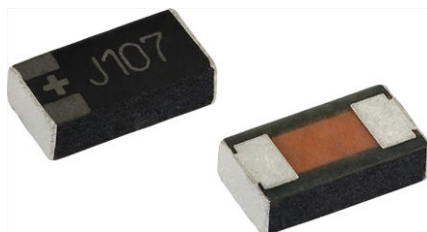


vPolyTan™ Solid Tantalum Surface Mount Chip Capacitors, Leadframeless Molded Polymer Type



FEATURES

- Low ESR
- Molded case available in 6 case codes including 0603 and 0805 footprint
- Lead (Pb)-free L-shaped face-down terminations
- 8 mm tape and reel packaging available per EIA-481 standard
- Moisture sensitivity level 3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

PERFORMANCE / ELECTRICAL CHARACTERISTICS

Operating Temperature: -55 °C to +105 °C (above 85 °C, voltage derating is required)

Capacitance Range: 10 µF to 330 µF

Capacitance Tolerance: ± 20 %

Voltage Rating: 4 V_{DC} to 25 V_{DC}

APPLICATIONS

- Decoupling, smoothing, filtering
- Bulk energy storage in wireless cards
- Infrastructure equipment
- Storage and networking
- Computer motherboards
- Smartphones and tablets

ORDERING INFORMATION

T58 TYPE	MM CASE CODE	106 CAPACITANCE	M CAPACITANCE TOLERANCE	6R3 DC VOLTAGE RATING AT +85 °C	C TERMINATION / PACKAGING	0300 ESR
	See Ratings and Case Codes table.	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	M = ± 20 %	This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating. A decimal point is indicated by an "R" (6R3 = 6.3 V)	C = lead (Pb)-free solderable coating, 7" reel	Maximum 100 kHz ESR in mΩ

DIMENSIONS in inches [millimeters]

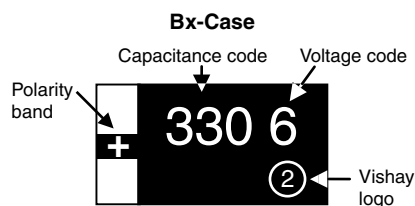
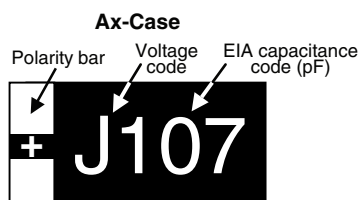
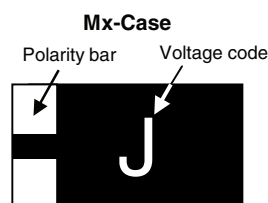
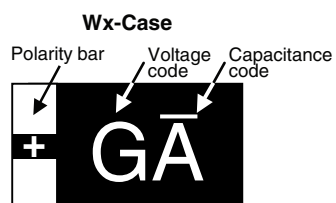
CASE CODE	EIA SIZE	H (MAX.)	L	W	P1	P2 (REF.)	C
MM	1608-09	0.035 [0.9]	0.063 ± 0.008 [1.6 ± 0.2]	0.033 ± 0.008 [0.85 ± 0.2]	0.020 ± 0.004 [0.5 ± 0.1]	0.024 [0.6]	0.024 ± 0.004 [0.6 ± 0.1]
M0	1608-10	0.039 [1.0]					
W9	2012-09	0.035 [0.9]	0.079 ± 0.008 [2.0 ± 0.2]	0.050 ± 0.008 [1.25 ± 0.2]	0.020 ± 0.004 [0.5 ± 0.1]	0.040 [1.0]	0.035 ± 0.004 [0.90 ± 0.1]
A0	3216-10	0.039 [1.0]	0.126 ± 0.008 [3.2 ± 0.2]	0.063 ± 0.008 [1.6 ± 0.2]	0.031 ± 0.004 [0.8 ± 0.1]	0.063 [1.6]	0.047 ± 0.004 [1.2 ± 0.1]
AA	3216-18	0.071 [1.8]					
B0	3528-10	0.039 [1.0]	0.138 ± 0.008 [3.5 ± 0.2]	0.112 ± 0.008 [2.8 ± 0.2]	0.031 ± 0.008 [0.8 ± 0.2]	0.077 [1.95]	0.094 ± 0.004 [2.4 ± 0.1]
BB	3528-20	0.080 [2.0]					

RATINGS AND CASE CODES

μF	4.0 V	6.3 V	10 V	16 V	25 V
10		MM (200) ⁽¹⁾ / MM (300, 500)			
22		MM (200) ⁽¹⁾ / MM (300, 500)			BB (90, 200) ⁽¹⁾
47		M0 (300, 500) ⁽¹⁾ / W9 (200) ⁽¹⁾	A0 (100) ⁽¹⁾	BB (90, 200) ⁽¹⁾	
100	W9 (150) ⁽¹⁾	A0 (100, 150) ⁽¹⁾			
150		B0 (200) ⁽¹⁾			
220			BB (50, 200) ⁽¹⁾		
330		BB (50, 100) ⁽¹⁾			

Notes
⁽¹⁾ In development.

- In brackets is available ESR, m Ω

MARKING


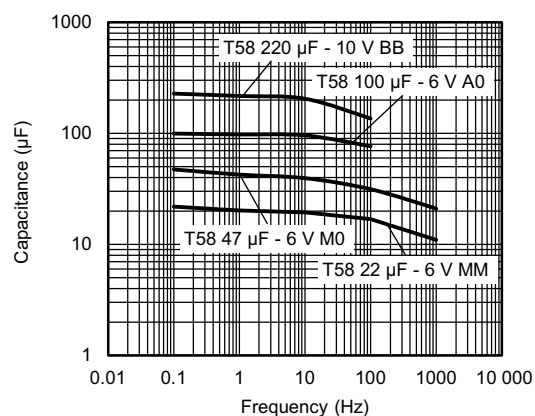
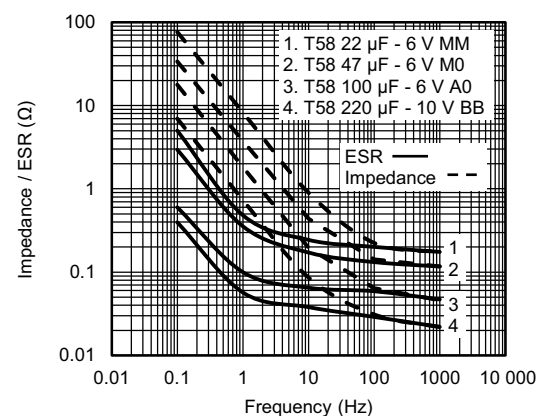
VOLTAGE CODE		CAPACITANCE CODE	
V	CODE	CAP, μF	CODE
4.0	G	10	α
6.3	J	22	j
10	A	47	s
16	C	100	\bar{A}
25	E	150	\bar{E}



STANDARD RATINGS						
CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DCL AT +25 °C (μ A)	MAX. DF AT +25 °C 120 Hz (%)	MAX. ESR AT +25 °C 100 kHz (m Ω)	MAX. RIPPLE, 100 kHz I _{RMS} (A)
4.0 V _{DC} AT +85 °C, 3.2 V _{DC} AT +105 °C						
100	W9 ⁽¹⁾	T58W9107M004C0150	40.0	14	150	0.516
6.3 V _{DC} AT +85 °C, 5 V _{DC} AT +105 °C						
10	MM	T58MM106M6R3C0500	6.3	8	500	0.224
10	MM	T58MM106M6R3C0300	6.3	8	300	0.289
10	MM ⁽¹⁾	T58MM106M6R3C0200	6.3	8	200	0.354
22	MM	T58MM226M6R3C0500	14	10	500	0.224
22	MM	T58MM226M6R3C0300	14	10	300	0.289
22	MM ⁽¹⁾	T58MM226M6R3C0200	14	10	200	0.354
47	M0 ⁽¹⁾	T58M0476M6R3C0500	30	14	500	0.224
47	M0 ⁽¹⁾	T58M0476M6R3C0300	30	14	300	0.289
47	W9 ⁽¹⁾	T58W9476M6R3C0200	30	14	200	0.447
100	A0 ⁽¹⁾	T58A0107M6R3C0150	63	14	150	0.606
100	A0 ⁽¹⁾	T58A0107M6R3C0100	63	14	100	0.742
150	B0 ⁽¹⁾	T58B0157M6R3C0200	95	14	200	0.592
330	BB ⁽¹⁾	T58BB337M6R3C0100	208	14	100	0.922
330	BB ⁽¹⁾	T58BB337M6R3C0050	208	14	50	1.304
10 V _{DC} AT +85 °C, 8 V _{DC} AT +105 °C						
47	A0 ⁽¹⁾	T58A0476M010C0100	47	14	100	0.742
220	BB ⁽¹⁾	T58BB227M010C0200	220	14	200	0.652
220	BB ⁽¹⁾	T58BB227M010C0050	220	14	50	1.304
16 V _{DC} AT +85 °C, 12.8 V _{DC} AT +105 °C						
47	BB ⁽¹⁾	T58BB476M016C0200	75	14	200	0.652
47	BB ⁽¹⁾	T58BB476M016C0090	75	14	90	0.972
25 V _{DC} AT +85 °C, 20 V _{DC} AT +105 °C						
22	BB ⁽¹⁾	T58BB226M025C0200	55	14	200	0.652
22	BB ⁽¹⁾	T58BB226M025C0090	55	14	90	0.972

Note
⁽¹⁾ In development.

RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperature below +85 °C)	
CAPACITOR VOLTAGE RATING	OPERATING VOLTAGE
4.0	3.2
6.3	5.0
10	8.0
16	12.8
25	20.0

CAPACITANCE VS. FREQUENCY

IMPEDANCE AND ESR VS. FREQUENCY

POWER DISSIPATION

CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT +25 °C (W) IN FREE AIR
MM / M0	0.025
W9	0.040
A0	0.055
AA	0.075
B0	0.070
BB	0.085

STANDARD PACKAGING QUANTITY

CASE CODE	UNITS PER 7" REEL
MM / M0	4000
W9	3000
A0	2500
AA	2000
B0	3000
BB	2000



PERFORMANCE CHARACTERISTICS			
ITEM	CONDITION	POST TEST PERFORMANCE	
Life test at +85 °C	1000 h application of rated voltage at 85 °C, MIL-STD-202 method 108	Capacitance change	Within ± 20 % of initial value
		Dissipation factor	Within initial limits
		Leakage current	Shall not exceed 300 % of initial limit
Humidity tests	At 40 °C / 90 % RH 500 h, no voltage applied	Capacitance change	-20 % to +40 % of initial value
		Dissipation factor	Within initial limit
		Leakage current	Shall not exceed 300 % of initial limit
Resistance to solder heat	MIL-STD-202, method 210, with peak body temperature: less than 260 °C, time: 5 s max.	Capacitance change	Within ± 20 % of initial value
		Dissipation factor	Within initial limit
		Leakage current	Shall not exceed 300 % of initial limit
Stability at low and high temperatures	-55 °C	Capacitance change	Within -20 % to 0 % of initial value
		Dissipation factor	Shall not exceed 150 % of initial limit
		Leakage current	n/a
	25 °C	Capacitance change	Within ± 20 % of initial value
		Dissipation factor	Within initial limit
		Leakage current	Within initial limit
	105 °C	Capacitance change	Within -50 % to +30 % of initial value
		Dissipation factor	Within initial limits
		Leakage current	Shall not exceed 1000 % of initial limits
Surge voltage	85 °C, 1000 successive test cycles at 1.3 of rated voltage in series with a 1 k Ω resistor at the rate of 30 s ON, 30 s OFF	Capacitance change	Within ± 20 % of initial value
		Dissipation factor	Within initial limit
		Leakage current	Shall not exceed 300 % of initial limit
Shock (specified pulse)	MIL-STD-202, method 213, condition I, 100 g peak	Capacitance change	Within ± 20 % of initial value
		Dissipation factor	Within initial limit
		Leakage current	Shall not exceed 300 % of initial limit
Vibration	MIL-STD-202, method 204, condition D, 10 Hz to 2000 Hz 20 g peak	There shall be no mechanical or visual damage to capacitors post-conditioning.	
Shear test	Apply a pressure load of 5 N for 10 s \pm 1 s horizontally to the center of capacitor side body	Capacitance change	Within ± 20 % of initial value
		Dissipation factor	Within initial limit
		Leakage current	Shall not exceed 300 % of initial limit



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.