4	6	6	0.075	0.104	0.093	0.041	0.725	0.652	0.290
TBJB224*050C□#@0^++	B	0.22	50	14	0.11	1.1	1.32	4	6	6	0.085	0.078	0.070	0.031	1.091	0.982	0.436
TBJB334*050C□#@0^++	B	0.33	50	12	0.165	1.65	1.98	4	6	6	0.085	0.084	0.076	0.034	1.010	0.909	0.404
TBJC474*050C□#@0^++	C	0.47	50	8	0.235	2.35	2.82	4	6	6	0.110	0.117	0.106	0.047	0.938	0.844	0.375
TBJA684*050C□#@0^++	A	0.68	50	7.9	0.34	3.4	6.8	4	6	8	0.075	0.097	0.088	0.039	0.770	0.693	0.308
TBJC684*050C□#@0^++	C	0.68	50	7	0.34	3.4	4.08	4	6	6	0.110	0.125	0.113	0.050	0.877	0.790	0.351
TBJC105*050C□#@0^++	C	1	50	6	0.5	5	6	4	6	6	0.110	0.135	0.122	0.054	0.812	0.731	0.325
TBJC105*050L□#@0^++	C	1	50	2.5	0.5	5	10	4	6	6	0.110	0.210	0.189	0.084	0.524	0.472	0.210
TBJC155*050C□#@0^++	C	1.5	50	5	0.75	7.5	15	6	8	9	0.110	0.148	0.133	0.059	0.742	0.667	0.297
TBJC155*050L□#@0^++	C	1.5	50	1.5	0.75	7.5	15	6	9	10	0.110	0.271	0.244	0.108	0.406	0.366	0.162
TBJD155*050C□#@0^++	D	1.5	50	4	0.75	7.5	9	6	8	9	0.150	0.194	0.174	0.077	0.775	0.697	0.310

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per MIL-PRF-55365/4										Typical Power Dissipation Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
AVX COTS-Plus P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBJD225*050C□#@0^++	D	2.2	50	2.5	1.1	11	13.2	6	8	9	0.150	0.245	0.220	0.098	0.612	0.551	0.245
TBJD225*050L□#@0^++	D	2.2	50	1.2	1.1	11	22	6	9	10	0.150	0.354	0.318	0.141	0.424	0.382	0.170
TBJD335*050C□#@0^++	D	3.3	50	2	1.65	16.5	19.8	6	9	9	0.150	0.274	0.246	0.110	0.548	0.493	0.219
TBJD335*050L□#@0^++	D	3.3	50	0.8	1.65	16.5	33	6	9	10	0.150	0.433	0.390	0.173	0.346	0.312	0.139
TBJD475*050C□#@0^++	D	4.7	50	1.5	2.35	23.5	28.2	6	9	9	0.150	0.316	0.285	0.126	0.474	0.427	0.190
TBJD475*050L□#@0^++	D	4.7	50	0.3	2.35	23.5	47	6	9	9	0.150	0.707	0.636	0.283	0.212	0.191	0.085
TBJD685*050C□#@0^++	D	6.8	50	1	3.4	34	68	6	9	9	0.150	0.387	0.349	0.155	0.387	0.349	0.155
TBJD685*050L□#@0^++	D	6.8	50	0.5	3.4	34	68	6	9	9	0.150	0.548	0.493	0.219	0.274	0.246	0.110
TBJE106*050C□#@0^++	E	10	50	0.5	5	50	100	6	9	10	0.165	0.574	0.517	0.230	0.287	0.259	0.115
TBJE106*050L□#@0^++	E	10	50	0.4	5	50	100	6	9	10	0.165	0.642	0.578	0.257	0.257	0.231	0.103
TBJV106*050C□#@0^++	V	10	50	0.65	5	50	100	3			0.250	0.620	0.558	0.248	0.403	0.363	0.161
TBJD156*050C□#@0^++	D	15	50	0.6	7.5	75	150	4	6	6	0.150	0.500	0.450	0.200	0.300	0.270	0.120
TBJE156*050C□#@0^++	E	15	50	0.6	7.5	75	150	8	10	12	0.165	0.524	0.472	0.210	0.315	0.283	0.126
TBJE156*050L□#@0^++	E	15	50	0.25	7.5	75	150	6	9	10	0.165	0.812	0.731	0.325	0.203	0.183	0.081
TBJV226*050C□#@0^++	V	22	50	0.6	11	110	220	8	10	12	0.250	0.645	0.581	0.258	0.387	0.349	0.155
TBJV226*050L□#@0^++	V	22	50	0.39	11	110	220	8	10	12	0.250	0.801	0.721	0.320	0.312	0.281	0.125

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level

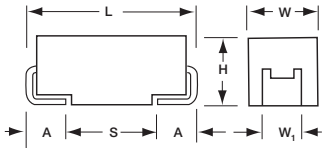
The TBJ COTS-Plus – SRC9000 series has been refined to incorporate only those commercially up-screened ratings which have been deemed suitable for mission critical and space level applications.

These capacitors have a more conservative design approach when compared to other up-screened components utilizing established CV powders and higher dielectric formation ratios. The DCL is typically 25% lower while still offering aggressive ESR values.

Currently there are 5 case sizes available with a 6th in development to expand the maximum capacitance available in a given voltage range.

These ratings are available with Weibull grading (B and C), surge current testing MIL-PRF-55365 Rev. G (A, B, C), optional Group A from MIL-PRF-55365, and the extensive SRC9000 space level screening.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



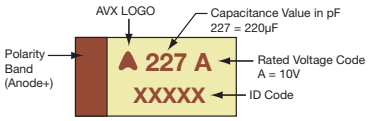
CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
U	2924	7361-43	7.30 (0.287)	6.10 (0.240)	4.10 (0.162)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)

W_1 dimension applies to the termination width for A dimensional area only.

MARKING

A, B, C, D, E, U CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C						
µF	Code	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10	104						A(20000)	
0.15	154						A(6000, 16470)	
0.22	224						A(6000, 13710)	A(7000, 7500)
0.33	334						A(6000, 11280)	A(7000)
0.47	474					A(7000, 9530)	A(4000, 9530)	B(5000)
0.68	684					A(6000, 7980)	A(6000, 8000)	B(2000, 4000)
1.0	105			A(10000)	A(3000, 6630)	A(3000, 6630)	A(3000, 6630) B(2000, 3400)	B(2000, 3400) C(3000)
1.5	155		A(7000)		A(3000, 5640)	A(3000, 5640) B(5000)	A(2000, 3100) B(2500, 5460)	C(1500, 2500)
2.2	225		A(7000)	A(3500, 4550)	A(3000, 4550)	A(1600, 2900) B(1200, 4550)	B(2000, 4550)	C(1000, 1700) D(1200, 2000)
3.3	335			A(3500, 3750) B(4500)	A(2500, 3750) B(1300, 3740)	B(2000, 3740)	B(1000, 3740) C(800, 1840) D(2000)	C(1000, 1400) D(800, 1100)
4.7	475		A(2000, 2900)	A(2000, 3160) B(1500, 3160)	A(1800, 2500) B(1000, 3160)	B(1000, 3160)	B(1500, 2200) C(600, 1410) D(1500)	D(600, 900)
6.8	685		A(1800, 4000) B(3000)	A(1500, 2000) B(1200, 2650) C(2500)	B(1000, 2650) C(2000)	B(1000, 1500) C(600, 1070)	C(600, 1070) D(1300)	D(700)
10	106	A(1500, 2000) B(3000)	A(1800, 2200) B(800, 2200)	B(800, 2200) C(2000)	B(1000, 2200) C(500, 800)	C(600, 800) D(1200)	C(600, 800) D(250, 800)	E(300, 700)
15	156	A(1500, 2030) B(700, 2030)	A(1000, 1800) B(600, 2030) C(2000)	B(800, 2000)	B(500, 1400) C(400, 750) D(1100)	C(500, 720) D(300, 720)	D(225, 720)	U*
22	226	A(900, 1700) B(600, 1880) C(2000)	B(700, 1800)	B(600, 1100) C(350, 700) D(1100)	C(400, 650) D(150, 650)	D(300, 650)	D(200, 650)	
33	336	B(600, 1740) C(1800)	B(650, 1000) C(300, 590) D(1100)	C(300, 590)	C(300, 590) D(250, 590)	D(400, 590)	E(250, 590)	
47	476	B(500, 1620) C(250, 540)	C(300, 540) D(400)	C(350, 540) D(200, 340)	D(200, 540)	D(250, 540) E(150, 540)	U(200,400)	
68	686	C(200, 490)	C(300, 490)	D(150, 490)	D(200, 490) E(125, 490)	U*		
100	107	C(300, 440)	C(200, 500) D(150, 440) E(100, 440)	D(150, 450) E(150, 450)	E(150, 300)			
150	157	C(300, 500) D(150, 400)	D(150, 400) E(150, 400)	E(150, 300)	U*			
220	227	D(150, 360)	D(500) E(150, 360)	U(200,500)				
330	337	D(400) E(150, 330)	E(100, 300) U*					
470	477	E(200, 250)						

Available Ratings: ESR limits quoted in brackets (mOhms)

Engineering samples - please contact manufacturer

*Codes under development - subject to change.

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level

HOW TO ORDER

AVX PART NUMBER:

TBJ	D	227	*	035	R	B	S	Z	0	0	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10%	**Voltage Code** 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**ESR** R= Std ESR J = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle*	**Inspection Level** S = Std. Conformance L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 cycles, -55ºC & +85ºC before Weibull

*Waffle packaging not available for the TBJ U case

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

TBJ	D	227	*	035	R	B	L	C	9	0	45
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10%	**Voltage Code**	**ESR** R = Std ESR J = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle* See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	**Surge Test Option** 45 = 10 cycles, -55ºC & +85ºC before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

*Waffle packaging not available for the TBJ U case

*****Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of 25°C							
Capacitance Range:	0.10 µF to 470 µF							
Capacitance Tolerance:	±10%; ±20%							
Leakage Current DCL:	0.0075CV							
Rated Voltage (V_R)	≤ 85°C:	6.3	10	16	20	25	35	50
Category Voltage (V_C)	≤ 125°C:	4	7	10	13	17	23	33
Surge Voltage (V_S)	≤ 85°C:	8	13	20	26	32	46	65
Surge Voltage (V_S)	≤ 125°C:	5	8	13	16	20	28	40
Temperature Range:	-55°C to +125°C							

TBJ Series

COTS-Plus – SRC9000 Space Level

RATING & PART NUMBER REFERENCE

			Parametric Specifications by Rating										Typical Ripple Data by Rating						
			Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
			@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
AVX P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	mA (100kHz)	mA (100kHz)	mA (100kHz)	mV (100kHz)	mV (100kHz)	mV (100kHz)
TBJA106*006 R ☐ # @ 0 ^ ++	TBJA106*006 R ☐ L C 9 ^ 45	A	10	6.3	2200	0.45	4.5	9	6	9	10	0.075	185	166	74	406	366	162
TBJA106*006 J ☐ # @ 0 ^ ++	TBJA106*006 J ☐ L C 9 ^ 45	A	10	6.3	1500	0.45	4.5	9	6	9	10	0.075	224	201	89	335	302	134
TBJB106*006 R ☐ # @ 0 ^ ++	TBJB106*006 R ☐ L C 9 ^ 45	B	10	6.3	3000	0.45	4.5	9	6	9	10	0.085	168	151	67	505	454	202
TBJA156*006 R ☐ # @ 0 ^ ++	TBJA156*006 R ☐ L C 9 ^ 45	A	15	6.3	2030	0.68	6.8	13.6	6	9	10	0.075	192	173	77	390	351	156
TBJA156*006 J ☐ # @ 0 ^ ++	TBJA156*006 J ☐ L C 9 ^ 45	A	15	6.3	1500	0.68	6.8	13.6	6	9	10	0.075	224	201	89	335	302	134
TBJB156*006 R ☐ # @ 0 ^ ++	TBJB156*006 R ☐ L C 9 ^ 45	B	15	6.3	2030	0.68	6.8	13.6	6	9	10	0.085	205	184	82	415	374	166
TBJB156*006 J ☐ # @ 0 ^ ++	TBJB156*006 J ☐ L C 9 ^ 45	B	15	6.3	700	0.68	6.8	13.6	6	9	10	0.085	348	314	139	244	220	98
TBJA226*006 R ☐ # @ 0 ^ ++	TBJA226*006 R ☐ L C 9 ^ 45	A	22	6.3	1700	0.99	9.9	19.8	6	9	10	0.075	210	189	84	357	321	143
TBJA226*006 J ☐ # @ 0 ^ ++	TBJA226*006 J ☐ L C 9 ^ 45	A	22	6.3	900	0.99	9.9	19.8	6	9	10	0.075	289	260	115	260	234	104
TBJB226*006 R ☐ # @ 0 ^ ++	TBJB226*006 R ☐ L C 9 ^ 45	B	22	6.3	1880	0.99	9.9	19.8	6	9	10	0.085	213	191	85	400	360	160
TBJB226*006 J ☐ # @ 0 ^ ++	TBJB226*006 J ☐ L C 9 ^ 45	B	22	6.3	600	0.99	9.9	19.8	6	9	10	0.085	376	339	151	226	203	90
TBJC226*006 R ☐ # @ 0 ^ ++	TBJC226*006 R ☐ L C 9 ^ 45	C	22	6.3	2000	0.99	9.9	19.8	6	9	10	0.110	235	211	94	469	422	188
TBJB336*006 R ☐ # @ 0 ^ ++	TBJB336*006 R ☐ L C 9 ^ 45	B	33	6.3	1740	1.5	15	30	6	9	10	0.085	221	199	88	385	346	154
TBJB336*006 J ☐ # @ 0 ^ ++	TBJB336*006 J ☐ L C 9 ^ 45	B	33	6.3	600	1.5	15	30	6	9	10	0.085	376	339	151	226	203	90
TBJC336*006 R ☐ # @ 0 ^ ++	TBJC336*006 R ☐ L C 9 ^ 45	C	33	6.3	1800	1.5	15	30	6	9	10	0.110	247	222	99	445	400	178
TBJB476*006 R ☐ # @ 0 ^ ++	TBJB476*006 R ☐ L C 9 ^ 45	B	47	6.3	1620	2.1	21	42	6	9	10	0.085	229	206	92	371	334	148
TBJB476*006 J ☐ # @ 0 ^ ++	TBJB476*006 J ☐ L C 9 ^ 45	B	47	6.3	500	2.1	21	42	6	9	10	0.085	412	371	165	206	186	82
TBJC476*006 R ☐ # @ 0 ^ ++	TBJC476*006 R ☐ L C 9 ^ 45	C	47	6.3	540	2.1	21	42	6	9	10	0.110	451	406	181	244	219	97
TBJC476*006 J ☐ # @ 0 ^ ++	TBJC476*006 J ☐ L C 9 ^ 45	C	47	6.3	250	2.1	21	42	6	9	10	0.110	663	597	265	166	149	66
TBJC686*006 R ☐ # @ 0 ^ ++	TBJC686*006 R ☐ L C 9 ^ 45	C	68	6.3	490	3.1	31	62	6	9	10	0.110	474	426	190	232	209	93
TBJC686*006 J ☐ # @ 0 ^ ++	TBJC686*006 J ☐ L C 9 ^ 45	C	68	6.3	200	3.1	31	62	6	9	10	0.110	742	667	297	148	133	59
TBJC107*006 R ☐ # @ 0 ^ ++	TBJC107*006 R ☐ L C 9 ^ 45	C	100	6.3	440	4.5	45	90	6	9	10	0.110	500	450	200	220	198	88
TBJC107*006 J ☐ # @ 0 ^ ++	TBJC107*006 J ☐ L C 9 ^ 45	C	100	6.3	300	4.5	45	90	6	9	10	0.110	606	545	242	182	163	73
TBJC157*006 R ☐ # @ 0 ^ ++	TBJC157*006 R ☐ L C 9 ^ 45	C	150	6.3	500	6.8	68	136	8	10	12	0.110	469	422	188	235	211	94
TBJC157*006 J ☐ # @ 0 ^ ++	TBJC157*006 J ☐ L C 9 ^ 45	C	150	6.3	300	6.8	68	136	8	10	12	0.110	606	545	242	182	163	73
TBJD157*006 R ☐ # @ 0 ^ ++	TBJD157*006 R ☐ L C 9 ^ 45	D	150	6.3	400	6.8	68	136	6	9	10	0.150	612	551	245	245	220	98
TBJD157*006 J ☐ # @ 0 ^ ++	TBJD157*006 J ☐ L C 9 ^ 45	D	150	6.3	150	6.8	68	136	6	9	10	0.150	1000	900	400	150	135	60
TBJD227*006 R ☐ # @ 0 ^ ++	TBJD227*006 R ☐ L C 9 ^ 45	D	220	6.3	360	9.9	99	198	8	10	12	0.150	645	581	258	232	209	93
TBJD227*006 J ☐ # @ 0 ^ ++	TBJD227*006 J ☐ L C 9 ^ 45	D	220	6.3	150	9.9	99	198	8	10	12	0.150	1000	900	400	150	135	60
TBJD337*006 R ☐ # @ 0 ^ ++	TBJD337*006 R ☐ L C 9 ^ 45	D	330	6.3	400	14	140	280	8	10	12	0.150	612	551	245	245	220	98
TBJE337*006 R ☐ # @ 0 ^ ++	TBJE337*006 R ☐ L C 9 ^ 45	E	330	6.3	330	14	140	280	8	10	12	0.165	707	636	283	233	210	93
TBJE337*006 J ☐ # @ 0 ^ ++	TBJE337*006 J ☐ L C 9 ^ 45	E	330	6.3	150	14	140	280	8	10	12	0.165	1049	944	420	157	142	63
TBJE477*006 R ☐ # @ 0 ^ ++	TBJE477*006 R ☐ L C 9 ^ 45	E	470	6.3	250	21	210	420	8	10	12	0.165	812	731	325	203	183	81
TBJE477*006 J ☐ # @ 0 ^ ++	TBJE477*006 J ☐ L C 9 ^ 45	E	470	6.3	200	21	210	420	8	10	12	0.165	908	817	363	182	163	73
TBJA155*010 R ☐ # @ 0 ^ ++	TBJA155*010 R ☐ L C 9 ^ 45	A	1.5	10	7000	0.3	3	6	6	9	10	0.075	104	93	41	725	652	290
TBJA225*010 R ☐ # @ 0 ^ ++	TBJA225*010 R ☐ L C 9 ^ 45	A	2.2	10	7000	0.3	3	6	6	9	10	0.075	104	93	41	725	652	290
TBJA475*010 R ☐ # @ 0 ^ ++	TBJA475*010 R ☐ L C 9 ^ 45	A	4.7	10	2900	0.35	3.5	7	6	9	10	0.075	161	145	64	466	420	187
TBJA475*010 J ☐ # @ 0 ^ ++	TBJA475*010 J ☐ L C 9 ^ 45	A	4.7	10	2000	0.35	3.5	7	6	9	10	0.075	194	174	77	387	349	155
TBJA685*010 R ☐ # @ 0 ^ ++	TBJA685*010 R ☐ L C 9 ^ 45	A	6.8	10	2650	0.51	5.1	10.2	6	9	10	0.075	168	151	67	446	401	178
TBJA685*010 J ☐ # @ 0 ^ ++	TBJA685*010 J ☐ L C 9 ^ 45	A	6.8	10	1800	0.51	5.1	10.2	6	9	10	0.075	204	184	82	367	331	147
TBJB685*010 R ☐ # @ 0 ^ ++	TBJB685*010 R ☐ L C 9 ^ 45	B	6.8	10	3000	0.51	5.1	10.2	6	9	10	0.085	168	151	67	505	454	202
TBJA106*010 R ☐ # @ 0 ^ ++	TBJA106*010 R ☐ L C 9 ^ 45	A	10	10	2200	0.75	7.5	15	6	9	10	0.075	185	166	74	406	366	162
TBJA106*010 J ☐ # @ 0 ^ ++	TBJA106*010 J ☐ L C 9 ^ 45	A	10	10	1800	0.75	7.5	15	6	9	10	0.075	204	184	82	367	331	147
TBJB106*010 R ☐ # @ 0 ^ ++	TBJB106*010 R ☐ L C 9 ^ 45	B	10	10	2200	0.75	7.5	15	6	9	10	0.085	197	177	79	432	389	173
TBJB106*010 J ☐ # @ 0 ^ ++	TBJB106*010 J ☐ L C 9 ^ 45	B	10	10	800	0.75	7.5	15	6	9	10	0.085	326	293	130	261	235	104
TBJA156*010 R ☐ # @ 0 ^ ++	TBJA156*010 R ☐ L C 9 ^ 45	A	15	10	1800	1.1	11	22	6	9	10	0.075	204	184	82	367	331	147
TBJA156*010 J ☐ # @ 0 ^ ++	TBJA156*010 J ☐ L C 9 ^ 45	A	15	10	1000	1.1	11	22	6	9	10	0.075	274	246	110	274	246	110
TBJB156*010 R ☐ # @ 0 ^ ++	TBJB156*010 R ☐ L C 9 ^ 45	B	15	10	2030	1.1	11	22	6	9	10	0.085	205	184	82	415	374	166
TBJB156*010 J ☐ # @ 0 ^ ++	TBJB156*010 J ☐ L C 9 ^ 45	B	15	10	600	1.1	11	22	6	9	10	0.085	376	339	151	226	203	90
TBJC156*010 R ☐ # @ 0 ^ ++	TBJC156*010 R ☐ L C 9 ^ 45	C	15	10	2000	1.1	11	22	6	9	10	0.110	235	211	94	469	422	188
TBJB226*010 R ☐ # @ 0 ^ ++	TBJB226*010 R ☐ L C 9 ^ 45	B	22	10	1880	1.7	17	34	6	9	10	0.085	213	191	85	400	360	160

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level

RATING & PART NUMBER REFERENCE

			Parametric Specifications by Rating										Typical Ripple Data by Rating						
			Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
			@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
AVX P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	mA (100kHz)	mA (100kHz)	mA (100kHz)	mV (100kHz)	mV (100kHz)	mV (100kHz)
TBJB226*010 J □ # @ 0 ^ ++	TBJB226*010 J □ L C 9 ^ 45	B	22	10	700	1.7	17	34	6	9	10	0.085	348	314	139	244	220	98
TBJB336*010 R □ # @ 0 ^ ++	TBJB336*010 R □ L C 9 ^ 45	B	33	10	1000	2.5	25	50	6	9	10	0.085	292	262	117	292	262	117
TBJB336*010 J □ # @ 0 ^ ++	TBJB336*010 J □ L C 9 ^ 45	B	33	10	650	2.5	25	50	6	9	10	0.085	362	325	145	235	212	94
TBJC336*010 R □ # @ 0 ^ ++	TBJC336*010 R □ L C 9 ^ 45	C	33	10	590	2.5	25	50	6	9	10	0.110	432	389	173	255	229	102
TBJC336*010 J □ # @ 0 ^ ++	TBJC336*010 J □ L C 9 ^ 45	C	33	10	300	2.5	25	50	6	9	10	0.110	606	545	242	182	163	73
TBJD336*010 R □ # @ 0 ^ ++	TBJD336*010 R □ L C 9 ^ 45	D	33	10	1100	2.5	25	50	6	9	10	0.150	369	332	148	406	366	162
TBJC476*010 R □ # @ 0 ^ ++	TBJC476*010 R □ L C 9 ^ 45	C	47	10	540	3.5	35	70	6	9	10	0.110	451	406	181	244	219	97
TBJC476*010 J □ # @ 0 ^ ++	TBJC476*010 J □ L C 9 ^ 45	C	47	10	300	3.5	35	70	6	9	10	0.110	606	545	242	182	163	73
TBJD476*010 R □ # @ 0 ^ ++	TBJD476*010 R □ L C 9 ^ 45	D	47	10	400	3.5	35	70	6	9	10	0.150	612	551	245	245	220	98
TBJC686*010 R □ # @ 0 ^ ++	TBJC686*010 R □ L C 9 ^ 45	C	68	10	490	5.1	51	102	6	9	10	0.110	474	426	190	232	209	93
TBJC686*010 J □ # @ 0 ^ ++	TBJC686*010 J □ L C 9 ^ 45	C	68	10	300	5.1	51	102	6	9	10	0.110	606	545	242	182	163	73
TBJC107*010 R □ # @ 0 ^ ++	TBJC107*010 R □ L C 9 ^ 45	C	100	10	500	7.5	75	150	8	10	12	0.110	469	422	188	235	211	94
TBJC107*010 J □ # @ 0 ^ ++	TBJC107*010 J □ L C 9 ^ 45	C	100	10	200	7.5	75	150	8	10	12	0.110	742	667	297	148	133	59
TBJD107*010 R □ # @ 0 ^ ++	TBJD107*010 R □ L C 9 ^ 45	D	100	10	440	7.5	75	150	6	9	10	0.150	584	525	234	257	231	103
TBJD107*010 J □ # @ 0 ^ ++	TBJD107*010 J □ L C 9 ^ 45	D	100	10	150	7.5	75	150	6	9	10	0.150	1000	900	400	150	135	60
TBJE107*010 R □ # @ 0 ^ ++	TBJE107*010 R □ L C 9 ^ 45	E	100	10	440	7.5	75	150	6	9	10	0.165	612	551	245	269	242	108
TBJE107*010 J □ # @ 0 ^ ++	TBJE107*010 J □ L C 9 ^ 45	E	100	10	100	7.5	75	150	6	9	10	0.165	1285	1156	514	128	116	51
TBJD157*010 R □ # @ 0 ^ ++	TBJD157*010 R □ L C 9 ^ 45	D	150	10	400	11	110	220	8	10	12	0.150	612	551	245	245	220	98
TBJD157*010 J □ # @ 0 ^ ++	TBJD157*010 J □ L C 9 ^ 45	D	150	10	150	11	110	220	8	10	12	0.150	1000	900	400	150	135	60
TBJE157*010 R □ # @ 0 ^ ++	TBJE157*010 R □ L C 9 ^ 45	E	150	10	400	11	110	220	8	10	12	0.165	642	578	257	257	231	103
TBJE157*010 J □ # @ 0 ^ ++	TBJE157*010 J □ L C 9 ^ 45	E	150	10	150	11	110	220	8	10	12	0.165	1049	944	420	157	142	63
TBJD227*010 R □ # @ 0 ^ ++	TBJD227*010 R □ L C 9 ^ 45	D	220	10	500	17	170	340	8	10	12	0.150	548	493	219	274	246	110
TBJE227*010 R □ # @ 0 ^ ++	TBJE227*010 R □ L C 9 ^ 45	E	220	10	360	17	170	340	8	10	12	0.165	677	609	271	244	219	97
TBJE227*010 J □ # @ 0 ^ ++	TBJE227*010 J □ L C 9 ^ 45	E	220	10	150	17	170	340	8	10	12	0.165	1049	944	420	157	142	63
TBJE337*010 R □ # @ 0 ^ ++	TBJE337*010 R □ L C 9 ^ 45	E	330	10	300	25	250	500	8	10	12	0.165	742	667	297	222	200	89
TBJE337*010 J □ # @ 0 ^ ++	TBJE337*010 J □ L C 9 ^ 45	E	330	10	100	25	250	500	8	10	12	0.165	1285	1156	514	128	116	51
TBJA105*016 R □ # @ 0 ^ ++	TBJA105*016 R □ L C 9 ^ 45	A	1	16	10000	0.3	3	6	6	9	10	0.075	87	78	35	866	779	346
TBJA225*016 R □ # @ 0 ^ ++	TBJA225*016 R □ L C 9 ^ 45	A	2.2	16	4550	0.3	3	6	6	9	10	0.075	128	116	51	584	526	234
TBJA225*016 J □ # @ 0 ^ ++	TBJA225*016 J □ L C 9 ^ 45	A	2.2	16	3500	0.3	3	6	6	9	10	0.075	146	132	59	512	461	205
TBJA335*016 R □ # @ 0 ^ ++	TBJA335*016 R □ L C 9 ^ 45	A	3.3	16	3740	0.4	4	8	6	9	10	0.075	142	127	57	530	477	212
TBJA335*016 J □ # @ 0 ^ ++	TBJA335*016 J □ L C 9 ^ 45	A	3.3	16	3500	0.4	4	8	6	9	10	0.075	146	132	59	512	461	205
TBJB335*016 R □ # @ 0 ^ ++	TBJB335*016 R □ L C 9 ^ 45	B	3.3	16	4500	0.4	4	8	6	9	10	0.085	137	124	55	618	557	247
TBJA475*016 R □ # @ 0 ^ ++	TBJA475*016 R □ L C 9 ^ 45	A	4.7	16	3160	0.56	5.6	11.2	6	9	10	0.075	154	139	62	487	438	195
TBJA475*016 J □ # @ 0 ^ ++	TBJA475*016 J □ L C 9 ^ 45	A	4.7	16	2000	0.56	5.6	11.2	6	9	10	0.075	194	174	77	387	349	155
TBJB475*016 R □ # @ 0 ^ ++	TBJB475*016 R □ L C 9 ^ 45	B	4.7	16	3160	0.56	5.6	11.2	6	9	10	0.085	164	148	66	518	466	207
TBJB475*016 J □ # @ 0 ^ ++	TBJB475*016 J □ L C 9 ^ 45	B	4.7	16	1500	0.56	5.6	11.2	6	9	10	0.085	238	214	95	357	321	143
TBJA685*016 R □ # @ 0 ^ ++	TBJA685*016 R □ L C 9 ^ 45	A	6.8	16	2000	0.82	8.2	16.4	4	6	8	0.075	194	174	77	387	349	155
TBJA685*016 J □ # @ 0 ^ ++	TBJA685*016 J □ L C 9 ^ 45	A	6.8	16	1500	0.82	8.2	16.4	4	6	8	0.075	224	201	89	335	302	134
TBJB685*016 R □ # @ 0 ^ ++	TBJB685*016 R □ L C 9 ^ 45	B	6.8	16	2650	0.82	8.2	16.4	6	9	10	0.085	179	161	72	475	427	190
TBJB685*016 J □ # @ 0 ^ ++	TBJB685*016 J □ L C 9 ^ 45	B	6.8	16	1200	0.82	8.2	16.4	6	9	10	0.085	266	240	106	319	287	128
TBJC685*016 R □ # @ 0 ^ ++	TBJC685*016 R □ L C 9 ^ 45	C	6.8	16	2500	0.82	8.2	16.4	6	9	10	0.110	210	189	84	524	472	210
TBJB106*016 R □ # @ 0 ^ ++	TBJB106*016 R □ L C 9 ^ 45	B	10	16	2200	1.2	12	24	6	9	10	0.085	197	177	79	432	389	173
TBJB106*016 J □ # @ 0 ^ ++	TBJB106*016 J □ L C 9 ^ 45	B	10	16	800	1.2	12	24	6	9	10	0.085	326	293	130	261	235	104
TBJC106*016 R □ # @ 0 ^ ++	TBJC106*016 R □ L C 9 ^ 45	C	10	16	2000	1.2	12	24	6	9	10	0.110	235	211	94	469	422	188
TBJB156*016 R □ # @ 0 ^ ++	TBJB156*016 R □ L C 9 ^ 45	B	15	16	2030	1.8	18	36	6	9	10	0.085	205	184	82	415	374	166
TBJB156*016 J □ # @ 0 ^ ++	TBJB156*016 J □ L C 9 ^ 45	B	15	16	800	1.8	18	36	6	9	10	0.085	326	293	130	261	235	104
TBJB226*016 R □ # @ 0 ^ ++	TBJB226*016 R □ L C 9 ^ 45	B	22	16	1100	2.6	26	52	6	9	10	0.085	278	250	111	306	275	122
TBJB226*016 J □ # @ 0 ^ ++	TBJB226*016 J □ L C 9 ^ 45	B	22	16	600	2.6	26	52	6	9	10	0.085	376	339	151	226	203	90
TBJC226*016 R □ # @ 0 ^ ++	TBJC226*016 R □ L C 9 ^ 45	C	22	16	700	2.6	26	52	6	9	10	0.110	396	357	159	277	250	111
TBJC226*016 J □ # @ 0 ^ ++	TBJC226*016 J □ L C 9 ^ 45	C	22	16	350	2.6	26	52	6	9	10	0.110	561	505	224	196	177	78
TBJD226*016 R □ # @ 0 ^ ++	TBJD226*016 R □ L C 9 ^ 45	D	22	16	1100	2.6	26	52	6	9	10	0.150	369	332	148	406	366	162
TBJC336*016 R □ # @ 0 ^ ++	TBJC336*016 R □ L C 9 ^ 45	C	33	16	590	4	40	80	6	9	10	0.110	432	389	173	255	229	102
TBJC336*016 J □ # @ 0 ^ ++	TBJC336*016 J □ L C 9 ^ 45	C	33	16	300	4	40	80	6	9	10	0.110	606	545	242	182	163	73

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level

RATING & PART NUMBER REFERENCE

			Parametric Specifications by Rating										Typical Ripple Data by Rating						
			Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
			@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
AVX P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	mA (100kHz)	mA (100kHz)	mA (100kHz)	mV (100kHz)	mV (100kHz)	mV (100kHz)
TBJC476*016 R ☐ # @ 0 ^ ++	TBJC476*016 R ☐ L C 9 ^ 45	C	47	16	540	5.6	56	112	6	9	10	0.110	451	406	181	244	219	97
TBJC476*016 J ☐ # @ 0 ^ ++	TBJC476*016 J ☐ L C 9 ^ 45	C	47	16	350	5.6	56	112	6	9	10	0.110	561	505	224	196	177	78
TBJD476*016 R ☐ # @ 0 ^ ++	TBJD476*016 R ☐ L C 9 ^ 45	D	47	16	540	5.6	56	112	6	9	10	0.150	527	474	211	285	256	114
TBJD476*016 J ☐ # @ 0 ^ ++	TBJD476*016 J ☐ L C 9 ^ 45	D	47	16	200	5.6	56	112	6	9	10	0.150	866	779	346	173	156	69
TBJD686*016 R ☐ # @ 0 ^ ++	TBJD686*016 R ☐ L C 9 ^ 45	D	68	16	490	8.2	82	164	6	9	10	0.150	553	498	221	271	244	108
TBJD686*016 J ☐ # @ 0 ^ ++	TBJD686*016 J ☐ L C 9 ^ 45	D	68	16	150	8.2	82	164	6	9	10	0.150	1000	900	400	150	135	60
TBJD107*016 R ☐ # @ 0 ^ ++	TBJD107*016 R ☐ L C 9 ^ 45	D	100	16	440	12	120	240	6	9	10	0.150	584	525	234	257	231	103
TBJD107*016 J ☐ # @ 0 ^ ++	TBJD107*016 J ☐ L C 9 ^ 45	D	100	16	150	12	120	240	6	9	10	0.150	1000	900	400	150	135	60
TBJE107*016 R ☐ # @ 0 ^ ++	TBJE107*016 R ☐ L C 9 ^ 45	E	100	16	440	12	120	240	6	9	10	0.165	612	551	245	269	242	108
TBJE107*016 J ☐ # @ 0 ^ ++	TBJE107*016 J ☐ L C 9 ^ 45	E	100	16	150	12	120	240	6	9	10	0.165	1049	944	420	157	142	63
TBJE157*016 R ☐ # @ 0 ^ ++	TBJE157*016 R ☐ L C 9 ^ 45	E	150	16	300	16	160	320	6	9	10	0.165	742	667	297	222	200	89
TBJE157*016 J ☐ # @ 0 ^ ++	TBJE157*016 J ☐ L C 9 ^ 45	E	150	16	150	16	160	320	6	9	10	0.165	1049	944	420	157	142	63
TBJU227*016 R ☐ # @ 0 ^ ++	TBJU227*016 R ☐ L C 9 ^ 45	U	220	16	500	26.4	264	528	12	15	15	0.165	574	517	230	287	259	115
TBJU227*016 J ☐ # @ 0 ^ ++	TBJU227*016 J ☐ L C 9 ^ 45	U	220	16	200	26.4	264	528	12	15	15	0.165	908	817	363	182	163	73
TBJA105*020 R ☐ # @ 0 ^ ++	TBJA105*020 R ☐ L C 9 ^ 45	A	1	20	6630	0.3	3	6	4	6	8	0.075	106	96	43	705	635	282
TBJA105*020 J ☐ # @ 0 ^ ++	TBJA105*020 J ☐ L C 9 ^ 45	A	1	20	3000	0.3	3	6	4	6	8	0.075	158	142	63	474	427	190
TBJA155*020 R ☐ # @ 0 ^ ++	TBJA155*020 R ☐ L C 9 ^ 45	A	1.5	20	5460	0.3	3	6	6	9	10	0.075	117	105	47	640	576	256
TBJA155*020 J ☐ # @ 0 ^ ++	TBJA155*020 J ☐ L C 9 ^ 45	A	1.5	20	3000	0.3	3	6	6	9	10	0.075	158	142	63	474	427	190
TBJA225*020 R ☐ # @ 0 ^ ++	TBJA225*020 R ☐ L C 9 ^ 45	A	2.2	20	4550	0.33	3.3	6.6	6	9	10	0.075	128	116	51	584	526	234
TBJA225*020 J ☐ # @ 0 ^ ++	TBJA225*020 J ☐ L C 9 ^ 45	A	2.2	20	3000	0.33	3.3	6.6	6	9	10	0.075	158	142	63	474	427	190
TBJA335*020 R ☐ # @ 0 ^ ++	TBJA335*020 R ☐ L C 9 ^ 45	A	3.3	20	3740	0.5	5	10	6	9	10	0.075	142	127	57	530	477	212
TBJA335*020 J ☐ # @ 0 ^ ++	TBJA335*020 J ☐ L C 9 ^ 45	A	3.3	20	2500	0.5	5	10	6	9	10	0.075	173	156	69	433	390	173
TBJB335*020 R ☐ # @ 0 ^ ++	TBJB335*020 R ☐ L C 9 ^ 45	B	3.3	20	3740	0.5	5	10	6	9	10	0.085	151	136	60	564	507	226
TBJB335*020 J ☐ # @ 0 ^ ++	TBJB335*020 J ☐ L C 9 ^ 45	B	3.3	20	1300	0.5	5	10	6	9	10	0.085	256	230	102	332	299	133
TBJA475*020 R ☐ # @ 0 ^ ++	TBJA475*020 R ☐ L C 9 ^ 45	A	4.7	20	2500	0.71	7.1	14.2	5	8	10	0.075	173	156	69	433	390	173
TBJA475*020 J ☐ # @ 0 ^ ++	TBJA475*020 J ☐ L C 9 ^ 45	A	4.7	20	1800	0.71	7.1	14.2	5	8	10	0.075	204	184	82	367	331	147
TBJB475*020 R ☐ # @ 0 ^ ++	TBJB475*020 R ☐ L C 9 ^ 45	B	4.7	20	3160	0.71	7.1	14.2	6	9	10	0.085	164	148	66	518	466	207
TBJB475*020 J ☐ # @ 0 ^ ++	TBJB475*020 J ☐ L C 9 ^ 45	B	4.7	20	1000	0.71	7.1	14.2	6	9	10	0.085	292	262	117	292	262	117
TBJB685*020 R ☐ # @ 0 ^ ++	TBJB685*020 R ☐ L C 9 ^ 45	B	6.8	20	2650	1	10	20	6	9	10	0.085	179	161	72	475	427	190
TBJB685*020 J ☐ # @ 0 ^ ++	TBJB685*020 J ☐ L C 9 ^ 45	B	6.8	20	1000	1	10	20	6	9	10	0.085	292	262	117	292	262	117
TBJC685*020 R ☐ # @ 0 ^ ++	TBJC685*020 R ☐ L C 9 ^ 45	C	6.8	20	2000	1	10	20	6	9	10	0.110	235	211	94	469	422	188
TBJB106*020 R ☐ # @ 0 ^ ++	TBJB106*020 R ☐ L C 9 ^ 45	B	10	20	2200	1.5	15	30	6	9	10	0.085	197	177	79	432	389	173
TBJB106*020 J ☐ # @ 0 ^ ++	TBJB106*020 J ☐ L C 9 ^ 45	B	10	20	1000	1.5	15	30	6	9	10	0.085	292	262	117	292	262	117
TBJC106*020 R ☐ # @ 0 ^ ++	TBJC106*020 R ☐ L C 9 ^ 45	C	10	20	800	1.5	15	30	6	9	10	0.110	371	334	148	297	267	119
TBJC106*020 J ☐ # @ 0 ^ ++	TBJC106*020 J ☐ L C 9 ^ 45	C	10	20	500	1.5	15	30	6	9	10	0.110	469	422	188	235	211	94
TBJB156*020 R ☐ # @ 0 ^ ++	TBJB156*020 R ☐ L C 9 ^ 45	B	15	20	1400	2.3	23	46	6	9	10	0.085	246	222	99	345	310	138
TBJB156*020 J ☐ # @ 0 ^ ++	TBJB156*020 J ☐ L C 9 ^ 45	B	15	20	500	2.3	23	46	6	9	10	0.085	412	371	165	206	186	82
TBJC156*020 R ☐ # @ 0 ^ ++	TBJC156*020 R ☐ L C 9 ^ 45	C	15	20	720	2.3	23	46	6	9	10	0.110	391	352	156	281	253	113
TBJC156*020 J ☐ # @ 0 ^ ++	TBJC156*020 J ☐ L C 9 ^ 45	C	15	20	400	2.3	23	46	6	9	10	0.110	524	472	210	210	189	84
TBJD156*020 R ☐ # @ 0 ^ ++	TBJD156*020 R ☐ L C 9 ^ 45	D	15	20	1100	2.3	23	46	6	9	10	0.150	369	332	148	406	366	162
TBJC226*020 R ☐ # @ 0 ^ ++	TBJC226*020 R ☐ L C 9 ^ 45	C	22	20	650	3.3	33	66	6	9	10	0.110	411	370	165	267	241	107
TBJC226*020 J ☐ # @ 0 ^ ++	TBJC226*020 J ☐ L C 9 ^ 45	C	22	20	400	3.3	33	66	6	9	10	0.110	524	472	210	210	189	84
TBJD226*020 R ☐ # @ 0 ^ ++	TBJD226*020 R ☐ L C 9 ^ 45	D	22	20	650	3.3	33	66	6	9	10	0.150	480	432	192	312	281	125
TBJD226*020 J ☐ # @ 0 ^ ++	TBJD226*020 J ☐ L C 9 ^ 45	D	22	20	150	3.3	33	66	6	9	10	0.150	1000	900	400	150	135	60
TBJC336*020 R ☐ # @ 0 ^ ++	TBJC336*020 R ☐ L C 9 ^ 45	C	33	20	590	5	50	100	6	9	10	0.110	432	389	173	255	229	102
TBJC336*020 J ☐ # @ 0 ^ ++	TBJC336*020 J ☐ L C 9 ^ 45	C	33	20	300	5	50	100	6	9	10	0.110	606	545	242	182	163	73
TBJD336*020 R ☐ # @ 0 ^ ++	TBJD336*020 R ☐ L C 9 ^ 45	D	33	20	590	5	50	100	6	9	10	0.150	504	454	202	297	268	119
TBJD336*020 J ☐ # @ 0 ^ ++	TBJD336*020 J ☐ L C 9 ^ 45	D	33	20	250	5	50	100	6	9	10	0.150	775	697	310	194	174	77
TBJD476*020 R ☐ # @ 0 ^ ++	TBJD476*020 R ☐ L C 9 ^ 45	D	47	20	540	7.1	71	142	6	9	10	0.150	527	474	211	285	256	114
TBJD476*020 J ☐ # @ 0 ^ ++	TBJD476*020 J ☐ L C 9 ^ 45	D	47	20	200	7.1	71	142	6	9	10	0.150	866	779	346	173	156	69
TBJD686*020 R ☐ # @ 0 ^ ++	TBJD686*020 R ☐ L C 9 ^ 45	D	68	20	490	10	100	200	6	9	10	0.150	553	498	221	271	244	108
TBJD686*020 J ☐ # @ 0 ^ ++	TBJD686*020 J ☐ L C 9 ^ 45	D	68	20	200	10	100	200	6	9	10	0.150	866	779	346	173	156	69
TBJE686*020 R ☐ # @ 0 ^ ++	TBJE686*020 R ☐ L C 9 ^ 45	E	68	20	490	10	100	200	6	9	10	0.165	580	522	232	284	256	114
TBJE686*020 J ☐ # @ 0 ^ ++	TBJE686*020 J ☐ L C 9 ^ 45	E	68	20	120	10	100	200	6	9	10	0.165	1173	1055	469	141	127	56
TBJE107*020 R ☐ # @ 0 ^ ++	TBJE107*020 R ☐ L C 9 ^ 45	E	100	20	300	15	150	300	6	9	10	0.165	742	667	297	222	200	89

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level

RATING & PART NUMBER REFERENCE

			Parametric Specifications by Rating										Typical Ripple Data by Rating						
			Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
			@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
AVX P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	mA (100kHz)	mA (100kHz)	mA (100kHz)	mV (100kHz)	mV (100kHz)	mV (100kHz)
TBJE107 *020 J ☐ # @ 0 ^ ++	TBJE107 *020 J ☐ L C 9 ^ 45	E	100	20	150	15	150	300	6	9	10	0.165	1049	944	420	157	142	63
TBJA474 *025 R ☐ # @ 0 ^ ++	TBJA474 *025 R ☐ L C 9 ^ 45	A	0.47	25	9530	0.3	3	6	4	6	8	0.075	89	80	35	845	761	338
TBJA474 *025 J ☐ # @ 0 ^ ++	TBJA474 *025 J ☐ L C 9 ^ 45	A	0.47	25	7000	0.3	3	6	4	6	8	0.075	104	93	41	725	652	290
TBJA684 *025 R ☐ # @ 0 ^ ++	TBJA684 *025 R ☐ L C 9 ^ 45	A	0.68	25	7980	0.3	3	6	4	6	8	0.075	97	87	39	774	696	309
TBJA684 *025 J ☐ # @ 0 ^ ++	TBJA684 *025 J ☐ L C 9 ^ 45	A	0.68	25	6000	0.3	3	6	4	6	8	0.075	112	101	45	671	604	268
TBJA105 *025 R ☐ # @ 0 ^ ++	TBJA105 *025 R ☐ L C 9 ^ 45	A	1	25	6630	0.3	3	6	4	6	8	0.075	106	96	43	705	635	282
TBJA105 *025 J ☐ # @ 0 ^ ++	TBJA105 *025 J ☐ L C 9 ^ 45	A	1	25	3000	0.3	3	6	4	6	8	0.075	158	142	63	474	427	190
TBJA155 *025 R ☐ # @ 0 ^ ++	TBJA155 *025 R ☐ L C 9 ^ 45	A	1.5	25	5460	0.3	3	6	6	9	10	0.075	117	105	47	640	576	256
TBJA155 *025 J ☐ # @ 0 ^ ++	TBJA155 *025 J ☐ L C 9 ^ 45	A	1.5	25	3000	0.3	3	6	6	9	10	0.075	158	142	63	474	427	190
TBJB155 *025 R ☐ # @ 0 ^ ++	TBJB155 *025 R ☐ L C 9 ^ 45	B	1.5	25	5000	0.3	3	6	6	9	10	0.085	130	117	52	652	587	261
TBJA225 *025 R ☐ # @ 0 ^ ++	TBJA225 *025 R ☐ L C 9 ^ 45	A	2.2	25	2900	0.41	4.1	8.2	6	9	10	0.075	161	145	64	466	420	187
TBJA225 *025 J ☐ # @ 0 ^ ++	TBJA225 *025 J ☐ L C 9 ^ 45	A	2.2	25	1600	0.41	4.1	8.2	6	9	10	0.075	217	195	87	346	312	139
TBJB225 *025 R ☐ # @ 0 ^ ++	TBJB225 *025 R ☐ L C 9 ^ 45	B	2.2	25	4550	0.41	4.1	8.2	6	9	10	0.085	137	123	55	622	560	249
TBJB225 *025 J ☐ # @ 0 ^ ++	TBJB225 *025 J ☐ L C 9 ^ 45	B	2.2	25	1200	0.41	4.1	8.2	6	9	10	0.085	266	240	106	319	287	128
TBJB335 *025 R ☐ # @ 0 ^ ++	TBJB335 *025 R ☐ L C 9 ^ 45	B	3.3	25	3740	0.62	6.2	12.4	6	9	10	0.085	151	136	60	564	507	226
TBJB335 *025 J ☐ # @ 0 ^ ++	TBJB335 *025 J ☐ L C 9 ^ 45	B	3.3	25	2000	0.62	6.2	12.4	6	9	10	0.085	206	186	82	412	371	165
TBJB475 *025 R ☐ # @ 0 ^ ++	TBJB475 *025 R ☐ L C 9 ^ 45	B	4.7	25	3160	0.88	8.8	17.6	6	9	10	0.085	164	148	66	518	466	207
TBJB475 *025 J ☐ # @ 0 ^ ++	TBJB475 *025 J ☐ L C 9 ^ 45	B	4.7	25	1000	0.88	8.8	17.6	6	9	10	0.085	292	262	117	292	262	117
TBJB685 *025 R ☐ # @ 0 ^ ++	TBJB685 *025 R ☐ L C 9 ^ 45	B	6.8	25	1500	1.3	13	26	6	9	10	0.085	238	214	95	357	321	143
TBJB685 *025 J ☐ # @ 0 ^ ++	TBJB685 *025 J ☐ L C 9 ^ 45	B	6.8	25	1000	1.3	13	26	6	9	10	0.085	292	262	117	292	262	117
TBJC685 *025 R ☐ # @ 0 ^ ++	TBJC685 *025 R ☐ L C 9 ^ 45	C	6.8	25	1070	1.3	13	26	6	9	10	0.110	321	289	128	343	309	137
TBJC685 *025 J ☐ # @ 0 ^ ++	TBJC685 *025 J ☐ L C 9 ^ 45	C	6.8	25	600	1.3	13	26	6	9	10	0.110	428	385	171	257	231	103
TBJC106 *025 R ☐ # @ 0 ^ ++	TBJC106 *025 R ☐ L C 9 ^ 45	C	10	25	800	1.9	19	38	6	9	10	0.110	371	334	148	297	267	119
TBJC106 *025 J ☐ # @ 0 ^ ++	TBJC106 *025 J ☐ L C 9 ^ 45	C	10	25	600	1.9	19	38	6	9	10	0.110	428	385	171	257	231	103
TBJD106 *025 R ☐ # @ 0 ^ ++	TBJD106 *025 R ☐ L C 9 ^ 45	D	10	25	1200	1.9	19	38	6	9	10	0.150	354	318	141	424	382	170
TBJC156 *025 R ☐ # @ 0 ^ ++	TBJC156 *025 R ☐ L C 9 ^ 45	C	15	25	720	2.8	28	56	6	9	10	0.110	391	352	156	281	253	113
TBJC156 *025 J ☐ # @ 0 ^ ++	TBJC156 *025 J ☐ L C 9 ^ 45	C	15	25	500	2.8	28	56	6	9	10	0.110	469	422	188	235	211	94
TBJD156 *025 R ☐ # @ 0 ^ ++	TBJD156 *025 R ☐ L C 9 ^ 45	D	15	25	720	2.8	28	56	6	9	10	0.150	456	411	183	329	296	131
TBJD156 *025 J ☐ # @ 0 ^ ++	TBJD156 *025 J ☐ L C 9 ^ 45	D	15	25	300	2.8	28	56	6	9	10	0.150	707	636	283	212	191	85
TBJD226 *025 R ☐ # @ 0 ^ ++	TBJD226 *025 R ☐ L C 9 ^ 45	D	22	25	650	4.1	41	82	6	9	10	0.150	480	432	192	312	281	125
TBJD226 *025 J ☐ # @ 0 ^ ++	TBJD226 *025 J ☐ L C 9 ^ 45	D	22	25	300	4.1	41	82	6	9	10	0.150	707	636	283	212	191	85
TBJD336 *025 R ☐ # @ 0 ^ ++	TBJD336 *025 R ☐ L C 9 ^ 45	D	33	25	590	6.2	62	124	6	9	10	0.150	504	454	202	297	268	119
TBJD336 *025 J ☐ # @ 0 ^ ++	TBJD336 *025 J ☐ L C 9 ^ 45	D	33	25	400	6.2	62	124	6	9	10	0.150	612	551	245	245	220	98
TBJD476 *025 R ☐ # @ 0 ^ ++	TBJD476 *025 R ☐ L C 9 ^ 45	D	47	25	540	8.8	88	176	6	9	10	0.150	527	474	211	285	256	114
TBJD476 *025 J ☐ # @ 0 ^ ++	TBJD476 *025 J ☐ L C 9 ^ 45	D	47	25	250	8.8	88	176	6	9	10	0.150	775	697	310	194	174	77
TBJE476 *025 R ☐ # @ 0 ^ ++	TBJE476 *025 R ☐ L C 9 ^ 45	E	47	25	540	8.8	88	176	6	9	10	0.165	553	497	221	298	269	119
TBJE476 *025 J ☐ # @ 0 ^ ++	TBJE476 *025 J ☐ L C 9 ^ 45	E	47	25	150	8.8	88	176	6	9	10	0.165	1049	944	420	157	142	63
TBJA104 *035 R ☐ # @ 0 ^ ++	TBJA104 *035 R ☐ L C 9 ^ 45	A	0.1	35	20000	0.3	3	6	4	6	8	0.075	61	55	24	1225	1102	490
TBJA154 *035 R ☐ # @ 0 ^ ++	TBJA154 *035 R ☐ L C 9 ^ 45	A	0.15	35	16470	0.3	3	6	4	6	8	0.075	67	61	27	1111	1000	445
TBJA154 *035 J ☐ # @ 0 ^ ++	TBJA154 *035 J ☐ L C 9 ^ 45	A	0.15	35	6000	0.3	3	6	4	6	8	0.075	112	101	45	671	604	268
TBJA224 *035 R ☐ # @ 0 ^ ++	TBJA224 *035 R ☐ L C 9 ^ 45	A	0.22	35	13710	0.3	3	6	4	6	8	0.075	74	67	30	1014	913	406
TBJA224 *035 J ☐ # @ 0 ^ ++	TBJA224 *035 J ☐ L C 9 ^ 45	A	0.22	35	6000	0.3	3	6	4	6	8	0.075	112	101	45	671	604	268
TBJA334 *035 R ☐ # @ 0 ^ ++	TBJA334 *035 R ☐ L C 9 ^ 45	A	0.33	35	11280	0.3	3	6	4	6	8	0.075	82	73	33	920	828	368
TBJA334 *035 J ☐ # @ 0 ^ ++	TBJA334 *035 J ☐ L C 9 ^ 45	A	0.33	35	6000	0.3	3	6	4	6	8	0.075	112	101	45	671	604	268
TBJA474 *035 R ☐ # @ 0 ^ ++	TBJA474 *035 R ☐ L C 9 ^ 45	A	0.47	35	9530	0.3	3	6	4	6	8	0.075	89	80	35	845	761	338
TBJA474 *035 J ☐ # @ 0 ^ ++	TBJA474 *035 J ☐ L C 9 ^ 45	A	0.47	35	4000	0.3	3	6	4	6	8	0.075	137	123	55	548	493	219
TBJA684 *035 R ☐ # @ 0 ^ ++	TBJA684 *035 R ☐ L C 9 ^ 45	A	0.68	35	7980	0.3	3	6	4	6	8	0.075	97	87	39	774	696	309
TBJA684 *035 J ☐ # @ 0 ^ ++	TBJA684 *035 J ☐ L C 9 ^ 45	A	0.68	35	6000	0.3	3	6	4	6	8	0.075	112	101	45	671	604	268
TBJA105 *035 R ☐ # @ 0 ^ ++	TBJA105 *035 R ☐ L C 9 ^ 45	A	1	35	6630	0.3	3	6	4	6	8	0.075	106	96	43	705	635	282
TBJA105 *035 J ☐ # @ 0 ^ ++	TBJA105 *035 J ☐ L C 9 ^ 45	A	1	35	3000	0.3	3	6	4	6	8	0.075	158	142	63	474	427	190
TBJB105 *035 R ☐ # @ 0 ^ ++	TBJB105 *035 R ☐ L C 9 ^ 45	B	1	35	3400	0.3	3	6	4	6	8	0.085	158	142	63	538	484	215
TBJB105 *035 J ☐ # @ 0 ^ ++	TBJB105 *035 J ☐ L C 9 ^ 45	B	1	35	2000	0.3	3	6	4	6	8	0.085	206	186	82	412	371	165
TBJA155 *035 R ☐ # @ 0 ^ ++	TBJA155 *035 R ☐ L C 9 ^ 45	A	1.5	35	3100	0.39	3.9	7.8	6	9	10	0.075	156	140	62	482	434	193

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level

RATING & PART NUMBER REFERENCE

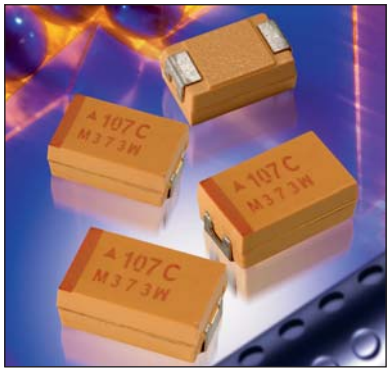
			Parametric Specifications by Rating										Typical Ripple Data by Rating						
			Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
			@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
AVX P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	mA (100kHz)	mA (100kHz)	mA (100kHz)	mV (100kHz)	mV (100kHz)	V (100kHz)
TBJA155*035 J □ # @ 0 ^ ++	TBJA155*035 J □ L C 9 ^ 45	A	1.5	35	2000	0.39	3.9	7.8	6	9	10	0.075	194	174	77	387	349	155
TBJB155*035 R □ # @ 0 ^ ++	TBJB155*035 R □ L C 9 ^ 45	B	1.5	35	5460	0.39	3.9	7.8	6	9	10	0.085	125	112	50	681	613	272
TBJB155*035 J □ # @ 0 ^ ++	TBJB155*035 J □ L C 9 ^ 45	B	1.5	35	2500	0.39	3.9	7.8	6	9	10	0.085	184	166	74	461	415	184
TBJB225*035 R □ # @ 0 ^ ++	TBJB225*035 R □ L C 9 ^ 45	B	2.2	35	4550	0.58	5.8	11.6	6	9	10	0.085	137	123	55	622	560	249
TBJB225*035 J □ # @ 0 ^ ++	TBJB225*035 J □ L C 9 ^ 45	B	2.2	35	2000	0.58	5.8	11.6	6	9	10	0.085	206	186	82	412	371	165
TBJB335*035 R □ # @ 0 ^ ++	TBJB335*035 R □ L C 9 ^ 45	B	3.3	35	3740	0.87	8.7	17.4	6	9	10	0.085	151	136	60	564	507	226
TBJB335*035 J □ # @ 0 ^ ++	TBJB335*035 J □ L C 9 ^ 45	B	3.3	35	1000	0.87	8.7	17.4	6	9	10	0.085	292	262	117	292	262	117
TBJC335*035 R □ # @ 0 ^ ++	TBJC335*035 R □ L C 9 ^ 45	C	3.3	35	1840	0.87	8.7	17.4	6	9	10	0.110	245	220	98	450	405	180
TBJC335*035 J □ # @ 0 ^ ++	TBJC335*035 J □ L C 9 ^ 45	C	3.3	35	800	0.87	8.7	17.4	6	9	10	0.110	371	334	148	297	267	119
TBJD335*035 R □ # @ 0 ^ ++	TBJD335*035 R □ L C 9 ^ 45	D	3.3	35	2000	0.87	8.7	17.4	6	9	10	0.150	274	246	110	548	493	219
TBJB475*035 R □ # @ 0 ^ ++	TBJB475*035 R □ L C 9 ^ 45	B	4.7	35	2200	1.2	12	24	6	9	10	0.085	197	177	79	432	389	173
TBJB475*035 J □ # @ 0 ^ ++	TBJB475*035 J □ L C 9 ^ 45	B	4.7	35	1500	1.2	12	24	6	9	10	0.085	238	214	95	357	321	143
TBJC475*035 R □ # @ 0 ^ ++	TBJC475*035 R □ L C 9 ^ 45	C	4.7	35	1410	1.2	12	24	6	9	10	0.110	279	251	112	394	354	158
TBJC475*035 J □ # @ 0 ^ ++	TBJC475*035 J □ L C 9 ^ 45	C	4.7	35	600	1.2	12	24	6	9	10	0.110	428	385	171	257	231	103
TBJD475*035 R □ # @ 0 ^ ++	TBJD475*035 R □ L C 9 ^ 45	D	4.7	35	1500	1.2	12	24	6	9	10	0.150	316	285	126	474	427	190
TBJC685*035 R □ # @ 0 ^ ++	TBJC685*035 R □ L C 9 ^ 45	C	6.8	35	1070	1.8	18	36	6	9	10	0.110	321	289	128	343	309	137
TBJC685*035 J □ # @ 0 ^ ++	TBJC685*035 J □ L C 9 ^ 45	C	6.8	35	600	1.8	18	36	6	9	10	0.110	428	385	171	257	231	103
TBJD685*035 R □ # @ 0 ^ ++	TBJD685*035 R □ L C 9 ^ 45	D	6.8	35	1300	1.8	18	36	6	9	10	0.150	340	306	136	442	397	177
TBJC106*035 R □ # @ 0 ^ ++	TBJC106*035 R □ L C 9 ^ 45	C	10	35	800	2.6	26	52	6	9	10	0.110	371	334	148	297	267	119
TBJC106*035 J □ # @ 0 ^ ++	TBJC106*035 J □ L C 9 ^ 45	C	10	35	600	2.6	26	52	6	9	10	0.110	428	385	171	257	231	103
TBJD106*035 R □ # @ 0 ^ ++	TBJD106*035 R □ L C 9 ^ 45	D	10	35	800	2.6	26	52	6	9	10	0.150	433	390	173	346	312	139
TBJD106*035 J □ # @ 0 ^ ++	TBJD106*035 J □ L C 9 ^ 45	D	10	35	250	2.6	26	52	6	9	10	0.150	775	697	310	194	174	77
TBJD156*035 R □ # @ 0 ^ ++	TBJD156*035 R □ L C 9 ^ 45	D	15	35	720	3.9	39	78	6	9	10	0.150	456	411	183	329	296	131
TBJD156*035 J □ # @ 0 ^ ++	TBJD156*035 J □ L C 9 ^ 45	D	15	35	225	3.9	39	78	6	9	10	0.150	816	735	327	184	165	73
TBJD226*035 R □ # @ 0 ^ ++	TBJD226*035 R □ L C 9 ^ 45	D	22	35	650	5.8	58	116	6	9	10	0.150	480	432	192	312	281	125
TBJD226*035 J □ # @ 0 ^ ++	TBJD226*035 J □ L C 9 ^ 45	D	22	35	200	5.8	58	116	6	9	10	0.150	866	779	346	173	156	69
TBJE336*035 R □ # @ 0 ^ ++	TBJE336*035 R □ L C 9 ^ 45	E	33	35	590	8.7	87	174	6	9	10	0.165	529	476	212	312	281	125
TBJE336*035 J □ # @ 0 ^ ++	TBJE336*035 J □ L C 9 ^ 45	E	33	35	250	8.7	87	174	6	9	10	0.165	812	731	325	203	183	81
TBJU476*035 R □ # @ 0 ^ ++	TBJU476*035 R □ LC 9 ^ 45	U	47	35	400	12.3	123	246	10	12	12	0.165	642	578	257	257	231	103
TBJU476*035 J □ # @ 0 ^ ++	TBJU476*035 J □ LC 9 ^ 45	U	47	35	200	12.3	123	246	10	12	12	0.165	908	817	363	182	163	73
TBJA224*050 R □ # @ 0 ^ ++	TBJA224*050 R □ L C 9 ^ 45	A	0.22	50	7500	0.3	3	6	4	6	8	0.075	100	90	40	750	675	300
TBJA224*050 J □ # @ 0 ^ ++	TBJA224*050 J □ L C 9 ^ 45	A	0.22	50	7000	0.3	3	6	4	6	8	0.075	104	93	41	725	652	290
TBJA334*050 R □ # @ 0 ^ ++	TBJA334*050 R □ L C 9 ^ 45	A	0.33	50	7000	0.3	3	6	4	6	8	0.075	104	93	41	725	652	290
TBJB474*050 R □ # @ 0 ^ ++	TBJB474*050 R □ L C 9 ^ 45	B	0.47	50	5000	0.3	3	6	4	6	8	0.085	130	117	52	652	587	261
TBJB684*050 R □ # @ 0 ^ ++	TBJB684*050 R □ L C 9 ^ 45	B	0.68	50	4000	0.3	3	6	4	6	8	0.085	146	131	58	583	525	233
TBJB684*050 J □ # @ 0 ^ ++	TBJB684*050 J □ L C 9 ^ 45	B	0.68	50	2000	0.3	3	6	4	6	8	0.085	206	186	82	412	371	165
TBJB105*050 R □ # @ 0 ^ ++	TBJB105*050 R □ L C 9 ^ 45	B	1	50	3400	0.4	4	8	4	6	8	0.085	158	142	63	538	484	215
TBJB105*050 J □ # @ 0 ^ ++	TBJB105*050 J □ L C 9 ^ 45	B	1	50	2000	0.4	4	8	4	6	8	0.085	206	186	82	412	371	165
TBJC105*050 R □ # @ 0 ^ ++	TBJC105*050 R □ L C 9 ^ 45	C	1	50	3000	0.4	4	8	4	6	8	0.110	191	172	77	574	517	230
TBJC155*050 R □ # @ 0 ^ ++	TBJC155*050 R □ L C 9 ^ 45	C	1.5	50	2500	0.6	6	12	6	9	10	0.110	210	189	84	524	472	210
TBJC155*050 J □ # @ 0 ^ ++	TBJC155*050 J □ L C 9 ^ 45	C	1.5	50	1500	0.6	6	12	6	9	10	0.110	271	244	108	406	366	162
TBJC225*050 R □ # @ 0 ^ ++	TBJC225*050 R □ L C 9 ^ 45	C	2.2	50	1700	0.8	8	16	6	9	10	0.110	254	229	102	432	389	173
TBJC225*050 J □ # @ 0 ^ ++	TBJC225*050 J □ L C 9 ^ 45	C	2.2	50	1000	0.8	8	16	6	9	10	0.110	332	298	133	332	298	133
TBJD225*050 R □ # @ 0 ^ ++	TBJD225*050 R □ L C 9 ^ 45	D	2.2	50	2000	0.8	8	16	4.5	7	9	0.150	274	246	110	548	493	219
TBJD225*050 J □ # @ 0 ^ ++	TBJD225*050 J □ L C 9 ^ 45	D	2.2	50	1200	0.8	8	16	4.5	7	9	0.150	354	318	141	424	382	170
TBJC335*050 R □ # @ 0 ^ ++	TBJC335*050 R □ L C 9 ^ 45	C	3.3	50	1400	1.2	12	24	6	9	10	0.110	280	252	112	392	353	157
TBJC335*050 J □ # @ 0 ^ ++	TBJC335*050 J □ L C 9 ^ 45	C	3.3	50	1000	1.2	12	24	6	9	10	0.110	332	298	133	332	298	133
TBJD335*050 R □ # @ 0 ^ ++	TBJD335*050 R □ L C 9 ^ 45	D	3.3	50	1100	1.2	12	24	4.5	7	9	0.150	369	332	148	406	366	162
TBJD335*050 J □ # @ 0 ^ ++	TBJD335*050 J □ L C 9 ^ 45	D	3.3	50	800	1.2	12	24	4.5	7	9	0.150	433	390	173	346	312	139
TBJD475*050 R □ # @ 0 ^ ++	TBJD475*050 R □ L C 9 ^ 45	D	4.7	50	900	1.8	18	36	4.5	7	9	0.150	408	367	163	367	331	147
TBJD475*050 J □ # @ 0 ^ ++	TBJD475*050 J □ L C 9 ^ 45	D	4.7	50	600	1.8	18	36	4.5	7	9	0.150	500	450	200	300	270	120
TBJD685*050 R □ # @ 0 ^ ++	TBJD685*050 R □ L C 9 ^ 45	D	6.8	50	700	2.6	26	52	4.5	7	9	0.150	463	417	185	324	292	130
TBJE106*050 R □ # @ 0 ^ ++	TBJE106*050 R □ L C 9 ^ 45	E	10	50	700	3.8	38	76	4.5	7	9	0.165	486	437	194	340	306	136
TBJE106*050 J □ # @ 0 ^ ++	TBJE106*050 J □ L C 9 ^ 45	E	10	50	300	3.8	38	76	4.5	7	9	0.165	742	667	297	222	200	89

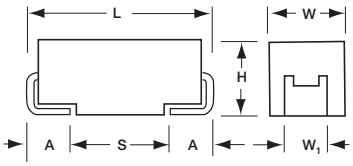
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

DSCC Dwgs 07016 & 95158

COTS-Plus





The DSCC 07016 & 95158 famalies, based on the CWR11 form factor, are high reliability series encompassing the current range of EIA Low ESR ratings. DSCC 07016 has the widest range of case sizes, capacitance / voltage ratings, and is offered with Weibull Grade "B" and "C" reliability with all MIL-PRF-55365 Rev. G surge test options ("A", "B" & "C").

For Space Level applications, AVX SRC9000 qualification is recommend. Please refer to the TBJ COTS-Plus SRC9000 datasheet for part number availability.

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these correspond to "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

MARKING

(Brown marking on gold body)

Polarity Stripe (+)
Capacitance Code
Rated Voltage
Manufacturer's ID
Lot Number

CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
V	2924	7361-38	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)

W_1 dimension applies to the termination width for A dimensional area only.

CAPACITANCE AND RATED VOLTAGE, V_R (EIA VOLTAGE CODE) RANGE LETTER DENOTES CASE SIZE (ESR LIMITS IN PARENTHESES)

Capacitance		Rated Voltage DC (V_R) to 85°C							
µF	Code	4V (G)	6V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.15	154								A(15000)
0.22	224								A(18000)
0.47	474							A(12000)	A(9500)/B(9500)
0.68	684						A(10000)	A(8000)	A(7900)
1.0	105						A(8000)	A(7500)	A(6600)/B(7000)
1.5	155					A(6500)	A(3000,7500)	A(7500)/B(5200)	C(2000)/D(1500)
2.2	225				A(5500)	A(3000)	A(7000)/B(2000)	B(2000)	D(1200)
3.3	335		A(8000)		A(3500,5000)		B(2000)	B(1000)	D(800)
4.7	475		A(6000)	A(5000)	A(2000)	A(1800,4000) B(1000)	A(3100) B(700,1500)	B(1500) C(600)/D(450)	D(300)
6.8	685		A(5000)	A(4000)	A(1500/B(1200)	B(1000)	B(700,2800) C(700)	C(350)/D(400) E(300)	D(300,600)
10	106		A(4000)	A(1800,3000)	A(3000)/B(900)	B(500,1000) C(700)	C(300,500)	C(1600)/D(125,300) E(250)	
15	156		A(3500)	A(1000,3200) B(600)	B(500,800)	B(500)/C(450) D(275)	D(275)/E(200)	C(450)/D(100,300) E(225)	
22	226		A(3000)/B(600)	B(500,700) C(300)	B(500,600) C(150,375)	B(600)/C(400) D(275)	C(275,400) D(100,200)/E(225)	D(125,400) E(125,300)	
33	336	A(3000)	B(600)	A(700)/B(425,650) C (500)	C(100,300) D(250)	C(300) D(100, 200)	D(90,300) E(100,175)	D(200,300) E(300)	
47	476		C(300)	C(200,350) D(200)	C(110,350) D(80,200)	D(100,200) E(150)	D(175,250)	E(250)/V(200)	
68	686	A(1500)	B(500)/C(200) D(175)	C(80,300) D(150)/E(150)	D(150)	D(70,200) E(150,200)	V(95)		
100	107	A(1400) B(900)	C(75,150)	C(75,200) D(50,100)/E(100)	D(50,125) E(125)	V(60)			
150	157		D(125)/E(125)	D(50,100)/E(100)	D(60,150)/V(45)				
220	227		D(100,125) E(100)	D(50,150) E(50,100)	V(50)				
330	337		E(50,150)	D(50,150) E(50,100)/V(40)					
470	477		E(50,200)/V(40)	E(50,200)/V(40)					
1000	108	E(200)							

NOTE: EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.

DSCC Dwgs 07016 & 95158

COTS-Plus

HOW TO ORDER

DSCC DWG P/N:

07016 — **DSCC DWG 07016**

-001 — **Dash Number**
See Rating Tables

K — **Capacitance Tolerance**
K = ±10%
M = ±20%

B — **Reliability Grade**
B = B Weibull
C = C Weibull
D = D Weibull

C — **Termination Finish**
B = Gold Plated (10 microinch minimum)
H = Solder Plated (50 microinch minimum)
C = Hot Solder Dip (60 microinch minimum)

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

A — **Surge Test Option**
A = 10 cycles, +25°C
B = 10 cycles, -55°C & +85°C
C = 10 cycles, -55°C & +85°C before Weibull
Z = None required
Per MIL-PRF-55365

95158 — **DSCC DWG 95158**

-01 — **Dash Number**
See Rating Tables

K — **Capacitance Tolerance**
K = ±10%
M = ±20%

H — **Termination Finish**
B = Gold Plated (10 microinch minimum)
H = Solder Plated (100 microinch minimum)

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:		0.15 µF to 1000 µF								
Capacitance Tolerance:		±10%; ±20%								
Rated Voltage (V_R)	≤ 85°C:	4	6	10	16	20	25	35	50	
Category Voltage (V_C)	≤ 125°C:	2.7	4	7	10	13	17	23	33	
Surge Voltage (V_S)	≤ 85°C:	5.2	8	13	20	26	32	46	65	
Surge Voltage (V_S)	≤ 125°C:	3.4	5	8	12	16	20	28	40	
Temperature Range:		-55°C to +125°C								

DSCC Dwgs 07016 & 95158

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
DSCC P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
07016 001 * @ ^ +	A	33	4	3000	1.4	14	17	6	9	9	0.075	0.16	0.14	0.06	0.47	0.43	0.19
07016 002 * @ ^ +	A	68	4	1500	2.7	27	32	10	12	14	0.075	0.22	0.20	0.09	0.34	0.30	0.13
07016 003 * @ ^ +	A	100	4	1400	4	40	48	30	36	42	0.075	0.23	0.21	0.09	0.32	0.29	0.13
07016 004 * @ ^ +	B	100	4	900	4	40	48	8	10	12	0.085	0.31	0.28	0.12	0.28	0.25	0.11
07016 005 * @ ^ +	E	1,000	4	200	40	400	480	60	90	90	0.165	0.91	0.82	0.36	0.18	0.16	0.07
07016 006 * @ ^ +	A	3.3	6	8000	0.5	5	6	6	9	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31
07016 007 * @ ^ +	A	4.7	6	6000	0.5	5	6	6	9	10	0.075	0.11	0.10	0.04	0.67	0.60	0.27
07016 008 * @ ^ +	A	6.8	6	5000	0.5	5	6	6	9	10	0.075	0.12	0.11	0.05	0.61	0.55	0.24
07016 009 * @ ^ +	A	10	6	4000	0.6	10	11	6	9	10	0.075	0.14	0.12	0.05	0.55	0.49	0.22
07016 010 * @ ^ +	A	15	6	3500	0.9	10	11	6	9	10	0.075	0.15	0.13	0.06	0.51	0.46	0.20
07016 011 * @ ^ +	A	22	6	3000	1.4	14	17	6	9	10	0.075	0.16	0.14	0.06	0.47	0.43	0.19
07016 012 * @ ^ +	B	22	6	600	1.4	14	17	6	9	10	0.085	0.38	0.34	0.15	0.23	0.20	0.09
07016 013 * @ ^ +	B	33	6	600	2.1	21	25	6	9	10	0.085	0.38	0.34	0.15	0.23	0.20	0.09
07016 014 * @ ^ +	C	47	6	300	3	30	36	6	9	10	0.110	0.61	0.54	0.24	0.18	0.16	0.07
07016 015 * @ ^ +	B	68	6	500	4.3	43	51	8	10	12	0.085	0.41	0.37	0.16	0.21	0.19	0.08
07016 016 * @ ^ +	C	68	6	200	4.3	43	51	6	9	10	0.110	0.74	0.67	0.30	0.15	0.13	0.06
95158 01 * ^	D	68	6	175	3.3	19.8	33	4	6	6	0.150	0.93	0.83	0.37	0.16	0.15	0.06
07016 017 * @ ^ +	C	100	6	150	6.3	63	76	6	9	10	0.110	0.86	0.77	0.34	0.13	0.12	0.05
07016 018 * @ ^ +	C	100	6	75	6.3	63	76	6	9	10	0.110	1.21	1.09	0.48	0.09	0.08	0.04
07016 019 * @ ^ +	D	150	6	125	9.5	95	113	6	9	10	0.150	1.10	0.99	0.44	0.14	0.12	0.05
95158 02 * ^	E	150	6	125	7.2	43.2	72	6	8	8	0.165	1.15	1.03	0.46	0.14	0.13	0.06
07016 020 * @ ^ +	D	220	6	125	13.9	139	166	8	10	12	0.150	1.10	0.99	0.44	0.14	0.12	0.05
95158 25 * ^	D	220	6	100	13.2	132	165	8	10	12	0.150	1.22	1.10	0.49	0.12	0.11	0.05
95158 03 * ^	E	220	6	100	13.2	132	165	8	12	12	0.165	1.28	1.16	0.51	0.13	0.12	0.05
07016 021 * @ ^ +	E	330	6	150	20.8	208	249	8	10	12	0.165	1.05	0.94	0.42	0.16	0.14	0.06
07016 022 * @ ^ +	E	330	6	50	20.8	208	249	8	10	12	0.165	1.82	1.63	0.73	0.09	0.08	0.04
07016 023 M @ ^ +	E	470	6	200	29.6	296	355	10	12	14	0.165	0.91	0.82	0.36	0.18	0.16	0.07
07016 024 M @ ^ +	E	470	6	50	29.6	296	355	10	12	14	0.165	1.82	1.63	0.73	0.09	0.08	0.04
07016 025 * @ ^ +	V	470	6	40	29.6	296	355	10	12	12	0.250	2.50	2.25	1.00	0.10	0.09	0.04
07016 026 * @ ^ +	A	4.7	10	5000	0.5	5	6	6	9	10	0.075	0.12	0.11	0.05	0.61	0.55	0.24
07016 027 * @ ^ +	A	6.8	10	4000	0.7	7	8	6	9	10	0.075	0.14	0.12	0.05	0.55	0.49	0.22
07016 028 * @ ^ +	A	10	10	3000	1	10	12	6	9	10	0.075	0.16	0.14	0.06	0.47	0.43	0.19
07016 029 * @ ^ +	A	10	10	1800	1	10	12	6	9	10	0.075	0.20	0.18	0.08	0.37	0.33	0.15
07016 030 * @ ^ +	A	15	10	3200	1.6	16	19	6	9	10	0.075	0.15	0.14	0.06	0.49	0.44	0.20
07016 031 * @ ^ +	A	15	10	1000	1.6	16	19	6	9	10	0.075	0.27	0.25	0.11	0.27	0.25	0.11
07016 032 * @ ^ +	B	15	10	600	1.6	16	19	6	9	10	0.085	0.38	0.34	0.15	0.23	0.20	0.09
07016 033 * @ ^ +	B	22	10	700	2.2	22	26	6	9	10	0.085	0.35	0.31	0.14	0.24	0.22	0.10
07016 034 * @ ^ +	B	22	10	500	2.2	22	26	6	9	10	0.085	0.41	0.37	0.16	0.21	0.19	0.08
07016 035 * @ ^ +	C	22	10	300	2.2	22	26	6	9	10	0.110	0.61	0.54	0.24	0.18	0.16	0.07
07016 036 * @ ^ +	A	33	10	700	3.3	33	40	8	10	12	0.075	0.33	0.29	0.13	0.23	0.21	0.09
07016 037 * @ ^ +	B	33	10	650	3.3	33	40	6	9	10	0.085	0.36	0.33	0.14	0.24	0.21	0.09
07016 038 * @ ^ +	B	33	10	425	3.3	33	40	6	9	10	0.085	0.45	0.40	0.18	0.19	0.17	0.08
07016 039 * @ ^ +	C	33	10	500	3.3	33	40	6	9	10	0.110	0.47	0.42	0.19	0.23	0.21	0.09
07016 040 * @ ^ +	C	47	10	350	4.7	47	56	6	9	10	0.110	0.56	0.50	0.22	0.20	0.18	0.08
07016 041 * @ ^ +	C	47	10	200	4.7	47	56	6	9	10	0.110	0.74	0.67	0.30	0.15	0.13	0.06
95158 -04 * ^	D	47	10	200	3.8	22.8	38	4	6	6	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 042 * @ ^ +	C	68	10	300	6.8	68	82	8	10	12	0.110	0.61	0.54	0.24	0.18	0.16	0.07
07016 043 * @ ^ +	C	68	10	80	6.8	68	82	8	10	12	0.110	1.17	1.06	0.47	0.09	0.08	0.04
07016 044 * @ ^ +	D	68	10	150	6.8	68	82	6	9	10	0.150	1.00	0.90	0.40	0.15	0.14	0.06
95158 05 * ^	E	68	10	150	5.4	32.4	54	4	6	6	0.165	1.05	0.94	0.42	0.16	0.14	0.06
07016 045 * @ ^ +	C	100	10	200	10	100	120	8	10	12	0.110	0.74	0.67	0.30	0.15	0.13	0.06
07016 046 * @ ^ +	C	100	10	75	10	100	120	8	10	12	0.110	1.21	1.09	0.48	0.09	0.08	0.04
95158 06 * ^	D	100	10	100	10	100	125	8	12	12	0.150	1.22	1.10	0.49	0.12	0.11	0.05
07016 047 * @ ^ +	D	100	10	50	10	100	120	6	9	10	0.150	1.73	1.56	0.69	0.09	0.08	0.03
95158 07 * ^	E	100	10	100	8	48	80	6	8	8	0.165	1.28	1.16	0.51	0.13	0.12	0.05

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

DSCC Dwgs 07016 & 95158

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable									Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
DSCC P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
95158 26 * ^	D	150	10	100	15	150	187.5	8	10	12	0.150	1.22	1.10	0.49	0.12	0.11	0.05
07016 048 * @ ^ +	D	150	10	50	15	150	180	8	10	12	0.150	1.73	1.56	0.69	0.09	0.08	0.03
95158 08 * ^	E	150	10	100	15	150	187.5	8	12	12	0.165	1.28	1.16	0.51	0.13	0.12	0.05
07016 049 * @ ^ +	D	220	10	150	22	220	264	8	10	12	0.150	1.00	0.90	0.40	0.15	0.14	0.06
07016 050 M @ ^ +	D	220	10	50	15	150	180	8	10	12	0.150	1.73	1.56	0.69	0.09	0.08	0.03
95158 28 * ^	E	220	10	100	15	150	187.5	8	10	12	0.165	1.28	1.16	0.51	0.13	0.12	0.05
07016 051 * @ ^ +	E	220	10	50	22	220	264	8	10	12	0.165	1.82	1.63	0.73	0.09	0.08	0.04
07016 052 M @ ^ +	D	330	10	150	33	330	396	8	10	12	0.150	1.00	0.90	0.40	0.15	0.14	0.06
07016 053 M @ ^ +	D	330	10	50	33	330	396	8	10	12	0.150	1.73	1.56	0.69	0.09	0.08	0.03
07016 054 * @ ^ +	E	330	10	100	33	330	396	8	10	12	0.165	1.28	1.16	0.51	0.13	0.12	0.05
07016 055 * @ ^ +	E	330	10	50	33	330	396	8	10	12	0.165	1.82	1.63	0.73	0.09	0.08	0.04
07016 056 * @ ^ +	V	330	10	40	33	330	396	8	10	12	0.250	2.50	2.25	1.00	0.10	0.09	0.04
07016 057 M @ ^ +	E	470	10	200	47	470	564	10	12	14	0.165	0.91	0.82	0.36	0.18	0.16	0.07
07016 058 M @ ^ +	E	470	10	50	47	470	564	10	12	14	0.165	1.82	1.63	0.73	0.09	0.08	0.04
07016 059 * @ ^ +	V	470	10	40	47	470	564	10	12	14	0.250	2.50	2.25	1.00	0.10	0.09	0.04
07016 060 * @ ^ +	A	2.2	16	5500	0.5	5	6	6	9	10	0.075	0.12	0.11	0.05	0.64	0.58	0.26
07016 061 * @ ^ +	A	3.3	16	5000	0.5	5	6	6	9	10	0.075	0.12	0.11	0.05	0.61	0.55	0.24
07016 062 * @ ^ +	A	3.3	16	3500	0.5	5	6	6	9	10	0.075	0.15	0.13	0.06	0.51	0.46	0.20
07016 063 * @ ^ +	A	4.7	16	2000	0.8	8	10	6	9	10	0.075	0.19	0.17	0.08	0.39	0.35	0.15
07016 064 * @ ^ +	A	6.8	16	1500	1.1	11	13	6	9	10	0.075	0.22	0.20	0.09	0.34	0.30	0.13
07016 065 * @ ^ +	B	6.8	16	1200	1.1	11	13	6	9	10	0.085	0.27	0.24	0.11	0.32	0.29	0.13
07016 066 * @ ^ +	A	10	16	3000	1.6	16	19	6	9	10	0.075	0.16	0.14	0.06	0.47	0.43	0.19
07016 067 * @ ^ +	B	10	16	900	1.6	16	19	6	9	10	0.085	0.32	0.29	0.13	0.26	0.23	0.10
07016 068 * @ ^ +	B	15	16	800	2.4	24	29	6	9	10	0.085	0.33	0.29	0.13	0.26	0.23	0.10
07016 069 * @ ^ +	B	15	16	500	2.4	24	29	6	9	10	0.085	0.41	0.37	0.16	0.21	0.19	0.08
07016 070 * @ ^ +	B	22	16	600	3.6	36	43	6	9	10	0.085	0.38	0.34	0.15	0.23	0.20	0.09
07016 071 * @ ^ +	C	22	16	375	3.6	36	43	6	9	10	0.110	0.54	0.49	0.22	0.20	0.18	0.08
07016 072 * @ ^ +	C	22	16	150	3.6	36	43	6	9	10	0.110	0.86	0.77	0.34	0.13	0.12	0.05
07016 073 * @ ^ +	B	22	16	500	3.6	36	43	6	9	10	0.085	0.41	0.37	0.16	0.21	0.19	0.08
07016 074 * @ ^ +	C	33	16	300	5.3	53	64	6	9	10	0.110	0.61	0.54	0.24	0.18	0.16	0.07
07016 075 * @ ^ +	C	33	16	100	5.3	53	64	6	9	10	0.110	1.05	0.94	0.42	0.10	0.09	0.04
95158 09 * ^	D	33	16	250	4.2	25.2	42	4	6	6	0.150	0.77	0.70	0.31	0.19	0.17	0.08
07016 076 * @ ^ +	C	47	16	350	7.6	76	91	6	9	10	0.110	0.56	0.50	0.22	0.20	0.18	0.08
07016 077 * @ ^ +	C	47	16	110	7.6	76	91	6	9	10	0.110	1.00	0.90	0.40	0.11	0.10	0.04
07016 078 * @ ^ +	D	47	16	80	7.6	76	91	6	9	10	0.150	1.37	1.23	0.55	0.11	0.10	0.04
95158 10 * ^	D	47	16	200	7.5	75	94	6	9	9	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 079 * @ ^ +	D	68	16	150	10.9	109	131	6	9	10	0.150	1.00	0.90	0.40	0.15	0.14	0.06
07016 080 * @ ^ +	D	100	16	125	16	160	192	6	9	10	0.150	1.10	0.99	0.44	0.14	0.12	0.05
07016 081 * @ ^ +	D	100	16	50	16	160	192	6	9	10	0.150	1.73	1.56	0.69	0.09	0.08	0.03
95158 11 * ^	E	100	16	125	16	160	200	8	12	12	0.165	1.15	1.03	0.46	0.14	0.13	0.06
07016 082 M @ ^ +	D	150	16	150	24	240	288	6	9	10	0.150	1.00	0.90	0.40	0.15	0.14	0.06
07016 083 M @ ^ +	D	150	16	60	24	240	288	6	9	10	0.150	1.58	1.42	0.63	0.09	0.09	0.04
07016 084 * @ ^ +	V	150	16	45	24	480	288	6	8	10	0.250	2.36	2.12	0.94	0.11	0.10	0.04
07016 085 * @ ^ +	V	220	16	50	35.2	352	422	8	10	12	0.250	2.24	2.01	0.89	0.11	0.10	0.04
07016 086 * @ ^ +	A	1.5	20	6500	0.5	5	6	6	8	10	0.075	0.11	0.10	0.04	0.70	0.63	0.28
07016 087 * @ ^ +	A	2.2	20	3000	0.5	5	6	6	8	10	0.075	0.16	0.14	0.06	0.47	0.43	0.19
07016 088 * @ ^ +	A	4.7	20	4000	1	10	12	6	8	10	0.075	0.14	0.12	0.05	0.55	0.49	0.22
07016 089 * @ ^ +	A	4.7	20	1800	1	10	12	6	8	10	0.075	0.20	0.18	0.08	0.37	0.33	0.15
07016 090 * @ ^ +	B	4.7	20	1000	2	20	24	6	8	10	0.085	0.29	0.26	0.12	0.29	0.26	0.12
07016 091 * @ ^ +	B	6.8	20	1000	1.4	14	17	6	8	10	0.085	0.29	0.26	0.12	0.29	0.26	0.12
07016 092 * @ ^ +	B	10	20	1000	0.7	7	8	6	8	10	0.085	0.29	0.26	0.12	0.29	0.26	0.12
07016 093 * @ ^ +	B	10	20	500	0.7	7	8	6	8	10	0.085	0.41	0.37	0.16	0.21	0.19	0.08
07016 094 * @ ^ +	C	10	20	700	1.4	14	17	6	8	10	0.110	0.40	0.36	0.16	0.28	0.25	0.11
07016 095 * @ ^ +	B	15	20	500	3	30	36	6	8	10	0.085	0.41	0.37	0.16	0.21	0.19	0.08
07016 096 * @ ^ +	C	15	20	450	3	30	36	6	8	10	0.110	0.49	0.44	0.20	0.22	0.20	0.09
95158 12 * ^	D	15	20	275	2.4	14.4	24	4	6	6	0.150	0.74	0.66	0.30	0.20	0.18	0.08

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

DSCC Dwgs 07016 & 95158

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
DSCC P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
07016 097 * @ ^ +	B	22	20	600	4.4	44	53	6	8	10	0.085	0.38	0.34	0.15	0.23	0.20	0.09
07016 098 * @ ^ +	C	22	20	400	4.4	44	53	6	8	10	0.110	0.52	0.47	0.21	0.21	0.19	0.08
95158 13 * ^	D	22	20	275	3.5	21	35	4	6	6	0.150	0.74	0.66	0.30	0.20	0.18	0.08
07016 099 * @ ^ +	C	33	20	300	6.6	66	79	6	8	10	0.110	0.61	0.54	0.24	0.18	0.16	0.07
07016 100 * @ ^ +	D	33	20	200	6.6	66	79	6	8	10	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 101 * @ ^ +	D	33	20	100	6.6	66	79	6	8	10	0.150	1.22	1.10	0.49	0.12	0.11	0.05
07016 102 * @ ^ +	D	47	20	200	9.4	94	113	6	8	10	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 103 * @ ^ +	D	47	20	100	9.4	94	113	6	8	10	0.150	1.22	1.10	0.49	0.12	0.11	0.05
95158 14 * ^	E	47	20	150	7.5	45	75	4	6	6	0.165	1.05	0.94	0.42	0.16	0.14	0.06
07016 104 * @ ^ +	D	68	20	200	13.6	136	163	6	8	10	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 105 * @ ^ +	D	68	20	70	13.6	136	163	6	8	10	0.150	1.46	1.32	0.59	0.10	0.09	0.04
07016 106 * @ ^ +	E	68	20	200	13.6	136	163	6	8	10	0.165	0.91	0.82	0.36	0.18	0.16	0.07
95158 15 * ^	E	68	20	150	13.6	136	170	6	8	9	0.165	1.05	0.94	0.42	0.16	0.14	0.06
07016 107 * @ ^ +	V	100	20	60	20	200	240	8	10	12	0.250	2.04	1.84	0.82	0.12	0.11	0.05
07016 108 M @ ^ +	A	0.7	25	10000	0.5	5	6	4	6	8	0.075	0.09	0.08	0.03	0.87	0.78	0.35
07016 109 * @ ^ +	A	1.0	25	8000	0.5	5	6	4	6	8	0.075	0.10	0.09	0.04	0.77	0.70	0.31
07016 110 * @ ^ +	A	1.5	25	7500	0.5	5	6	6	8	10	0.075	0.10	0.09	0.04	0.75	0.68	0.30
07016 111 * @ ^ +	A	1.5	25	3000	0.5	5	6	6	8	10	0.075	0.16	0.14	0.06	0.47	0.43	0.19
07016 112 * @ ^ +	A	2.2	25	7000	0.5	5	6	6	8	10	0.075	0.10	0.09	0.04	0.72	0.65	0.29
07016 113 * @ ^ +	B	2.2	25	2000	0.5	5	6	6	8	10	0.085	0.21	0.19	0.08	0.41	0.37	0.16
07016 114 * @ ^ +	B	3.3	25	2000	0.5	5	6	6	8	10	0.085	0.21	0.19	0.08	0.41	0.37	0.16
07016 115 * @ ^ +	A	4.7	25	3100	1.2	12	14	6	9	10	0.075	0.16	0.14	0.06	0.48	0.43	0.19
07016 116 * @ ^ +	B	4.7	25	1500	1.2	12	14	6	8	10	0.085	0.24	0.21	0.10	0.36	0.32	0.14
07016 117 * @ ^ +	B	4.7	25	700	1.2	12	14	6	8	10	0.085	0.35	0.31	0.14	0.24	0.22	0.10
07016 118 * @ ^ +	B	6.8	25	2800	1.7	17	20	6	8	10	0.085	0.17	0.16	0.07	0.49	0.44	0.20
07016 119 * @ ^ +	B	6.8	25	700	1.7	17	20	6	8	10	0.085	0.35	0.31	0.14	0.24	0.22	0.10
07016 120 * @ ^ +	C	6.8	25	700	1.7	17	20	6	8	10	0.110	0.40	0.36	0.16	0.28	0.25	0.11
07016 121 * @ ^ +	C	10	25	500	2.5	25	30	6	8	10	0.110	0.47	0.42	0.19	0.23	0.21	0.09
07016 122 * @ ^ +	C	10	25	300	2.5	25	30	6	8	10	0.110	0.61	0.54	0.24	0.18	0.16	0.07
95158 16 * ^	D	15	25	275	3.8	38	46.9	6	9	9	0.150	0.74	0.66	0.30	0.20	0.18	0.08
95158 17 * ^	E	15	25	200	3	18	30	4	6	6	0.165	0.91	0.82	0.36	0.18	0.16	0.07
07016 123 * @ ^ +	C	22	25	400	5.5	55	66	6	8	10	0.110	0.52	0.47	0.21	0.21	0.19	0.08
07016 124 * @ ^ +	C	22	25	275	5.5	55	66	6	8	10	0.110	0.63	0.57	0.25	0.17	0.16	0.07
07016 125 * @ ^ +	D	22	25	200	5.5	55	66	6	8	10	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 126 * @ ^ +	D	22	25	100	5.5	55	66	6	8	10	0.150	1.22	1.10	0.49	0.12	0.11	0.05
95158 18 * ^	E	22	25	225	4.4	26.4	44	4	6	6	0.165	0.86	0.77	0.34	0.19	0.17	0.08
07016 127 * @ ^ +	D	33	25	300	8.3	83	100	6	8	10	0.150	0.71	0.64	0.28	0.21	0.19	0.08
07016 128 * @ ^ +	D	33	25	90	8.3	83	100	6	8	10	0.150	1.22	1.10	0.49	0.12	0.11	0.05
95158 19 * ^	E	33	25	175	6.6	39.6	66	4	6	6	0.165	0.97	0.87	0.39	0.17	0.15	0.07
07016 129 * @ ^ +	E	33	25	100	8.3	83	100	6	8	10	0.165	1.35	1.22	0.54	0.12	0.11	0.05
07016 130 M @ ^ +	D	47	25	250	11.8	118	142	6	8	10	0.150	0.77	0.70	0.31	0.19	0.17	0.08
07016 131 M @ ^ +	D	47	25	175	11.8	118	142	6	8	10	0.150	0.93	0.83	0.37	0.16	0.15	0.06
07016 132 * @ ^ +	V	68	25	95	17	170	204	8	10	12	0.250	1.62	1.46	0.65	0.15	0.14	0.06
07016 133 M @ ^ +	A	0.47	35	12000	0.5	5	6	4	6	8	0.075	0.08	0.07	0.03	0.95	0.85	0.38
07016 134 M @ ^ +	A	0.68	35	8000	0.5	5	6	4	6	8	0.075	0.10	0.09	0.04	0.77	0.70	0.31
07016 135 * @ ^ +	A	1.0	35	7500	0.5	5	6	4	6	6	0.075	0.10	0.09	0.04	0.75	0.68	0.30
07016 136 * @ ^ +	A	1.5	35	7500	0.5	5	6	6	8	9	0.075	0.10	0.09	0.04	0.75	0.68	0.30
07016 137 * @ ^ +	B	1.5	35	5200	0.5	5	6	6	8	9	0.085	0.13	0.12	0.05	0.66	0.60	0.27
07016 138 * @ ^ +	B	2.2	35	2000	0.8	8	10	6	8	9	0.085	0.21	0.19	0.08	0.41	0.37	0.16
07016 139 * @ ^ +	B	3.3	35	1000	1.2	12	14	6	8	9	0.085	0.29	0.26	0.12	0.29	0.26	0.12
07016 140 * @ ^ +	B	4.7	35	1500	1.6	16	19	6	8	9	0.085	0.24	0.21	0.10	0.36	0.32	0.14
95158 29 * ^	C	4.7	35	600	1.7	10.2	17	6	8	9	0.110	0.43	0.39	0.17	0.26	0.23	0.10
07016 141 * @ ^ +	D	4.7	35	450	1.6	16	20	6	8	9	0.110	0.49	0.44	0.20	0.22	0.20	0.09
07016 142 * @ ^ +	C	6.8	35	350	2.4	24	29	6	9	9	0.150	0.65	0.59	0.26	0.23	0.21	0.09
07016 143 * @ ^ +	D	6.8	35	400	2.4	24	29	6	9	9	0.165	0.64	0.58	0.26	0.26	0.23	0.10

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

DSCC Dwgs 07016 & 95158

COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable									Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple
DSCC P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
95158 20 * ^	E	6.8	35	300	1.9	11.4	19	4	6	6	0.165	0.74	0.67	0.30	0.22	0.20	0.09
07016 144 * @ ^ +	C	10	35	1600	3.5	35	42	6	9	9	0.110	0.26	0.24	0.10	0.42	0.38	0.17
95158 27 * ^	D	10	35	300	3.5	35	42	4	6	6	0.150	0.71	0.64	0.28	0.21	0.19	0.08
07016 145 * @ ^ +	D	10	35	125	3.5	35	42	6	9	9	0.150	1.10	0.99	0.44	0.14	0.12	0.05
95158 21 * ^	E	10	35	250	2.8	16.8	28	4	6	6	0.165	0.81	0.73	0.32	0.20	0.18	0.08
07016 146 * @ ^ +	C	15	35	450	5.3	53	64	6	9	9	0.110	0.49	0.44	0.20	0.22	0.20	0.09
07016 147 * @ ^ +	D	15	35	300	5.3	53	64	6	9	9	0.150	0.71	0.64	0.28	0.21	0.19	0.08
07016 148 * @ ^ +	D	15	35	100	5.3	53	64	6	9	9	0.150	1.22	1.10	0.49	0.12	0.11	0.05
95158 22 * ^	E	15	35	225	5.3	53	65.6	6	9	9	0.165	0.86	0.77	0.34	0.19	0.17	0.08
07016 149 * @ ^ +	D	22	35	400	7.7	77	92	6	9	9	0.150	0.61	0.55	0.24	0.24	0.22	0.10
07016 150 * @ ^ +	D	22	35	125	7.7	77	92	6	9	9	0.150	1.10	0.99	0.44	0.14	0.12	0.05
95158 23 * ^	E	22	35	300	7.7	77	96.3	6	9	9	0.165	0.74	0.67	0.30	0.22	0.20	0.09
07016 151 * @ ^ +	E	22	35	125	7.7	77	92	6	9	9	0.165	1.15	1.03	0.46	0.14	0.13	0.06
07016 152 M @ ^ +	D	33	35	300	11.6	116	139	6	9	9	0.150	0.71	0.64	0.28	0.21	0.19	0.08
07016 153 M @ ^ +	D	33	35	200	11.6	116	139	6	9	9	0.150	0.87	0.78	0.35	0.17	0.16	0.07
07016 154 M @ ^ +	E	33	35	300	11.6	116	139	6	9	9	0.165	0.74	0.67	0.30	0.22	0.20	0.09
07016 155 M @ ^ +	E	47	35	250	16.5	165	197	6	9	9	0.165	0.81	0.73	0.32	0.20	0.18	0.08
07016 156 M @ ^ +	V	47	35	200	16.5	165	197	6	9	9	0.250	1.12	1.01	0.45	0.22	0.20	0.09
07016 157 M @ ^ +	A	0.15	50	15000	0.5	5	6	4	6	6	0.075	0.07	0.06	0.03	1.06	0.95	0.42
07016 158 M @ ^ +	A	0.22	50	18000	0.5	5	6	4	6	6	0.075	0.06	0.06	0.03	1.16	1.05	0.46
07016 159 * @ ^ +	A	0.47	50	9500	0.5	5	6	4	6	6	0.075	0.09	0.08	0.04	0.84	0.76	0.34
07016 160 * @ ^ +	B	0.47	50	9500	0.5	5	6	4	6	6	0.085	0.09	0.09	0.04	0.90	0.81	0.36
07016 161 * @ ^ +	A	0.68	50	7900	0.5	5	6	4	6	6	0.075	0.10	0.09	0.04	0.77	0.69	0.31
07016 162 M @ ^ +	A	1.0	50	6600	0.5	5	6	4	6	6	0.075	0.11	0.10	0.04	0.70	0.63	0.28
07016 163 * @ ^ +	B	1.0	50	7000	0.5	5	6	4	6	6	0.085	0.11	0.10	0.04	0.77	0.69	0.31
07016 164 * @ ^ +	C	1.5	50	2000	0.8	8	10	6	8	9	0.110	0.23	0.21	0.09	0.47	0.42	0.19
07016 165 * @ ^ +	D	1.5	50	1500	0.8	8	10	6	8	9	0.150	0.32	0.28	0.13	0.47	0.43	0.19
07016 166 * @ ^ +	D	2.2	50	1200	1.1	11	13	6	8	9	0.150	0.35	0.32	0.14	0.42	0.38	0.17
07016 167 * @ ^ +	D	3.3	50	800	1.7	17	20	6	9	9	0.150	0.43	0.39	0.17	0.35	0.31	0.14
07016 168 * @ ^ +	D	4.7	50	300	2.4	24	29	6	9	9	0.150	0.71	0.64	0.28	0.21	0.19	0.08
07016 169 * @ ^ +	D	6.8	50	600	3.4	34	41	6	6	6	0.150	0.50	0.45	0.20	0.30	0.27	0.12
07016 170 * @ ^ +	D	6.8	50	300	3.4	34	41	6	6	6	0.150	0.71	0.64	0.28	0.21	0.19	0.08

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

T4J – Medical Series

HRC4000 Implantable Non Life Support and Non Implantable Life Support

The AVX T4J series is designed for use in Implantable - Non-Life support or Non-Implantable - Life support medical applications. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

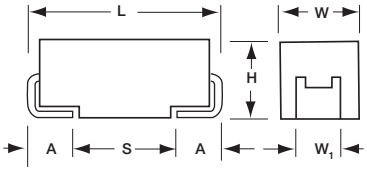
RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

FEATURES

- Dedicated to medical applications
- HRC4000 - Implantable, Non-Life support
  - Non-Implantable, Life support
- -55 to +125°C operation temperature
- Basic reliability better than 0.1%/1000hours
- Custom DCL / ESR options on selected parts

T4J Standard – Standard option DCL and ESR limits including Q-Process screening.
T4J Custom – A custom option where specific DCL and ESR parameter limits can be agreed based Q-Process statistical screening. DCL down to 0.005CV on selected codes



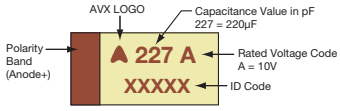
APPLICATIONS

- Medical, Implantable - Non-Life support and Non-Implantable - Life support

For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: http://www.avx.com/docs/techinfo/Qprocess.pdf)

MARKING

A, B, C, D, E, U CASE



CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) –0.10 (0.004)	H+0.20 (0.008) –0.10 (0.004)	W1±0.20 (0.008)	A+0.30 (0.012) –0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
U	2924	7361-43	7.30 (0.287)	6.10 (0.240)	4.10 (0.162)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)

W_1 dimension applies to the termination width for A dimensional area only.

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C (Voltage Code)						
µF	Code	6.3V (J)	10V (A)	16V (C)	20 (D)	25 (E)	35 (V)	50V (T)
1.0	105							C
1.5	155						B	C
2.2	225					B	B	C
3.3	335				A*	B	B	C
4.7	475			A*	B	B	C	D
6.8	685		A*	B	B	C	C	D
10	106	A*	A*	B	C	C	C	E
15	156	A*	B	B	C	C	D	
22	226	B	B	C	C	D	D	
33	336	B	C	C	D	D	E	
47	476	C	C	D	D	D		
68	686	C	C	D	E			
100	107	C	D	E	E			
150	157	D	D	E				
220	227	D	E	U				
330	337	E	E					
470	477	E	U					
680	687	U						

Released codes
Engineering samples - please contact manufacturer
*Codes under development
Please contact the factory for codes not listed in the table.

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards with customer written approval.

T4J – Medical Series

HRC4000 Implantable Non Life Support and Non Implantable Life Support

HOW TO ORDER

T4J	E	336	K	035	C	□	L	Q	4	^	00
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** K = ±10%	**Rated DC Voltage** 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Standard or Low ESR Range** C = Std ESR	**Packaging** R = 7" Reel B = Bulk	**Inspection Level** L = Lab Inspection	**Reliability Grade** Q = Q-Process Screening	**Qualification Level** 4 = HCR4000	**Termination** 7 = 100% Tin H = SnPb (Contact Manufacturer)	**Suffix** 00 = Standard XX = Custom

TECHNICAL SPECIFICATIONS

Technical Data:		All technical data relate to an ambient temperature of +25ºC							
Capacitance Range:		1 µF to 680 µF							
Capacitance Tolerance:		±10%							
Leakage Current DCL:		0.01CV (Custom potential down to 0.005CV available upon request)							
Rated Voltage (V_R)	≤ 85°C:	6.3	10	16	20	25	35	50	
Category Voltage (V_C)	≤ 125°C:	4	7	10	13	17	23	33	
Surge Voltage (V_S)	≤ 85°C:	8	13	20	26	32	46	65	
Surge Voltage (V_S)	≤ 125°C:	5	8	13	16	20	28	40	
Temperature Range:		-55°C to +125°C							
Reliability:		0.1% / 1000hrs at 25°C, VR with 0.1Ω/V series impedance, 90% confidence level							

T4J – Medical Series

HRC4000 Implantable Non Life Support and Non Implantable Life Support

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (mA)		
											25°C	85°C	125°C
6.3 Volt @ 85°C													
T4JA106K006C□LQ4^00	A	10	6.3	85	4	125	0.6	6	1500	3	224	201	89
T4JA156K006C□LQ4^00	A	15	6.3	85	4	125	0.9	6	1500	3	224	201	89
T4JB226K006C□LQ4^00	B	22	6.3	85	4	125	1.4	6	600	3	376	339	151
T4JB336K006C□LQ4^00	B	33	6.3	85	4	125	2.1	6	600	3	376	339	151
T4JC476K006C□LQ4^00	C	47	6.3	85	4	125	3.0	6	300	3	606	545	242
T4JC686K006C□LQ4^00	C	68	6.3	85	4	125	4.3	6	300	3	606	545	242
T4JC107K006C□LQ4^00	C	100	6.3	85	4	125	6.3	6	300	3	606	545	242
T4JD157K006C□LQ4^00	D	150	6.3	85	4	125	9.5	6	200	3	866	779	346
T4JD227K006C□LQ4^00	D	220	6.3	85	4	125	13.9	8	200	3	866	779	346
T4JE337K006C□LQ4^00	E	330	6.3	85	4	125	20.8	8	200	3	908	817	363
T4JE477K006C□LQ4^00	E	470	6.3	85	4	125	29.6	8	200	3	908	817	363
T4JU687K006C□LQ4^00	U	680	6.3	85	4	125	42.8	12	250	3	812	731	325
10 Volt @ 85°C													
T4JA685K010C□LQ4^00	A	6.8	10	85	7	125	0.7	6	2000	3	194	174	77
T4JA106K010C□LQ4^00	A	10	10	85	7	125	1.0	6	2000	3	194	174	77
T4JB156K010C□LQ4^00	B	15	10	85	7	125	1.5	6	700	3	348	314	139
T4JB226K010C□LQ4^00	B	22	10	85	7	125	2.2	6	700	3	348	314	139
T4JC336K010C□LQ4^00	C	33	10	85	7	125	3.3	6	300	3	606	545	242
T4JC476K010C□LQ4^00	C	47	10	85	7	125	4.7	6	300	3	606	545	242
T4JC686K010C□LQ4^00	C	68	10	85	7	125	6.8	6	300	3	606	545	242
T4JD107K010C□LQ4^00	D	100	10	85	7	125	10.0	6	150	3	1000	900	400
T4JD157K010C□LQ4^00	D	150	10	85	7	125	15.0	8	150	3	1000	900	400
T4JE227K010C□LQ4^00	E	220	10	85	7	125	22.0	8	150	3	1049	944	420
T4JE337K010C□LQ4^00	E	330	10	85	7	125	33.0	8	150	3	1049	944	420
T4JU477K010C□LQ4^00	U	470	10	85	7	125	47.0	12	200	3	908	817	363
16 Volt @ 85°C													
T4JA475K016C□LQ4^00	A	4.7	16	85	10	125	0.8	6	3500	3	146	132	59
T4JB685K016C□LQ4^00	B	6.8	16	85	10	125	1.1	6	1200	3	266	240	106
T4JB106K016C□LQ4^00	B	10	16	85	10	125	1.6	6	1200	3	266	240	106
T4JB156K016C□LQ4^00	B	15	16	85	10	125	2.4	6	1200	3	266	240	106
T4JC226K016C□LQ4^00	C	22	16	85	10	125	3.5	6	350	3	561	505	224
T4JC336K016C□LQ4^00	C	33	16	85	10	125	5.3	6	350	3	561	505	224
T4JD476K016C□LQ4^00	D	47	16	85	10	125	7.5	6	200	3	866	779	346
T4JD686K016C□LQ4^00	D	68	16	85	10	125	10.9	6	200	3	866	779	346
T4JE107K016C□LQ4^00	E	100	16	85	10	125	16.0	6	150	3	1049	944	420
T4JE157K016C□LQ4^00	E	150	16	85	10	125	24.0	6	150	3	1049	944	420
T4JU227K016C□LQ4^00	U	220	16	85	10	125	35.2	12	200	3	908	817	363
20 Volt @ 85°C													
T4JA335K020C□LQ4^00	A	3.3	20	85	13	125	0.7	6	3000	3	158	142	63
T4JB475K020C□LQ4^00	B	4.7	20	85	13	125	1.0	6	1000	3	292	262	117
T4JB685K020C□LQ4^00	B	6.8	20	85	13	125	1.4	6	1000	3	292	262	117
T4JC106K020C□LQ4^00	C	10	20	85	13	125	2.0	6	500	3	469	422	188
T4JC156K020C□LQ4^00	C	15	20	85	13	125	3.0	6	500	3	469	422	188
T4JC226K020C□LQ4^00	C	22	20	85	13	125	4.4	6	500	3	469	422	188
T4JD336K020C□LQ4^00	D	33	20	85	13	125	6.6	6	250	3	775	697	310
T4JD476K020C□LQ4^00	D	47	20	85	13	125	9.4	6	250	3	775	697	310
T4JE686K020C□LQ4^00	E	68	20	85	13	125	13.6	6	200	3	908	817	363
T4JE107K020C□LQ4^00	E	100	20	85	13	125	20.0	6	200	3	908	817	363
25 Volt @ 85°C													
T4JB225K025C□LQ4^00	B	2.2	25	85	17	125	0.6	6	2000	3	206	186	82
T4JB335K025C□LQ4^00	B	3.3	25	85	17	125	0.8	6	2000	3	206	186	82
T4JB475K025C□LQ4^00	B	4.7	25	85	17	125	1.2	6	2000	3	206	186	82
T4JC685K025C□LQ4^00	C	6.8	25	85	17	125	1.7	6	600	3	428	385	171
T4JC106K025C□LQ4^00	C	10	25	85	17	125	2.5	6	600	3	428	385	171
T4JC156K025C□LQ4^00	C	15	25	85	17	125	3.8	6	600	3	428	385	171
T4JD226K025C□LQ4^00	D	22	25	85	17	125	5.5	6	400	3	612	551	245
T4JD336K025C□LQ4^00	D	33	25	85	17	125	8.3	6	400	3	612	551	245
T4JD476K025C□LQ4^00	D	47	25	85	17	125	11.8	6	400	3	612	551	245

T4J – Medical Series

HRC4000 Implantable Non Life Support and Non Implantable Life Support

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (mA)		
											25°C	85°C	125°C
35 Volt @ 85°C													
T4JB155K035C□LQ4^00	B	1.5	35	85	23	125	0.5	6	2500	3	184	166	74
T4JB225K035C□LQ4^00	B	2.2	35	85	23	125	0.8	6	2500	3	184	166	74
T4JB335K035C□LQ4^00	B	3.3	35	85	23	125	1.2	6	2500	3	184	166	74
T4JC475K035C□LQ4^00	C	4.7	35	85	23	125	1.6	6	600	3	428	385	171
T4JC685K035C□LQ4^00	C	6.8	35	85	23	125	2.4	6	600	3	428	385	171
T4JC106K035C□LQ4^00	C	10	35	85	23	125	3.5	6	600	3	428	385	171
T4JD156K035C□LQ4^00	D	15	35	85	23	125	5.3	6	400	3	612	551	245
T4JD226K035C□LQ4^00	D	22	35	85	23	125	7.7	6	400	3	612	551	245
T4JE336K035C□LQ4^00	E	33	35	85	23	125	11.6	6	250	3	812	731	325
50 Volt @ 85°C													
T4JC105K050C□LQ4^00	C	1	50	85	33	125	0.5	4	1500	3	271	244	108
T4JC155K050C□LQ4^00	C	1.5	50	85	33	125	0.8	6	1500	3	271	244	108
T4JC225K050C□LQ4^00	C	2.2	50	85	33	125	1.1	6	1500	3	271	244	108
T4JC335K050C□LQ4^00	C	3.3	50	85	33	125	1.7	6	1500	3	271	244	108
T4JD475K050C□LQ4^00	D	4.7	50	85	33	125	2.4	4.5	600	3	500	450	200
T4JD685K050C□LQ4^00	D	6.8	50	85	33	125	3.4	4.5	600	3	500	450	200
T4JE106K050C□LQ4^00	E	10	50	85	33	125	5.0	4.5	400	3	642	578	257

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

QUALIFICATION TABLE

TEST	T4J HRC4000 (Temperature range -55°C to +125°C)							
	Condition		Characteristics					
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.		Visual examination	no visible damage				
			DCL	1.25 x initial limit				
			ΔC/C	within ±10% of initial value				
			DF	initial limit				
			ESR	1.25 x initial limit				
Storage Life	125°C, 0V, 2000h		Visual examination	no visible damage				
			DCL	1.25 x initial limit				
			ΔC/C	within ±10% of initial value				
			DF	initial limit				
			ESR	1.25 x initial limit				
Temperature Stability	Step	Temperature°C	Duration (min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
	1	+20±2	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55+0/-3	15	ΔC/C	n/a	+0/-10%	±5%	+10/-0%	+12/-0%	±5%
	3	+20±2	15	DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*
	4	+85+3/-0	15	ESR	1.25 x IL*	2.5 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*
	5	+125+3/-0	15							
	6	+20±2	15							
Surge Voltage	Test temperature: 125°C+3/0°C Test voltage: Category voltage at 125°C Surge voltage: 1.3x category voltage at 125°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6min; 30 sec charge, 5min 30 sec discharge		Visual examination	no visible damage				
			DCL	initial limit				
			ΔC/C	within ±5% of initial value				
			DF	initial limit				
			ESR	1.25 x initial limit				

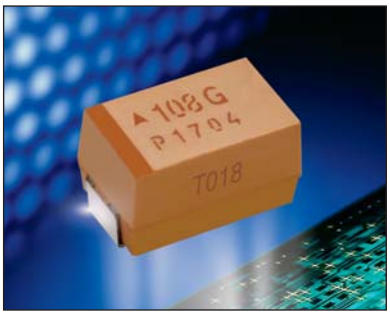
*Initial Limit

LOT ACCEPTANCE TESTING

TEST	T4J HRC4000 (Temperature range -55°C to +125°C)		
	Condition	Characteristics	
Lot Acceptance Test	25 Pieces from each lot • Read and Record Initial Electricals • Bake Out @ 125°C for 2 Hours • Mount using AVX recommended profile • Read and Record Post Mounting Electricals • Life Test: 6 hours, 2/3 R.V., 125°C • Read and Record Post Electricals	DCL	initial limit
		ΔC/C	within ±5% of initial value
		DF	initial limit
		ESR	1.25 x initial limit
		0 Failures Allowed	

TBM Multianode

Tantalum Ultra Low ESR Space Level



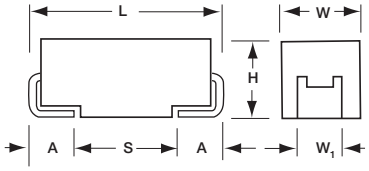
TBM Space Level series is screened to SRC9000 and utilizes an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power application.

TBM Space Level is available with Weibull Grade "C" reliability and MIL-PRF-55365 Rev. G surge test option "C".

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these correspond to "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

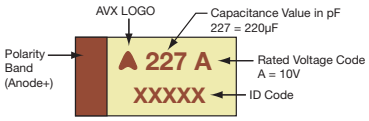


CASE DIMENSIONS: millimeters (inches)

Code	L±0.20 (0.008)	W+0.20 (0.008) –0.10 (0.004)	H+0.20 (0.008) –0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) –0.20 (0.008)	S Min.
D	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
W_1 dimension applies to the termination width for A dimensional area only.						

MARKING

D, E CASE



CAPACITANCE AND RATED VOLTAGE RANGE
LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

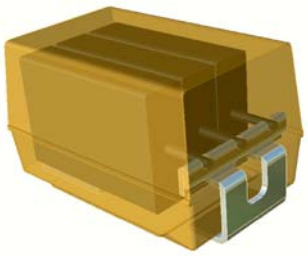
Capacitance		Rated Voltage DC (V_R) to 85°C								
µF	Code	2.5V (e)	4V (G)	6V (J)	10V (A)	12V (B)	16V (C)	20V (D)	25V (E)	35V (V)
22	226									D(70) E(60,100)
33	336								D(65)	E(50,65)
47	476								E(65)	
68	686									
100	107							E(35,45)		
150	157						E(30,40)			
220	227				D(35)	E(35)				
330	337		D(35)	D(35)	E(35)					
470	477		D(35)	E(30)						
680	687		E(23)							
1000	108	D(25)	E(23)							
1500	158	E(18)								

Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards. EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.

TBM D MULTIANODE CONSTRUCTION

TBM E MULTIANODE CONSTRUCTION



TBM Multianode

Tantalum Ultra Low ESR Space Level

HOW TO ORDER

SPACE LEVEL OPTIONS TO SRC9000:

TBM	E	477	*	006	L	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10%	**Voltage Code** 002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.		**Inspection Level** L = Group A	**Reliability Grade** Weibull: C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	**Surge Test Option** 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of +25°C									
Capacitance Range:		22 µF to 1500 µF									
Capacitance Tolerance:		±10%; ±20%									
Rated Voltage DC (V_R)	≤ +85°C:	2.5	4	6	10	12	16	20	25	35	
Category Voltage (V_C)	≤ +125°C:	1.7	2.7	4	7	8.4	10	13	17	23	
Surge Voltage (V_S)	≤ +85°C:	3.3	5.2	8	13	15.6	20	26	32	46	
Surge Voltage (V_S)	≤ +125°C:	2.2	3.4	5	8	9.6	12	16	20	28	
Temperature Range:		-55°C to +125°C									

TBM Multianode

Tantalum Ultra Low ESR Space Level

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25ºC Ripple	85ºC Ripple	125ºC Ripple	25ºC Ripple	85ºC Ripple	125ºC Ripple
					+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C							
AVX P/N	Case	µF @ 25ºC	V @ +85ºC	mOhms @ +25ºC	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
2.5 Volt @ 85ºC (1.7 Volt @ 125ºC)																	
TBMD108*002L□LC9^45	D	1000	2.5	25	18.8	188	376	8	11	12	0.255	3.194	2.874	1.277	0.080	0.072	0.032
TBME158*002C□LC9^45	E	1500	2.5	18	28.1	281	562	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.028
4 Volt @ 85ºC (2.7 Volt @ 125ºC)																	
TBMD337*004L□LC9^45	D	330	4	35	9.9	99	198	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBMD477*004L□LC9^45	D	470	4	35	14.1	141	282	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBME687*004C□LC9^45	E	680	4	23	20.4	204	408	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.032
TBME108*004C□LC9^45	E	1000	4	23	30	300	600	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.032
6 Volt @ 85ºC (4 Volt @ 125ºC)																	
TBMD337*006L□LC9^45	D	330	6	35	14.9	149	298	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBME477*006C□LC9^45	E	470	6	30	21.2	212	424	6	9	10	0.270	3.000	2.700	1.200	0.090	0.081	0.036
10 Volt @ 85ºC (7 Volt @ 125ºC)																	
TBMD227*010L□LC9^45	D	220	10	35	16.5	165	330	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBME337*010C□LC9^45	E	330	10	35	24.8	248	496	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.039
12 Volt @ 85ºC (8.4 Volt @ 125ºC)																	
TBME227*012C□LC9^45	E	220	12	35	19.8	198	396	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.039
16 Volt @ 85ºC (10 Volt @ 125ºC)																	
TBME157*016L□LC9^45	E	150	16	30	18	180	360	6	9	10	0.270	3.000	2.700	1.200	0.090	0.081	0.036
TBME157*016C□LC9^45	E	150	16	40	18	180	360	6	9	10	0.270	2.598	2.338	1.039	0.104	0.094	0.042
20 Volt @ 85ºC (13 Volt @ 125ºC)																	
TBME107*020L□LC9^45	E	100	20	35	15	150	300	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.039
TBME107*020C□LC9^45	E	100	20	45	15	150	300	6	9	10	0.270	2.449	2.205	0.980	0.110	0.099	0.044
25 Volt @ 85ºC (17 Volt @ 125ºC)																	
TBMD336*025L□LC9^45	D	33	25	65	6.2	62	124	8	11	12	0.255	1.981	1.783	0.792	0.129	0.116	0.051
TBME476*025L□LC9^45	E	47	25	65	8.8	88	176	6	9	10	0.270	2.038	1.834	0.815	0.132	0.119	0.053
35 Volt @ 85ºC (23 Volt @ 125ºC)																	
TBMD226*035L□LC9^45	D	22	35	70	5.8	58	116	8	11	12	0.255	1.909	1.718	0.763	0.134	0.120	0.053
TBME226*035L□LC9^45	E	22	35	60	5.8	58	116	6	9	10	0.270	2.121	1.909	0.849	0.127	0.115	0.051
TBME226*035C□LC9^45	E	22	35	100	5.8	58	116	6	9	10	0.270	1.643	1.479	0.657	0.164	0.148	0.066
TBME336*035L□LC9^45	E	33	35	50	8.7	87	174	6	9	10	0.270	2.324	2.091	0.930	0.116	0.105	0.046
TBME336*035C□LC9^45	E	33	35	65	8.7	87	174	6	9	10	0.270	2.038	1.834	0.815	0.132	0.119	0.053

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBM Multianode

Tantalum Ultra Low ESR COTS-Plus

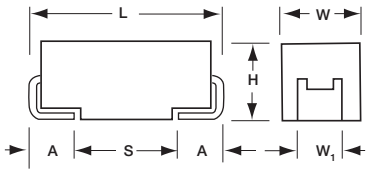
TBM COTS-Plus series uses an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power applications.

TBM is available with Weibull Grade "B" reliability and all MIL-PRF-55365 Rev. G surge test options ("A", "B" & "C").

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these correspond to "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

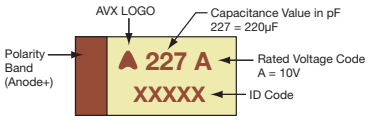
The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



MARKING

D, E, V CASE



CASE DIMENSIONS: millimeters (inches)

Code	L±0.20 (0.008)	W+0.20 (0.008) –0.10 (0.004)	H+0.20 (0.008) –0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) –0.20 (0.008)	S Min.
D	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
V	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)
W_1 dimension applies to the termination width for A dimensional area only.						

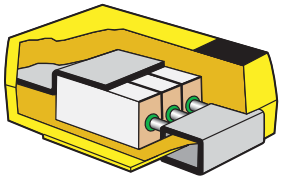
CAPACITANCE AND RATED VOLTAGE RANGE
LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

Capacitance		Rated Voltage DC (V_R) to 85°C								
µF	Code	2.5V (e)	4V (G)	6V (J)	10V (A)	12V (B)	16V (C)	20V (D)	25V (E)	35V (V)
22	226									D(70) E(60,100)
33	336								D(65)	E(50,65)
47	476								E(65)	E(55)
68	686								E(45)	
100	107							E(35,45)		
150	157						E(30,40)			
220	227				D(35)	E(35)	E(25)			
330	337		D(35)	D(35)	E(23,35)					
470	477		D(35)	E(18,30)	E(23)					
680	687		E(18,23)	E(18), V(23)						
1000	108	D(25)	E(18,23) V(18)							
1500	158	E(12,18)	E(15)							
2000	208									

Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards. EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.

TBM D MULTIANODE CONSTRUCTION



TBM Multianode

Tantalum Ultra Low ESR COTS-Plus

HOW TO ORDER

COTS-PLUS:

TBM	E	477	*	006	L	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10%	**Voltage Code** 002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 cycles, -55ºC & +85ºC before Weibull

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of +25°C									
Capacitance Range:		22 µF to 1500 µF									
Capacitance Tolerance:		±10%; ±20%									
Rated Voltage DC (V_R)	≤ +85°C:	2.5	4	6	10	12	16	20	25	35	
Category Voltage (V_C)	≤ +125°C:	1.7	2.7	4	7	8.4	10	13	17	23	
Surge Voltage (V_S)	≤ +85°C:	3.3	5.2	8	13	15.6	20	26	32	46	
Surge Voltage (V_S)	≤ +125°C:	2.2	3.4	5	8	9.6	12	16	20	28	
Temperature Range:		-55°C to +125°C									

TBM Multianode

Tantalum Ultra Low ESR COTS-Plus

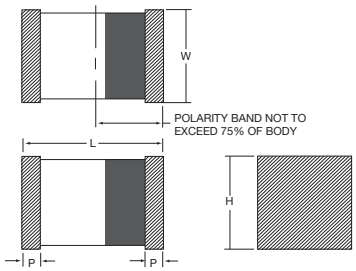
RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+85/125°C	-55°C							
AVX P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
2.5 Volt @ 85°C (1.7 Volt @ 125°C)																	
TBMD108*002L□SB0^++	D	1000	2.5	25	18.8	188	376	8	11	12	0.255	3.194	2.874	1.277	0.080	0.072	0.032
TBME158*002C□SB0^++	E	1500	2.5	18	28.1	281	562	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.028
TBME158*002L□SB0^++	E	1500	2.5	12	38	380	760	6	9	10	0.270	4.743	4.269	1.897	0.057	0.051	0.023
4 Volt @ 85°C (2.7 Volt @ 125°C)																	
TBMD337*004L□SB0^++	D	330	4	35	9.9	99	198	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBMD477*004L□SB0^++	D	470	4	35	14.1	141	282	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBME687*004C□SB0^++	E	680	4	23	20.4	204	408	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.032
TBME687*004L□SB0^++	E	680	4	18	27	270	540	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.028
TBME108*004C□SB0^++	E	1000	4	23	30	300	600	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.032
TBME108*004L□SB0^++	E	1000	4	18	40	400	800	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.028
TBMV108*004L□SB0^++	V	1000	4	18	40	400	800	6	9	10	0.285	3.979	3.581	1.592	0.072	0.064	0.029
TBME158*004L□SB0^++	E	1500	4	15	40	400	800	6	9	10	0.270	4.243	3.818	1.697	0.064	0.057	0.025
6 Volt @ 85°C (4 Volt @ 125°C)																	
TBMD337*006L□SB0^++	D	330	6	35	14.9	149	298	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBME477*006C□SB0^++	E	470	6	30	21.2	212	424	6	9	10	0.270	3.000	2.700	1.200	0.090	0.081	0.036
TBME477*006L□SB0^++	E	470	6	18	28	280	560	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.028
TBME687*006L□SB0^++	E	680	6	18	41	410	820	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.028
TBMV687*006L□SB0^++	V	680	6	23	41	410	820	6	9	10	0.285	3.520	3.168	1.408	0.081	0.073	0.032
10 Volt @ 85°C (7 Volt @ 125°C)																	
TBMD227*010L□SB0^++	D	220	10	35	16.5	165	330	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.038
TBME337*010C□SB0^++	E	330	10	35	24.8	248	496	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.039
TBME337*010L□SB0^++	E	330	10	23	33	330	660	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.032
TBME477*010L□SB0^++	E	470	10	23	47	470	940	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.032
12 Volt @ 85°C (8.4 Volt @ 125°C)																	
TBME227*012C□SB0^++	E	220	12	35	19.8	198	396	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.039
16 Volt @ 85°C (10 Volt @ 125°C)																	
TBME157*016C□SB0^++	E	150	16	40	18	180	360	6	9	10	0.270	2.598	2.338	1.039	0.104	0.094	0.042
TBME157*016L□SB0^++	E	150	16	30	18	180	360	6	9	10	0.270	3.000	2.700	1.200	0.090	0.081	0.036
TBME227*016L□SB0^++	E	220	16	25	35	350	700	6	9	10	0.270	3.286	2.958	1.315	0.082	0.074	0.033
20 Volt @ 85°C (13 Volt @ 125°C)																	
TBME107*020C□SB0^++	E	100	20	45	15	150	300	6	9	10	0.270	2.449	2.205	0.980	0.110	0.099	0.044
TBME107*020L□SB0^++	E	100	20	35	15	150	300	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.039
25 Volt @ 85°C (17 Volt @ 125°C)																	
TBMD336*025L□SB0^++	D	33	25	65	6.2	62	124	8	11	12	0.255	1.981	1.783	0.792	0.129	0.116	0.051
TBME476*025L□SB0^++	E	47	25	65	8.8	88	176	6	9	10	0.270	2.038	1.834	0.815	0.132	0.119	0.053
TBME686*025L□SB0^++	E	68	25	45	17	170	340	6	9	10	0.270	2.449	2.205	0.980	0.110	0.099	0.044
35 Volt @ 85°C (23 Volt @ 125°C)																	
TBMD226*035L□SB0^++	D	22	35	70	5.8	58	116	8	11	12	0.255	1.909	1.718	0.763	0.134	0.120	0.053
TBME226*035C□SB0^++	E	22	35	100	5.8	58	116	6	9	10	0.270	1.643	1.479	0.657	0.164	0.148	0.066
TBME226*035L□SB0^++	E	22	35	60	5.8	58	116	6	9	10	0.270	2.121	1.909	0.849	0.127	0.115	0.051
TBME336*035C□SB0^++	E	33	35	65	8.7	87	174	6	9	10	0.270	2.038	1.834	0.815	0.132	0.119	0.053
TBME336*035L□SB0^++	E	33	35	50	8.7	87	174	6	9	10	0.270	2.324	2.091	0.930	0.116	0.105	0.046
TBME476*035L□SB0^++	E	47	35	55	16	160	320	6	9	10	0.270	2.216	1.994	0.886	0.122	0.110	0.049

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBC Series

CWR15 MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level



AVX announces the world's smallest military approved tantalum chip capacitors. The CWR15 offers 0603, 0805 and 1206 case sizes in capacitance/voltage combinations previously only available in much larger packages. The revolutionary AVX TACmicrochip® technology offers designers significant opportunity to downsize circuits for military and aerospace applications.

The product is manufactured in the AVX Tantalum high reliability facility in Biddeford, Maine which is also home to the CWR09, CWR11, CWR19 and CWR29 product lines.

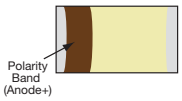
For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS: millimeters (inches)

Case Code	Length (L)	Width (W)	Height (H)	Term. Width (W_1)
A	3.20±0.20 (0.126±0.008)	1.60±0.20 (0.063±0.008)	1.60±0.20 (0.063±0.008)	0.15+0.35/-0.00 (0.006+0.014/-0.000)
L	1.60+0.25/-0.15 (0.063+0.010/-0.006)	0.84+0.20/-0.10 (0.033+0.008/-0.004)	0.84+0.20/-0.10 (0.033+0.008/-0.004)	0.15+0.35/-0.00 (0.006+0.014/-0.000)
R	2.00+0.25/-0.15 (0.079+0.010/-0.006)	1.35+0.20/-0.10 (0.053+0.008/-0.004)	1.35+0.20/-0.10 (0.053+0.008/-0.004)	0.15+0.35/-0.00 (0.006+0.014/-0.000)

MARKING

A, L, R CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Voltage Rating DC (V_R) at 85°C			
µF	Code	4V (C)	6V (D)	10V (F)	20V (J)
0.47	474			L	L
0.68	684			L	
1.0	105			L	
1.5	155			L	
2.2	225			L	
3.3	335		L	R	
4.7	475		L	R	
6.8	685	L	R	R	
10	106	R	R	R	
15	156	R	R	A	
22	226	R	A		
33	336	R	A		
47	476		A		
68	686	A			

Further extensions of the CWR15 product are planned for later in 2009. A new case size will be added, and the voltage range will be extended to 20 volts. Ratings of 100 µF at 4 volts to 10 µF at 20 volts will be included in this extension of the product line.

TBC Series

CWR15 MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR15):

TBC	L	685	*	004	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 020 = 20Vdc	**Standard or Low ESR Range** C = Std ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A M = MIL (JAN) CWR15	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	**Qualification Level** 0 = N/A T = T Level 9 = SRC9000	**Termination Finish** 0 = Fused Solder Plated 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

CWR15 P/N CROSS REFERENCE:

CWR15	F	C	685	*	–	L	+
Style	**Voltage Code** C = 4Vdc D = 6Vdc F = 10Vdc J = 20Vdc	**Termination Finish** B = Gold Plated K = Solder Fused LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents number of zeros to follow	**Capacitance Tolerance** J = ±5% K = ±10% M = ±20% See page 7 for additional packaging options.	**Product Level Designator** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	**Case Size**	**Surge Test Option** A = +25°C after Weibull B = -55°C & +85°C after Weibull C = -55°C & +85°C before Weibull Z = None Required

SPACE LEVEL OPTIONS TO SRC9000*:

TBC	L	685	*	004	C	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 020 = 20Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** 0 = Fused Solder Plated 9 = Gold Plated LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 45 = 10 cycles, -55°C & +85°C before Weibull

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of 25°C				
Capacitance Range:		0.47 µF to 68 µF				
Capacitance Tolerance:		±5%; ±10%; ±20%				
Rated Voltage (V_R)	≤ 85°C:	4	6	10	20	
Category Voltage (V_C)	≤ 125°C:	2.7	4	6.7	13.3	
Surge Voltage (V_S)	≤ 85°C:	5.3	8	13.3	26.7	
Surge Voltage (V_S)	≤ 125°C:	3.5	5.3	8.7	17.8	
Temperature Range:		-55°C to +125°C				

CWR15 MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE

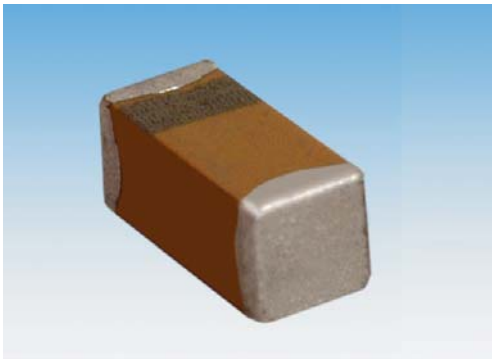
				Parametric Specifications by Rating per MIL-PRF-55365/12										Typical Ripple Data by Rating						
				Cap	DC Rated	ESR	DCL max			DF Max			Power	25°C	85°C	125°C	25°C	85°C	125°C
				@ 120Hz	Voltage	@ 100kHz	+25°C	+85°C	+125°C	+25°C	+(85/125)°C	-55°C	Dissipation	Ripple	Ripple	Ripple	Ripple	Ripple	Ripple
CWR15 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
CWR15CK685*^L+	TBC L 685 * 004 C ☐ # @ 0 ^ +	TBC L 685 * 004 C ☐ L @ 9 ^ +	L	6.8	4	10	0.5	5	6	8	16	12	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15CK106*^R+	TBC R 106 * 004 C ☐ # @ 0 ^ ++	TBC R 106 * 004 C ☐ L @ 9 ^ ++	R	10	4	6	0.5	5	6	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15CK156*^R+	TBC R 156 * 004 C ☐ # @ 0 ^ ++	TBC R 156 * 004 C ☐ L @ 9 ^ ++	R	15	4	6	0.6	6	7	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15CK226*^R+	TBC R 226 * 004 C ☐ # @ 0 ^ +	TBC R 226 * 004 C ☐ L @ 9 ^ +	R	22	4	6	0.9	9	11	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15CK336*^R+	TBC R 336 * 004 C ☐ # @ 0 ^ +	TBC R 336 * 004 C ☐ L @ 9 ^ +	R	33	4	6	1.3	13	16	10	20	15	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15CK686*^A+	TBC A 686 * 004 C ☐ # @ 0 ^ +	TBC A 686 * 004 C ☐ L @ 9 ^ +	A	68	4	1	2.7	27	33	15	30	23	0.040	0.20	0.18	0.08	0.20	0.18	0.08
CWR15DK335*^L+	TBC L 335 * 006 C ☐ # @ 0 ^ +	TBC L 335 * 006 C ☐ L @ 9 ^ +	L	3.3	6	10	0.5	5	6	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15DK475*^L+	TBC L 475 * 006 C ☐ # @ 0 ^ +	TBC L 475 * 006 C ☐ L @ 9 ^ +	L	4.7	6	10	0.5	5	6	8	16	12	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15DK685*^R+	TBC R 685 * 006 C ☐ # @ 0 ^ ++	TBC R 685 * 006 C ☐ L @ 9 ^ ++	R	6.8	6	6	0.5	5	6	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15DK106*^R+	TBC R 106 * 006 C ☐ # @ 0 ^ ++	TBC R 106 * 006 C ☐ L @ 9 ^ ++	R	10	6	6	0.6	6	7	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15DK156*^R+	TBC R 156 * 006 C ☐ # @ 0 ^ +	TBC R 156 * 006 C ☐ L @ 9 ^ +	R	15	6	6	0.9	9	11	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15DK226*^A+	TBC A 226 * 006 C ☐ # @ 0 ^ +	TBC A 226 * 006 C ☐ L @ 9 ^ +	A	22	6	6	1.4	14	17	10	20	15	0.040	0.08	0.07	0.03	0.49	0.44	0.20
CWR15DK336*^A+	TBC A 336 * 006 C ☐ # @ 0 ^ +	TBC A 336 * 006 C ☐ L @ 9 ^ +	A	33	6	6	2	20	24	10	20	15	0.040	0.08	0.07	0.03	0.49	0.44	0.20
CWR15DK476*^A+	TBC A 476 * 006 C ☐ # @ 0 ^ +	TBC A 476 * 006 C ☐ L @ 9 ^ +	A	47	6	4	2.8	28	34	15	30	23	0.040	0.10	0.09	0.04	0.40	0.36	0.16
CWR15FK474*^L+	TBC L 474 * 010 C ☐ # @ 0 ^ +	TBC L 474 * 010 C ☐ L @ 9 ^ +	L	0.47	10	12	0.5	5	6	6	12	9	0.025	0.05	0.04	0.02	0.55	0.49	0.22
CWR15FK684*^L+	TBC L 684 * 010 C ☐ # @ 0 ^ +	TBC L 684 * 010 C ☐ L @ 9 ^ +	L	0.68	10	10	0.5	5	6	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15FK105*^L+	TBC L 105 * 010 C ☐ # @ 0 ^ +	TBC L 105 * 010 C ☐ L @ 9 ^ +	L	1	10	10	0.5	5	6	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15FK155*^L+	TBC L 155 * 010 C ☐ # @ 0 ^ +	TBC L 155 * 010 C ☐ L @ 9 ^ +	L	1.5	10	10	0.5	5	6	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15FK225*^L+	TBC L 225 * 010 C ☐ # @ 0 ^ +	TBC L 225 * 010 C ☐ L @ 9 ^ +	L	2.2	10	10	0.5	5	6	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
CWR15FK335*^R+	TBC R 335 * 010 C ☐ # @ 0 ^ +	TBC R 335 * 010 C ☐ L @ 9 ^ +	R	3.3	10	6	0.5	5	6	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15FK475*^R+	TBC R 475 * 010 C ☐ # @ 0 ^ +	TBC R 475 * 010 C ☐ L @ 9 ^ +	R	4.7	10	6	0.5	5	6	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15FK685*^R+	TBC R 685 * 010 C ☐ # @ 0 ^ +	TBC R 685 * 010 C ☐ L @ 9 ^ +	R	6.8	10	6	0.7	7	8.5	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15FK106*^R+	TBC R 106 * 010 C ☐ # @ 0 ^ +	TBC R 106 * 010 C ☐ L @ 9 ^ +	R	10	10	6	1	10	12	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
CWR15FK156*^R+	TBC A 156 * 010 C ☐ # @ 0 ^ +	TBC A 156 * 010 C ☐ L @ 9 ^ +	A	15	10	6	1.5	15	18	10	20	15	0.040	0.08	0.07	0.03	0.49	0.44	0.20
CWR15JK474*^R+	TBC L 474 * 020 C ☐ # @ 0 ^ +	TBC L 474 * 020 C ☐ L @ 9 ^ +	L	0.47	20	24	0.5	5	6	6	12	9	0.025	0.03	0.03	0.01	0.77	0.70	0.31

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBC Series

TBC COTS-Plus

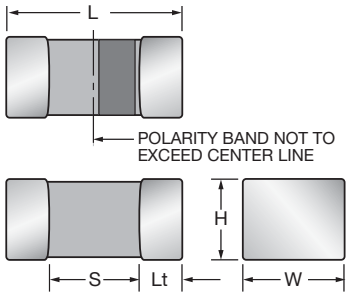


TBC COTS-Plus series extends the range of CWR15. TBC is available with Weibull grade "B" reliability and all MIL-PRF-55365 Rev. G surge test options ("A", "B" & "C").

For Space Level applications, AVX SRC9000 ratings are available as shown in the rating table.

There are three termination finishes available: fused solder plated, gold plated, and 100% tin.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

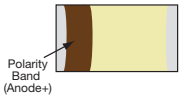


CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	Length (L)	Width (W)	Height (H)	Termination Spacing(S)	Minimum Termination Length (Lt)	Average Mass
A	1206	3216-18	3.20 ±0.20 (0.126 ±0.008)	1.60 ±0.20 (0.063 ±0.008)	1.60 ±0.20 (0.063 ±0.008)	1.80 min. (0.071 min.)	0.15 (0.006)	44.6mg
L	0603	1608-10	1.60 +0.25 -0.15 (0.063 +0.010 -0.006)	0.84 +0.20 -0.10 (0.033 +0.008 -0.004)	0.84 +0.20 -0.10 (0.033 +0.008 -0.004)	0.55 min. (0.022 min.)	0.15 (0.006)	8.6mg
R	0805	2012-15	2.00 +0.25 -0.15 (0.079 +0.010 -0.006)	1.35 +0.20 -0.10 (0.053 +0.008 -0.004)	1.35 +0.20 -0.10 (0.053 +0.008 -0.004)	0.70 min. (0.027 min.)	0.15 (0.006)	29.9mg

MARKING

A, L, R CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Voltage Rating DC (V_R) at 85°C					
µF	Code	4V	6.3V	10V	16V	20V	25V
0.33 0.47 0.68	334 474 684			 L L	 L L	 L	L
1.0 1.5 2.2	105 155 225			L L L			
3.3 4.7 6.8	335 475 685		 L R	R R R	 R	R	
10 15 22	106 156 226	R R R	R A	R A	A		
33 47 68	336 476 686	R A	A A				

TBC Series

TBC COTS-Plus

HOW TO ORDER

COTS-PLUS:

TBC	L	685	*	004	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc	**Standard or Low ESR Range** C = Std ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER None required	**Qualification Level** 0 = N/A 9 = SRC9000	**Termination Finish** 0 = Fused Solder Plated 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 cycles, -55ºC & +85ºC before Weibull

SPACE LEVEL OPTIONS TO SRC9000*:

TBC	L	685	*	004	C	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10% J = ±5%	**Voltage Code** 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** 0 = Fused Solder Plated 9 = Gold Plated LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT *For RoHS compliant products, please select correct termination style.*	**Surge Test Option** 45 = 10 cycles, -55ºC & +85ºC before Weibull

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C						
Capacitance Range:	0.33 µF to 68 µF						
Capacitance Tolerance:	±5%; ±10%; ±20%						
Leakage Current DCL:	0.01CV or 0.5µA whichever is the greater						
Rated Voltage (V_R)	≤ +85°C:	4	6.3	10	16	20	25
Category Voltage (V_C)	≤ +125°C:	2.7	4	7	10	13	17
Surge Voltage (V_S)	≤ +85°C:	5.2	8	13	20	26	32
Surge Voltage (V_S)	≤ +125°C:	3.2	5	8	12	16	20
Temperature Range:	-55°C to +125°C						

TBC Series

TBC COTS-Plus

RATING & PART NUMBER REFERENCE

AVX P/N	AVX SRC9000 P/N	Case EIA	Case AVX	Cap @ 120Hz µF @ 25°C	DC Rated Voltage V @ +85°C	ESR @ 100kHz Ohms @ +25°C	DCL max +25°C (µA)	DCL max +85°C (µA)	DCL max +125°C (µA)	DF Max +25°C (%)	DF Max +(85/125)°C (%)	DF Max -55°C (%)	Power Dissipation W	25°C Ripple A (100kHz)	85°C Ripple A (100kHz)	125°C Ripple A (100kHz)	25°C Ripple V (100kHz)	85°C Ripple V (100kHz)	125°C Ripple V (100kHz)
4 Volt @ 85°C (2.7 Volt @ 125°C)																			
TBC R 106 * 004 C # @ 0 ^ ++	TBC R 106 * 004 C L @ 9 ^ ++	0805	R	10	4.0	6	0.5	5.0	6.3	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 156 * 004 C # @ 0 ^ ++	TBC R 156 * 004 C L @ 9 ^ ++	0805	R	15	4.0	6	0.6	6.0	7.5	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 226 * 004 C # @ 0 ^ ++	TBC R 226 * 004 C L @ 9 ^ ++	0805	R	22	4.0	6	0.9	8.8	11.0	15	30	23	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 336 * 004 C # @ 0 ^ ++	TBC R 336 * 004 C L @ 9 ^ ++	0805	R	33	4.0	6	1.3	13.2	16.5	10	20	15	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC A 686 * 004 C # @ 0 ^ ++	TBC A 686 * 004 C L @ 9 ^ ++	1206	A	68	4.0	1	2.7	27.2	34.0	15	30	23	0.040	0.20	0.18	0.08	0.20	0.18	0.08
6.3 Volt @ 85°C (4 Volt @ 125°C)																			
TBC L 475 * 006 C # @ 0 ^ ++	TBC L 475 * 006 C L @ 9 ^ ++	0603	L	4.7	6.3	10	0.5	5.0	6.3	8	16	12	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC R 685 * 006 C # @ 0 ^ ++	TBC R 685 * 006 C L @ 9 ^ ++	0805	R	6.8	6.3	6	0.5	5.0	6.3	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 106 * 006 C # @ 0 ^ ++	TBC R 106 * 006 C L @ 9 ^ ++	0805	R	10	6.3	6	0.6	6.3	7.9	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC A 226 K 006 C # @ 0 ^ ++	TBC A 226 K 006 C L @ 9 ^ ++	1206	A	22	6.3	6	1.4	13.9	17.3	10	20	15	0.040	0.08	0.07	0.03	0.49	0.44	0.20
TBC A 336 K 006 C # @ 0 ^ ++	TBC A 336 K 006 C L @ 9 ^ ++	1206	A	33	6.3	6	2.1	20.8	26.0	10	20	15	0.040	0.08	0.07	0.03	0.49	0.44	0.20
TBC A 476 * 006 C # @ 0 ^ ++	TBC A 476 * 006 C L @ 9 ^ ++	1206	A	47	6.3	1	3.0	29.6	37.0	15	30	23	0.040	0.20	0.18	0.08	0.20	0.18	0.08
10 Volt @ 85°C (7 Volt @ 125°C)																			
TBC L 474 * 010 C # @ 0 ^ ++	TBC L 474 * 010 C L @ 9 ^ ++	0603	L	0.47	10	12	0.5	5.0	6.3	6	12	9	0.025	0.05	0.04	0.02	0.55	0.49	0.22
TBC L 684 * 010 C # @ 0 ^ ++	TBC L 684 * 010 C L @ 9 ^ ++	0603	L	0.68	10	10	0.5	5.0	6.3	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC L 105 * 010 C # @ 0 ^ ++	TBC L 105 * 010 C L @ 9 ^ ++	0603	L	1.0	10	10	0.5	5.0	6.3	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC L 155 * 010 C # @ 0 ^ ++	TBC L 155 * 010 C L @ 9 ^ ++	0603	L	1.5	10	10	0.5	5.0	6.3	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC L 225 * 010 C # @ 0 ^ ++	TBC L 225 * 010 C L @ 9 ^ ++	0603	L	2.2	10	10	0.5	5.0	6.3	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC R 335 * 010 C # @ 0 ^ ++	TBC R 335 * 010 C L @ 9 ^ ++	0805	R	3.3	10	6	0.5	5.0	6.3	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 475 * 010 C # @ 0 ^ ++	TBC R 475 * 010 C L @ 9 ^ ++	0805	R	4.7	10	6	0.5	4.7	5.9	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 685 * 010 C # @ 0 ^ ++	TBC R 685 * 010 C L @ 9 ^ ++	0805	R	6.8	10	6	0.7	6.8	8.5	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC R 106 * 010 C # @ 0 ^ ++	TBC R 106 * 010 C L @ 9 ^ ++	0805	R	10	10	6	1.0	10.0	12.5	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC A 156 * 010 C # @ 0 ^ ++	TBC A 156 * 010 C L @ 9 ^ ++	1206	A	15	10	6	1.5	15.0	18.8	10	20	15	0.040	0.08	0.07	0.03	0.49	0.44	0.20
16 Volt @ 85°C (10 Volt @ 125°C)																			
TBC L 474 * 016 C # @ 0 ^ ++	TBC L 474 * 016 C L @ 9 ^ ++	0603	L	0.47	16	10	0.5	5.0	6.3	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC L 684 * 016 C # @ 0 ^ ++	TBC L 684 * 016 C L @ 9 ^ ++	0603	L	0.68	16	10	0.5	5.0	6.3	6	12	9	0.025	0.05	0.05	0.02	0.50	0.45	0.20
TBC R 475 * 016 C # @ 0 ^ ++	TBC R 475 * 016 C L @ 9 ^ ++	0805	R	4.7	16	6	0.8	7.5	9.0	10	20	15	0.045	0.09	0.08	0.03	0.52	0.47	0.21
TBC A 106 * 016 C # @ 0 ^ ++	TBC A 106 * 016 C L @ 9 ^ ++	1206	A	10	16	3	1.6	16.0	19.2	8	16	12	0.040	0.12	0.10	0.05	0.20	0.18	0.08
20 Volt @ 85°C (13 Volt @ 125°C)																			
TBC L 474 * 020 C # @ 0 ^ ++	TBC L 474 * 020 C L @ 9 ^ ++	0603	L	0.47	20	24	0.5	5.0	6.3	6	12	9	0.025	0.03	0.03	0.01	0.77	0.70	0.31
TBC R 335 * 020 C # @ 0 ^ ++	TBC R 335 * 020 C L @ 9 ^ ++	0805	R	3.3	20	6	0.7	6.6	8.3	8	16	12	0.045	0.09	0.08	0.03	0.52	0.47	0.21
25 Volt @ 85°C (17 Volt @ 125°C)																			
TBC L 334 M 025 C # @ 0 ^ ++	TBC L 334 M 025 C L @ 9 ^ ++	0603	L	0.33	25	30	0.5	5.0	6.3	6	12	9	0.025	0.03	0.03	0.01	0.87	0.78	0.35

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBC Series

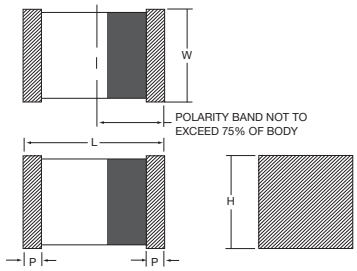
HRC5000 Medical Implantable Grade

The TBC HRC5000 Medical Grade series is designed for use in medical implantable applications. These are some of the smallest surface mount tantalum capacitors available on the market which feature extremely low DC leakage limits well below typical values.

These components are manufactured and tested in the AVX Biddeford Maine factory which is ISO 13485 certified. Weibull grading and surge current testing options per MIL-PRF-55365 are available along with several plating options including tin/lead solder, 100% tin, or gold terminations.

To request a specific rating or for more information on HRC5000 testing details please contact the factory.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

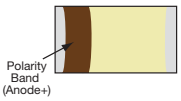


CASE DIMENSIONS: millimeters (inches)

Case Code	EIA Code	Length (L)	Width (W)	Height (H)	Term. Width (P) min.
A	1206	3.20 ±0.20 (0.126 ±0.008)	1.60 ±0.20 (0.063 ±0.008)	1.60 ±0.20 (0.063 ±0.008)	0.15 (0.006)
B	1411	3.60 ±0.20 (0.141 ±0.008)	2.90 ±0.15 (0.114 ±0.006)	1.50 max (0.06 max)	0.15 (0.006)
L	0603	1.60 $^{+0.25}_{-0.15}$ (0.063 $^{+0.010}_{-0.006}$)	0.84 $^{+0.20}_{-0.10}$ (0.033 $^{+0.008}_{-0.004}$)	0.84 $^{+0.20}_{-0.10}$ (0.033 $^{+0.008}_{-0.004}$)	0.15 (0.006)
R	0805	2.00 $^{+0.25}_{-0.15}$ (0.079 $^{+0.010}_{-0.006}$)	1.35 $^{+0.20}_{-0.10}$ (0.053 $^{+0.008}_{-0.004}$)	1.35 $^{+0.20}_{-0.10}$ (0.053 $^{+0.008}_{-0.004}$)	0.15 (0.006)
S	1207	3.20 ±0.20 (0.126 ±0.008)	1.80 ±0.20 (0.071 ±0.008)	1.50 max (0.06 max)	0.15 (0.006)

MARKING

A, B, L, R, S CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage					
µF	Code	4V	6V	10V	16V	20V	40V
0.47	474			L			
0.68	684						
1	105			L		R	A
1.5	155						
2.2	225			L			
3.3	335		L	R			
4.7	475			R	R		
6.8	685			R			
10	106			R	R/A (17v)		
15	156	R					
22	226						
33	336						
47	476		S	B			

TBC Series

HRC5000 Medical Implantable Grade

HOW TO ORDER

TBC	R	106	*	010	C	□	L	@	5	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** J = ±5% K = ±10% M = ±20%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 016 = 16Vdc 017 = 17Vdc 020 = 20Vdc 040 = 40Vdc	**ESR** C = Std ESR	**Packaging** B = Bulk R = 7" T&R W = Waffle	**Inspection Level** L = Group A	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 5 = HRC5000	**Termination Finish** 0 = Solder Fused 9 = Gold Plated 7 = 100% Tin	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 Cycles, -55ºC & +85ºC before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX HRC5000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of 25°C						
Capacitance Range:		0.47 µF to 47 µF						
Capacitance Tolerance:		±5%; ±10%; ±20%						
Rated Voltage (V_R)	≤ +85°C:	4	6	10	16	20	40	
Category Voltage (V_C)	≤ +125°C:	2.7	4	6.7	10.7	13.3	26.7	
Surge Voltage (V_S)	≤ +85°C:	5.3	8	13.3	20.8	26.7	52	
Surge Voltage (V_S)	≤ +125°C:	3.5	5.3	8.7	13.9	17.8	34.7	
Temperature Range:		-55°C to +125°C						

TBC Series

HRC5000 Medical Implantable Grade

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25ºC Ripple Current	85ºC Ripple Current	125ºC Ripple Current	25ºC Ripple Voltage	85ºC Ripple Voltage	125ºC Ripple Voltage
					+25°C	+85°C	+125°C	+25°C	+85/125°C	-55°C							
AVX HRC5000 P/N	Case	µF @ 25ºC	V @ +85ºC	Ohms @ +25ºC	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBCR156*004C□L@5^++	R	15	4	6	0.150	1.500	1.800	8	16	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCL335*006C□L@5^++	L	3.3	6	10	0.100	1.000	1.200	6	12	9	0.025	0.05	0.045	0.02	0.500	0.450	0.200
TBCS476*006C□L@5^++	S	47	6	4	0.470	4.700	5.640	6	8	9	0.04	0.1	0.09	0.04	0.400	0.360	0.160
TBCL474*010C□L@5^++	L	0.47	10	12	0.100	1.000	1.200	6	12	9	0.025	0.046	0.041	0.018	0.552	0.492	0.216
TBCL105*010C□L@5^++	L	1	10	10	0.100	1.000	1.200	6	12	9	0.025	0.05	0.045	0.02	0.500	0.450	0.200
TBCL225*010C□L@5^++	L	2.2	10	10	0.100	1.000	1.200	6	12	9	0.025	0.05	0.045	0.02	0.500	0.450	0.200
TBCR335*010C□L@5^++	R	3.3	10	6	0.100	1.000	1.200	8	16	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCR475*010C□L@5^++	R	4.7	10	6	0.118	1.175	1.410	8	16	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCR685*010C□L@5^++	R	6.8	10	6	0.170	1.700	2.040	8	16	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCR106*010C□L@5^++	R	10	10	6	0.250	2.500	3.000	8	16	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCB476*010C□L@5^++	B	47	10	1	1.175	11.750	14.100	15	30	23	0.04	0.2	0.18	0.08	0.200	0.180	0.080
TBCR475*016C□L@5^++	R	4.7	16	6	0.188	1.880	2.256	8	10	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCR106*016C□L@5^++	R	10	16	5	0.400	4.000	4.800	8	16	12	0.045	0.095	0.085	0.038	0.475	0.425	0.190
TBCA106*017C□L@5^++	A	10	17	3	0.425	4.250	5.100	8	16	12	0.04	0.115	0.104	0.046	0.345	0.312	0.138
TBCR105*020C□L@5^++	R	1	20	6	0.100	1.000	1.200	8	16	12	0.045	0.087	0.078	0.035	0.522	0.468	0.210
TBCA105*040C□L@5^++	A	1	40	6	0.100	1.000	1.200	8	16	12	0.04	0.082	0.073	0.033	0.492	0.438	0.198

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBC Series

HRC6000 Medical Implantable Grade

Q-Process

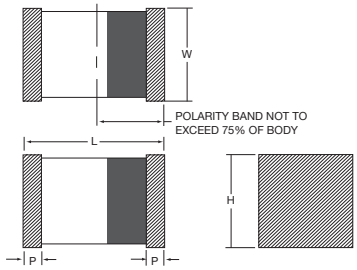
The TBC HRC6000 Medical Grade series is the next generation of our internally qualified medical grade tantalum capacitors. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.

Due to the deficiencies of Weibull grading and its tendency to Burn-In potentially unstable units, this Q-Process utilizes a Product Level Designation system based on a simulated production routine performed on a sample from the population. Once that is completed a calculation is done based on the performance of the sample which can take into account the application conditions of the end customer. This system also allows for derating recommendations to be relaxed as illustrated by the section below.

These components are manufactured and tested in the AVX Biddeford Maine factory which is ISO 13485 certified. For more information on this process or to request a specific rating please contact the factory.

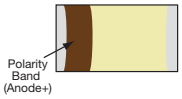
For additional information on Q-process please consult the AVX technical publication “Reaching the Highest Reliability for Tantalum Capacitors” (see the link: http://www.avx.com/docs/techinfo/Qprocess.pdf)

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



MARKING

A, B, L, R, S CASE



CASE DIMENSIONS: millimeters (inches)

Case Code	EIA Code	Length (L)	Width (W)	Height (H)	Term. Width (P) min.
A	1206	3.20 ±0.20 (0.126 ±0.008)	1.60 ±0.20 (0.063 ±0.008)	1.60 ±0.20 (0.063 ±0.008)	0.15 (0.006)
B	1411	3.60 ±0.20 (0.141 ±0.008)	2.90 ±0.15 (0.114 ±0.006)	1.50 max (0.06 max)	0.15 (0.006)
L	0603	1.60 $^{+0.25}_{-0.15}$ (0.063 $^{+0.010}_{-0.006}$)	0.84 $^{+0.20}_{-0.10}$ (0.033 $^{+0.008}_{-0.004}$)	0.84 $^{+0.20}_{-0.10}$ (0.033 $^{+0.008}_{-0.004}$)	0.15 (0.006)
R	0805	2.00 $^{+0.25}_{-0.15}$ (0.079 $^{+0.010}_{-0.006}$)	1.35 $^{+0.20}_{-0.10}$ (0.053 $^{+0.008}_{-0.004}$)	1.35 $^{+0.20}_{-0.10}$ (0.053 $^{+0.008}_{-0.004}$)	0.15 (0.006)
S	1207	3.20 ±0.20 (0.126 ±0.008)	1.80 ±0.20 (0.071 ±0.008)	1.50 max (0.06 max)	0.15 (0.006)

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage		
µF	Code	4V	6V	10V
2.2	225	L	L	L
3.3	335	L	L	
4.7	475	L	L	
6.8	685	R	R	R
10	106	R	R	R
15	156	R	R	
22	226	R	R	
33	336	S	S	B
47	476	S	S, A	B
68	686	S	B	

TBC Series

HRC6000 Medical Implantable Grade

HOW TO ORDER

TBC	R	106	*	010	C	□	L	Q	6	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** J = ±5% K = ±10% M = ±20%	**Voltage Code** 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc	**ESR** C = Std ESR	**Packaging** B = Bulk R = 7" T&R W = Waffle	**Inspection Level** L = Group A	**Reliability Grade** Product Level Designator: Q = 0.1%/1000 Hours Minimum, 60% conf.	**Qualification Level** 6 = HRC6000	**Termination Finish** 0 = Solder Fused 9 = Gold Plated 7 = 100% Matte Tin	**Custom Option** 00 = Std

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX HRC6000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of +25°C			
Capacitance Range:		2.2 µF to 68 µF			
Capacitance Tolerance:		±5%; ±10%; ±20%			
Rated Voltage (V_R)	≤ +85°C:	4	6	10	
Category Voltage (V_C)	≤ +125°C:	2.7	4	6.7	
Temperature Range:		-55°C to +125°C			

TBC Series

HRC6000 Medical Implantable Grade

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical Ripple Data by Rating						
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	125°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	125°C Ripple Voltage
AVX HRC6000 P/N	Case	µF @ 25°C	V @ +85°C	Ohms @ +25°C	+25°C (µA)	+85°C (µA)	+125°C (µA)	+25°C (%)	+85/125°C (%)	-55°C (%)	W	A (100kHz)	A (100kHz)	A (100kHz)	V (100kHz)	V (100kHz)	V (100kHz)
TBCL225*004C□LQ6^00	L	2.2	4	10	0.022	0.22	0.264	6	16	12	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCL335*004C□LQ6^00	L	3.3	4	10	0.033	0.33	0.396	6	16	12	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCL475*004C□LQ6^00	L	4.7	4	10	0.047	0.47	0.564	8	16	12	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCR685*004C□LQ6^00	R	6.8	4	6	0.068	0.68	0.816	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR106*004C□LQ6^00	R	10	4	6	0.100	1.00	1.20	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR156*004C□LQ6^00	R	15	4	6	0.150	1.50	1.80	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR226*004C□LQ6^00	R	22	4	6	0.220	2.20	2.64	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCS336*004C□LQ6^++	S	33	4	6	0.330	3.30	3.96	8	16	12	0.040	0.082	0.073	0.033	0.490	0.441	0.196
TBCS476*004C□LQ6^++	S	47	4	4	0.470	4.70	5.64	8	16	12	0.040	0.100	0.090	0.040	0.400	0.360	0.160
TBCS686*004C□LQ6^++	S	68	4	4	0.680	6.80	8.16	15	30	23	0.040	0.100	0.090	0.040	0.400	0.360	0.160
TBCL225*006C□LQ6^00	L	2.2	6	10	0.033	0.33	0.396	6	16	12	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCL335*006C□LQ6^00	L	3.3	6	10	0.050	0.50	0.60	6	12	9	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCL475*006C□LQ6^00	L	4.7	6	10	0.071	0.71	0.852	8	16	12	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCR685*006C□LQ6^00	R	6.8	6	6	0.102	1.02	1.224	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR106*006C□LQ6^00	R	10	6	6	0.150	1.50	1.80	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR156*006C□LQ6^00	R	15	6	6	0.225	2.25	2.70	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR226*006C□LQ6^00	R	22	6	5	0.330	3.30	3.96	8	20	15	0.045	0.095	0.085	0.038	0.474	0.427	0.190
TBCS336*006C□LQ6^++	S	33	6	6	0.495	4.95	5.94	8	16	12	0.040	0.082	0.073	0.033	0.490	0.441	0.196
TBCS476*006C□LQ6^++	S	47	6	4	0.705	7.05	8.46	8	16	12	0.040	0.100	0.090	0.040	0.400	0.360	0.160
TBCA476*006C□LQ6^++	A	47	6	4	0.705	7.05	8.46	15	30	23	0.040	0.100	0.090	0.040	0.400	0.360	0.160
TBCB686*006C□LQ6^00	B	68	6	1	1.020	10.20	12.24	15	30	22.5	0.040	0.200	0.180	0.080	0.200	0.180	0.080
TBCL225*010C□LQ6^00	L	2.2	10	10	0.055	0.55	0.66	6	12	9	0.025	0.050	0.045	0.020	0.500	0.450	0.200
TBCR685*010C□LQ6^00	R	6.8	10	6	0.170	1.70	2.04	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCR106*010C□LQ6^00	R	10	10	6	0.250	2.50	3.00	8	16	12	0.045	0.087	0.078	0.035	0.520	0.468	0.208
TBCB336*010C□LQ6^00	B	33	10	1	0.825	8.25	9.90	15	30	22.5	0.040	0.200	0.180	0.080	0.200	0.180	0.080
TBCB476*010C□LQ6^00	B	47	10	1	1.175	11.75	14.1	15	30	22.5	0.040	0.200	0.180	0.080	0.200	0.180	0.080

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

HRC6000 DERATING GUIDELINES

Due to our new Q-Process test procedures the need for a typical 50% derating of the capacitors rated voltage in application can be relaxed. Below is a table outlining some of the common applications where these components are utilized along with appropriate derating recommendations. When determining the appropriate capacitor voltage rating to utilize, the application voltage is determined by the maximum D.C. voltage with the addition of any A.C. ripple voltage that may be present.

Recommended Derating	Application
20%	Filtering
0%	Pacing
0%	Hold-Up
0%	Charging

TCB Series

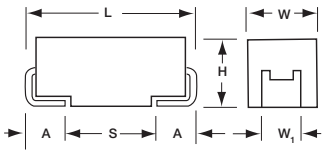
COTS-Plus Polymer Capacitor

The TCB series is a COTS-Plus version of the professional grade TCR polymer series. Each batch of these components receives additional reliability level verification through life testing to 0.1%/1000 hours with a 90% confidence level.

Polymer capacitors utilize a conductive polymer electrode system which reduces the potential for an ignition failure mode and lowers the effective ESR. These units are also designed to withstand biased humidity testing at 85°C/85% R.H. for 120 hours and are rated for operation up to 105°C.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog. For additional information, or to request a specific rating, please contact the factory.

For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: http://www.avx.com/docs/techinfo/Qprocess.pdf)



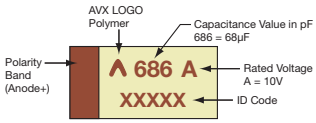
CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
W_1 dimension applies to the termination width for A dimensional area only.								

Under development

MARKING

B, C, D, E CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage						
µF	Code	10V	16V	20V	25V	35V	50V	63V
0.47	474							B(400)*
0.68	684						B(400)*	B(300)*
1.0	105						B(300)*	
1.5	155					B(250)*		
2.2	255					B(250)*		C(200)*
3.3	335					B(250)*	C(200)*	C(200)*
4.7	475					C(200)*	D(150)*	
6.8	685					C(200)*		
10	106				B(200)*	C(200)*		
15	156		B(300)*					
22	226	B(300)*	B(200)*		D(100)*			
33	336	B(200)*			D(100)*			
47	476		D(70)	D(70)*				
68	686	D(70)						
100	107	D(70)*						

Available Ratings (ESR ratings in mOhms in brackets)

*Codes under development – subject to change

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size to the same reliability standards

TCB Series

COTS-Plus Polymer Capacitor

HOW TO ORDER

AVX PART NUMBER:

TCB	D	686	M	010	C	□	L	Q	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20%	**Voltage Code** 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc 063 = 63Vdc	**ESR** C = Std ESR	**Packaging** R = 7" T&R S = 13" T&R	**Inspection Level** L = Lab Conformance	**Reliability Grade** Q = 0.1%/1000 hrs. 90% conf.	**Qualification Level** 0 = N/A	**Termination Finish** 0 = Sn/Pb 7 = 100% Tin	**DCL Option** 0J = 0.1CV 0G = 0.05CV *Selected Codes

LEAD-FREE
LEAD-FREE COMPATI-BLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C							
Capacitance Range:	0.47 µF to 100 µF							
Capacitance Tolerance:	±20%							
Leakage Current DCL:	(J) 0.1CV, (G) 0.05CV on selected codes							
Rate Voltage (V_R)	≤ +105°C:	10	16	20	25	35	50	63
Surge Voltage (V_S)	≤ +85°C:	13	21	26	33	46	65	82
Surge Voltage (V_S)	≤ +105°C:	10	16	20	25	35	50	63
Temperature Range:	-55°C to +105°C							
Batch Reliability	0.1% per 1000 hours at 25ºC, V_R with 0.1Ω/V series impedance, 90% confidence level¬							

TCB Series

COTS-Plus Polymer Capacitor

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating							Typical Power Dissipation Data by Rating						
		Capacitance @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max +25°C	Power Dissipation	25°C Ripple Current	85°C Ripple Current	105°C Ripple Current	25°C Ripple Voltage	85°C Ripple Voltage	105°C Ripple Voltage
					+25°C	+85°C	+105°C								
AVX HRC5000 P/N	Case	µF @ 25°C	V @ +105°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	W	mA (100kHz)	mA (100kHz)	mA (100kHz)	mV (100kHz)	mV (100kHz)	mV (100kHz)
TCBD686M010C□LQ0^0J	D	68	10	70	68	680	816	6	0.225	1800	1300	800	125	91	56
TCBD476M016C□LQ0^0J	D	47	16	70	75	750	900	6	0.225	1800	1300	800	125	91	56

All technical data relates to an ambient temperature of +25C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

ESR is allowed to increase by up to 1.25 times the catalog limit post mounting.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

QUALIFICATION TABLE

TEST	TCB series (Temperature range -55ºC to +105ºC)		
	Condition	Characteristics	
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2ºC and then leaving 1-2 hours at room temperature. Also determine after application of 105ºC temperature, rated voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within +20/-30% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Storage Life	105ºC, 0V, 2000h	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Humidity	Determine after storage without applied voltage at 65±2ºC and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.	Visual examination	no visible damage
		DCL	3 x initial limit
		ΔC/C	within +30/-20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Biased Humidity	Determine after leaving for 120 hours at 85±2ºC, 85% relative humidity and rated voltage and then recovery 1-2 hours at room temperature.	Visual examination	no visible damage
		DCL	3 x initial limit
		ΔC/C	within +30/-20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit

Temperature Stability

Step	Temperature°C	Duration(min)
1	+20±2	15
2	-55+0/-3	15
3	+20±2	15
4	+85+3/-0	15
5	+105+3/-0	15
6	+20±2	15

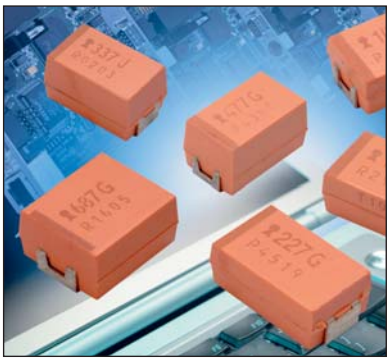
	+20ºC	-55ºC	+20ºC	+85ºC	+105ºC	+20ºC
DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+30/-0%	±5%
DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*

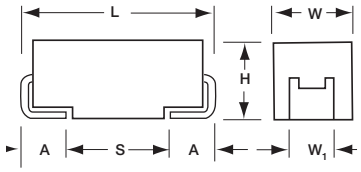
Surge Voltage	Test temperature: 105ºC+3/0ºC Test voltage: Rated voltage at 105ºC Surge voltage: 1.3 x rated voltage at 105ºC Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within +20/-30% of initial value
		DF	1.25 x initial limit

*Initial Limit

NBS COTS-Plus

Niobium Oxide Capacitor Weibull Grade





NBS, Niobium Oxide COTS+ Capacitors offer a non-burn solution for Military and Space applications. Niobium Oxide COTS+ Capacitors may be specified with failure rate grading to Weibull "B" or "C" and surge current tested in accordance with MIL-PRF-55365 Rev. G options A or B.

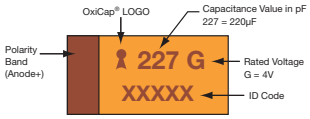
CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	L±0.20 (0.008)	W+0.20 (0.008) –0.10 (0.004)	H+0.20 (0.008) –0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) –0.20 (0.008)	S Min.
A	3216	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.80 (0.071)
B	3528	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	6032	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	7343	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	7343	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
V	7361	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	1.80 (0.071)

W_1 dimension applies to the termination width for A dimensional area only.

MARKING

A, B, C, D, E, V CASE



CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C / 0.66 DC to 105°C / 0.5 DC to 125°C			
µF	Code	1.8V (x)	2.5V (e)	4.0V (G)	6.3V (J)
10	106				A(1000,2000)
15	156			A(1500)	B(600)
22	226		A(900)	B(600)	B(600)
33	336			B(600)	B(600)/C(500)
47	476		B(500)	B(500)/C(300)	C(300)
68	686		C(200)	C(200)	C(75,200)
100	107	B(350)	C(150)	C(70,150)	C(150)/D(80,100)
150	157		C(65,150)	C(90,150)	D(50,70,100)
220	227	C(125)	C(80,125)	D(60,100)	D(60,100) E(80,100)
330	337		D(35,50,100)	D(55,100)/E(100)	E(80,100)
470	477		D(55,100)/E(100)	D(100) E(75,100)	V(75)
680	687		E(60)	V(75)	
1000	108		V(50)		

Available Ratings: ESR limits quoted in brackets (mOhms)

NBS COTS-Plus

Niobium Oxide Capacitor Weibull Grade

HOW TO ORDER

NBS	E	227	*	006	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20%	**Voltage Code** 001 = 1.8Vdc 002 = 2.5Vdc 004 = 4Vdc 006 = 6.3Vdc	**Standard or Low ESR Range** L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A D = DSCC DWG	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 0 = N/A	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25ºC 24 = 10 Cycles, -55ºC & +85ºC 45 = 10 cycles, -55ºC & +85ºC before Weibull

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		All technical data relate to an ambient temperature of +25°C is not stated				
Capacitance Range:		10 µF to 1000 µF				
Capacitance Tolerance:		±20%				
Leakage Current DCL:		0.02CV				
Rated Voltage (V_R)	≤ +85°C:	1.8	2.5	4	6.3	
Category Voltage (V_C)	≤ +125°C:	0.9	1.3	2	3	
Surge Voltage (V_S)	≤ +85°C:	2.3	3.3	5.2	8	
Surge Voltage (V_S)	≤ +125°C:	1.2	1.7	2.6	4	
Temperature Range:		-55°C to +125°C				

NBS COTS-Plus

Niobium Oxide Capacitor Weibull Grade

RATINGS & PART NUMBER REFERENCE

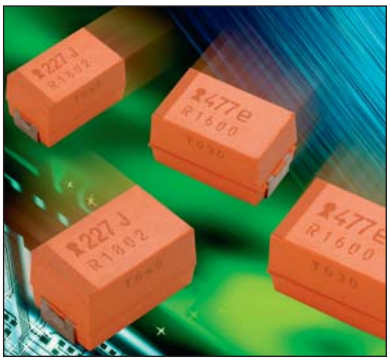
AVX Part Number	Case Size	Cap (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz Ripple Current Rating (A)			100kHz Ripple Voltage Ratings (V)		
							25°C	85°C	125°C	25°C	85°C	125°C
1.8 Volt @ 85°C (1.2 Volt @ 105°C, 0.9 Volt @ 125°C)												
NBS B107M001 L □#@0 ^ +	B	100	1.8	3.6	6	350	0.540	0.486	0.216	0.189	0.170	0.076
NBS C227M001 L □#@0 ^ +	C	220	1.8	8.0	8	125	1.028	0.925	0.411	0.128	0.116	0.051
2.5 Volt @ 85°C (1.7 Volt @ 105°C, 1.3 Volt @ 125°C)												
NBS A226M002 L □#@0 ^ +	A	22	2.5	1.1	6	900	0.316	0.285	0.126	0.285	0.256	0.114
NBS B476M002 L □#@0 ^ +	B	47	2.5	2.4	6	500	0.452	0.406	0.181	0.226	0.203	0.090
NBS C686M002 L □#@0 ^ +	C	68	2.5	3.4	6	200	0.812	0.731	0.325	0.162	0.146	0.065
NBS C107M002 L □#@0 ^ +	C	100	2.5	5.0	6	150	0.938	0.844	0.375	0.141	0.127	0.056
NBS C157M002 L □#@0 ^ +	C	150	2.5	7.5	6	65	1.425	1.283	0.570	0.093	0.083	0.037
NBS C157M002 C □#@0 ^ +	C	150	2.5	7.5	6	150	0.938	0.844	0.375	0.141	0.127	0.056
NBS C227M002 L □#@0 ^ +	C	220	2.5	11.0	8	80	1.285	1.156	0.514	0.103	0.092	0.041
NBS C227M002 C □#@0 ^ +	C	220	2.5	11.0	8	125	1.028	0.925	0.411	0.128	0.116	0.051
NBS D337M002 L □#@0 ^ +	D	330	2.5	16.5	10	35	2.268	2.041	0.907	0.079	0.071	0.032
NBS D337M002 L □#@0 ^ +	D	330	2.5	16.5	10	50	1.897	1.708	0.759	0.095	0.085	0.038
NBS D337M002 C □#@0 ^ +	D	330	2.5	16.5	10	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS D477M002 L □#@0 ^ +	D	470	2.5	23.5	12	55	1.809	1.628	0.724	0.099	0.090	0.040
NBS D477M002 C □#@0 ^ +	D	470	2.5	23.5	12	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS E477M002 L □#@0 ^ +	E	470	2.5	23.5	10	100	1.407	1.266	0.563	0.141	0.127	0.056
NBS E687M002 L □#@0 ^ +	E	680	2.5	34.0	14	60	1.817	1.635	0.727	0.109	0.098	0.044
NBS V108M002 L □#@0 ^ +	V	1000	2.5	50.0	16	50	2.449	2.205	0.980	0.122	0.110	0.049
4 Volt @ 85°C (2.7 Volt @ 105°C, 2 Volt @ 125°C)												
NBS A156M004 L □#@0 ^ +	A	15	4	1.2	6	1500	0.245	0.220	0.098	0.367	0.331	0.147
NBS B226M004 L □#@0 ^ +	B	22	4	1.8	6	600	0.412	0.371	0.165	0.247	0.223	0.099
NBS B336M004 L □#@0 ^ +	B	33	4	2.6	6	600	0.412	0.371	0.165	0.247	0.223	0.099
NBS B476M004 L □#@0 ^ +	B	47	4	3.8	6	500	0.452	0.406	0.181	0.226	0.203	0.090
NBS C476M004 L □#@0 ^ +	C	47	4	3.8	6	300	0.663	0.597	0.265	0.199	0.179	0.080
NBS C686M004 L □#@0 ^ +	C	68	4	5.4	6	200	0.812	0.731	0.235	0.162	0.146	0.065
NBS C107M004 L □#@0 ^ +	C	100	4	8.0	6	70	1.373	1.236	0.549	0.096	0.087	0.038
NBS C107M004 C □#@0 ^ +	C	100	4	8.0	6	150	0.938	0.844	0.375	0.141	0.127	0.056
NBS C157M004 L □#@0 ^ +	C	150	4	12.0	6	90	1.211	1.090	0.484	0.109	0.098	0.044
NBS C157M004 C □#@0 ^ +	C	150	4	12.0	6	150	0.938	0.844	0.375	0.141	0.127	0.056
NBS D227M004 L □#@0 ^ +	D	220	4	17.6	8	60	1.732	1.559	0.693	0.104	0.094	0.042
NBS D227M004 C □#@0 ^ +	D	220	4	17.6	8	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS D337M004 L □#@0 ^ +	D	330	4	26.4	8	55	1.809	1.628	0.724	0.099	0.090	0.040
NBS D337M004 C □#@0 ^ +	D	330	4	26.4	8	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS E337M004 C □#@0 ^ +	E	330	4	26.4	8	100	1.407	1.266	0.563	0.141	0.127	0.056
NBS D477M004 L □#@0 ^ +	D	470	4	37.6	12	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS E477M004 L □#@0 ^ +	E	470	4	37.6	12	75	1.625	1.462	0.650	0.122	0.110	0.049
NBS E477M004 C □#@0 ^ +	E	470	4	37.6	12	100	1.407	1.266	0.563	0.141	0.127	0.056
NBS V687M004 L □#@0 ^ +	V	680	4	54.4	14	75	2.000	1.800	0.800	0.150	0.135	0.060
6.3 Volt @ 85°C (4 Volt @ 105°C, 3 Volt @ 125°C)												
NBS A106M006 L □#@0 ^ +	A	10	6.3	1.2	6	1000	0.300	0.270	0.120	0.300	0.270	0.120
NBS A106M006 C □#@0 ^ +	A	10	6.3	1.2	6	2000	0.212	0.191	0.085	0.424	0.382	0.170
NBS B156M006 L □#@0 ^ +	B	15	6.3	1.8	6	600	0.412	0.371	0.165	0.247	0.223	0.099
NBS B226M006 L □#@0 ^ +	B	22	6.3	2.6	6	600	0.412	0.371	0.165	0.247	0.223	0.099
NBS B336M006 L □#@0 ^ +	B	33	6.3	4.0	6	600	0.412	0.371	0.165	0.247	0.223	0.099
NBS C336M006 L □#@0 ^ +	C	33	6.3	4.0	6	500	0.514	0.462	0.206	0.257	0.231	0.103
NBS C476M006 L □#@0 ^ +	C	47	6.3	5.7	6	300	0.663	0.597	0.265	0.199	0.179	0.080
NBS C686M006 L □#@0 ^ +	C	68	6.3	8.2	6	75	1.327	1.194	0.531	0.099	0.090	0.040
NBS C686M006 C □#@0 ^ +	C	68	6.3	8.2	6	200	0.812	0.731	0.325	0.162	0.146	0.065
NBS C107M006 L □#@0 ^ +	C	100	6.3	12.0	8	150	0.938	0.844	0.375	0.141	0.127	0.056
NBS D107M006 L □#@0 ^ +	D	100	6.3	12.0	6	80	1.500	1.350	0.600	0.120	0.108	0.048
NBS D107M006 C □#@0 ^ +	D	100	6.3	12.0	6	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS D157M006 L □#@0 ^ +	D	150	6.3	18.0	6	70	1.604	1.443	0.641	0.112	0.101	0.045
NBS D157M006 L □#@0 ^ +	D	150	6.3	18.0	6	50	1.897	1.708	0.759	0.095	0.085	0.038
NBS D157M006 C □#@0 ^ +	D	150	6.3	18.0	6	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS D227M006 L □#@0 ^ +	D	220	6.3	26.4	8	60	1.732	1.559	0.693	0.104	0.094	0.042
NBS D227M006 C □#@0 ^ +	D	220	6.3	26.4	8	100	1.342	1.207	0.537	0.134	0.121	0.054
NBS E227M006 L □#@0 ^ +	E	220	6.3	26.4	12	80	1.573	1.416	0.629	0.126	0.113	0.050
NBS E227M006 C □#@0 ^ +	E	220	6.3	26.4	12	100	1.407	1.266	0.563	0.141	0.127	0.056
NBS E337M006 L □#@0 ^ +	E	330	6.3	39.6	12	80	1.573	1.416	0.629	0.126	0.113	0.050
NBS E337M006 C □#@0 ^ +	E	330	6.3	39.6	12	100	1.407	1.266	0.563	0.141	0.127	0.056
NBS V477M006 L □#@0 ^ +	V	470	6.3	56.4	14	75	2.000	1.800	0.800	0.150	0.135	0.060

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

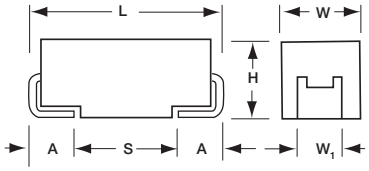
NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

NBM Multianodes

OxiCap® Ultra Low ESR Capacitor COTS-Plus Weibull Grade



NBM OxiCap® capacitors are the COTS-Plus version of the popular NOM Low ESR multianode capacitor. Capacitors are available to Weibull failure rates B and C along with surge current testing per MIL-PRF-55365 Rev. G. Niobium oxide technology offers non-burn characteristics along with excellent reliability and reduced derating.

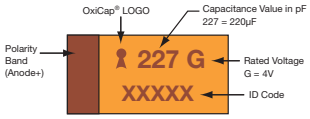


CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	L±0.20 (0.008)	W+0.20 (0.008) −0.10 (0.004)	H+0.20 (0.008) −0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) −0.20 (0.008)	S Min.
E	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
W_1 dimension applies to the termination width for A dimensional area only.							

MARKING

E CASE



CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C / 0.66 DC to 105°C / 0.5 DC to 125°C			
µF	Code	1.8V (x)	2.5V (e)	4.0V (G)	6.0V (J)
220	227				E(40)
330	337			E(35)	E(23)
470	477		E(30)	E(23)	
680	687	E(23)	E(23)		

Available Ratings: ESR limits quoted in brackets (mOhms)

HOW TO ORDER

NBM	E	227	*	006	C	□	#	@	0	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20%	**Voltage Code** 001 = 1.8Vdc 002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc	**Standard or Low ESR Range** L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 7 for additional packaging options.	**Inspection Level** S = Std. Conformance L = Group A D = DSCC DWG	**Reliability Grade** Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 0 = N/A	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	**Surge Test Option** 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

NBM Multianodes

OxiCap® Ultra Low ESR Capacitor COTS-Plus Weibull Grade

TECHNICAL SPECIFICATIONS

Technical Data:		All technical data relate to an ambient temperature of +25°C is not stated				
Capacitance Range:		220 µF to 680 µF				
Capacitance Tolerance:		±20%				
Leakage Current DCL:		0.02CV				
Rated Voltage DC (V_R)	≤ +85°C:	1.8	2.5	4	6	
Category Voltage (V_C)	≤ +125°C:	0.9	1.3	2	3	
Surge Voltage (V_S)	≤ +85°C:	2.3	3.3	5.2	8	
Surge Voltage (V_S)	≤ +125°C:	1.2	1.7	2.6	4	
Temperature Range:		-55°C to +125°C				

RATINGS & PART NUMBER REFERENCE

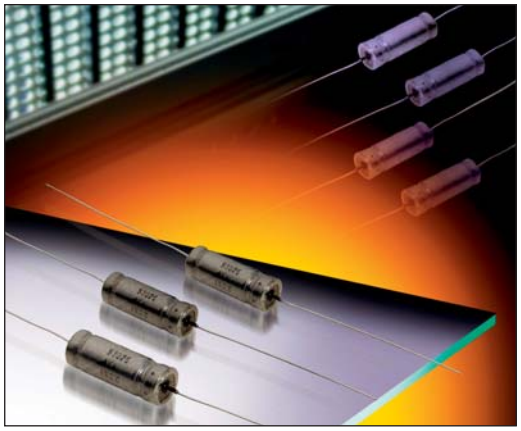
AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage(V)	DCL (µA)	DF %	ESR Max. (mΩ)	100kHz Ripple Current Ratings (A)			100kHz Ripple Voltage Ratings (V)		
							25ºC	85ºC	125ºC	25ºC	85ºC	125ºC
1.8 Volt @ 85ºC (1.2 Volt @ 105ºC, 0.9 Volt @ 125ºC)												
NBME687M001C□SB07++	E	680	1.8	24.5	6	23	3.753	3.378	1.501	0.086	0.078	0.035
2.5 Volt @ 85ºC (1.7 Volt @ 105ºC, 1.3 Volt @ 125ºC)												
NBME477M002C□SB07++	E	470	2.5	23.5	10	30	3.286	2.958	1.315	0.099	0.089	0.039
NBME687M002C□SB07++	E	680	2.5	34	6	23	3.753	3.378	1.501	0.086	0.078	0.035
4 Volt @ 85ºC (2.7 Volt @ 105ºC, 2 Volt @ 125ºC)												
NBME337M004C□SB07++	E	330	4	26.4	8	35	3.043	2.738	1.217	0.106	0.096	0.043
NBME477M004C□SB07++	E	470	4	37.6	6	23	3.753	3.378	1.501	0.086	0.078	0.035
6 Volt @ 85ºC (4 Volt @ 105ºC, 3 Volt @ 125ºC)												
NBME227M006C□SB07++	E	220	6	26.4	12	40	2.846	2.561	1.138	0.114	0.102	0.046
NBME337M006C□SB07++	E	330	6	39.6	6	23	3.753	3.378	1.501	0.086	0.078	0.035

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWA Series – DSCC 93026

TWA Wet Electrolytic Tantalum Capacitor

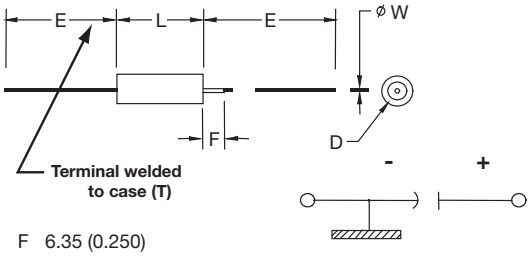


The TWA series is an axial leaded wet electrolytic tantalum capacitor and represents a new level of high CV (capacitance/voltage) previously unavailable in this technology. TWA incorporates a novel, very high capacitance cathode system that allows for higher CV designs, well beyond values specified in the MIL-PRF-39006 drawing.

TWA products are listed in DSCC 93026, which includes new high capacitance/voltage ratings. This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh shock and vibration requirements of 39006. Wet tantalums do not require the same derating as solid tantalums. AVX recommends derating components by only 20% in order to enhance reliability.

Customized capacitance and voltage packages are possible and welcomed. Contact the factory about design possibilities beyond those contained in this datasheet.

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 +0.05
(.025 +.002)
T 2.380 (.094)

CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Without Insulating Sleeve ±0.41 (0.016)	D With Insulatiing Sleeve Max	E ±6.35 (0.250)
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

VOLTAGE RATINGS (Operating Temperature -55ºC to 125ºC)

Voltage (DC)								
Rated Voltage: (Ur)	85ºC	25	30	50	60	75	100	125
Derated Voltage: (Uc)	125ºC	15	20	30	40	50	65	85
Surge Voltage: (Us)	85ºC	28.8	34.5	57.5	69	86.3	115	144

TWA Series – DSCC 93026

TWA Wet Electrolytic Tantalum Capacitor

HOW TO ORDER

AVX PART NUMBER:

TWA	D	227	*	035	□	B	S	Z	0	0	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code**	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**Packaging** B = Tray Pack	**Inspecition Level** S = Std. Conformance D = DSCC L = Group A	**Reliability** Z = Non-ER	**Qualification Level** 0 = COTS-Plus	**Termination Finish** 0 = Sn/Pb 60/40 7 = 100% Tin	**Custom Test Options** 00 = Standard

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

DSCC PART IDENTIFICATION NUMBER (PIN):

93026	-XX	*	□
Drawing Number	**Dash Number** See Rating Tables	**Capacitance Tolerance** K = ±10% M = ±20%	**Insulation Sleeve** U = Without Sleeve S = With Sleeve

Not RoHS Compliant

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
85ºC	90%	0.60	0.46	–	–	0.71	0.55	–	_	0.72	0.55	–	–
Rated	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
Peak	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
Voltage	66-2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85ºC	90%	0.88	0.67	–	–	1.00	0.77	–	_	1.10	0.85	–	–
Rated	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
Peak	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125ºC the rated voltage of the capacitors decreases to 66 2/3 of the 85ºC rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

TWA Series – DSCC 93026

TWA Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

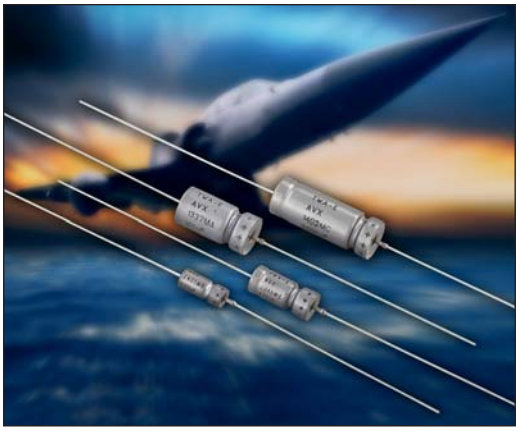
AVX Part Number	DSCC Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Voltage (V) at 85ºC	ESR max (ohms) at 120Hz	DC Leakage max (µA)		Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHz	Case Size	
					+25ºC	+85ºC & +125ºC		-55ºC	+85ºC	+125ºC		AVX	DSCC
25 VDC at 85ºC 15 VDC at 125ºC													
TWAA127*025□BSZ0000	93026- 29*□	120	25	1.3	1	5	25	-42	8	12	1250	A	T1
TWAB567*025□BSZ0000	93026- 30*□	560	25	0.83	2	10	12	-65	10	15	2100	B	T2
TWAD128*025□BSZ0000	93026- 31*□	1200	25	0.65	5	20	7	-70	12	18	2600	D	T3
TWAE188*025□BSZ0000	93026- 32*□	1800	25	0.5	6	25	7	-75	12	20	3100	E	T4
TWAE228*025□BSZ0000	93026- 64*□	2200	25	0.5	10	80	10	-90	30	50	3200	E	T4
30 VDC at 85ºC 20 VDC at 125ºC													
TWAA107*030□BSZ0000	93026- 33*□	100	30	1.3	1	5	25	-38	8	12	1200	A	T1
TWAB477*030□BSZ0000	93026- 34*□	470	30	0.85	2	10	15	-65	10	18	1800	B	T2
TWAD108*030□BSZ0000	93026- 35*□	1000	30	0.7	7	25	7	-70	10	18	2500	D	T3
TWAE158*030□BSZ0000	93026- 36*□	1500	30	0.6	12	35	6	-72	10	20	3000	E	T4
50 VDC at 85ºC 30 VDC at 125ºC													
TWAA686*050□BSZ0000	93026- 37*□	68	50	1.5	1	5	35	-25	8	15	1050	A	T1
TWAB227*050□BSZ0000	93026- 38*□	220	50	0.9	2	10	17.5	-50	8	15	1800	B	T2
TWAD477*050□BSZ0000	93026- 39*□	470	50	0.75	3	25	10	-50	8	15	2100	D	T3
TWAE687*050□BSZ0000	93026- 40*□	680	50	0.7	5	40	8	-58	10	20	2750	E	T4
60 VDC at 85ºC 40 VDC at 125ºC													
TWAA476*060□BSZ0000	93026- 41*□	47	60	2	1	5	44	-25	8	12	1050	A	T1
TWAB157*060□BSZ0000	93026- 42*□	150	60	1.1	2	10	20	-40	8	15	1650	B	T2
TWAD397*060□BSZ0000	93026- 43*□	390	60	0.9	3	25	15	-60	8	15	2100	D	T3
TWAE567*060□BSZ0000	93026- 44*□	560	60	0.8	5	40	10	-58	8	15	2750	E	T4
TWAE108*060□BSZ0000	93026- 65*□	1000	60	1	12	90	20	-90	30	50	3200	E	T4
75 VDC at 85ºC 50 VDC at 125ºC													
TWAA336*075□BSZ0000	93026- 45*□	33	75	2.5	1	5	66	-25	5	9	1050	A	T1
TWAB117*075□BSZ0000	93026- 46*□	110	75	1.3	2	10	24	-35	6	10	1650	B	T2
TWAD337*075□BSZ0000	93026- 47*□	330	75	1	3	30	12	-45	6	10	2100	D	T3
TWAE477*075□BSZ0000	93026- 48*□	470	75	0.9	5	50	12	-55	6	10	2750	E	T4
100 VDC at 85ºC 65 VDC at 125ºC													
TWAA156*100□BSZ0000	93026- 49*□	15	100	3.5	1	5	125	-18	3	10	1050	A	T1
TWAB686*100□BSZ0000	93026- 50*□	68	100	2.1	2	10	37	-30	4	12	1650	B	T2
TWAD157*100□BSZ0000	93026- 51*□	150	100	1.6	3	25	22	-35	6	12	2100	D	T3
TWAE227*100□BSZ0000	93026- 52*□	220	100	1.2	5	50	15	-40	6	12	2750	E	T4
125 VDC at 85ºC 85 VDC at 125ºC													
TWAA106*125□BSZ0000	93026- 53*□	10	125	5.5	1	5	175	-15	3	10	1050	A	T1
TWAB476*125□BSZ0000	93026- 54*□	47	125	2.3	2	10	47	-25	5	12	1650	B	T2
TWAD107*125□BSZ0000	93026- 55*□	100	125	1.8	3	25	35	-35	5	12	2100	D	T3
TWAE157*125□BSZ0000	93026- 56*□	150	125	1.6	5	50	20	-35	6	12	2750	E	T4

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWA-E Series

COTS-Plus Wet Electrolytic Tantalum Capacitor

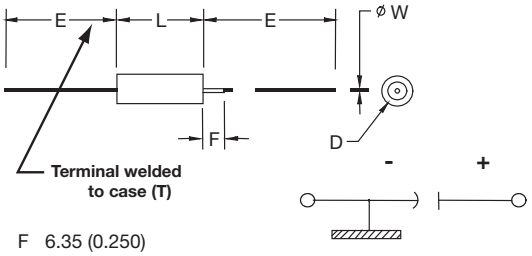


The TWA-E series is an axial leaded wet electrolytic tantalum capacitor manufactured in EU. High capacitance cathode system allows high level of CV (Capacitance/Voltage) in DSCC compatible case sizes.

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh shock and vibration requirements of MIL-PRF-39006.

Customized capacitance and voltage packages are possible and welcomed. Contact the factory about design possibilities beyond those contained in this datasheet.

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 +0.05
(.025 +.002)
T 2.380 (.094)

CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Without Insulating Sleeve ±0.41 (0.016)	D With Insulatiing Sleeve Max	E ±6.35 (0.250)
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

VOLTAGE RATINGS (Operating Temperature -55ºC to 125ºC)

Voltage (DC)								
Rated Voltage: (V_R)	85ºC	25	30	50	60	75	100	125
Derated Voltage: (V_C)	125ºC	15	20	30	40	50	65	85
Surge Voltage: (V_S)	85ºC	28.8	34.5	57.5	69	86.3	115	144

TWA-E Series

COTS-Plus Wet Electrolytic Tantalum Capacitor

HOW TO ORDER

AVX PART NUMBER:

TWA	D	337	*	050	□	B	E	Z	0	^	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code**	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**Packaging** B = Tray Pack	**Inspecion Level** E = AVX COTS-Plus	**Reliability** Z = Non-ER	**Qualification Level** 0 = N/A	**Termination Finish** 0 = Sn/Pb 60/40 7 = Matte tin	**Custom Test Options** 00 = Standard

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
85ºC	90%	0.60	0.46	–	–	0.71	0.55	–	_	0.72	0.55	–	–
Rated	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
Peak	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
Voltage	66-2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85ºC	90%	0.88	0.67	–	–	1.00	0.77	–	_	1.10	0.85	–	–
Rated	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
Peak	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125ºC the rated voltage of the capacitors decreases to 66 2/3 of the 85ºC rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C						
µF	Code	25V	30V	50V	60V	75V	100V	125V
10	106			A*				
15	156							
22	226	A*			A*	A*		
33	336							
47	476			A*				B
68	686	A					B	
100	107				B	B		D
120	127			A*,B				D
150	157			B		D*	D	E
220	227		B		D*	D*,E	D,E	E
330	337	B	D*	D*,E	E*	D,E	E	
397	390				D			
400	407						E	
470	477		D*	D,E		E		
560	567	D*	D*		E			
680	687	D*,E	D,E	E	E	E		
750	757	D,E	D,E	E	E	E	E*	
1000	108	D,E	E	D,E	E*	E*		
1500	158	E	E*					
1800	188	E*						
2200	228				E*			
3000	308			E				
4700	478	E						
5600	568	E*						

Released codes

Engineering samples - please contact manufacturer

*Codes under development

TWA-E Series

COTS-Plus Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Votage (V) at 85ºC	ESR Max (ohms) at 120Hz	DC Leakage max (µA)		TANG δ Max +25ºC (%)	Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHZ	Case Size	
				+25ºC	+85 & +125ºC			-55ºC	+85ºC	+125ºC		AVX	DSCC
25 VDC at 85°C 15 VDC at 125°C													
TWAA226*025□BEZ0^00	22	25	4.0	1	2	6.6	140	-20	10.5	12	825	A	T1
TWAA686*025□BEZ0^00	68	25	2.5	0.6	3	12	45	-40	12	15	850	A	T1
TWAB337*025□BEZ0^00	330	25	1.3	2	20	30	25	-60	10	15	1550	B	T2
TWAD567*025□BEZ0^00	560	25	0.9	7	28	38	24	-72	20	25	1750	D	T3
TWAD687*025□BEZ0^00	680	25	0.62	8	32	31.5	19	-72	25	30	2100	D	T3
TWAE687*025□BEZ0^00	680	25	0.75	3	12	45	12	-50	8	15	2100	E	T4
TWAD757*025□BEZ0^00	750	25	1	3	25	45	15	-50	8	15	2000	D	T3
TWAE757*025□BEZ0^00	750	25	0.75	3.5	16	50	9	-55	10	18	2200	E	T4
TWAD108*025□BEZ0^00	1000	25	1	4	30	45	15	-50	8	15	2300	D	T3
TWAE108*025□BEZ0^00	1000	25	0.7	4	20	60	9	-55	10	18	2400	E	T4
TWAE158*025□BEZ0^00	1500	25	0.5	6	24	65	7	-65	15	20	2850	E	T4
TWAE188*025□BEZ0^00	1800	25	0.5	6	25	81.4	7	-75	12	20	3100	E	T4
TWAE478*025□BEZ0^00	4700	25	0.5	30	180	90	5	-90	60	80	4250	E	T4
TWAE568*025□BEZ0^00	5600	25	0.3	35	200	120	3	-90	40	60	5700	E	T4
30 VDC at 85°C 20 VDC at 125°C													
TWAB227*030□BEZ0^00	220	30	2	1.9	10	15	30	-40	8	15	1200	B	T2
TWAD337*030□BEZ0^00	330	30	2.6	3	12	50	52	-65	25	25	1400	D	T3
TWAD477*030□BEZ0^00	470	30	2	8	32	64	25	-65	20	25	1600	D	T3
TWAD567*030□BEZ0^00	560	30	1.5	9	35	55	20	-65	25	30	1750	D	T3
TWAD687*030□BEZ0^00	680	30	1	3.3	25	45	15	-50	8	15	1900	D	T3
TWAE687*030□BEZ0^00	680	30	0.8	4.5	18	45	10	-60	8	15	2100	E	T4
TWAD757*030□BEZ0^00	750	30	1	3.6	30	45	15	-50	8	15	2000	D	T3
TWAE757*030□BEZ0^00	750	30	0.8	5	20	45	10	-65	10	18	2200	E	T4
TWAE108*030□BEZ0^00	1000	30	0.7	5	20	55	7	-70	10	18	2500	E	T4
TWAE158*030□BEZ0^00	1500	30	0.6	12	35	65	6	-72	10	20	3000	E	T4
50 VDC at 85°C 30 VDC at 125°C													
TWAA106*050□BEZ0^00	10	50	5.3	1	2	4	250	-24	8	9	715	A	T1
TWAA476*050□BEZ0^00	47	50	2	1	5	9	35	-25	8	15	850	A	T1
TWAA127*050□BEZ0^00	120	50	1.8	1.5	8	14	30	-40	30	40	1100	A	T1
TWAB127*050□BEZ0^00	120	50	2	2	10	14	30	-45	8	15	1200	B	T2
TWAB157*050□BEZ0^00	150	50	2	2	10	16	25	-50	8	15	1400	B	T2
TWAD337*050□BEZ0^00	330	50	0.85	3	25	25	15	-50	8	15	1650	D	T3
TWAE337*050□BEZ0^00	330	50	0.8	2.5	25	24	15	-50	8	15	1900	E	T4
TWAD477*050□BEZ0^00	470	50	1	3	25	35	11	-50	8	15	2100	D	T3
TWAE477*050□BEZ0^00	470	50	0.75	3	30	32	10	-50	8	15	2200	E	T4
TWAE687*050□BEZ0^00	680	50	0.7	5	40	42	8	-58	10	20	2750	E	T4
TWAE757*050□BEZ0^00	750	50	0.6	12	60	35	8	-50	15	20	2800	E	T4
TWAD108*050□BEZ0^00	1000	50	1.5	20	125	80	12	-90	100	140	2500	D	T3
TWAE108*050□BEZ0^00	1000	50	0.7	11	110	45	20	-70	30	40	3200	E	T4
TWAE308*050□BEZ0^00	3000	50	0.3	30	150	80	3.5	-80	60	85	3100	E	T4
60 VDC at 85°C 40 VDC at 125°C													
TWAA226*060□BEZ0^00	22	60	5	3	12	10.2	144	-24	10	12	500	A	T1
TWAB107*060□BEZ0^00	100	60	2.5	1.7	10	12	30	-40	8	15	1100	B	T2
TWAD227*060□BEZ0^00	220	60	0.9	8	32	15	29	-40	16	20	1400	D	T3
TWAE337*060□BEZ0^00	330	60	1.5	5	25	40	31	-72	25	25	1850	E	T4
TWAD397*060□BEZ0^00	390	60	0.9	3	25	30	15	-60	8	15	2100	D	T3
TWAE567*060□BEZ0^00	560	60	0.8	5	40	45	10	-58	8	15	2750	E	T4
TWAE687*060□BEZ0^00	680	60	0.6	13	65	35	8	-50	15	20	2800	E	T4
TWAE757*060□BEZ0^00	750	60	0.6	15	75	35	8	-50	15	20	2800	E	T4
TWAE108*060□BEZ0^00	1000	60	0.5	30	90	50	3.5	-40	20	80	3000	E	T4
TWAE228*060□BEZ0^00	2200	60	0.5	30	150	80	3.5	-80	60	85	3000	E	T4
75 VDC at 85°C 50 VDC at 125°C													
TWAA226*075□BEZ0^00	22	75	5.1	30	12	8.5	157	-19	10	12	600	A	T1
TWAB107*075□BEZ0^00	100	75	2.5	2	10	12	24	-35	6	10	1400	B	T2
TWAD157*075□BEZ0^00	150	75	1.2	3	30	25	60	-40	20	20	1340	D	T3
TWAD227*075□BEZ0^00	220	75	1.2	3	30	24	20	-45	6	10	1500	D	T3
TWAE227*075□BEZ0^00	220	75	1.1	2.5	30	22	20	-50	6	10	1800	E	T4
TWAD337*075□BEZ0^00	330	75	1.2	3	30	30	15	-60	10	20	2100	D	T3
TWAE337*075□BEZ0^00	330	75	1	3	40	30	12	-50	6	10	2200	E	T4
TWAE477*075□BEZ0^00	470	75	0.9	5	50	38	12	-55	6	10	2750	E	T4
TWAE687*075□BEZ0^00	680	75	0.9	11	110	45	10	-70	30	40	2750	E	T4
TWAE757*075□BEZ0^00	750	75	0.7	12	120	60	10	-70	30	40	3800	E	T4
TWAE108*075□BEZ0^00	1000	75	0.5	20	200	70	8	-90	12	20	3500	E	T4

TWA-E Series

COTS-Plus Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Votage (V) at 85ºC	ESR Max (ohms) at 120Hz	DC Leakage max (µA)		TANG δ Max +25ºC (%)	Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHZ	Case Size	
				+25ºC	+85 & +125ºC			-55ºC	+85ºC	+125ºC		AVX	DSCC
100 VDC at 85°C 65 VDC at 125°C													
TWAB686*100□BEZ0^00	68	100	2.5	2	10	13	37	-30	4	12	1650	B	T2
TWAD157*100□BEZ0^00	150	100	1.6	3	25	22	22	-35	6	12	2100	D	T3
TWAD227*100□BEZ0^00	220	100	1.4	5	25	30	18	-50	10	15	2500	D	T3
TWAE227*100□BEZ0^00	220	100	1.2	5	50	24	15	-40	6	12	2750	E	T4
TWAE337*100□BEZ0^00	330	100	0.8	6	60	30	10	-45	7	20	3600	E	T4
TWAE407*100□BEZ0^00	400	100	0.8	10	150	30	10	-50	10	35	4100	E	T4
TWAE757*100□BEZ0^00	750	100	0.7	20	200	45	10	-40	20	50	6700	E	T4
125 VDC at 85°C 85 VDC at 125°C													
TWAB476*125□BEZ0^00	47	125	2.3	2	10	13	47	-25	5	12	1650	B	T2
TWAD107*125□BEZ0^00	100	125	1.8	3	25	18	35	-35	5	12	2100	D	T3
TWAD127*125□BEZ0^00	120	125	1.8	3	25	18	35	-35	5	12	2100	D	T3
TWAE157*125□BEZ0^00	150	125	1.6	5	50	35	20	-35	6	16	2750	E	T4
TWAE227*125□BEZ0^00	220	125	1.4	10	50	25	12	-40	8	15	3600	E	T4

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWA-Y 200°C Series

Wet Electrolytic Tantalum Capacitor

The TWA-Y series represents a high temperature version of conventional wet electrolytic tantalum capacitors that are designed for use at 200°C. High capacitance cathode system allows high level of CV (Capacitance/Voltage) in standard case sizes.

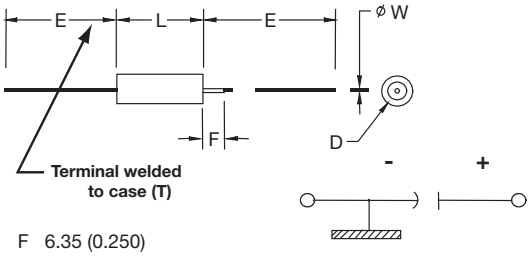
Selected values of the TWA-Y are capable of up to 2000 hours of operation at extreme temperatures with the applicable derated voltage.

Mechanical testing being conducted in accordance to MIL-STD- 202, High Frequency vibration - method 204, test condition "D" Mechanical Shock Test - method 213, test condition "I".

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand also harsh shock and vibration requirements.

Contact the factory for additional options for customized component design.

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 ±0.05 (.025) (.002)
T 2.380 (.094)

CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Without Insulating Sleeve ±0.41 (0.016)	D With Insulatiing Sleeve Max	E ±6.35 (0.250)
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

VOLTAGE RATINGS (Operating Temperature -55ºC to 200ºC)

Voltage (DC)									
Rated Voltage: (V_R)	85ºC	15	25	30	50	60	75	100	125
Derated Voltage: (V_C)	125ºC	10	15	20	30	40	50	65	85
High Temperature Voltage: (V_T)	200ºC	9	12	18	30	36	45	60	75

TWA-Y 200°C Series

Wet Electrolytic Tantalum Capacitor

HOW TO ORDER

AVX PART NUMBER:

TWA	E	757	*	075	□	B	Y	Z	0	^	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code**	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**Packaging** B = Tray Pack	**Inspecition Level** Y = High Temp	**Reliability** Z = Non-ER	**Qualification Level** 0 = N/A	**Termination Finish** 0 = Sn/Pb 60/40 7 = Matte tin	**Custom Test Options** 00 = Standard

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
Ambient Still Air Temperature (°C)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
85°C	90%	0.60	0.46	–	–	0.71	0.55	–	_	0.72	0.55	–	–
Rated	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
Peak	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
Voltage	66-2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
Ambient Still Air Temperature (°C)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85°C	90%	0.88	0.67	–	–	1.00	0.77	–	_	1.10	0.85	–	–
Rated	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
Peak	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

TWA-Y 200°C Series

Wet Electrolytic Tantalum Capacitor

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) to 85°C						
µF	Code	15V	25V	50V	60V	75V	100V	125V
10	106			A*				
15	156							
22	226		A*		A*	A*		
33	336	A*						
47	476							
68	686						B*	
100	107				B*			
120	127							
150	157						D	E
220	227					E	E	E
330	337			E			E	
400	407						E	
470	477							
560	567							
680	687					E		
750	757					E		
1000	108			E	E*	E*		

Released codes

Engineering samples - please contact manufacturer

*Codes under development

RATINGS & PART NUMBER REFERENCE

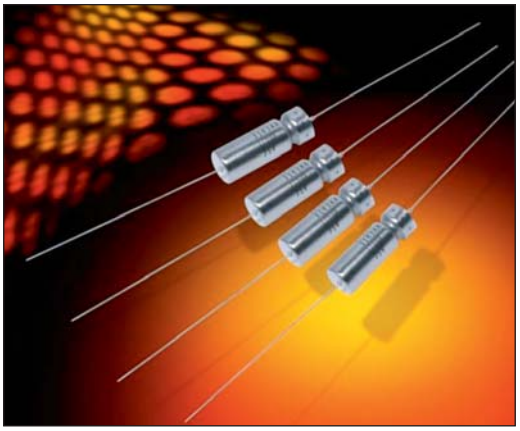
AVX Part Number	Cap (µF) 25°C at 120Hz	DC Rated Votage (V) at 85°C	ESR Max (ohms) at 120Hz	DC Leakage max (µA)		TANG δ Max +25°C (%)	Impedance max (Ohms)	Maximum Capacitance Change (%)			AC Ripple (mA rms)	Case Size		Lifetime at 200°C (hrs.)
				+25°C	+85 & +125°C		-55°C at 120Hz	-55°C	+85°C	+125°C	85°C at 40kHZ	AVX	DSCC	
15 VDC at 85°C 10 VDC at 125°C 9 VDC at 200°C														
TWAA336*015□BYZ0^00	33	15	3	1	2	12.5	90	-28	14	16	820	A	T1	500
25 VDC at 85°C 15 VDC at 125°C 12 VDC at 200°C														
TWAA226*025□BYZ0^00	22	25	4	1	2	6.6	140	-20	10.5	12	825	A	T1	500
50 VDC at 85°C 30 VDC at 125°C 30 VDC at 200°C														
TWAA106*050□BYZ0^00	10	50	5.3	1	2	4	250	-24	8	9	715	A	T1	500
TWAE337*050□BYZ0^00	330	50	0.8	2.5	25	24	15	-50	8	15	1900	E	T4	1000
TWAE108*050□BYZ0^00	1000	50	0.7	11	110	45	20	-70	30	40	3200	E	T4	500
60 VDC at 85°C 40 VDC at 125°C 36 VDC at 200°C														
TWAA226*060□BYZ0^00	22	60	5	3	12	10.2	144	-24	10	12	500	A	T1	500
TWAB106*060□BYZ0^00	100	60	2.5	1.7	10	12	30	-40	8	15	1100	B	T2	1000
TWAE108*060□BYZ0^00	1000	60	0.5	30	90	50	3.5	-40	20	80	3000	E	T4	500
75 VDC at 85°C 50 VDC at 125°C 45 VDC at 200°C														
TWAA226*075□BYZ0^00	22	75	2.5	1	5	8	66	-25	5	9	1050	A	T1	1000
TWAE227*075□BYZ0^00	220	75	1.2	5	50	24	20	-40	8	15	1800	E	T4	2000
TWAE687*075□BYZ0^00	680	75	0.9	11	110	45	10	-70	30	40	2750	E	T4	500
TWAE757*075□BYZ0^00	750	75	0.7	12	120	60	10	-70	30	40	3800	E	T4	500
TWAE108*075□BYZ0^00	1000	75	50	20	200	70	8	-90	12	20	3500	E	T4	500
100 VDC at 85°C 65 VDC at 125°C 60 VDC at 200°C														
TWAB686*100□BYZ0^00	68	100	2.5	2	10	13	37	-30	4	12	1650	B	T2	1000
TWAD157*100□BYZ0^00	150	100	1.6	3	25	22	22	-35	6	12	2100	D	T3	2000
TWAE227*100□BYZ0^00	220	100	1.2	5	50	24	15	-40	6	12	2750	E	T4	2000
TWAE337*100□BYZ0^00	330	100	0.8	6	60	30	10	-45	7	20	3600	E	T4	2000
TWAE407*100□BYZ0^00	400	100	0.8	10	150	30	10	-50	10	35	4100	E	T4	1000
125 VDC at 85°C 85 VDC at 125°C 75 VDC at 200°C														
TWAE157*125□BYZ0^00	150	125	1.6	5	50	35	20	-35	6	16	2750	E	T4	2000
TWAE227*125□BYZ0^00	220	125	1.4	10	50	25	12	-40	8	15	3600	E	T4	2000

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum



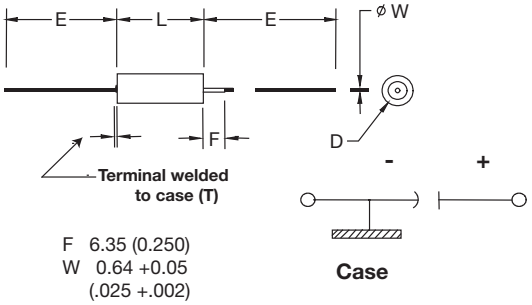
This data sheet contains the MIL-PRF-39006 ratings for which AVX is a qualified approved supplier. This will be continually updated as the qualification expands. For COTS-Plus equivalent ratings please refer to the TWC data sheet located on the website.

This design is an axial leaded tubular case. It includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments. The 1000 hour failure rates of 1%, 0.1% and 0.01% correspond to "M", "P", and "R" respectively. For details on testing conditions please refer to MIL-PRF-39006.

Currently qualified M39006 ratings include T2-T4 case sizes:

	M Level Reliability Dashes	P Level Reliability Dashes	R Level Reliability Dashes
M39006/22	6V-100V	6V-100V	6V-100V
M39006/25	6V-100V	6V-100V	6V-100V
M39006/30	6V-100V	6V-100V	6V-100V
M39006/31	6V-100V	6V-100V	6V-100V

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 +0.05 (.025 +.002)
T 2.380 (.094)

CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Basic Case ±0.41 (0.016)	D Insulated Case Max	E ±6.35 (0.250)
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

VOLTAGE RATINGS (Operating Temperature -55ºC to 125ºC)

Voltage (DC)												
Rated Voltage: (V_r)	85ºC	6	8	10	15	25	30	50	60	75	100	125
Derated Voltage: (V_c)	125ºC	4	5	6	10	15	20	30	40	50	65	85
Surge Voltage: (V_s)	85ºC	6.9	9.2	11.5	17.3	28.8	34.5	57.5	69	86.3	115	144

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

HOW TO ORDER MILITARY M39006 PART NUMBER:

M39006	/22	–0081	–
Type / Military Designator	Specification Sheet Number	Dash Number	*H = High Vibration (When Specified)

Not RoHS Compliant

*High vibration qualified parts are currently under development. Please contact the factory for additional details and availability.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/ 3/]

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
85ºC	90%	0.60	0.46	–	–	0.71	0.55	–	_	0.72	0.55	–	–
Rated	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
Peak	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
Voltage	66-2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85ºC	90%	0.88	0.67	–	–	1.00	0.77	–	_	1.10	0.85	–	–
Rated	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
Peak	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125ºC the rated voltage of the capacitors decreases to 66 2/3 of the 85ºC rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.
3/ The ripple current listed in the parametric tables represents a rating calculated by using a maximum internal temperature rise (ΔT) at 50°C at 40 kHz at 85°C ambient temperature, with a maximum peak rated voltage of 66.67 percent of the 85°C peak voltage rating.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

M39006 /22 RATINGS AND DASH NUMBER REFERENCE

M39006/22 Dashes			Tolerance ± (%)	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF max (%)	ESR max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size
M Level	P Level	R Level				+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		
-0007	-0227	-0447	20	140	6	1	3	21	1.99	40	-40	14	16	1200	T2
-0008	-0228	-0448	10												
-0009	-0229	-0449	5												
-0010	-0230	-0450	20	270	6	1	6.5	45	2.21	25	-44	17.5	20	1375	T2
-0011	-0231	-0451	10												
-0012	-0232	-0452	5												
-0013	-0233	-0453	20	330	6	2	7.9	36	1.45	20	-44	14	16	1800	T3
-0014	-0234	-0454	10												
-0015	-0235	-0455	5												
-0016	-0236	-0456	20	560	6	2	13	55	1.3	25	-64	17.5	20	1900	T3
-0017	-0237	-0457	10												
-0018	-0238	-0458	5												
-0019	-0239	-0459	20	1200	6	3	14	90	1	20	-80	25	25	2265	T4
-0020	-0240	-0460	10												
-0027	-0247	-0467	20	120	8	1	2	20	2.21	50	-44	17.5	20	1220	T2
-0028	-0248	-0468	10												
-0029	-0249	-0469	5												
-0030	-0250	-0470	20	220	8	1	7	37	2.23	30	-44	17.5	20	1370	T2
-0031	-0251	-0471	10												
-0032	-0252	-0472	5												
-0033	-0253	-0473	20	290	8	2	6	34	1.56	25	-64	17.5	20	1770	T3
-0034	-0254	-0474	10												
-0035	-0255	-0475	5												
-0036	-0256	-0476	20	430	8	2	14	46	1.42	25	-64	17.5	20	1825	T3
-0037	-0257	-0477	10												
-0038	-0258	-0478	5												
-0039	-0259	-0479	20	850	8	4	16	60	0.94	22	-80	25	25	2330	T4
-0040	-0260	-0480	10												
-0047	-0267	-0487	20	100	10	1	4	15	1.99	60	-36	14	16	1200	T2
-0048	-0268	-0488	10												
-0049	-0269	-0489	5												
-0050	-0270	-0490	20	180	10	1	7	30	2.21	40	-36	14	16	1.365	T2
-0051	-0271	-0491	10												
-0052	-0272	-0492	5												
-0053	-0273	-0493	20	250	10	2	10	30	1.59	30	-40	14	16	1720	T3
-0054	-0274	-0494	10												
-0055	-0275	-0495	5												
-0056	-0276	-0496	20	390	10	2	16	44	1.5	25	-64	17.5	20	1800	T3
-0057	-0277	-0497	10												
-0058	-0278	-0498	5												
-0059	-0279	-0499	20	750	10	4	16	50	0.88	23	-80	25	25	2360	T4
-0060	-0280	-0500	10												
-0067	-0287	-0507	20	70	15	1	4	13	2.46	75	-28	14	16	1150	T2
-0068	-0288	-0508	10												
-0069	-0289	-0509	5												
-0070	-0290	-0510	20	120	15	1	7	18	1.99	50	-28	17.5	20	1450	T2
-0071	-0291	-0511	10												
-0072	-0292	-0512	5												
-0073	-0293	-0513	20	170	15	2	10	25	1.95	35	-32	14	16	1480	T3
-0074	-0294	-0514	10												
-0075	-0295	-0515	5												
-0076	-0296	-0516	20	270	15	2	16	32	1.57	30	-56	17.5	20	1740	T3
-0077	-0297	-0517	10												
-0078	-0298	-0518	5												
-0079	-0299	-0519	20	540	15	6	24	40	0.98	23	-80	25	25	2330	T4
-0080	-0300	-0520	10												
-0087	-0307	-0527	20	50	25	1	2	11	2.92	70	-28	13	15	1130	T2
-0088	-0308	-0528	10												
-0089	-0309	-0529	5												
-0090	-0310	-0530	20	100	25	1	10	15	1.99	50	-28	13	15	1435	T2
-0091	-0311	-0531	10												
-0092	-0312	-0532	5												
-0093	-0313	-0533	20	120	25	2	6	21	2.32	38	-32	13	15	1450	T3
-0094	-0314	-0534	10												
-0095	-0315	-0535	5												
-0096	-0316	-0536	20	180	25	2	18	26	1.92	32	-48	13	15	1525	T3
-0097	-0317	-0537	10												
-0098	-0318	-0538	5												

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

M39006/22 Dashes			Tolerance ± (%)	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF max (%)	ESR max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size
M Level	P Level	R Level				+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		
-0099	-0319	-0539	20	350	25	7	28	35	1.33	24	-70	25	25	1970	T4
-0100	-0320	-0540	10												
-0107	-0327	-0547	20	40	30	1	5	10	3.32	65	-24	10.5	12	1120	T2
-0108	-0328	-0548	10												
-0109	-0329	-0549	5												
-0110	-0330	-0550	20	68	30	1	8	13	2.54	60	-24	13	15	1285	T2
-0111	-0331	-0551	10												
-0112	-0332	-0552	5												
-0113	-0333	-0553	20	100	30	2	12	17	2.26	40	-28	10.5	12	1450	T3
-0114	-0334	-0554	10												
-0115	-0335	-0555	5												
-0116	-0336	-0556	20	150	30	2	18	23	2.03	35	-48	13	15	1525	T3
-0117	-0337	-0557	10												
-0118	-0338	-0558	5												
-0119	-0339	-0559	20	300	30	8	32	31	1.37	25	-60	25	25	1950	T4
-0120	-0340	-0560	10												
-0127	-0347	-0567	20	25	50	1	5	8	4.25	95	-20	10.5	12	1005	T2
-0128	-0348	-0568	10												
-0129	-0349	-0569	5												
-0130	-0350	-0570	20	47	50	1	9	11	3.11	70	-28	13	15	1155	T2
-0131	-0351	-0571	10												
-0132	-0352	-0572	5												
-0133	-0353	-0573	20	60	50	2	12	12	2.65	45	-16	10.5	12	1335	T3
-0134	-0354	-0574	10												
-0135	-0355	-0575	5												
-0136	-0356	-0576	20	82	50	2	16	15	2.43	45	-32	13	15	1400	T3
-0137	-0357	-0577	10												
-0138	-0358	-0578	5												
-0139	-0359	-0579	20	160	50	8	32	17	1.41	27	-50	25	25	1900	T4
-0140	-0360	-0580	10												
-0147	-0367	-0587	20	20	60	1	5	7	4.64	105	-16	10.5	12	930	T2
-0148	-0368	-0588	10												
-0149	-0369	-0589	5												
-0150	-0370	-0590	20	39	60	1	9	10	3.4	90	-28	10.5	12	1110	T2
-0151	-0371	-0591	10												
-0152	-0372	-0592	5												
-0153	-0373	-0593	20	50	60	2	12	10	2.65	50	-16	10.5	12	1330	T3
-0154	-0374	-0594	10												
-0155	-0375	-0595	5												
-0156	-0376	-0596	20	68	60	2	16	13	2.54	50	-32	10.5	12	1365	T3
-0157	-0377	-0597	10												
-0158	-0378	-0598	5												
-0159	-0379	-0599	20	140	60	8	32	16	1.52	28	-40	20	20	1850	T4
-0160	-0380	-0600	10												
-0167	-0387	-0607	20	15	75	1	5	6	5.31	150	-16	8	9	890	T2
-0168	-0388	-0608	10												
-0169	-0389	-0609	5												
-0170	-0390	-0610	20	33	75	1	10	10	4.02	90	-24	10.5	15	1000	T2
-0171	-0391	-0611	10												
-0172	-0392	-0612	5												
-0173	-0393	-0613	20	40	75	2	12	9	2.99	60	-16	10.5	12	1250	T3
-0174	-0394	-0614	10												
-0175	-0395	-0615	5												
-0176	-0396	-0616	20	56	75	2	17	11	2.61	60	-28	10.5	15	1335	T3
-0177	-0397	-0617	10												
-0178	-0398	-0618	5												
-0179	-0399	-0619	20	110	75	9	36	12	1.45	29	-35	20	20	1850	T4
-0180	-0400	-0620	10												
-0187	-0407	-0627	20	11	100	1	4	5	6.03	200	-16	8	8	835	T2
-0188	-0408	-0628	10												
-0189	-0409	-0629	5												
-0190	-0410	-0630	20	22	100	1	9	7.5	4.52	100	-16	8	8	965	T2
-0191	-0411	-0631	10												
-0192	-0412	-0632	5												
-0193	-0413	-0633	20	30	100	2	12	7	3.1	80	-16	8	8	1240	T3
-0194	-0414	-0634	10												
-0195	-0415	-0635	5												
-0196	-0416	-0636	20	43	100	2	17	8.5	2.62	70	-20	8	8	1335	T3
-0197	-0417	-0637	10												
-0198	-0418	-0638	5												
-0199	-0419	-0639	20	86	100	9	36	10	1.54	30	-25	15	15	1800	T4
-0200	-0420	-0640	10												

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

M39006/25 RATINGS AND DASH NUMBER REFERENCE

M39006/25 Dashes			Tolerance ± (%)	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF max (%)	ESR max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size
M Level	P Level	R Level				+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		
-0003	-0091	-0179	20	820	6	3	14	155	2.51	18	-88	16	20	1500	T2
-0004	-0092	-0180	10												
-0005	-0093	-0181	20	1500	6	5	20	172	1.52	18	-90	20	25	1900	T3
-0006	-0094	-0182	10												
-0007	-0095	-0183	20	2200	6	6	24	170	1.03	13	-90	25	30	2300	T4
-0008	-0096	-0184	10												
-0011	-0099	-0187	20	680	8	3	14	130	2.54	22	-83	16	20	1500	T2
-0012	-0100	-0188	10												
-0013	-0101	-0189	20	1500	8	5	20	170	1.5	18	-90	20	25	1900	T3
-0014	-0102	-0190	10												
-0015	-0103	-0191	20	1800	8	7	25	138	1.02	14	-90	25	30	2300	T4
-0016	-0104	-0192	10												
-0019	-0107	-0195	20	560	10	3	16	106	2.51	27	-77	16	20	1450	T2
-0020	-0108	-0196	10												
-0021	-0109	-0197	20	1200	10	5	20	137	1.51	18	-88	20	25	1850	T3
-0022	-0110	-0198	10												
-0023	-0111	-0199	20	1500	10	7	25	114	1.01	15	-88	25	30	2300	T4
-0024	-0112	-0200	10												
-0027	-0115	-0203	20	390	15	3	16	74	2.52	31	-66	16	20	1450	T2
-0028	-0116	-0204	10												
-0029	-0117	-0205	20	820	15	6	24	111	1.8	22	-77	20	25	1800	T3
-0030	-0118	-0206	10												
-0031	-0119	-0207	20	1000	15	8	32	92	1.22	17	-77	25	30	2300	T4
-0032	-0120	-0208	10												
-0035	-0123	-0211	20	270	25	3	16	55	2.7	33	-62	13	16	1400	T2
-0036	-0124	-0212	10												
-0037	-0125	-0213	20	560	25	7	28	76	1.8	24	-72	20	25	1750	T3
-0038	-0126	-0214	10												
-0039	-0127	-0215	20	680	25	8	32	63	1.23	19	-72	25	30	2100	T4
-0040	-0128	-0216	10												
-0043	-0131	-0219	20	220	30	3	16	42	2.53	36	-60	13	16	1200	T2
-0044	-0132	-0220	10												
-0045	-0133	-0221	20	470	30	8	32	64	1.81	25	-65	20	25	1500	T3
-0046	-0134	-0222	10												
-0047	-0135	-0223	20	560	30	9	36	55	1.3	20	-65	25	30	2000	T4
-0048	-0136	-0224	10												
-0051	-0139	-0227	20	120	50	4	24	22.5	2.49	49	-42	12	15	1200	T2
-0052	-0140	-0228	10												
-0053	-0141	-0229	20	270	50	8	32	37	1.82	29	-46	20	25	1450	T3
-0054	-0142	-0230	10												
-0055	-0143	-0231	20	330	50	9	36	38	1.53	22	-46	25	30	1900	T4
-0056	-0144	-0232	10												
-0059	-0147	-0235	20	100	60	4	20	19	2.52	54	-36	12	15	1100	T2
-0060	-0148	-0236	10												
-0061	-0149	-0237	20	220	60	8	32	30	1.81	29	-40	16	20	1400	T3
-0062	-0150	-0238	10												
-0063	-0151	-0239	20	270	60	9	36	27	1.33	23	-45	20	25	1850	T4
-0064	-0152	-0240	10												
-0067	-0155	-0243	20	82	75	4	24	15.2	2.46	63	-30	12	15	1000	T2
-0068	-0156	-0244	10												
-0069	-0157	-0245	20	180	75	9	36	24.4	2.23	30	-35	16	20	1300	T3
-0070	-0158	-0246	10												
-0071	-0159	-0247	20	220	75	10	40	37	1.8	24	-40	20	25	1800	T4
-0072	-0160	-0248	10												
-0075	-0163	-0251	20	39	100	5	24	10.4	3.54	80	-20	12	15	1300	T2
-0076	-0164	-0252	10												
-0077	-0165	-0253	20	68	100	10	40	11.3	2.21	40	-30	14	16	1600	T3
-0078	-0166	-0254	10												
-0079	-0167	-0255	20	120	100	12	48	25	2.76	30	-35	15	17	2000	T4
-0080	-0168	-0256	10												

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

M39006 /30 RATINGS AND DASH NUMBER REFERENCE

M39006/30 Dashes			Tolerance ± (%)	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF max (%)	ESR max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size
M Level	P Level	R Level				+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		
-0007	-0227	-0447	20	140	6	1	3	10.5	0.99	40	-40	14	16	1200	T2
-0008	-0228	-0448	10												
-0009	-0229	-0449	5												
-0010	-0230	-0450	20	270	6	1	6.5	22.5	1.11	25	-44	17.5	20	1375	T2
-0011	-0231	-0451	10												
-0012	-0232	-0452	5												
-0013	-0233	-0453	20	330	6	2	7.9	18	0.73	20	-44	14	16	1800	T3
-0014	-0234	-0454	10												
-0015	-0235	-0455	5												
-0016	-0236	-0456	20	560	6	2	13	27.5	0.65	25	-64	17.5	20	1900	T3
-0017	-0237	-0457	10												
-0018	-0238	-0458	5												
-0019	-0239	-0459	20	1200	6	3	14	45	0.5	20	-80	25	25	2265	T4
-0020	-0240	-0460	10												
-0027	-0247	-0467	20	120	8	1	2	10	1.11	50	-44	17.5	20	1220	T2
-0028	-0248	-0468	10												
-0029	-0249	-0469	5												
-0030	-0250	-0470	20	220	8	1	7	18.5	1.12	30	-44	17.5	20	1370	T2
-0031	-0251	-0471	10												
-0032	-0252	-0472	5												
-0033	-0253	-0473	20	290	8	2	6	17	0.78	25	-64	17.5	20	1770	T3
-0034	-0254	-0474	10												
-0035	-0255	-0475	5												
-0036	-0256	-0476	20	430	8	2	14	23	0.71	25	-64	17.5	20	1825	T3
-0037	-0257	-0477	10												
-0038	-0258	-0478	5												
-0039	-0259	-0479	20	850	8	4	16	30	0.47	22	-80	25	25	2330	T4
-0040	-0260	-0480	10												
-0047	-0267	-0487	20	100	10	1	4	7.5	0.99	60	-36	14	16	1200	T2
-0048	-0268	-0488	10												
-0049	-0269	-0489	5												
-0050	-0270	-0490	20	180	10	1	7	15	1.11	40	-36	14	16	1.365	T2
-0051	-0271	-0491	10												
-0052	-0272	-0492	5												
-0053	-0273	-0493	20	250	10	2	10	15	0.8	30	-40	14	16	1720	T3
-0054	-0274	-0494	10												
-0055	-0275	-0495	5												
-0056	-0276	-0496	20	390	10	2	16	22	0.75	25	-64	17.5	20	1800	T3
-0057	-0277	-0497	10												
-0058	-0278	-0498	5												
-0059	-0279	-0499	20	750	10	4	16	25	0.44	23	-80	25	25	2360	T4
-0060	-0280	-0500	10												
-0067	-0287	-0507	20	70	15	1	4	6.5	1.23	75	-28	14	16	1150	T2
-0068	-0288	-0508	10												
-0069	-0289	-0509	5												
-0070	-0290	-0510	20	120	15	1	7	9	0.99	50	-28	17.5	20	1450	T2
-0071	-0291	-0511	10												
-0072	-0292	-0512	5												
-0073	-0293	-0513	20	170	15	2	10	12.5	0.98	35	-32	14	16	1480	T3
-0074	-0294	-0514	10												
-0075	-0295	-0515	5												
-0076	-0296	-0516	20	270	15	2	16	16	0.79	30	-56	17.5	20	1740	T3
-0077	-0297	-0517	10												
-0078	-0298	-0518	5												
-0079	-0299	-0519	20	540	15	6	24	20	0.49	23	-80	25	25	2330	T4
-0080	-0300	-0520	10												
-0087	-0307	-0527	20	50	25	1	2	5.5	1.46	70	-28	13	15	1130	T2
-0088	-0308	-0528	10												
-0089	-0309	-0529	5												
-0090	-0310	-0530	20	100	25	1	10	7.5	0.99	50	-28	13	15	1435	T2
-0091	-0311	-0531	10												
-0092	-0312	-0532	5												
-0093	-0313	-0533	20	120	25	2	6	10.5	1.16	38	-32	13	15	1450	T3
-0094	-0314	-0534	10												
-0095	-0315	-0535	5												
-0096	-0316	-0536	20	180	25	2	18	13	0.96	32	-48	13	15	1525	T3
-0097	-0317	-0537	10												
-0098	-0318	-0538	5												

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

M39006/30 Dashes			Tolerance ± (%)	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF max (%)	ESR max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size
M Level	P Level	R Level				+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		
-0099	-0319	-0539	20	350	25	7	28	17.5	0.67	24	-70	25	25	1970	T4
-0100	-0320	-0540	10												
-0107	-0327	-0547	20	40	30	1	5	5	1.66	65	-24	10.5	12	1120	T2
-0108	-0328	-0548	10												
-0109	-0329	-0549	5												
-0110	-0330	-0550	20	68	30	1	8	6.5	1.27	60	-24	13	15	1285	T2
-0111	-0331	-0551	10												
-0112	-0332	-0552	5												
-0113	-0333	-0553	20	100	30	2	12	8.5	1.13	40	-28	10.5	12	1450	T3
-0114	-0334	-0554	10												
-0115	-0335	-0555	5												
-0116	-0336	-0556	20	150	30	2	18	11.5	1.02	35	-48	13	15	1525	T3
-0117	-0337	-0557	10												
-0118	-0338	-0558	5												
-0119	-0339	-0559	20	300	30	8	32	15.5	0.69	25	-60	25	25	1950	T4
-0120	-0340	-0560	10												
-0127	-0347	-0567	20	25	50	1	5	4	2.13	95	-20	10.5	12	1005	T2
-0128	-0348	-0568	10												
-0129	-0349	-0569	5												
-0130	-0350	-0570	20	47	50	1	9	5.5	1.56	70	-28	13	15	1155	T2
-0131	-0351	-0571	10												
-0132	-0352	-0572	5												
-0133	-0353	-0573	20	60	50	2	12	6	1.33	45	-16	10.5	12	1335	T3
-0134	-0354	-0574	10												
-0135	-0355	-0575	5												
-0136	-0356	-0576	20	82	50	2	16	7.5	1.22	45	-32	13	15	1400	T3
-0137	-0357	-0577	10												
-0138	-0358	-0578	5												
-0139	-0359	-0579	20	160	50	8	32	8.5	0.71	27	-50	25	25	1900	T4
-0140	-0360	-0580	10												
-0147	-0367	-0587	20	20	60	1	5	3.5	2.32	105	-16	10.5	12	930	T2
-0148	-0368	-0588	10												
-0149	-0369	-0589	5												
-0150	-0370	-0590	20	39	60	1	9	5	1.7	90	-28	10.5	12	1110	T2
-0151	-0371	-0591	10												
-0152	-0372	-0592	5												
-0153	-0373	-0593	20	50	60	2	12	5	1.33	50	-16	10.5	12	1330	T3
-0154	-0374	-0594	10												
-0155	-0375	-0595	5												
-0156	-0376	-0596	20	68	60	2	16	6.5	1.27	50	-32	10.5	12	1365	T3
-0157	-0377	-0597	10												
-0158	-0378	-0598	5												
-0159	-0379	-0599	20	140	60	8	32	8	0.76	28	-40	20	20	1850	T4
-0160	-0380	-0600	10												
-0167	-0387	-0607	20	15	75	1	5	3	2.66	150	-16	8	9	890	T2
-0168	-0388	-0608	10												
-0169	-0389	-0609	5												
-0170	-0390	-0610	20	33	75	1	10	5	2.01	90	-24	10.5	15	1000	T2
-0171	-0391	-0611	10												
-0172	-0392	-0612	5												
-0173	-0393	-0613	20	40	75	2	12	4.5	1.5	60	-16	10.5	12	1250	T3
-0174	-0394	-0614	10												
-0175	-0395	-0615	5												
-0176	-0396	-0616	20	56	75	2	17	5.5	1.31	60	-28	10.5	15	1335	T3
-0177	-0397	-0617	10												
-0178	-0398	-0618	5												
-0179	-0399	-0619	20	110	75	9	36	6	0.73	29	-35	20	20	1850	T4
-0180	-0400	-0620	10												
-0187	-0407	-0627	20	11	100	1	4	2.5	3.02	200	-16	8	8	835	T2
-0188	-0408	-0628	10												
-0189	-0409	-0629	5												
-0190	-0410	-0630	20	22	100	1	9	3.75	2.26	100	-16	8	8	965	T2
-0191	-0411	-0631	10												
-0192	-0412	-0632	5												
-0193	-0413	-0633	20	30	100	2	12	3.5	1.55	80	-16	8	8	1240	T3
-0194	-0414	-0634	10												
-0195	-0415	-0635	5												
-0196	-0416	-0636	20	43	100	2	17	4.25	1.31	70	-20	8	8	1335	T3
-0197	-0417	-0637	10												
-0198	-0418	-0638	5												
-0199	-0419	-0639	20	86	100	9	36	5	0.77	30	-25	15	15	1800	T4
-0200	-0420	-0640	10												

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

MIL-PRF-39006 Series

Military Conventional Wet Tantalum

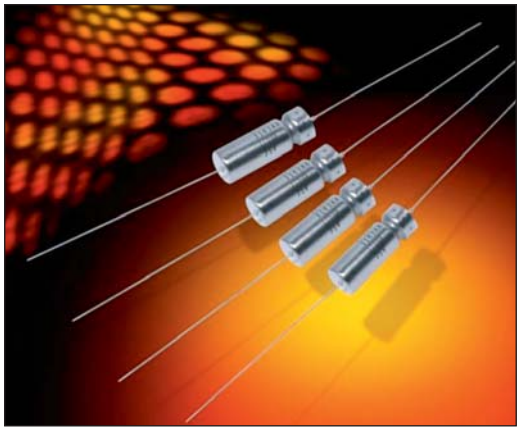
M39006 /31 RATINGS AND DASH NUMBER REFERENCE

M39006/31 Dashes			Tolerance ± (%)	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF max (%)	ESR max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size
M Level	P Level	R Level				+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		
-0003	-0091	-0179	20	820	6	3	14	77.5	1.26	18	-88	16	20	1500	T2
-0004	-0092	-0180	10												
-0005	-0093	-0181	20	1500	6	5	20	86	0.76	18	-90	20	25	1900	T3
-0006	-0094	-0182	10												
-0007	-0095	-0183	20	2200	6	6	24	85	0.52	13	-90	25	30	2300	T4
-0008	-0096	-0184	10												
-0011	-0099	-0187	20	680	8	3	14	65	1.27	22	-83	16	20	1500	T2
-0012	-0100	-0188	10												
-0013	-0101	-0189	20	1500	8	5	20	85	0.75	18	-90	20	25	1900	T3
-0014	-0102	-0190	10												
-0015	-0103	-0191	20	1800	8	7	25	69	0.51	14	-90	25	30	2300	T4
-0016	-0104	-0192	10												
-0019	-0107	-0195	20	560	10	3	16	53	1.26	27	-77	16	20	1450	T2
-0020	-0108	-0196	10												
-0021	-0109	-0197	20	1200	10	5	20	68.5	0.76	18	-88	20	25	1850	T3
-0022	-0110	-0198	10												
-0023	-0111	-0199	20	1500	10	7	25	57	0.51	15	-88	25	30	2300	T4
-0024	-0112	-0200	10												
-0027	-0115	-0203	20	390	15	3	16	37	1.26	31	-66	16	20	1450	T2
-0028	-0116	-0204	10												
-0029	-0117	-0205	20	820	15	6	24	55.5	0.9	22	-77	20	25	1800	T3
-0030	-0118	-0206	10												
-0031	-0119	-0207	20	1000	15	8	32	46	0.61	17	-77	25	30	2300	T4
-0032	-0120	-0208	10												
-0035	-0123	-0211	20	270	25	3	16	27.5	1.35	33	-62	13	16	1400	T2
-0036	-0124	-0212	10												
-0037	-0125	-0213	20	560	25	7	28	38	0.9	24	-72	20	25	1750	T3
-0038	-0126	-0214	10												
-0039	-0127	-0215	20	680	25	8	32	31.5	0.62	19	-72	25	30	2100	T4
-0040	-0128	-0216	10												
-0043	-0131	-0219	20	220	30	3	16	21	1.27	36	-60	13	16	1200	T2
-0044	-0132	-0220	10												
-0045	-0133	-0221	20	470	30	8	32	32	0.91	25	-65	20	25	1500	T3
-0046	-0134	-0222	10												
-0047	-0135	-0223	20	560	30	9	36	27.5	0.65	20	-65	25	30	2000	T4
-0048	-0136	-0224	10												
-0051	-0139	-0227	20	120	50	4	24	11.3	1.25	49	-42	12	15	1200	T2
-0052	-0140	-0228	10												
-0053	-0141	-0229	20	270	50	8	32	18.5	0.91	29	-46	20	25	1450	T3
-0054	-0142	-0230	10												
-0055	-0143	-0231	20	330	50	9	36	19	0.77	22	-46	25	30	1900	T4
-0056	-0144	-0232	10												
-0059	-0147	-0235	20	100	60	4	20	9.5	1.26	54	-36	12	15	1100	T2
-0060	-0148	-0236	10												
-0061	-0149	-0237	20	220	60	8	32	15	0.91	29	-40	16	20	1400	T3
-0062	-0150	-0238	10												
-0063	-0151	-0239	20	270	60	9	36	13.5	0.67	23	-45	20	25	1850	T4
-0064	-0152	-0240	10												
-0067	-0155	-0243	20	82	75	4	24	7.6	1.23	63	-30	12	15	1000	T2
-0068	-0156	-0244	10												
-0069	-0157	-0245	20	180	75	9	36	12.2	0.9	30	-35	16	20	1300	T3
-0070	-0158	-0246	10												
-0071	-0159	-0247	20	220	75	10	40	18.5	1.12	24	-40	20	25	1800	T4
-0072	-0160	-0248	10												
-0075	-0163	-0251	20	39	100	5	24	5.2	1.77	80	-20	12	15	1300	T2
-0076	-0164	-0252	10												
-0077	-0165	-0253	20	68	100	10	40	5.65	1.11	40	-30	14	16	1600	T3
-0078	-0166	-0254	10												
-0079	-0167	-0255	20	120	100	12	48	12.5	1.38	30	-35	15	17	2000	T4
-0080	-0168	-0256	10												

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

TWC Series

COTS-Plus Conventional Wet Tantalum

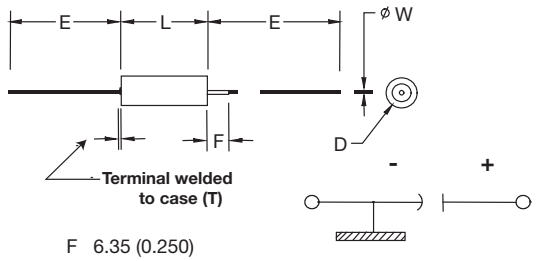


The TWC series represents a COTS-Plus version of conventional wet electrolytic tantalum capacitors. This data sheet incorporates all ratings available in MIL-PRF-39006 /22 /25 /30 and /31. Contact the factory about cap and voltage design possibilities beyond those contained in this datasheet.

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments and includes selected Group A testing from MIL-PRF-39006.

For military qualified versions please refer to the MIL-PRF-39006 datasheet located on the AVX website.

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 +0.05
(.025 +.002)
T 2.380 (.094)

CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Basic Case ±0.41 (0.016)	D Insulated Case Max	E ±6.35 (0.250)
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

VOLTAGE RATINGS (Operating Temperature -55ºC to 125ºC)

Voltage (DC)												
Rated Voltage: (V_r)	85ºC	6	8	10	15	25	30	50	60	75	100	125
Derated Voltage: (V_c)	125ºC	4	5	6	10	15	20	30	40	50	65	85
Surge Voltage: (V_s)	85ºC	6.9	9.2	11.5	17.3	28.8	34.5	57.5	69	86.3	115	144

TWC Series

COTS-Plus Conventional Wet Tantalum

HOW TO ORDER

AVX PART NUMBER:

TWC	D	826	*	125	□	L	S	Z	0	0	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code**	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**ESR** C = Standard ESR L = Low ESR	**Qualification** S = Std. Conformance L = Group A	**Reliability Grade** Z = Non-ER	**Qualification Level** 0 = Standard 9 = SRW9000	**Termination Finish** 0 = Sn/Pb 60/40 7 = 100% Tin	**Custom Test Options** 00 = Standard 0H = High Vibration*

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

*High vibration qualified parts are currently under development. Please contact the factory for additional details and availability.

SPACE LEVEL OPTIONS TO SRW9000*:

TWC	D	826	*	125	□	L	L	Z	9	0	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code**	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**ESR** C = Standard ESR L = Low ESR	**Qualification** L = Group A	**Reliability Grade** Z = Non-ER	**Qualification Level** 9 = SRW9000	**Termination Finish** 00 = Sn/Pb 60/40	**Custom Test Options** 00 = Standard 0H = High Vibration*

Not RoHS Compliant

*Check with factory for availability and testing details.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
Ambient Still Air Temperature (°C)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
85°C	90%	0.60	0.46	–	–	0.71	0.55	–	–	0.72	0.55	–	–
Rated	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
Peak	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
Voltage	66-2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
Ambient Still Air Temperature (°C)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85°C	90%	0.88	0.67	–	–	1.00	0.77	–	–	1.10	0.85	–	–
Rated	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
Peak	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

TWC Series

COTS-Plus Conventional Wet Tantalum

STANDARD RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Voltage (V) at 85ºC	DC Leakage (µA)		DF (Max)	ESR Max (Ohms) at 120Hz	Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHz	Case Size	
			+25ºC	+85ºC & +125ºC				-55ºC	+85ºC	+125ºC		Standard	AVX
TWCA306*006□CSZ0000	30	6	1	2	9	3.98	100	-40	10.5	12	820	T1	A
TWCA306*006□LSZ0000					4.5	1.99							
TWCA686*006□CSZ0000	68	6	1	2	15	3.16	60	-40	14	16	960	T1	A
TWCA686*006□LSZ0000					7.5	1.58							
TWCB147*006□CSZ0000	140	6	1	3	21	1.99	40	-40	14	16	1,200	T2	B
TWCB147*006□LSZ0000					10.5	0.99							
TWCB277*006□CSZ0000	270	6	1	6.5	45	2.21	25	-44	17.5	20	1,375	T2	B
TWCB277*006□LSZ0000					22.5	1.11							
TWCD337*006□CSZ0000	330	6	2	7.9	36	1.45	20	-44	14	16	1,800	T3	D
TWCD337*006□LSZ0000					18	0.73							
TWCD567*006□CSZ0000	560	6	2	13	55	1.3	25	-64	17.5	20	1,900	T3	D
TWCD567*006□LSZ0000					27.5	0.65							
TWCE128*006□CSZ0000	1,200	6	3	14	90	1	20	-80	25	25	2,265	T4	E
TWCE128*006□LSZ0000					45	0.5							
TWCA256*008□CSZ0000	25	8	1	2	7.5	3.98	100	-40	10.5	12	820	T1	A
TWCA256*008□LSZ0000					3.75	1.99							
TWCA566*008□CSZ0000	56	8	1	2	14	3.32	59	-40	14	16	900	T1	A
TWCA566*008□LSZ0000					7	1.66							
TWCB127*008□CSZ0000	120	8	1	2	20	2.21	50	-44	17.5	20	1,220	T2	B
TWCB127*008□LSZ0000					10	1.11							
TWCB227*008□CSZ0000	220	8	1	7	37	2.23	30	-44	17.5	20	1,370	T2	B
TWCB227*008□LSZ0000					18.5	1.12							
TWCD297*008□CSZ0000	290	8	2	6	34	1.56	25	-64	17.5	20	1,770	T3	D
TWCD297*008□LSZ0000					17	0.78							
TWCD437*008□CSZ0000	430	8	2	14	46	1.42	25	-64	17.5	20	1,825	T3	D
TWCD437*008□LSZ0000					23	0.71							
TWCE857*008□CSZ0000	850	8	4	16	60	0.94	22	-80	25	25	2,330	T4	E
TWCE857*008□LSZ0000					30	0.47							
TWCA206*010□CSZ0000	20	10	1	2	6	3.98	175	-32	10.5	12	820	T1	A
TWCA206*010□LSZ0000					3	1.99							
TWCA476*010□CSZ0000	47	10	1	2	13	3.67	100	-36	14	16	855	T1	A
TWCA476*010□LSZ0000					6.5	1.84							
TWCB107*010□CSZ0000	100	10	1	4	15	1.99	60	-36	14	16	1,200	T2	B
TWCB107*010□LSZ0000					7.5	0.99							
TWCB187*010□CSZ0000	180	10	1	7	30	2.21	40	-36	14	16	1.365	T2	B
TWCB187*010□LSZ0000					15	1.11							
TWCD257*010□CSZ0000	250	10	2	10	30	1.59	30	-40	14	16	1,720	T3	D
TWCD257*010□LSZ0000					15	0.8							
TWCD397*010□CSZ0000	390	10	2	16	44	1.5	25	-64	17.5	20	1,800	T3	D
TWCD397*010□LSZ0000					22	0.75							
TWCE757*010□CSZ0000	750	10	4	16	50	0.88	23	-80	25	25	2,360	T4	E
TWCE757*010□LSZ0000					25	0.44							
TWCA156*015□CSZ0000	15	15	1	2	5	4.42	155	-24	10.5	12	780	T1	A
TWCA156*015□LSZ0000					2.5	2.21							
TWCA336*015□CSZ0000	33	15	1	2	10	4.02	90	-28	14	16	820	T1	A
TWCA336*015□LSZ0000					5	2.01							
TWCB706*015□CSZ0000	70	15	1	4	13	2.46	75	-28	14	16	1,150	T2	B
TWCB706*015□LSZ0000					6.5	1.23							
TWCB127*015□CSZ0000	120	15	1	7	18	1.99	50	-28	17.5	20	1,450	T2	B
TWCB127*015□LSZ0000					9	0.99							
TWCD177*015□CSZ0000	170	15	2	10	25	1.95	35	-32	14	16	1,480	T3	D
TWCD177*015□LSZ0000					12.5	0.98							
TWCD277*015□CSZ0000	270	15	2	16	32	1.57	30	-56	17.5	20	1,740	T3	D
TWCD277*015□LSZ0000					16	0.79							
TWCE547*015□CSZ0000	540	15	6	24	40	0.98	23	-80	25	25	2,330	T4	E
TWCE547*015□LSZ0000					20	0.49							
TWCA106*025□CSZ0000	10	25	1	2	4	5.31	220	-16	8	9	715	T1	A
TWCA106*025□LSZ0000					2	2.66							
TWCA226*025□CSZ0000	22	25	1	2	6.6	3.98	140	-20	10.5	12	825	T1	A
TWCA226*025□LSZ0000					3.3	1.99							
TWCB506*025□CSZ0000	50	25	1	2	11	2.92	70	-28	13	15	1,130	T2	B
TWCB506*025□LSZ0000					5.5	1.46							

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWC Series

COTS-Plus Conventional Wet Tantalum

STANDARD RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Voltage (V) at 85ºC	DC Leakage (µA)		DF (Max)	ESR Max (Ohms) at 120Hz	Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHz	Case Size	
			+25ºC	+85ºC & +125ºC				-55ºC	+85ºC	+125ºC		Standard	AVX
TWCB107*025□CSZ0000	100	25	1	10	15	1.99	50	-28	13	15	1,435	T2	B
TWCB107*025□LSZ0000					7.5	0.99							
TWCD127*025□CSZ0000	120	25	2	6	21	2.32	38	-32	13	15	1,450	T3	D
TWCD127*025□LSZ0000					10.5	1.16							
TWCD187*025□CSZ0000	180	25	2	18	26	1.92	32	-48	13	15	1,525	T3	D
TWCD187*025□LSZ0000					13	0.96							
TWCE357*025□CSZ0000	350	25	7	28	35	1.33	24	-70	25	25	1,970	T4	E
TWCE357*025□LSZ0000					17.5	0.67							
TWCA805*030□CSZ0000	8	30	1	2	4	6.64	275	-16	8	12	640	T1	A
TWCA805*030□LSZ0000					2	3.32							
TWCA156*030□CSZ0000	15	30	1	2	5	4.42	175	-20	10.5	12	780	T1	A
TWCA156*030□LSZ0000					2.5	2.21							
TWCB406*030□CSZ0000	40	30	1	5	10	3.32	65	-24	10.5	12	1,120	T2	B
TWCB406*030□LSZ0000					5	1.66							
TWCB686*030□CSZ0000	68	30	1	8	13	2.54	60	-24	13	15	1,285	T2	B
TWCB686*030□LSZ0000					6.5	1.27							
TWCD107*030□CSZ0000	100	30	2	12	17	2.26	40	-28	10.5	12	1,450	T3	D
TWCD107*030□LSZ0000					8.5	1.13							
TWCD157*030□CSZ0000	150	30	2	18	23	2.03	35	-48	13	15	1,525	T3	D
TWCD157*030□LSZ0000					11.5	1.02							
TWCE307*030□CSZ0000	300	30	8	32	31	1.37	25	-60	25	25	1,950	T4	E
TWCE307*030□LSZ0000					15.5	0.69							
TWCA505*050□CSZ0000	5	50	1	2	3	7.96	400	-16	5	6	580	T1	A
TWCA505*050□LSZ0000					1.5	3.98							
TWCA106*050□CSZ0000	10	50	1	2	4	5.31	250	-24	8	9	715	T1	A
TWCA106*050□LSZ0000					2	2.66							
TWCB256*050□CSZ0000	25	50	1	5	8	4.25	95	-20	10.5	12	1,005	T2	B
TWCB256*050□LSZ0000					4	2.13							
TWCB476*050□CSZ0000	47	50	1	9	11	3.11	70	-28	13	15	1,155	T2	B
TWCB476*050□LSZ0000					5.5	1.56							
TWCD606*050□CSZ0000	60	50	2	12	12	2.65	45	-16	10.5	12	1,335	T3	D
TWCD606*050□LSZ0000					6	1.33							
TWCD826*050□CSZ0000	82	50	2	16	15	2.43	45	-32	13	15	1,400	T3	D
TWCD826*050□LSZ0000					7.5	1.22							
TWCE167*050□CSZ0000	160	50	8	32	17	1.41	27	-50	25	25	1,900	T4	E
TWCE167*050□LSZ0000					8.5	0.71							
TWCA405*060□CSZ0000	4	60	1	2	2.8	9.29	550	-16	5	6	525	T1	A
TWCA405*060□LSZ0000					1.4	4.65							
TWCA825*060□CSZ0000	8.2	60	1	2	4	6.47	275	-24	8	9	625	T1	A
TWCA825*060□LSZ0000					2	3.24							
TWCB206*060□CSZ0000	20	60	1	5	7	4.64	105	-16	10.5	12	930	T2	B
TWCB206*060□LSZ0000					3.5	2.32							
TWCB396*060□CSZ0000	39	60	1	9	10	3.4	90	-28	10.5	12	1,110	T2	B
TWCB396*060□LSZ0000					5	1.7							
TWCD506*060□CSZ0000	50	60	2	12	10	2.65	50	-16	10.5	12	1,330	T3	D
TWCD506*060□LSZ0000					5	1.33							
TWCD686*060□CSZ0000	68	60	2	16	13	2.54	50	-32	10.5	12	1,365	T3	D
TWCD686*060□LSZ0000					7	1.27							
TWCE147*060□CSZ0000	140	60	8	32	16	1.52	28	-40	20	20	1,850	T4	E
TWCE147*060□LSZ0000					8	0.76							
TWCA355*075□CSZ0000	3.5	75	1	2	2.5	9.48	650	-16	5	6	525	T1	A
TWCA355*075□LSZ0000					1.25	4.74							
TWCA685*075□CSZ0000	6.8	75	1	2	3.5	6.83	300	-20	8	9	610	T1	A
TWCA685*075□LSZ0000					1.75	3.42							
TWCB156*075□CSZ0000	15	75	1	5	6	5.31	150	-16	8	9	890	T2	B
TWCB156*075□LSZ0000					3	2.66							
TWCB336*075□CSZ0000	33	75	1	10	10	4.02	90	-24	10.5	15	1,000	T2	B
TWCB336*075□LSZ0000					5	2.01							
TWCD406*075□CSZ0000	40	75	2	12	9	2.99	60	-16	10.5	12	1,250	T3	D
TWCD406*075□LSZ0000					4.5	1.5							
TWCD566*075□CSZ0000	56	75	2	17	11	2.61	60	-28	10.5	15	1,335	T3	D
TWCD566*075□LSZ0000					5.5	1.31							

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWC Series

COTS-Plus Conventional Wet Tantalum

STANDARD RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Voltage (V) at 85ºC	DC Leakage (µA)		DF (Max)	ESR Max (Ohms) at 120Hz	Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHz	Case Size	
			+25ºC	+85ºC & +125ºC				-55ºC	+85ºC	+125ºC		Standard	AVX
TWCE117*075□CSZ0000	110	75	9	36	12	1.45	29	-35	20	20	1,850	T4	E
TWCE117*075□LSZ0000					6	0.73							
TWCA255*100□CSZ0000	2.5	100	1	2	2	10.62	950	-16	7	8	505	T1	A
TWCA255*100□LSZ0000					1	5.31							
TWCA475*100□CSZ0000	4.7	100	1	2	3	8.47	500	-16	7	8	565	T1	A
TWCA475*100□LSZ0000					1.5	4.24							
TWCB116*100□CSZ0000	11	100	1	4	5	6.03	200	-16	8	8	835	T2	B
TWCB116*100□LSZ0000					2.5	3.02							
TWCB226*100□CSZ0000	22	100	1	9	7.5	4.52	100	-16	8	8	965	T2	B
TWCB226*100□LSZ0000					3.75	2.26							
TWCD306*100□CSZ0000	30	100	2	12	7	3.1	80	-16	8	8	1,240	T3	D
TWCD306*100□LSZ0000					3.5	1.56							
TWCD436*100□CSZ0000	43	100	2	17	8.5	2.62	70	-20	8	8	1,335	T3	D
TWCD436*100□LSZ0000					4.25	1.31							
TWCE866*100□CSZ0000	86	100	9	36	10	1.54	30	-25	15	15	1,800	T4	E
TWCE866*100□LSZ0000					5	0.77							
TWCA175*125□CSZ0000	1.7	125	1	2	2	15.61	1,250	-16	7	8	415	T1	A
TWCA175*125□LSZ0000					1	7.81							
TWCA365*125□CSZ0000	3.6	125	1	2	2.7	9.95	600	-16	7	8	520	T1	A
TWCA365*125□LSZ0000					1.35	4.98							
TWCB905*125□CSZ0000	9	125	1	5	5	7.37	240	-16	7	8	755	T2	B
TWCB905*125□LSZ0000					2.5	3.69							
TWCB146*125□CSZ0000	14	125	1	7	6	5.69	167	-16	7	8	860	T2	B
TWCB146*125□LSZ0000					3	2.85							
TWCD186*125□CSZ0000	18	125	2	9	5	3.69	129	-16	7	8	1,130	T3	D
TWCD186*125□LSZ0000					2.5	1.85							
TWCD256*125□CSZ0000	25	125	2	13	6	3.18	93	-16	7	8	1,200	T3	D
TWCD256*125□LSZ0000					3	1.59							
TWCE566*125□CSZ0000	56	125	10	40	6.5	1.54	32	-25	15	15	1,800	T4	E
TWCE566*125□LSZ0000					3.25	0.77							

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWC Series

COTS-Plus Conventional Wet Tantalum

EXTENDED RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25ºC at 120Hz	DC Rated Voltage (V) at 85ºC	DC Leakage (µA)		DF (Max)	ESR Max (Ohms) at 120Hz	Impedance max (Ohms) -55ºC at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85ºC at 40kHz	Case Size	
			+25ºC	+85ºC & +125ºC				-55ºC	+85ºC	+125ºC		Standard	AVX
TWCA227*006□CSZ0000	220	6	2	9	50	3.02	36	-64	13	16	1,000	T1	A
TWCA227*006□LSZ0000					25	1.51							
TWCB827*006□CSZ0000	820	6	3	14	155	2.51	18	-88	16	20	1,500	T2	B
TWCB827*006□LSZ0000					77.5	1.26							
TWCD158*006□CSZ0000	1,500	6	5	20	172	1.52	18	-90	20	25	1,900	T3	D
TWCD158*006□LSZ0000					86	0.76							
TWCE228*006□CSZ0000	2,200	6	6	24	170	1.03	13	-90	25	30	2,300	T4	E
TWCE228*006□LSZ0000					85	0.52							
TWCA187*008□CSZ0000	180	8	2	9	41	3.02	45	-60	13	16	1,000	T1	A
TWCA187*008□LSZ0000					20.5	1.51							
TWCB687*008□CSZ0000	680	8	3	14	130	2.54	22	-83	16	20	1,500	T2	B
TWCB687*008□LSZ0000					65	1.27							
TWCD158*008□CSZ0000	1,500	8	5	20	170	1.5	18	-90	20	25	1,900	T3	D
TWCD158*008□LSZ0000					85	0.75							
TWCE188*008□CSZ0000	1,800	8	7	25	138	1.02	14	-90	25	30	2,300	T4	E
TWCE188*008□LSZ0000					69	0.51							
TWCA157*010□CSZ0000	150	10	2	9	34	3.01	54	-55	13	16	900	T1	A
TWCA157*010□LSZ0000					17	1.51							
TWCB567*010□CSZ0000	560	10	3	16	106	2.51	27	-77	16	20	1,450	T2	B
TWCB567*010□LSZ0000					53	1.26							
TWCD128*010□CSZ0000	1,200	10	5	20	137	1.51	18	-88	20	25	1,850	T3	D
TWCD128*010□LSZ0000					68.5	0.76							
TWCE158*010□CSZ0000	1,500	10	7	25	114	1.01	15	-88	25	30	2,300	T4	E
TWCE158*010□LSZ0000					57	0.51							
TWCA107*015□CSZ0000	100	15	2	9	30	3.98	72	-44	13	16	900	T1	A
TWCA107*015□LSZ0000					15	1.99							
TWCB397*015□CSZ0000	390	15	3	16	74	2.52	31	-66	16	20	1,450	T2	B
TWCB397*015□LSZ0000					37	1.26							
TWCD827*015□CSZ0000	820	15	6	24	111	1.8	22	-77	20	25	1,800	T3	D
TWCD827*015□LSZ0000					55.5	0.9							
TWCE108*015□CSZ0000	1,000	15	8	32	92	1.22	17	-77	25	30	2,300	T4	E
TWCE108*015□LSZ0000					46	0.61							
TWCA686*025□CSZ0000	68	25	2	9	22	4.29	90	-40	12	15	850	T1	A
TWCA686*025□LSZ0000					11	2.15							
TWCB277*025□CSZ0000	270	25	3	16	55	2.7	33	-62	13	16	1,400	T2	B
TWCB277*025□LSZ0000					27.5	1.35							
TWCD567*025□CSZ0000	560	25	7	28	76	1.8	24	-72	20	25	1,750	T3	D
TWCD567*025□LSZ0000					38	0.9							
TWCE687*025□CSZ0000	680	25	8	32	63	1.23	19	-72	25	30	2,100	T4	E
TWCE687*025□LSZ0000					31.5	0.62							
TWCA566*030□CSZ0000	56	30	2	9	22	5.21	100	-38	12	15	800	T1	A
TWCA566*030□LSZ0000					11	2.61							
TWCB227*030□CSZ0000	220	30	3	16	42	2.53	36	-60	13	16	1,200	T2	B
TWCB227*030□LSZ0000					21	1.27							
TWCD477*030□CSZ0000	470	30	8	32	64	1.81	25	-65	20	25	1,500	T3	D
TWCD477*030□LSZ0000					32	0.91							
TWCE567*030□CSZ0000	560	30	9	36	55	1.3	20	-65	25	30	2,000	T4	E
TWCE567*030□LSZ0000					27.5	0.65							
TWCA336*050□CSZ0000	33	50	2	9	12.3	4.95	135	-29	10	12	700	T1	A
TWCA336*050□LSZ0000					6.15	2.48							
TWCB127*050□CSZ0000	120	50	4	24	22.5	2.49	49	-42	12	15	1,200	T2	B
TWCB127*050□LSZ0000					11.3	1.25							
TWCD277*050□CSZ0000	270	50	8	32	37	1.82	29	-46	20	25	1,450	T3	D
TWCD277*050□LSZ0000					18.5	0.91							
TWCE337*050□CSZ0000	330	50	9	36	38	1.53	22	-46	25	30	1,900	T4	E
TWCE337*050□LSZ0000					19	0.77							
TWCA276*060□CSZ0000	27	60	3	12	10.2	5.01	144	-24	10	12	700	T1	A
TWCA276*060□LSZ0000					5.1	2.51							
TWCB107*060□CSZ0000	100	60	4	20	19	2.52	54	-36	12	15	1,100	T2	B
TWCB107*060□LSZ0000					9.5	1.26							
TWCD227*060□CSZ0000	220	60	8	32	30	1.81	29	-40	16	20	1,400	T3	D
TWCD227*060□LSZ0000					15	0.91							

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWC Series

COTS-Plus Conventional Wet Tantalum

EXTENDED RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	DC Leakage (µA)		DF (Max)	ESR Max (Ohms) at 120Hz	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size	
			+25°C	+85°C & +125°C				-55°C	+85°C	+125°C		Standard	AVX
TWCE277*060□CSZ0000	270	60	9	36	27	1.33	23	-45	20	25	1,850	T4	E
TWCE277*060□LSZ0000					13.5	0.67							
TWCA226*075□CSZ0000	22	75	3	12	8.5	5.13	157	-19	10	12	600	T1	A
TWCA226*075□LSZ0000					4.25	2.57							
TWCB826*075□CSZ0000	82	75	4	24	15.2	2.46	63	-30	12	15	1,000	T2	B
TWCB826*075□LSZ0000					7.6	1.23							
TWCD187*075□CSZ0000	180	75	9	36	24.4	2.23	30	-35	16	20	1,300	T3	D
TWCD187*075□LSZ0000					12.2	0.9							
TWCE227*075□CSZ0000	220	75	10	40	37	1.8	24	-40	20	25	1,800	T4	E
TWCE227*075□LSZ0000					18.5	1.12							
TWCA106*100□CSZ0000	10	100	3	12	4.5	5.97	200	-17	10	12	800	T1	A
TWCA106*100□LSZ0000					2.25	2.99							
TWCB396*100□CSZ0000	39	100	5	24	10.4	3.54	80	-20	12	15	1,300	T2	B
TWCB396*100□LSZ0000					5.2	1.77							
TWCD686*100□CSZ0000	68	100	10	40	11.3	2.21	40	-30	14	16	1,600	T3	D
TWCD686*100□LSZ0000					5.65	1.11							
TWCE127*100□CSZ0000	120	100	12	48	25	2.76	30	-35	15	17	2,000	T4	E
TWCE127*100□LSZ0000					12.5	1.38							
TWCA685*125□CSZ0000	6.8	125	3	12	6	11.71	300	-14	10	12	700	T1	A
TWCA685*125□LSZ0000					3	5.86							
TWCB276*125□CSZ0000	27	125	5	24	7.2	3.54	90	-18	12	15	1,200	T2	B
TWCB276*125□LSZ0000					3.6	1.77							
TWCD476*125□CSZ0000	47	125	10	40	7.9	2.23	50	-26	14	16	1,500	T3	D
TWCD476*125□LSZ0000					3.95	1.12							
TWCE826*125□CSZ0000	82	125	12	48	17.4	2.82	32	-30	15	17	1,900	T4	E
TWCE826*125□LSZ0000					8.7	1.41							

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TESTING

All TWC COTS-Plus product is tested using MIL-PRF-39006 test procedures.

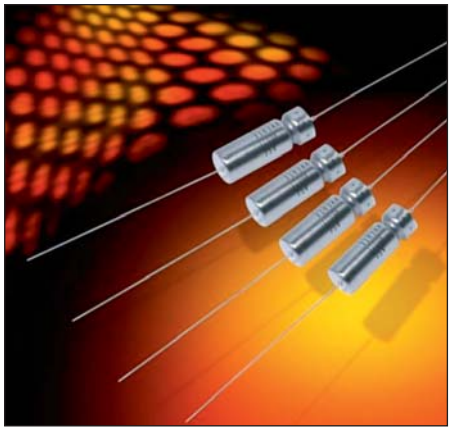
Lot Conformance Testing*

Inspection	Sampling Procedure
Constant Voltage Conditioning DC Leakage Capacitance Dissipation Factor Seal, Condition A or D	100% Inspection
Visual Examination Material Marking Workmanship	13 Samples

*Additional testing and inspection is available, please contact the factory for details.

TWC-Y High Temperature Series

COTS-Plus 200ºC Wet Tantalum



The TWC-Y high temperature series represents a COTS-Plus version of conventional wet electrolytic tantalum capacitors that are designed for use at 200°C. The components listed are now capable of 500 hours of operation at extreme temperature with the applicable derated voltage.

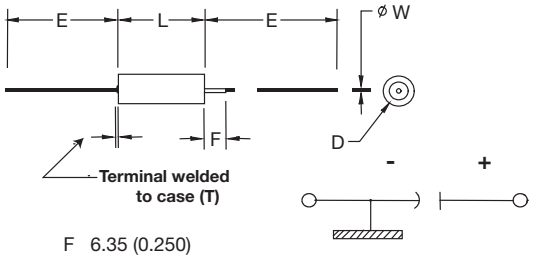
This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments.

This is a new product line so please contact the factory for availability and additional details.

CASE DIMENSIONS: millimeters (inches)

Standard Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Basic Case ±0.41 (0.016)	D Insulated Case Max	E ±6.35 (0.250)
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 +0.05 (.025 +.002)
T 2.380 (.094)

200°C LIFE TEST:
These components are capable of 500 hours of operation at 200°C with the applicable 60% derated voltage. Following the life test components which are stabilized at 25°C ± 5°C shall exhibit:

Leakage less than 200% the original requirement or ± 10µA (whichever is greater)

ESR not greater than 200% the original requirement

Capacitance increase less than 10% or decrease less than 20% the initial measurement

HOW TO ORDER

AVX PART NUMBER:

TWC	B	476	*	050	□	C	Y	Z	00	00
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10%	**Voltage Code**	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**ESR** C = Standard ESR	**Qualification** Y = High Temp.	**Reliability** Z = Non-ER	**Termination Finish** 00 = Sn/Pb 60/40 07 = 100% Tin	**Custom Test Options** 00 = Standard

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of +25°C										
Capacitance Tolerance:		±10%; ±20%										
Rated Voltage (V_R)	≤ 85°C:	6	8	10	15	25	30	50	60	75	100	125
Category Voltage (V_C)	≤ 125°C:	4	5	7	10	15	20	30	40	50	65	85
High Temp, Voltage (V_T)	**≤ 200°C:**	**3.6**	**4.8**	**6**	**9**	**12**	**18**	**30**	**36**	**45**	**60**	**75**
Surge Voltage (V_S)	≤ 85°C:	6.9	9.2	11.5	17.3	28.8	34.5	57.5	69	86.3	115	144
Temperature Range:		**-55°C to +200°C**										

TWC-Y High Temperature Series

COTS-Plus 200ºC Wet Tantalum

STANDARD RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) +25ºC at 120Hz	DC Rated Voltage (V) at +85ºC	DC Leakage (µA)		DF (max)	ESR Max (Ohms) at 120Hz	Maximum Capacitance Change (%)			Case Size	
			+25ºC	+85ºC & +125ºC			-55ºC	+85ºC	+125ºC	Standard	AVX
6 VDC at 85°C 4 VDC at 125°C 3.6 VDC at 200°C											
TWCB147*006□CYZ0000	140	6	1	3	21	1.99	-40	14	16	T2	B
TWCD337*006□CYZ0000	330	6	2	7.9	36	1.45	-44	14	16	T3	D
TWCD567*006□CYZ0000	560	6	2	13	55	1.30	-64	17.5	20	T3	D
8 VDC at 85°C 5 VDC at 125°C 4.8 VDC at 200°C											
TWCB127*008□CYZ0000	120	8	1	2	20	2.21	-44	17.5	20	T2	B
TWCD297*008□CYZ0000	290	8	2	6	34	1.56	-64	17.5	20	T3	D
TWCD437*008□CYZ0000	430	8	2	14	46	1.42	-64	17.5	20	T3	D
10 VDC at 85°C 7 VDC at 125°C 6 VDC at 200°C											
TWCB107*010□CYZ0000	100	10	1	4	15	1.99	-36	14	16	T2	B
TWCD257*010□CYZ0000	250	10	2	10	30	1.59	-40	14	16	T3	D
TWCD397*010□CYZ0000	390	10	2	16	44	1.50	-64	17.5	20	T3	D
15 VDC at 85°C 10 VDC at 125°C 9 VDC at 200°C											
TWCB706*015□CYZ0000	70	15	1	4	13	2.46	-28	14	16	T2	B
TWCD177*015□CYZ0000	170	15	2	10	25	1.95	-32	14	16	T3	D
TWCD277*015□CYZ0000	270	15	2	16	32	1.57	-56	17.6	20	T3	D
25 VDC at 85°C 15 VDC at 125°C 15 VDC at 200°C											
TWCA226*025□CYZ0000	22	25	1	2	6.6	3.98	-20	10.5	12	T1	A
TWCA686*025□CYZ0000	68	25	2	9	22	4.29	-50	12	15	T1	A
TWCB107*025□CYZ0000	100	25	1	10	15	1.99	-28	13	15	T2	B
TWCD127*025□CYZ0000	120	25	2	6	21	2.32	-32	13	15	T3	D
TWCD187*025□CYZ0000	180	25	2	18	26	1.92	-48	13	15	T3	D
TWCB277*025□CYZ0000	270	25	3	16	55	2.70	-62	13	16	T2	B
TWCD567*025□CYZ0000	560	25	7	28	76	1.80	-77	20	25	T3	D
30 VDC at 85°C 20 VDC at 125°C 18 VDC at 200°C											
TWCA156*030□CYZ0000	15	30	1	2	5	4.42	-20	10.5	12	T1	A
TWCA566*030□CYZ0000	56	30	2	9	22	5.21	-48	12	15	T1	A
TWCB686*030□CYZ0000	68	30	1	8	13	2.54	-24	13	15	T2	B
TWCD107*030□CYZ0000	100	30	2	12	17	2.26	-28	10.5	12	T3	D
TWCD157*030□CYZ0000	150	30	2	18	23	2.03	-48	13	15	T3	D
TWCB227*030□CYZ0000	220	30	3	16	42	2.53	-60	13	16	T2	B
TWCE307*030□CYZ0000	300	30	8	32	31	1.37	-60	25	25	T4	E
TWCD397*030□CYZ0000	390	30	6	18	53	1.80	-65	18	25	T3	D
TWCD477*030□CYZ0000	470	30	8	32	64	1.81	-70	20	25	T3	D
TWCE567*030□CYZ0000	560	30	9	36	55	1.30	-65	25	30	T4	E
50 VDC at 85°C 30 VDC at 125°C 30 VDC at 200°C											
TWCA106*050□CYZ0000	10	50	1	2	4	5.31	-24	8	9	T1	A
TWCA336*050□CYZ0000	33	50	2	9	12.3	4.95	-39	10	12	T1	A
TWCB476*050□CYZ0000	47	50	1	9	11	3.11	-28	13	15	T2	B
TWCD606*050□CYZ0000	60	50	2	12	12	2.65	-16	10.5	12	T3	D
TWCD826*050□CYZ0000	82	50	2	16	15	2.43	-32	13	15	T3	D
TWCB127*050□CYZ0000	120	50	4	24	22.5	2.49	-42	12	15	T2	B
TWCE167*050□CYZ0000	160	50	8	32	17	1.41	-50	25	25	T4	E
TWCD277*050□CYZ0000	270	50	8	32	37	1.82	-51	20	25	T3	D
TWCE337*050□CYZ0000	330	50	9	36	38	1.53	-46	25	30	T4	E
60V VDC at 85°C 40 VDC at 125°C 36 VDC at 200°C											
TWCA825*060□CYZ0000	8.2	60	1	2	4	6.47	-24	8	9	T1	A
TWCA276*060□CYZ0000	27	60	3	12	10.2	5.01	-34	10	12	T1	A
TWCD506*060□CYZ0000	50	60	2	12	10	2.65	-16	10.5	12	T3	D
TWCD686*060□CYZ0000	68	60	2	16	13	2.54	-32	10.5	12	T3	D
TWCB107*060□CYZ0000	100	60	4	20	19	2.52	.36	12	15	T2	B
TWCE147*060□CYZ0000	140	60	8	32	16	1.52	-40	20	20	T4	E
TWCD227*060□CYZ0000	220	60	8	32	30	1.81	-45	16	20	T3	D
TWCE277*060□CYZ0000	270	60	9	36	27	1.33	-45	20	25	T4	E
75V VDC at 85°C 50 VDC at 125°C 45 VDC at 200°C											
TWCA685*075□CYZ0000	6.8	75	1	2	3.5	6.83	-20	8	9	T1	A
TWCA226*075□CYZ0000	22	75	3	12	8.5	5.13	-29	10	12	T1	A
TWCD566*075□CYZ0000	56	75	2	17	11	2.61	-28	10.5	15	T3	D
TWCB826*075□CYZ0000	82	75	4	24	15.2	2.46	-30	12	15	T2	B
TWCE117*075□CYZ0000	110	75	9	36	12	1.45	-35	20	20	T4	E
TWCD187*075□CYZ0000	180	75	9	36	24.4	2.23	-40	16	20	T3	D
TWCE227*075□CYZ0000	220	75	10	40	37	1.80	-40	20	25	T4	E
100 VDC at 85°C 65 VDC at 125°C 60 VDC at 200°C											
TWCB226*100□CYZ0000	22	100	1	9	7.5	4.52	-16	8	8	T2	B
TWCE127*100□CYZ0000	120	100	12	48	25	2.76	-35	15	17	T4	E
125 VDC at 85°C 85 VDC at 125°C 75 VDC at 200°C											
TWCB276*125□CYZ0000	27	125	5	24	7.2	3.54	-18	12	15	T2	B
TWCE826*125□CYZ0000	82	125	12	48	17.4	2.82	-30	15	17	T4	E

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.
Note: AVX reserves the right to supply higher voltage rating in the same case size to the same reliability standards.

TWD DCUltraMax™ Series

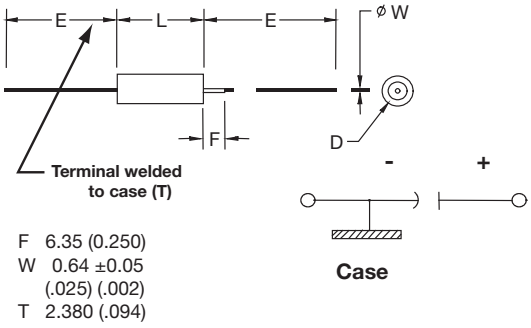
Wet Tantalum Super Capacitor

The TWD series is an axial leaded wet electrolytic tantalum capacitor designed for DC (hold-up) and low frequency pulse applications.

Utilising high CV tantalum powders allows achieving super high capacitance values similar to super capacitor range while bringing additional benefits in terms of extended temperature range up to 85ºC, and reflow soldering capability and thus addressing the two main issues of super capacitors.

Well-established wet tantalum design is suitable for applications with hi-reliability requirements. Contact the factory about design possibilities beyond those contained in this datasheet.

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 ±0.05 (.025) (.002)
T 2.380 (.094)

CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D Without Insulating Sleeve ±0.41 (0.016)	D With Insulatiing Sleeve Max	E ±6.35 (0.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

VOLTAGE RATINGS (Operating Temperature -55ºC to 85ºC)

Voltage (DC)	Rated voltage DC (V_R) to 85ºC			
Rated Voltage: (V_R)	85ºC	2.5	6.3	10
Surge Voltage: (V_S)	85ºC	2.8	7.2	11.5

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

DC Capacitance		Rated Voltage DC (V_R) to 85°C		
mF	Code	2.5V	6.3V	10V
25	253			E*
50	503		E	
150	154	E*		

Released codes
Engineering samples - please contact manufacturer
*Codes under development

TWD DCUltraMax™ Series

Wet Tantalum Super Capacitor

HOW TO ORDER

AVX PART NUMBER:

TWD	E	503	*	006	□	B	0	Z	0	^	00
Type	**Case Size**	**Capacitance Code** µF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage Code** 002 = 2.5Vdc 006 = 6.3Vdc 010 = 10Vdc	**Insulation Sleeve** C = Without Sleeve S = With Sleeve	**Packaging** B = Tray Pack	**Inspecition Level** 0 = N/A	**Reliability** Z = Non-ER	**Qualification Level** 0 = N/A	**Termination Finish** 0 = Sn/Pb 60/40 7 = Matte tin	**Custom Test Options** 00 = Standard

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (mF) 25ºC	DC Rated Votage (V) at 85ºC	ESR Max (mOhms) at 1kHz	DC Leakage max (µA)		Maximum Capacitance Change (%)		Case Size	
				+25ºC	+85ºC	-55ºC	+85ºC	AVX	DSCC
2.5 VDC at 85°C									
TWDE154*002_B0Z0^00	150	2.5	400	60	180	-15	+20	E	T4
6.3 VDC at 85°C									
TWDE503*006_B0Z0^00	50	6.3	400	20	60	-15	+20	E	T4
10 VDC at 85°C									
TWDE253*010_B0Z0^00	25	10	400	10	30	-15	+20	E	T4

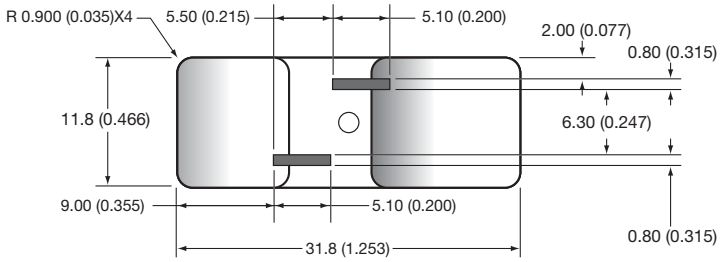
DCL is measured at rated voltage after 20 minutes

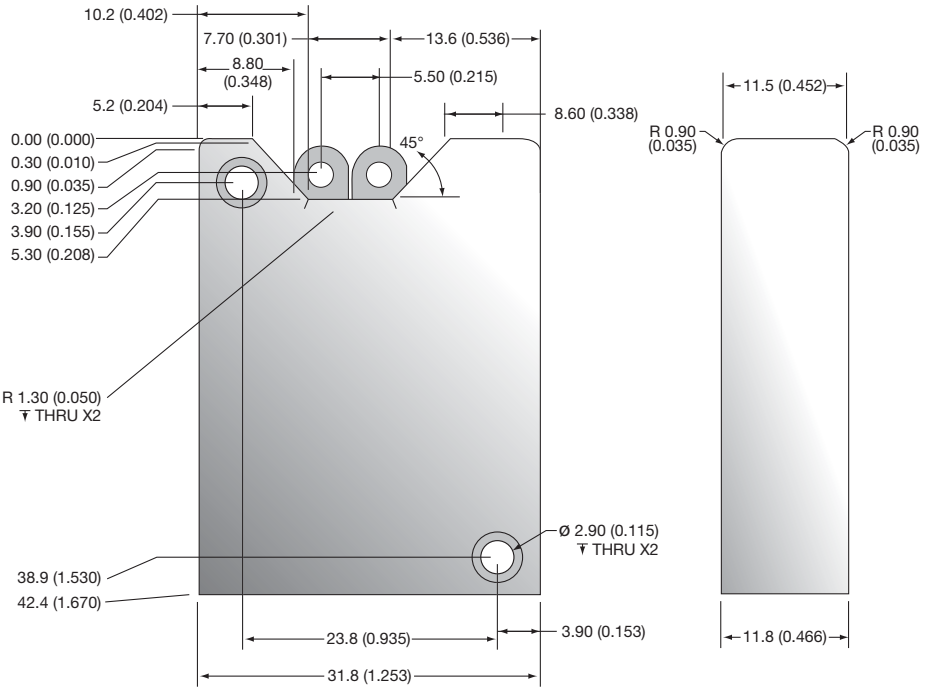
TWM Module

AVX modular packaged 93026 style capacitors.

Capacitance Range:	200uF to 6600uF
Voltage Range:	25 to 125V
Temperature Range:	-55ºC to 125 ºC
Tolerance Range:	10%, 20%

DIMENSIONS: millimeters (inches)





VOLTAGE RATINGS (Operating Temperature -55ºC to 125ºC)

Voltage (DC)								
Rated Voltage: (Ur)	85ºC	25	30	50	60	75	100	125
Derated Voltage: (Uc)	125ºC	15	20	30	40	50	65	85
Surge Voltage: (Us)	85ºC	28.8	34.5	57.5	69	86.3	115	144

HOW TO ORDER

AVX PART NUMBER:

TW	2E	227	*	050	C	B	@	Z	0	S	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** K = ±10% M = ±20%	**Voltage**	C = N/A	**Packaging** B = Bulk	**Qualification** S = COTS-PLus	**Established Reliability** Z = Non-ER	**Reliability Grade** 0 = Standard	**Termination Finish** S = Silver Plating	**Special Code** 00 = Standard

Not RoHS Compliant

SnPb termination option is not RoHS compliant.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
85ºC	90%	0.60	0.46	–	–	0.71	0.55	–	_	0.72	0.55	–	–
Rated	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
Peak	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
Voltage	66-2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
Ambient Still Air Temperature (ºC)		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85ºC	90%	0.88	0.67	–	–	1.00	0.77	–	_	1.10	0.85	–	–
Rated	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
Peak	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125ºC the rated voltage of the capacitors decreases to 66 2/3 of the 85ºC rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

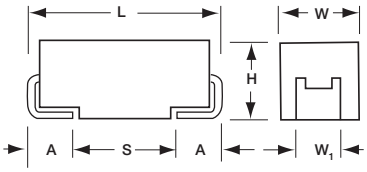
RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (uF)	DC Rated Voltage (V)	ESR Max (ohms)	DC Leakage Max (uA)		Max Impedance (Ohms)	Maximum Capacitance Change* (%)			Max AC Ripple* (mA rms)
	25°C at 120Hz	85°C	120Hz	+25°C	+85 and +125°C	-55°C at 120 Hz	-55°C	+85°C	+125°C	85°C at 40kHz
TW2D248*025CB@Z0S++	2400	25	0.33	10	40	3.50	-70	12	18	5200
TW3D368*025CB@Z0S++	3600	25	0.22	15	60	2.33	-70	12	18	7800
TW2E368*025CB@Z0S++	3600	25	0.25	12	50	3.50	-75	12	20	6200
TW2E448*025CB@Z0S++	4400	25	0.25	20	160	5.00	-90	30	50	6400
TW3E548*025CB@Z0S++	5400	25	0.17	18	75	2.33	-75	12	20	9300
TW3E668*025CB@Z0S++	6600	25	0.17	30	240	3.33	-90	30	50	9600
TW2D208*030CB@Z0S++	2000	30	0.35	14	50	3.50	-70	10	18	5000
TW3D308*030CB@Z0S++	3000	30	0.23	21	75	2.33	-70	10	18	7500
TW2E308*030CB@Z0S++	3000	30	0.30	24	70	3.00	-72	10	20	6000
TW3E458*030CB@Z0S++	4500	30	0.20	36	105	2.00	-72	10	20	9000
TW2D947*050CB@Z0S++	940	50	0.38	6	50	5.00	-50	8	15	4200
TW2E148*050CB@Z0S++	1360	50	0.35	10	80	4.00	-58	10	20	5500
TW3D148*050CB@Z0S++	1410	50	0.25	9	75	3.33	-50	8	15	6300
TW3E208*050CB@Z0S++	2040	50	0.23	15	120	2.67	-58	10	20	8250
TW2E308*050CB@Z0S++	3000	50	0.50	38	200	7.50	-90	25	35	6000
TW3E458*050CB@Z0S++	4500	50	0.33	57	300	5.00	-90	25	35	9000
TW2D787*060CB@Z0S++	780	60	0.45	6	50	7.50	-60	8	15	4200
TW2E118*060CB@Z0S++	1120	60	0.40	10	80	5.00	-58	8	15	5500
TW3D128*060CB@Z0S++	1170	60	0.30	9	75	5.00	-60	8	15	6300
TW3E178*060CB@Z0S++	1680	60	0.27	15	120	3.33	-58	8	15	8250
TW2E208*060CB@Z0S++	2000	60	0.50	24	180	10.00	-90	30	50	6400
TW3E308*060CB@Z0S++	3000	60	0.33	36	270	6.67	-90	30	50	9600
TW2D667*075CB@Z0S++	660	75	0.50	6	60	6.00	-45	6	10	4200
TW2E947*075CB@Z0S++	940	75	0.45	10	100	6.00	-55	6	10	5500
TW3D997*075CB@Z0S++	990	75	0.33	9	90	4.00	-45	6	10	6300
TW3E148*075CB@Z0S++	1410	75	0.30	15	150	4.00	-55	6	10	8250
TW2D307*100CB@Z0S++	300	100	0.80	6	50	11.00	-35	6	12	4200
TW2E447*100CB@Z0S++	440	100	0.60	10	100	7.50	-40	6	12	5500
TW3D457*100CB@Z0S++	450	100	0.53	9	75	7.33	-35	6	12	6300
TW3E667*100CB@Z0S++	660	100	0.40	15	150	5.00	-40	6	12	8250
TW2D207*125CB@Z0S++	200	125	0.90	6	50	17.50	-35	5	12	4200
TW3D307*125CB@Z0S++	300	125	0.60	9	75	11.67	-35	5	12	6300
TW2E307*125CB@Z0S++	300	125	0.80	10	100	10.00	-35	6	12	5500
TW3E457*125CB@Z0S++	450	125	0.53	15	150	6.67	-35	6	12	8250

*For reference only, contact factory for more details

TAJ ESCC Tantalum Capacitors

SMD Solid Tantalum Chip Capacitors



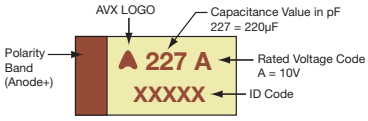
Capacitors, Fixed, Leadless Surface Mount, Chip, Solid electrolyte Tantalum for use in ESCC space programs, according to ESCC Generic Specification 3012 and associated Detail Specification 3012/001 as recommended by the Space Components Coordination Group (ranges in table below).

CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	Variant	L±0.20 (0.008)	W+0.20 (0.008) −0.10 (0.004)	H+0.20 (0.008) −0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) −0.20 (0.008)	S Min.
A	3216-18	01	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	3528-21	02	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	6032-28	13	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	7343-31	14	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	7343-43	17	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
W_1 dimension applies to the termination width for A dimensional area only.								

MARKING

A, B, C, D, E CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) at 85°C							
µF	Code	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10	104							A	A
0.15	154							A	B
0.22	224							A	B
0.33	334							A	B
0.47	474						A	A/B	C
0.68	684					A	A	A/B	C
1.0	105				A	A	A	B	C
1.5	155			A	A	A	B	B/C	D
2.2	225		A	A	A/B	B	B	B/C	D
3.3	335	A	A	A	A/B	B	B/C	C	D
4.7	475	A	A	A/B	B	B/C	C	C/D	D
6.8	685	A	A/B	B	B/C	C	C/D	D	D*
10	106	A/B	B	B/C	C	C	C/D	D	E*
15	156	B	B/C	C	C	C/D	D	D	
22	226	B/C	C	C	C/D	D	D	E	
33	336	C	C	C/D	D	D	E		
47	476	C/D	C/D	D	D	E			
68	686	C/D	D	D	D	E			
100	107	D	D	D	E				
150	157	D	D	E					
220	227	E	E	E					

*Codes under development - subject to change.

TAJ ESCC Tantalum Capacitors

SMD Solid Tantalum Chip Capacitors

HOW TO ORDER

AVX PART NUMBER:

TAJ	A	475	K	010	ESA	*
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** K = ±10% M = ±20%	**Rated DC Voltage** 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**ESCC Suffix**	Please contact manufacturer for details on LAT, and other requirements.

Not RoHS Compliant

ESCC PART NUMBER – MANDATORY FOR ORDERING:

3012 001	01	C	226	V	K
Detail Specification	**Variant** Basic Specification ESCC 23500	**Testing Level** B = Level B (Xray) C = Level C	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Voltage** G = 4V J = 6.3V A = 10V C = 16V D = 20V E = 25V V = 35V T = 50V	**Tolerance** K = ±10%

Not RoHS Compliant

LAT TESTING

AVX can perform the following Lot Acceptance Test according to ESCC

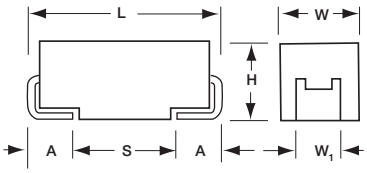
- LAT 3 Qty. 10 pcs. - 4 pieces of which are “destructive samples”, the remaining 6 pieces may be for part of the Order Qty. OR be additional to the order Qty.
- LAT 2 Qty. 26 pcs. - including the 10 pieces of LAT3. The additional 16 pieces are “destructive samples”.
- LAT 1 Qty. 34 pcs. - including the 26 pieces of LAT2. The additional 8 pieces are all “destructive samples”.

OPTION

Packaging: Tape and reel available on request – Contact marketing.

TES Low ESR – QPL ESCC

Low ESR Tantalum Chip Capacitor



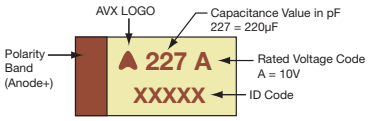
- QPL ESCC approved series
- Manufactured in EU, ESA qualified plant, according to ESCC 3012
- Detailed specification 3012/004
- Low ESR designed parts, multianode D and E case included
- Robust against higher thermo-mechanical stresses during assembly process
- CV range 1.0 - 470uF/6.3 - 50V
- Improved reliability design

CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	Variant	L±0.20 (0.008)	W+0.20 (0.008) –0.10 (0.004)	H+0.20 (0.008) –0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) –0.20 (0.008)	S Min.
A	3216-18	01	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	3528-21	02	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	6032-28	03	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	7343-31	04	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	7343-43	05	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
W_1 dimension applies to the termination width for A dimensional area only.								

MARKING

A, B, C, D, E CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) at 85°C							
µF	Code	6.3V (J)	10V (A)	12V (B)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
1.0	105						A(3000)		B(2000)
1.5	155								
2.2	225								
3.3	335					A(2500)		B(1000)	C(1000)
4.7	475				A(2000)		B(1000)	C(600)	D(200)
6.8	685								
10	106		A(1800)			B(1000)	C(600)	D(120)	
15	156								
22	226	A(900)			B(600)	C(400)		D(100)	
33	336		B(650)			C(300)	D(65)	E(65)	
47	476	B(500)			C(350)	D(55)	E(65)		
68	686								
100	107		C(200)		D(55)	E(45)			
150	157	C(300)	D(45)		E(40)				
220	227		D(35)	E(35)					
330	337	D(35)	E(35)						
470	477	E(30)							

Available Ratings: ESR limits quoted in brackets (mOhms)
Engineering samples - please contact manufacturer
*Codes under development - subject to change.

TES Low ESR – QPL ESCC

Low ESR Tantalum Chip Capacitor

HOW TO ORDER

AVX PART NUMBER:

TES	E	477	K	006	□	U	0	@	^	Not RoHS Compliant
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** K = ±10% M = ±20%	**Voltage Code** 006 = 6.3Vdc 010 =10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Packaging SnPb Termination** X = 4" E = Bulk H = 7"	**ESR Level** C = Standard L = Mirror Multianode U = Multianode	**LAT** 0 = N/A 1 = LAT1 2 = LAT2 3 = LAT3	**Screening Level** B = Level B (Xray) C = Level C Z = non-ER (not for flight parts)	**FCSI** 0 = N/A 1 = YES	

ESCC PART NUMBER – MANDATORY FOR ORDERING:

3012 004	01	B	477	K	E	0030	Not RoHS Compliant
Detail Specification	**Variant** 01 02 03 04 05	**Testing Level** B = Level B (Xray) C = Level C	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** K = ±10% M = ±20%	**Voltage** J = 6.3V A = 10V B = 12V C = 16V D = 20V E = 25V V = 35V T = 50V	**ESR in mΩ**	

LAT TESTING

AVX can perform the following Lot Acceptance Test according to ESCC

- LAT 3 Qty. 10 pcs. - 4 pieces of which are “destructive samples”, the remaining 6 pieces may be for part of the Order Qty. OR be additional to the order Qty.
- LAT 2 Qty. 26 pcs. - including the 10 pieces of LAT3. The additional 16 pieces are “destructive samples”.
- LAT 1 Qty. 34 pcs. - including the 26 pieces of LAT2. The additional 8 pieces are all “destructive samples”.

OPTION

Packaging: Tape and reel available on request – Contact marketing.

TES Low ESR – QPL ESCC

Low ESR Tantalum Chip Capacitor

RATINGS & PART NUMBER REFERENCE

ESCC Part Number	AVX Part Number	Case Size	Cap (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz Ripple Current Rating (A)			100kHz Ripple Voltage Ratings (V)		
								25°C	85°C	125°C	25°C	85°C	125°C
6.3 Volt @ 85°C (4 Volt @ 125°C)													
301200401#226*J0900	TES A 226 * 006 ☐ C 0 @ ^	A	22	6.3	1.32	6	900	289	260	115	260	234	104
301200402#476*J0500	TES B 476 * 006 ☐ C 0 @ ^	B	47	6.3	2.82	6	500	412	371	165	206	186	82
301200403#157*J0300	TES C 157 * 006 ☐ C 0 @ ^	C	150	6.3	9	6	300	606	545	242	182	163	73
301200404#337*J0035	TES D 337 * 006 ☐ L 0 @ ^	D	330	6.3	19.8	8	35	2699	2429	1080	94	85	38
301200405#477*J0030	TES E 477 * 006 ☐ U 0 @ ^	E	470	6.3	28.2	6	30	3000	2700	1200	90	81	36
10 Volt @ 85°C (7 Volt @ 125°C)													
301200401#106*A1800	TES A 106 * 010 ☐ C 0 @ ^	A	10	10	1	6	1800	204	184	82	367	331	147
301200402#336*A0650	TES B 336 * 010 ☐ C 0 @ ^	B	33	10	3.3	6	650	362	325	145	235	212	94
301200403#107*A0200	TES C 107 * 010 ☐ C 0 @ ^	C	100	10	10	6	200	742	667	297	148	133	59
301200404#157*A0045	TES D 157 * 010 ☐ L 0 @ ^	D	150	10	15	6	45	2380	2142	952	107	96	43
301200404#227*A0035	TES D 227 * 010 ☐ L 0 @ ^	D	220	10	22	6	35	2699	2429	1080	94	85	38
301200405#337*A0035	TES E 337 * 010 ☐ U 0 @ ^	E	330	10	33	6	35	2777	2500	1111	97	87	39
12 Volt @ 85°C (8 Volt @ 125°C)													
301200405#227*B0035	TES E 227 * 012 ☐ U 0 @ ^	E	220	12	26.4	6	35	2777	2500	1111	97	87	39
16 Volt @ 85°C (10 Volt @ 125°C)													
301200401#475*C2000	TES A 475 * 016 ☐ C 0 @ ^	A	4.7	16	0.75	6	2000	194	174	77	387	349	155
301200402#226*C0600	TES B 226 * 016 ☐ C 0 @ ^	B	22	16	3.52	6	600	376	339	151	226	203	90
301200403#476*C0350	TES C 476 * 016 ☐ C 0 @ ^	C	47	16	7.52	6	350	561	505	224	196	177	78
301200404#107*C0055	TES D 107 * 016 ☐ L 0 @ ^	D	100	16	16	6	55	2153	1938	861	118	107	47
301200405#157*C0040	TES E 157 * 016 ☐ U 0 @ ^	E	150	16	24	6	40	2598	2338	1039	104	94	42
20 Volt @ 85°C (13 Volt @ 125°C)													
301200401#335*D2500	TES A 335 * 020 ☐ C 0 @ ^	A	3.3	20	0.66	6	2500	173	156	69	433	390	173
301200402#106*D1000	TES B 106 * 020 ☐ C 0 @ ^	B	10	20	2	6	1000	292	262	117	292	262	117
301200403#226*D0400	TES C 226 * 020 ☐ C 0 @ ^	C	22	20	4.4	6	400	524	472	210	210	189	84
301200403#336*D0300	TES C 336 * 020 ☐ C 0 @ ^	C	33	20	6.6	6	300	606	545	242	182	163	73
301200404#476*D0055	TES D 476 * 020 ☐ L 0 @ ^	D	47	20	9.4	6	55	2153	1938	861	118	107	47
301200405#107*D0045	TES E 107 * 020 ☐ U 0 @ ^	E	100	20	20	6	45	2449	2205	980	110	99	44
25 Volt @ 85°C (17 Volt @ 125°C)													
301200401#105*E3000	TES A 105 * 025 ☐ C 0 @ ^	A	1.0	25	0.25	6	3000	158	142	63	474	427	190
301200402#475*E1000	TES B 475 * 025 ☐ C 0 @ ^	B	4.7	25	1.18	6	1000	292	262	117	292	262	117
301200403#106*E0600	TES C 106 * 025 ☐ C 0 @ ^	C	10	25	2.5	6	600	428	385	171	257	231	103
301200404#336*E0065	TES D 336 * 025 ☐ L 0 @ ^	D	33	25	8.25	6	65	1981	1783	792	129	116	51
301200405#476*E0065	TES E 476 * 025 ☐ U 0 @ ^	E	47	25	11.8	6	65	2038	1834	815	132	119	53
35 Volt @ 85°C (23 Volt @ 125°C)													
301200402#335*V1000	TES B 335 * 035 ☐ C 0 @ ^	B	3.3	35	1.16	6	1000	292	262	117	292	262	117
301200403#475*V0600	TES C 475 * 035 ☐ C 0 @ ^	C	4.7	35	1.65	6	600	428	385	171	257	231	103
301200404#106*V0120	TES D 106 * 035 ☐ L 0 @ ^	D	10	35	3.5	6	120	1458	1312	583	175	157	70
301200404#226*V0100	TES D 226 * 035 ☐ L 0 @ ^	D	22	35	7.7	6	100	1597	1437	639	160	144	64
301200405#336*V0065	TES E 336 * 035 ☐ U 0 @ ^	E	33	35	11.6	6	65	2038	1834	815	132	119	53
50 Volt @ 85°C (33 Volt @ 125°C)													
301200402#105*T2000	TES B 105 * 050 ☐ C 0 @ ^	B	1.0	50	0.5	6	2000	206	186	82	412	271	165
301200403#335*T1000	TES C 335 * 050 ☐ C 0 @ ^	C	3.3	50	1.65	6	1000	332	298	133	332	298	133
301200404#475*T0200	TES D 475 * 050 ☐ L 0 @ ^	D	4.7	50	2.35	6	200	1129	1016	452	226	203	90

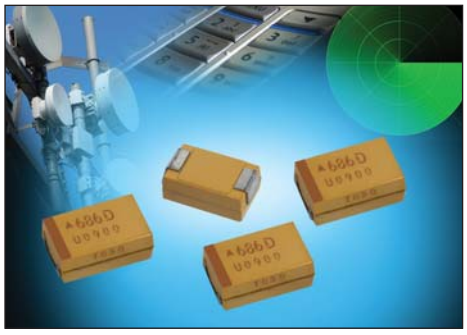
The parts are supplied in dry pack with Moisture Sensitivity Level (MSL) level 3 - defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAJ CECC Tantalum Capacitors

SMD Solid Tantalum Chip Capacitors

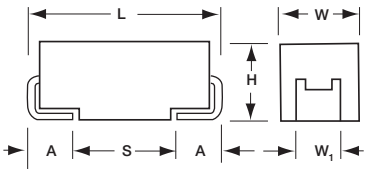


Capacitors, Fixed, Leadless Surface Mount, Chip, Solid electrolyte Tantalum for use in avionics and industrial applications, tested to CECC Specification 30801-005 and 30801-011 (CTC4).

CASE DIMENSIONS: millimeters (inches)

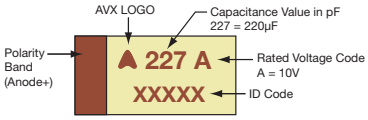
Code	EIA Code	Variant	L±0.20 (0.008)	W+0.20 (0.008) −0.10 (0.004)	H+0.20 (0.008) −0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) −0.20 (0.008)	S Min.
A	3216-18	01&11	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	3528-21	02&12	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	6032-28	03&13	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	7343-31	04&14	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

W_1 dimension applies to the termination width for A dimensional area only.



MARKING

A, B, C, D CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

BS CECC30801-005

Capacitance		Rated Voltage DC (V_R) at 85°C						
µF	Code	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10	104						A	A
0.15	154						A	A/B
0.22	224						A	A/B
0.33	334						A	B
0.47	474					A	A/B	C
0.68	684				A	A	A/B	C
1.0	105			A	A	A	B	C
1.5	155		A	A	A	A/B	B/C	D
2.2	225	A	A	A/B	B	B	B/C	D
3.3	335	A	A	A/B	B	B/C	C/D	D
4.7	475	A	A/B	B/C	B/C	C	C/D	D
6.8	685	A/B	B	B/C	C/D	C/D	D	D
10	106	A/B	B/C	B/C/D	C	C/D	D	
15	156	B/C	B/C/D	C	C/D	D	D	
22	226	B/C/D	C	C/D	D	D		
33	336	C	C/D	D	D			
47	476	C/D	D	D				
68	686	C/D	D	D				
100	107	D	D					

BS CECC30801-011 (CTC4)

Capacitance		Rated Voltage DC (V_R) at 85°C						
µF	Code	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10	104						A	A
0.15	154						A	B
0.22	224						A	B
0.33	334						A	B
0.47	474					A	B	C
0.68	684				A		B	C
1.0	105			A			B	C
1.5	155		A			B	C	D
2.2	225	A			B		C	D
3.3	335			B			C	D
4.7	475		B			C	D	D
6.8	685	B			C		D	
10	106			C		D	D	
15	156		C		D	D		
22	226	C		D	D			
33	336		D	D				
47	476	D	D					
68	686	D						

NOTE: Voltage ratings are minimum values. AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TAJ CECC Tantalum Capacitors

SMD Solid Tantalum Chip Capacitors

HOW TO ORDER

TAJ	A	475	K	010	R	FJ
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** K = ±10% M = ±20%	**Rated DC Voltage** 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**Termination Finish** R = 7" T/R 100% Tin S = 13" T/R 100% Tin A = Gold Plating 7" Reel B = Gold Plating 13" Reel H = Tin Lead 7" Reel K = Tin Lead 13" Reel	**Suffix** FJ = CECC 30801-011(CTC4) Y = CECC 30801-005

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

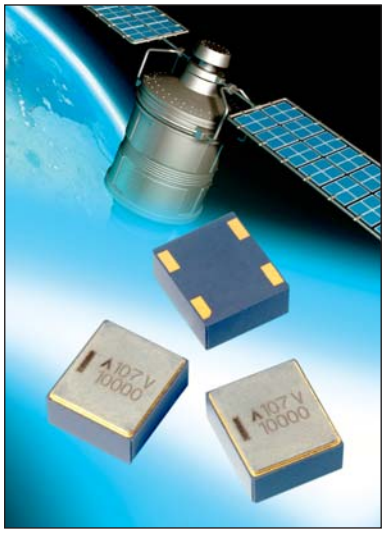
For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		All technical data relate to an ambient temperature of +25°C						
Capacitance Range:		0.10 µF to 100 µF						
Capacitance Tolerance:		±10%; ±20%						
Rated Voltage DC (V_R)	≤ +85°C:	6.3	10	16	20	25	35	50
Category Voltage (V_C)	≤ +125°C:	4	7	10	13	17	23	33
Surge Voltage (V_S)	≤ +85°C:	8	13	20	26	32	46	65
Surge Voltage (V_S)	≤ +125°C:	5	8	13	16	20	28	40
Temperature Range:		-55°C to +125°C						
Reliabilty:		1% per 1000 hours at 85ºC, V_R with 0.1Ω/V series Impedance, 60% confidence level						

TCH Low ESR Hermetic Series

SMD Low ESR Tantalum Capacitors with Conductive Polymer Electrode in Hermetic Package



FEATURES

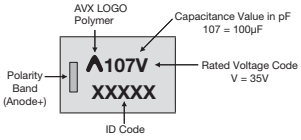
- Aerospace & Hi-Rel applications
- Low ESR conductive polymer electrode
- Endurance up to 10 000 hrs. on selected codes
- Ceramic case hermetic packaging
- Stability under humidity and ambient atmosphere exposure
- Large case sizes including CTC-21D provide high capacitance values
- Developed with ESA to suit aerospace applications
- Ongoing ESA qualification
- Manufacturing and screening utilizing AVX patented Q-Process to effectively remove components that may experience excessive parametric shifts or instability in operation life

APPLICATIONS

- Aerospace
- Defence
- Power supplies
- Pulse power

MARKING

9 CASE



For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: http://www.avx.com/docs/techinfo/Qprocess.pdf)

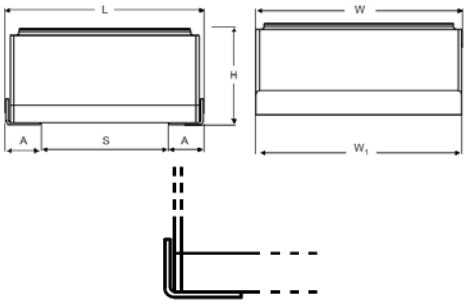
CASE DIMENSIONS: millimeters (inches)

Code	Type	L	W	H Max.	W_1	A	S Min.
9 (CTC-21D)	J-lead (L-shape)	11.50 ± 0.50 (0.453 ± 0.020)	12.50 ± 0.50 (0.492 ± 0.020)	6.15 (0.242)	12.50 ± 0.50 (0.492 ± 0.020)	1.90 ± 0.50 (0.075 ± 0.020)	7.00 (0.276)
9 (CTC-21D)	Undertab	11.00 ± 0.20 (0.433 ± 0.008)	12.50± 0.20 (0.492 ± 0.008)	5.95 (0.234)	10.50± 0.20 (0.413 ± 0.008)	1.50± 0.20 (0.059 ± 0.008)	7.80 (0.307)

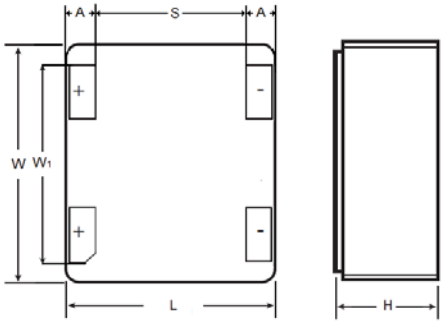
Available ratings

Engineering samples - please contact manufacturer

'J' Lead Termination (L-shape)



Undertab Termination



TCH Low ESR Hermetic Series

SMD Low ESR Tantalum Capacitors with Conductive Polymer Electrode in Hermetic Package

CAPACITANCE AND VOLTAGE RANGE (CASE CODE BEFORE THE BRACKETS)

Capacitance		Rated Voltage DC (V_R) at 85°C								
µF	Code	10V	16V	20V	25V	35V	50V	63V	75V	100V
15	156									9(150)*
22	226								9(120)*	9(150)
33	336							9(100)*	9(120)	
47	476						9(70)	9(100)*		
68	686						9(70)*			
100	107				9(50)*	9(55)				
150	157			9(45)*	9(50)	9(55)*				
220	227	9(40)*	9(40)	9(45)*	9(50)*					
330	337	9(40)	9(40)*	9(45)*						
470	477	9(40)*	9(40)*							
680	687	9(40)*	9(40)*							

Available Ratings: (ESR ratings in mOhms in brackets)
Engineering samples - please contact manufacturer
*Codes under development – upon request, please contact manufacturer

HOW TO ORDER

AVX PART NUMBER

TCH	9	687	M	016	W	0040	U
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** M = ±20%	**Rated DC Voltage** 010 = 10Vdc, 016 = 16Vdc, 020 = 20Vdc, 025 = 25Vdc, 035 = 35Vdc, 050 = 50Vdc, 063 = 63Vdc, 075 = 75Vdc, 100 = 100Vdc	**Packaging** W = Waffle B = Bulk	**ESR in mΩ**	**Termination** J = 'J' lead L-shape (Gold) L = 'J' lead L-shape (Sn/Pb) U = Undertab

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C									
Capacitance Range:	15 µF to 680 µF									
Capacitance Tolerance:	±20%									
Leakage Current DCL:	0.1CV									
Rated Voltage (V_R)	≤ +85°C:	10	16	20	25	35	50	63	75	100
Category Voltage (V_C)	≤ +125°C:	7	11	13.5	17	23.5	33	42	50	66
Temperature Range:	-55°C to +125°C									
Reliability:	1% per 1000 hours at 85ºC, Vr with 0.1Ω/Vseries impedance, 60% confidence level									
Termination Finish:	Gold Plating (Undertab), Gold Plating (J-lead), Sn/Pb Plating (J-lead)									

TCH Low ESR Hermetic Series

SMD Low ESR Tantalum Capacitors with Conductive Polymer Electrode in Hermetic Package

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (A)		
											25°C	85°C	125°C
10 Volt @ 85°C													
TCH9227M010W0040#	9	220	10	85	7	125	220	8	40	1	3.16	2.84	1.26
TCH9337M010W0040#	9	330	10	85	7	125	330	8	40	1	3.16	2.84	1.26
TCH9477M010W0040#	9	470	10	85	7	125	470	8	40	1	3.16	2.84	1.26
TCH9687M010W0040#	9	680	10	85	7	125	680	8	40	1	3.16	2.84	1.26
16 Volt @ 85°C													
TCH9227M016W0040#	9	220	16	85	10	125	352	8	40	1	3.16	2.84	1.26
TCH9337M016W0040#	9	330	16	85	10	125	528	8	40	1	3.16	2.84	1.26
TCH9477M016W0040#	9	470	16	85	10	125	752	8	40	1	3.16	2.84	1.26
TCH9687M016W0040#	9	680	16	85	10	125	1088	8	40	1	3.16	2.84	1.26
20 Volt @ 85°C													
TCH9157M020W0045#	9	150	20	85	13	125	300	8	45	1	2.98	2.68	1.19
TCH9227M020W0045#	9	220	20	85	13	125	440	8	45	1	2.98	2.68	1.19
TCH9337M020W0045#	9	330	20	85	13	125	660	8	45	1	2.98	2.68	1.19
25 Volt @ 85°C													
TCH9107M025W0050#	9	100	25	85	17	125	250	8	50	1	2.83	2.55	1.13
TCH9157M025W0050#	9	150	25	85	17	125	375	8	50	1	2.83	2.55	1.13
TCH9227M025W0050#	9	220	25	85	17	125	550	8	50	1	2.83	2.55	1.13
35 Volt @ 85°C													
TCH9107M035W0055#	9	100	35	85	23	125	350	8	55	1	2.69	2.42	1.08
TCH9157M035W0055#	9	150	35	85	23	125	525	8	55	1	2.69	2.42	1.08
50 Volt @ 85°C													
TCH9476M050W0070#	9	47	50	85	33	125	235	8	70	1	2.39	2.15	0.96
TCH9686M050W0070#	9	68	50	85	33	125	340	8	70	1	2.39	2.15	0.96
63 Volt @ 85°C													
TCH9336M063W0100#	9	33	63	85	42	125	215	8	100	1	2.00	1.80	0.80
TCH9476M063W0100#	9	47	63	85	42	125	296	8	100	1	2.00	1.80	0.80
75 Volt @ 85°C													
TCH9226M075W0120#	9	22	75	85	50	125	165	8	120	1	1.82	1.64	0.73
TCH9336M075W0120#	9	33	75	85	50	125	248	8	120	1	1.82	1.64	0.73
100 Volt @ 85°C													
TCH9156M100W0150#	9	15	100	85	66	125	150	8	150	1	1.63	1.47	0.65
TCH9226M100W0150#	9	22	100	85	66	125	220	8	150	1	1.63	1.47	0.65

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with a maximum DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

TCH Low ESR Hermetic Series

SMD Low ESR Tantalum Capacitors with Conductive Polymer Electrode in Hermetic Package

QUALIFICATION TABLE

<table>
<tr><th rowspan="2">TEST</th><th colspan="6">TCH low ESR hermetic series (Temperature range -55ºC to +125ºC)</th></tr>
<tr><th colspan="2">Condition</th><th colspan="4">Characteristics</th></tr>
<tr><td rowspan="5">Endurance</td><td colspan="2" rowspan="5">Determine after application of rated voltage for 2000 (10000) +48/0 hours at 85±2ºC and then leaving min. 2 hours at room temperature. Also determine of 125ºC temperature, category voltage for 2000 +48/-0 hours and then leaving min. 2 hours at room temperature. Power supply impedance to be < 3Ω.</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±20% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">1.5 x initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">2 x initial limit</td></tr>
<tr><td rowspan="5">Storage Life</td><td colspan="2" rowspan="5">125ºC, 0V, 2000h</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">2 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±20% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">1.5 x initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">2 x initial limit</td></tr>
<tr><td rowspan="5">Humidity</td><td colspan="2" rowspan="5">Determine after storage without applied voltage at 40±2ºC and 90±2% relative humidity for 56 days and then recovery min. 2 hours at room temperature.</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±10% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td rowspan="8">Temperature Stability</td><td>Step</td><td>Temperature°C</td><td>Duration (min)</td><td></td><td>+20ºC</td><td>-55ºC</td><td>+20ºC</td><td>+85ºC</td><td>+125ºC</td><td>+20ºC</td></tr>
<tr><td>1</td><td>+22</td><td>15</td><td>DCL</td><td>IL*</td><td>n/a</td><td>IL*</td><td>10 x IL*</td><td>12.5 x IL*</td><td>IL*</td></tr>
<tr><td>2</td><td>-55</td><td>15</td><td>ΔC/C</td><td>IL*</td><td>+0/-20%</td><td>±5%</td><td>+20/-0%</td><td>+30/-0%</td><td>±5%</td></tr>
<tr><td>3</td><td>+22</td><td>15</td><td>DF</td><td>IL*</td><td>1.5 x IL*</td><td>IL*</td><td>1.5 x IL*</td><td>2 x IL*</td><td>IL*</td></tr>
<tr><td>4</td><td>+85</td><td>15</td><td rowspan="3">ESR</td><td rowspan="3">1.25 x IL*</td><td rowspan="3">1.25 x IL*</td><td rowspan="3">1.25 x IL*</td><td rowspan="3">1.5 x IL*</td><td rowspan="3">1.5 x IL*</td><td rowspan="3">1.25 x IL*</td></tr>
<tr><td>5</td><td>+125</td><td>15</td></tr>
<tr><td>6</td><td>+22</td><td>15</td></tr>
<tr><td rowspan="5">Surge Voltage</td><td colspan="2" rowspan="5">Test temperature: 85ºC+3/0ºC
Surge voltage: 1.3 x rated voltage
Series protection resistance: 33Ω
Discharge resistance: 33Ω
Number of cycles: 1000x
Cycle duration: 6 min; 30 sec charge,
5 min 30 sec discharge</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±20% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
</table>

*Initial Limit

THH 230ºC Hermetic Series

SMD 230ºC High Temperature Tantalum Capacitor in Hermetic Package

FEATURES

- High temperature applications
- Operational condition 230ºC / 0.5U_R / 1000hrs or 200°C / 0.5U_R / 10.000hrs
- Ceramic case hermetic packaging
- Stability under humidity and ambient atmosphere exposure
- Large case sizes including CTC-21D provide high capacitance values
- Manufacturing and screening utilizing AVX patented Q-Process to effectively remove components that may experience excessive parametric shifts or instability in operation life

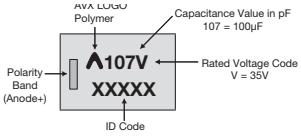
APPLICATIONS

- Oil drilling
- Extreme temperature applications

For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: http://www.avx.com/docs/techinfo/Qprocess.pdf)

MARKING

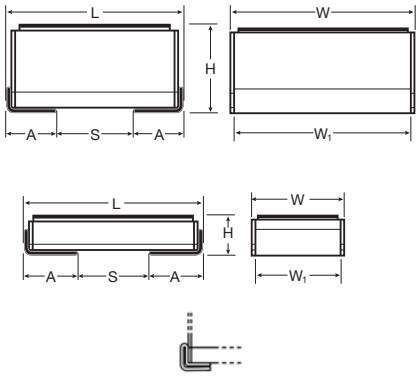
9, I CASE



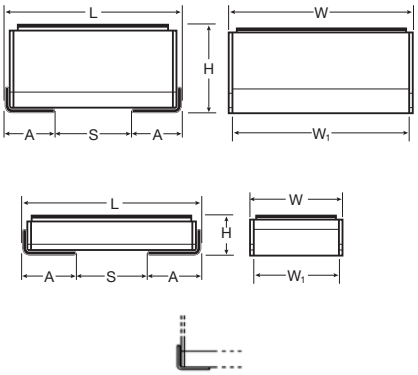
CASE DIMENSIONS: millimeters (inches)

Code	Type	L±0.50 (0.020)	W±0.50 (0.020)	H Max.	W_1±0.50 (0.020)	A±0.50 (0.020)	S Min.
9 (CTC-21D)	J-lead (L-shape)	11.50 (0.453)	12.50 (0.492)	6.15 (0.242)	12.50 (0.492)	1.90 (0.075)	7.00 (0.276)
9 (CTC-21D)	J-lead (flex)	12.10 (0.476)	12.50 (0.492)	6.50 (0.256)	12.00 (0.472)	2.00 (0.079)	7.20 (0.283)
9 (CTC-21D)	Undertab	11.00 ± 0.20 (0.433 ± 0.008)	12.50 ± 0.20 (0.492 ± 0.008)	5.95 (0.234)	10.50 ± 0.20 (0.413 ± 0.008)	1.50 ± 0.20 (0.059 ± 0.008)	7.80 (0.307)
I	J-lead (L-shape)	11.50 (0.453)	6.00 (0.236)	2.70 (0.106)	6.00 (0.236)	3.50 (0.138)	4.00 (0.157)
I	J-lead (flex)	11.90 (0.469)	6.00 (0.236)	3.00 (0.118)	5.50 (0.217)	3.60 (0.142)	4.20 (0.165)
I	Undertab	11.00 ± 0.20 (0.433 ± 0.008)	6.00 ± 0.20 (0.236 ± 0.008)	2.50 (0.098)	4.00 ± 0.20 (0.157 ± 0.008)	3.20 ± 0.20 (0.126 ± 0.008)	4.40 (0.173)

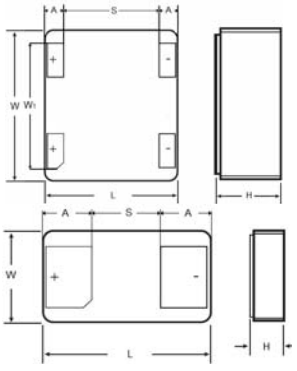
'J' Lead Termination (flex)



'J' Lead Termination (L-shape)



Undertab Termination



THH 230ºC Hermetic Series

SMD 230ºC High Temperature Tantalum Capacitor in Hermetic Package

CAPACITANCE AND VOLTAGE RANGE (CODE DENOTES THE CASE SIZE)

Capacitance		Rated Voltage DC (V_R) at 175ºC					
µF	Code	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)	63V (J)
3.3	335					I*	I*
4.7	475					I*	I*
6.8	685				I	I*	
10	106				I		
15	156		I*	I*	I*		
22	226	I	I*	I*	I*		
33	336	I*	I*	I*			9*
47	476	I	I*			9*	9
68	686					9*	
100	107			9*	9		
150	157		9*	9*	9*		
220	227	9*	9*				
330	337	9*					

Available ratings

Engineering samples - please contact manufacturer

*Codes under development – upon request, please contact manufacturer

HOW TO ORDER

AVX PART NUMBER

THH	9	107	M	035	W	0250	J
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** M = ±20%	**Rated DC Voltage** 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc 063 = 63Vdc	**Packaging** W = Waffle B = Bulk	**ESR in mΩ**	**Termination** J = 'J' lead (L-shape) W = 'J' lead (flex) U = Undertab

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		All technical data relate to an ambient temperature of +25°C						
Capacitance Range:		3.3 µF to 330 µF						
Capacitance Tolerance:		±20%						
Leakage Current DCL:		0.01CV						
Rated Voltage (V_R)	≤ +175°C:	16	20	25	35	50	63	
Category Voltage (V_C)	≤ +200°C:	13	16	20	28	40	50	
Category Voltage (V_C)	≤ +215°C:	10	13	16	23	33	41	
Category Voltage (V_C)	≤ +230°C:	8	10	12	17	25	31	
Temperature Range:		-55°C to +230°C for case size "9", -55ºC to +215ºC for case size "I"						
Reliability:		1% per 1000 hours at 85ºC, Vr with 0.1Ω/V series impedance, 60% confidence level						
Termination Finish:		Gold Plating (Undertab), Gold Plating (J-lead L shape), Nickel Plating (J-lead flex)						

THH 230ºC Hermetic Series

SMD 230ºC High Temperature Tantalum Capacitor in Hermetic Package

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (ºC)	Category Voltage (V)	Category Temperature (ºC)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (A)			Product Category
											25ºC	85ºC	230ºC	
16 Volt @ 175°C														
THHI226M016W0500#	I	22	16	175	10	215	3.6	8	500	1	0.81	0.73	0.73	215
THHI336M016W0500#	I	33	16	175	10	215	5.3	8	500	1	0.81	0.73	0.73	215
THHI476M016W0500#	I	47	16	175	10	215	7.5	8	500	1	0.81	0.73	0.73	215
THH9227M016W0250#	9	220	16	175	8	230	35.2	8	250	1	1.26	1.13	1.13	230
THH9337M016W0250#	9	330	16	175	8	230	52.8	8	250	1	1.26	1.13	1.13	230
20 Volt @ 175°C														
THHI156M020W0500#	I	15	20	175	13	215	3	8	500	1	0.81	0.73	0.73	215
THHI226M020W0500#	I	22	20	175	13	215	4.4	8	500	1	0.81	0.73	0.73	215
THHI336M020W0500#	I	33	20	175	13	215	6.6	8	500	1	0.81	0.73	0.73	215
THHI476M020W0500#	I	47	20	175	13	215	9.4	8	500	1	0.81	0.73	0.73	215
THH9157M020W0250#	9	150	20	175	10	230	30	8	250	1	1.26	1.13	1.13	230
THH9227M020W0250#	9	220	20	175	10	230	44	8	250	1	1.26	1.13	1.13	230
25 Volt @ 175°C														
THHI156M025W0500#	I	15	25	175	16	215	3.8	8	500	1	0.81	0.73	0.73	215
THHI226M025W0500#	I	22	25	175	16	215	5.5	8	500	1	0.81	0.73	0.73	215
THHI336M025W0500#	I	33	25	175	16	215	8.3	8	500	1	0.81	0.73	0.73	215
THH9107M025W0250#	9	100	25	175	12	230	25	8	250	1	1.26	1.13	1.13	230
THH9157M025W0250#	9	150	25	175	12	230	37.5	8	250	1	1.26	1.13	1.13	230
35 Volt @ 175°C														
THHI685M035W0500#	I	6.8	35	175	23	215	2.4	8	500	1	0.81	0.73	0.73	215
THHI106M035W0500#	I	10	35	175	23	215	3.5	8	500	1	0.81	0.73	0.73	215
THHI156M035W0500#	I	15	35	175	23	215	5.3	8	500	1	0.81	0.73	0.73	215
THHI226M035W0500#	I	22	35	175	23	215	7.7	8	500	1	0.81	0.73	0.73	215
THH9107M035W0250#	9	100	35	175	17	230	35	8	250	1	1.26	1.13	1.13	230
THH9157M035W0250#	9	150	35	175	17	230	52.5	8	250	1	1.26	1.13	1.13	230
50 Volt @ 175°C														
THHI335M050W0500#	I	3.3	50	175	33	215	1.7	8	500	1	0.81	0.73	0.73	215
THHI475M050W0500#	I	4.7	50	175	33	215	2.4	8	500	1	0.81	0.73	0.73	215
THHI685M050W0500#	I	6.8	50	175	33	215	3.4	8	500	1	0.81	0.73	0.73	215
THH9476M050W0250#	9	47	50	175	25	230	23.5	8	250	1	1.26	1.13	1.13	230
THH9686M050W0250#	9	68	50	175	25	230	34	8	250	1	1.26	1.13	1.13	230
63 Volt @ 175°C														
THHI335M063W0500#	I	3.3	63	175	41	215	2.1	8	500	1	0.81	0.73	0.73	215
THHI475M063W0500#	I	4.7	63	175	41	215	3	8	500	1	0.81	0.73	0.73	215
THH9336M063W0250#	9	33	63	175	31	230	20.8	8	250	1	1.26	1.13	1.13	230
THH9476M063W0250#	9	47	63	175	31	230	29.6	8	250	1	1.26	1.13	1.13	230

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts.

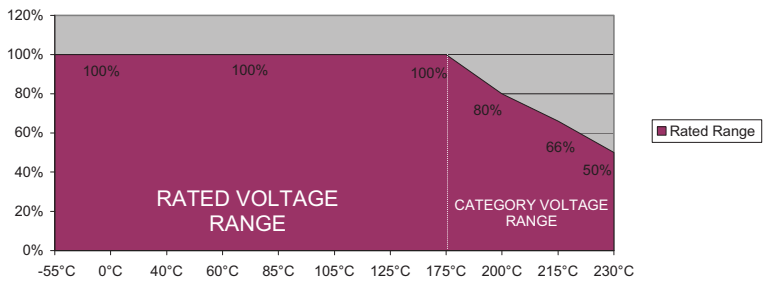
DCL is measured at rated voltage after 5 minutes.

ESR change post 1000hrs allowed up to 3 times catalog limit.

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

TEMPERATURE VOLTAGE DERATING

THH 230°C Voltage vs Temperature Rating for 1000 hrs service life



THH 230ºC Hermetic Series

SMD 230ºC High Temperature Tantalum Capacitor in Hermetic Package

QUALIFICATION TABLE

TEST	THH 230°C hermetic series (Temperature range -55ºC to +230ºC)		
	Condition	Characteristics	
Endurance	Determine after application of rated voltage for 1000 +48/0 hours at 175±2ºC and then leaving min. 2 hours at room temperature. Also determine of 200ºC temperature, category voltage for 2000+48/-0 hours and then leaving min. 2 hours at room temperature. Also determine after application of 230°C temperature, category voltage for 1000+48/-0 hours and then leaving min. 2 hours at room temperature. Power supply impedance to be <3Ω.	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	3 x initial limit
Endurance	Determine after application of $0.5U_R$ for 10000+48/-0 hours at 200°C temperature and then leaving min. 2 hours at room temperature. Power supply impedance to be <3Ω.	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	3 x initial limit
Storage Life	230ºC, 0V, 1000h + 48/-0 hours	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within ±5% of initial value
		DF	initial limit
		ESR	1.25 x initial limit
Biased Humidity	Determine after leaving for 1000 hours at 85±2ºC, 85% relative humidity and rated voltage and then recovery min. 2 hours at room temperature.	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within ±10% of initial value
		DF	initial limit
		ESR	1.25 x initial limit

Temperature Stability

Step	Temperature°C	Duration (min)
1	+22	15
2	-55	15
3	+22	15
4	+85	15
5	+125	15
6	+175	15
7	+200	15
8	+230	15
9	+22	15

	+20ºC	-55ºC	+22ºC	+85ºC	+125ºC	+175ºC	+200ºC	+230ºC	+22ºC
DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	n/a	n/a	n/a	IL*
ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+30/-0%	+30/-0%	+30/-0%	+30/-0%	±5%
DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	2 x IL*	2 x IL*	2 x IL*	IL*
ESR	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*

Surge Voltage	Test temperature: 85ºC+3/0ºC Surge voltage: 1.3 x rated voltage Series protection resistance: 33Ω Discharge resistance: 33Ω Number of cycles: 1000x Cycle duration: 5 min; 30 sec charge, 5 min 30 sec discharge	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within ±20% of initial value
		DF	initial limit
		ESR	1.25 x initial limit

*Initial Limit

High Reliability Tantalum MSL

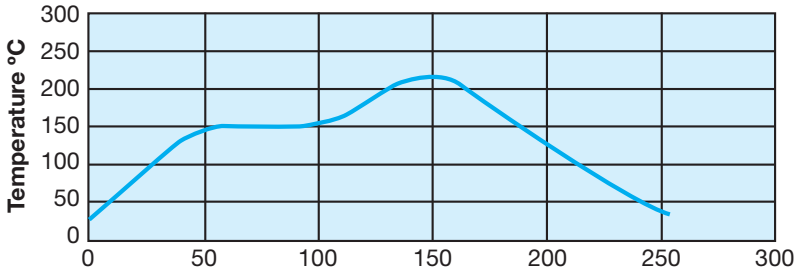
Storage, Bake out, and Handing Recommendations

AVX Biddeford ships all COTS+, military, space level, and *medical grade surface mount tantalum capacitors in moisture resistant bags as a part of best practice. This includes CWR, TAZ, TBJ, TBC, TBM, and TCP product. This has improved our service to customers by alleviating the potential for long term exposure to high humidity conditions during shipping and storage.

Biddeford product that is considered to be MSL 3 includes TBMs, TCPs, TCBs, T4Js, TBJ V, U and E case, and TAZ H, V and X case sizes. The remainder of our tantalum capacitors are rated MSL 1 for moisture (per J-STD-020D). AVX MSL 1 Tantalum capacitors are unaffected by storage for 2 years at the following conditions: a temperature between -10°C and +35°C, maximum of 85% RH, and atmospheric pressure between 860 mbar and 1060mbar. Exposure to humidity in excess of the above conditions can occur during shipping or storage; this may affect the leakage current of resin protected capacitors and possibly result in damaging the capacitors during reflow.

If high exposure occurs, MSL 1 product can be dried by baking at temperatures between 85°C for 16 hours to 125°C for 4 hours. Product packaged in tape and reel requires special handling as the tape and reels cannot withstand these temperatures. Extended bake out at 55°C with less than 10% humidity for 48-hours can be performed for product in tape and reel packaging. MSL 3 product should be baked out for 168 hours at 40°C.

The reflow profile below is recommended to ensure parametric integrity of the capacitors is maintained. An improper combination of temperature and time can lead to damage in the dielectric of the component and this profile minimizes that risk.



- Pre-heating: 150ºC ±15ºC / 60-90s
- Max. Peak Gradient 2ºC/s
- Peak Temperature: 220ºC ±5ºC
- Time at > 185ºC: 45-60s Max.

*For implantable medical applications please contact the factory for further recommendations.

TAZ Cots+, CWR09, CWR19, CWR29 and TAZ HRC5000 Series

Tape & Reel Packaging

Solid Tantalum Chip TAZ Tape and reel packaging for automatic component placement.
Please enter required Suffix on order. Bulk packaging is standard.

TAZ TAPING SUFFIX TABLE

Case Size reference	Tape width mm	P mm	180mm (7") reel		330mm (13") reel	
			Suffix	Qty.	Suffix	Qty.
A	8	4	R	2500	S	9000
R	8	4	R	2500	S	–
B	12	4	R	2500	S	9000
C	12	4	R	2500	S	9000
D	12	4	R	2500	S	8000
E	12	4	R	2500	S	8000
F	12	8	R	1000	S	3000
G	12	8	R	500	S	2500
H	12	8	R	500	S	2500
X	12	8	R	500	S	2000

Total Tape Thickness — K max	
TAZ	
Case size reference	Millimeters (Inches) DIM
A	2.0 (0.079)
R	2.0 (0.079)
B	4.0 (0.157)
D	4.0 (0.157)
E	4.0 (0.157)
F	4.0 (0.157)
G	4.0 (0.157)
H	4.0 (0.157)
X	4.0 (0.157)

Code	8mm Tape		12mm Tape	
P*	4±0.1 or 8±0.1	(0.157±0.004) (0.315±0.004)	4±0.1 or 8±0.1	(0.157±0.004) (0.315±0.004)
G	0.75 min	(0.03 min)	0.75 min	(0.03 min)
F	3.5±0.04	(0.138±0.002)	5.5±0.05	(0.22±0.002)
E	1.75±0.1	(0.069±0.004)	1.75±0.1	(0.069±0.004)
W	8±0.3	(0.315±0.012)	12±0.3	(0.472±0.012)
P_2	2±0.05	(0.079±0.002)	2±0.05	(0.079±0.002)
P_0	4±0.1	(0.157±0.004)	4±0.1	(0.157±0.004)
D	1.5±0.1 -0	(0.059±0.004) (-0)	1.5±0.1 -0	(0.059±0.004) (-0)
D_1	1.0 min	(0.039 min)	1.5 min	(0.059 min)

*See taping suffix tables for actual P dimension (component pitch).

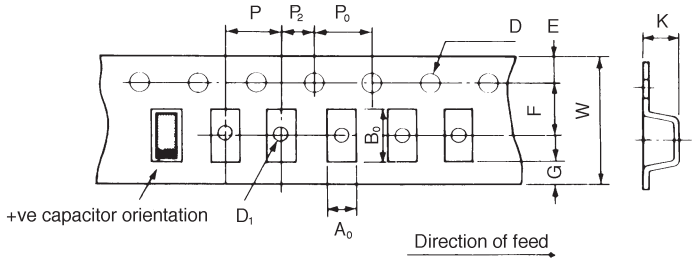
TAPE SPECIFICATION

Tape dimensions comply to EIA RS 481 A

Dimensions A_0 and B_0 of the pocket and the tape thickness, K, are dependent on the component size.

Tape materials do not affect component solderability during storage.

Carrier Tape Thickness <0.4mm



TAJ ESCC, TAJ CECC, TBJ CWR11, TBJ COTS+, T4J, TBM, NBM, NBS, TES, TBC CWR15, TBC COTS+, TBC HRC5000 and TBC HRC6000 Series

Tape & Reel Packaging

Tape and reel packaging for automatic component placement. Please enter required Suffix on order. Bulk packaging is not available.

TAPE SPECIFICATION

Tape dimensions comply to EIA 481-1 Dimensions A_0 and B_0 of the pocket and the tape thickness, K, are dependent on the component size. Tape materials do not affect component solderability during storage. Carrier Tape Thickness <0.4mm.

TAPING TABLE TAJ ESCC, TAJ CECC, TBJ CWR11, TBJ COTS+, T4J, TBM, NBM, NBS, TES AND TCB SERIES

Case Size	Tape width mm	P mm	180mm (7") reel Qty.	330mm (13") reel Qty.
A	8	4	2,000	8,000
B	8	4	2,000	8,000
C	12	8	500	3,000
D	12	8	500	2,500
E	12	8	400	1,500
U	16	8	400	–
V	12	8	400	1,500

TAPING SUFFIX TABLE TBC CWR15, COTS+, TBC HRC5000 AND TBC HRC6000 SERIES

Case Size	Tape width mm	P mm	100mm (4") reel		180mm (7") reel	
			Designator	Qty.	Designator	Qty.
A	12	4			R	2,000
B	12	8			R	1,000
K	8	2			R	10,000
L	8	4	X	500	R	3,500
R	8	4	X	500	R	2,500
S	12	4			R	2,000

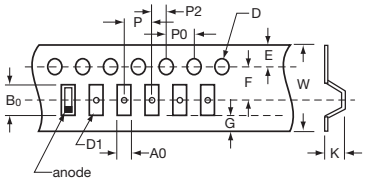
PLASTIC TAPE DIMENSIONS TAJ ESCC, TAJ CECC, TBJ CWR11, TBJ COTS+, T4J, TBM, NBM, NBS, TES AND TCB SERIES

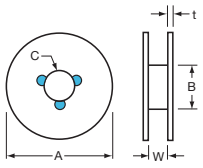
Case	A0±0.10	B0±0.10	K±0.10	W±0.30	E±0.10	F±0.05	G min.	P±0.10	P2±0.05	P0±0.10	$D^{+0.20}_{-0.00}$	$D1^{+0.25}_{-0.00}$
A	1.83	3.57	1.87	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
B	3.15	3.77	2.22	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
C	3.45	6.40	2.92	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
D	4.48	7.62	3.22	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
E	4.50	7.50	4.50	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
U	6.19	7.66	4.72	16.00	1.75	7.50	0.75	8.00	2.00	4.00	1.50	1.50
V	6.43	7.44	3.84	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50

PLASTIC TAPE DIMENSIONS TBC CWR15, COTS+, TBC HRC5000 AND TBC HRC6000 SERIES

Case	A0±0.10	B0±0.10	K±0.10	W±0.30	E±0.10	F±0.05	G min.	P±0.10	P2±0.05	P0±0.10	D±0.05
A	1.91	3.53	1.93	12.00	1.75	5.50	0.75	4.00	2.00	4.00	1.55
B	3.30	4.17	2.03	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.55
K	0.75	1.26	0.67	8.00	1.75	3.50	0.75	2.00	2.00	4.00	1.55
L	1.05	1.90	1.17	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.55
S	1.91	3.53	1.93	12.00	1.75	5.50	0.75	4.00	2.00	4.00	1.55
R	1.65	2.45	1.68	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.55

REEL DIMENSIONS





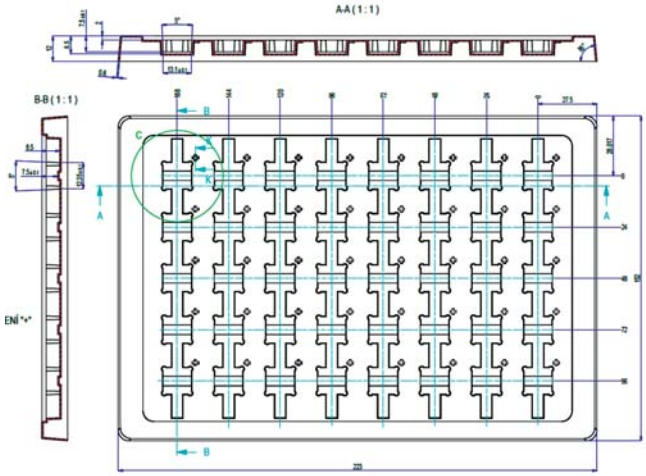
Reel Size	Tape	A	B	C	W	t
180mm (7")	12mm	178±2.00	50 min	13.0±0.50	12.4+1.5/-0	1.50±0.50
180mm (7")	8mm	178±2.00	50 min	13.0±0.50	8.4+1.5/-0	1.50±0.50
330mm (13")	12mm	328±2.00	50 min	13.0±0.50	12.4+1.5/-0	1.50±0.50
330mm (13")	8mm	328±2.00	50 min	13.0±0.50	8.4+1.5/-0	1.50±0.50
108mm (4.25")	8mm	108±2.00		13.0±0.50	8.4+1.5/-0	1.50±0.50

COVER TAPE NOMINAL DIMENSIONS

Thickness: 75µm
Width of tape: 5.5mm (8mm tape)
9.5mm (12mm tape)

TCH AND THH PACKAGING SPECIFICATION

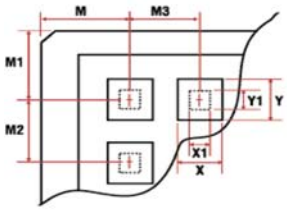
The dimensions of the tray see in the figure below. Tolerance of dimensions are ±0.1 mm. Both case size “9” and “I” have 40 pcs per tray.



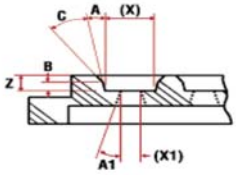
OVERALL CHIP TRAY SIZE

Size	Height	Flatness
50.80mm±0.10mm	3.96mm $^{+0.05mm}_{-0.08mm}$	0.10mm

PLASTIC CHIP TRAY



anode



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