

TAJ Automotive Range



Standard Tantalum - Automotive Product Range



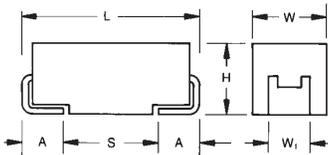
FEATURES

- General purpose SMT chip tantalum series
- 5 case sizes available
- CV range: 0.22-680µF / 6.3-50V



APPLICATIONS

- Audio Systems
- GPS
- Seat Controls
- Dashboard



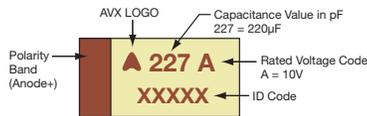
CASE DIMENSIONS: millimeters (inches)

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 _i ±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)

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

MARKING

A, B, C, D, E CASE



HOW TO ORDER

TAJ Type	C Case Size See table above	106 Capacitance Code pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)	M Tolerance K = ±10% M = ±20%	035 Rated DC Voltage 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	T Packaging T = Automotive Lead Free 7" Reel U = Automotive Lead Free 13" Reel	NJ Specification Suffix NJ = Std Suffix	V Dry Pack Option (D,E case sizes mandatory)
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TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C							
Capacitance Range:	0.22 µF to 680 µF							
Capacitance Tolerance:	±10%; ±20%							
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							
Environmental Classification:	55/125/56 (IEC 68-2)							
Reliability:	1% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level							
Termination Finished:	Sn Plating (standard), Gold and SnPb Plating upon request							
	Meets requirements of AEC-Q200							



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TAJ AUTOMOTIVE RANGE CAPACITANCE AND RATED VOLTAGE 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							
0.15	154							
0.22	224							A
0.33	334						A	A
0.47	474					A	A	A/B
0.68	684					A	A	B
1.0	105			A	A	A	A/B	B/C
1.5	155				A	A/B	A/B	C
2.2	225		A	A	A/B	A/B	B/C	C/D
3.3	335	A		A/B	A/B	A/B	B/C	C/D
4.7	475		A/B	A/B	A/B	B/C	B/C/D	C/D
6.8	685		A/B	A/B	B/C	B/C	C/D	D
10	106	A/B	A/B	A/B/C	B/C	C/D	C/D	D/E
15	156	A	A/B/C	B/C	B/C	C/D	D	E
22	226	A/B/C	A/B/C	B/C/D	C/D	C/D	D/E	
33	336	A/B	B/C	C/D	C/D	D	D/E	
47	476	B/C	B/C/D	C/D	D			
68	686	B/C	C/D	C/D	D/E			
100	107	C/D	C/D	D/E	E	E		
150	157	C/D	D/E	E				
220	227	D	D/E					
330	337	D/E	E					
470	477	D/E						
680	687	E						

Not recommended for new designs, higher voltage or smaller case size substitution are offered.

Available Ratings

Engineering samples - please contact manufacturer

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

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RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	MSL	100kHz RMS Current (mA)		
											25°C	85°C	125°C
6.3 Volt @ 85°C													
TAJA335*006TNJ	A	3.3	6.3	85	4	125	0.5	6	7	1	104	93	41
TAJA106*006TNJ	A	10	6.3	85	4	125	0.6	6	4	1	137	123	55
TAJB106*006TNJ	B	10	6.3	85	4	125	0.5	6	3	1	168	151	67
TAJA156*006TNJ	A	15	6.3	85	4	125	0.9	6	3.5	1	146	132	59
TAJA226*006TNJ	A	22	6.3	85	4	125	1.4	6	3	1	158	142	63
TAJB226*006TNJ	B	22	6.3	85	4	125	1.4	6	2.5	1	184	166	74
TAJC226*006TNJ	C	22	6.3	85	4	125	1.4	6	2	1	235	211	94
TAJA336*006TNJ	A	33	6.3	85	4	125	2.1	8	2.2	1	185	166	74
TAJB336*006TNJ	B	33	6.3	85	4	125	2.1	6	2.2	1	197	177	79
TAJB476*006TNJ	B	47	6.3	85	4	125	3	6	2	1	206	186	82
TAJC476*006TNJ	C	47	6.3	85	4	125	3	6	1.6	1	262	236	105
TAJB686*006TNJ	B	68	6.3	85	4	125	4	8	0.9	1	307	277	123
TAJC686*006TNJ	C	68	6.3	85	4	125	4.3	6	1.5	1	271	244	108
TAJC107*006TNJ	C	100	6.3	85	4	125	6.3	6	0.9	1	350	315	140
TAJD107*006TNJV	D	100	6.3	85	4	125	6.3	6	0.9	3	408	367	163
TAJC157*006TNJ	C	150	6.3	85	4	125	9.5	6	1.3	1	291	262	116
TAJD157*006TNJV	D	150	6.3	85	4	125	9.5	6	0.9	3	408	367	163
TAJD227*006TNJV	D	220	6.3	85	4	125	13.9	8	0.4	3	612	551	245
TAJD337*006TNJV	D	330	6.3	85	4	125	20.8	8	0.4	3	612	551	245
TAJE337*006TNJV	E	330	6.3	85	4	125	20.8	8	0.4	3	642	578	257
TAJD477*006TNJV	D	470	6.3	85	4	125	28	12	0.4	3	612	551	245
TAJE477*006TNJV	E	470	6.3	85	4	125	28	10	0.4	3	642	578	257
TAJE687*006TNJV	E	680	6.3	85	4	125	42.8	10	0.5	3	574	517	230
10 Volt @ 85°C													
TAJA225*010TNJ	A	2.2	10	85	7	125	0.5	6	7	1	104	93	41
TAJA475*010TNJ	A	4.7	10	85	7	125	0.5	6	5	1	122	110	49
TAJB475*010TNJ	B	4.7	10	85	7	125	0.5	6	4	1	146	131	58
TAJA685*010TNJ	A	6.8	10	85	7	125	0.7	6	4	1	137	123	55
TAJB685*010TNJ	B	6.8	10	85	7	125	0.7	6	3	1	168	151	67
TAJA106*010TNJ	A	10	10	85	7	125	1	6	3	1	158	142	63
TAJB106*010TNJ	B	10	10	85	7	125	1	6	2.1	1	201	181	80
TAJA156*010TNJ	A	15	10	85	7	125	1.5	6	3.2	1	153	138	61
TAJB156*010TNJ	B	15	10	85	7	125	1.5	6	2.8	1	174	157	70
TAJC156*010TNJ	C	15	10	85	7	125	1.5	6	2	1	235	211	94
TAJA226*010TNJ	A	22	10	85	7	125	2.2	8	3	1	158	142	63
TAJB226*010TNJ	B	22	10	85	7	125	2.2	6	2.4	1	188	169	75
TAJC226*010TNJ	C	22	10	85	7	125	2.2	6	1.8	1	247	222	99
TAJB336*010TNJ	B	33	10	85	7	125	3.3	6	1.8	1	217	196	87
TAJC336*010TNJ	C	33	10	85	7	125	3.3	6	1.6	1	262	236	105
TAJB476*010TNJ	B	47	10	85	7	125	4.7	8	1	1	292	262	117
TAJC476*010TNJ	C	47	10	85	7	125	4.7	6	1.2	1	303	272	121
TAJD476*010TNJV	D	47	10	85	7	125	4.7	6	0.4	3	612	551	245
TAJC686*010TNJ	C	68	10	85	7	125	6.8	6	1.3	1	291	262	116
TAJD686*010TNJV	D	68	10	85	7	125	6.8	6	0.9	3	408	367	163
TAJC107*010TNJ	C	100	10	85	7	125	10	8	1.2	1	303	272	121
TAJD107*010TNJV	D	100	10	85	7	125	10	6	0.9	3	408	367	163
TAJD157*010TNJV	D	150	10	85	7	125	15	8	0.9	3	408	367	163
TAJE157*010TNJV	E	150	10	85	7	125	15	8	0.9	3	428	385	171
TAJD227*010TNJV	D	220	10	85	7	125	22	8	0.5	3	548	493	219
TAJE227*010TNJV	E	220	10	85	7	125	22	8	0.5	3	574	517	230
TAJE337*010TNJV	E	330	10	85	7	125	33	8	0.9	3	428	385	171
16 Volt @ 85°C													
TAJA105*016TNJ	A	1	16	85	10	125	0.5	4	11	1	83	74	33
TAJA225*016TNJ	A	2.2	16	85	10	125	0.5	6	6.5	1	107	97	43
TAJA335*016TNJ	A	3.3	16	85	10	125	0.5	6	5	1	122	110	49
TAJB335*016TNJ	B	3.3	16	85	10	125	0.5	6	4.5	1	137	124	55
TAJA475*016TNJ	A	4.7	16	85	10	125	0.8	6	4	1	137	123	55
TAJB475*016TNJ	B	4.7	16	85	10	125	0.8	6	3.5	1	156	140	62
TAJA685*016TNJ	A	6.8	16	85	10	125	1.1	6	3.5	1	146	132	59
TAJB685*016TNJ	B	6.8	16	85	10	125	1.1	6	2.5	1	184	166	74
TAJA106*016TNJ	A	10	16	85	10	125	1.6	6	3	1	158	142	63
TAJB106*016TNJ	B	10	16	85	10	125	1.6	6	2.5	1	184	166	74
TAJC106*016TNJ	C	10	16	85	10	125	1.6	6	2	1	235	211	94
TAJB156*016TNJ	B	15	16	85	10	125	2.4	6	2.5	1	184	166	74
TAJC156*016TNJ	C	15	16	85	10	125	2.4	6	1.8	1	247	222	99
TAJB226*016TNJ	B	22	16	85	10	125	3.5	6	2.3	1	192	173	77
TAJC226*016TNJ	C	22	16	85	10	125	3.5	6	1	1	332	298	133
TAJD226*016TNJV	D	22	16	85	10	125	3.5	6	1.1	3	369	332	148
TAJC336*016TNJ	C	33	16	85	10	125	5.3	6	1.5	1	271	244	108
TAJD336*016TNJV	D	33	16	85	10	125	5.3	6	0.9	3	408	367	163

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RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	MSL	100kHz RMS Current (mA)		
											25°C	85°C	125°C
TAJC476*016TNJ	C	47	16	85	10	125	7.5	6	0.5	1	469	422	188
TAJD476*016TNJV	D	47	16	85	10	125	7.5	6	0.9	3	408	367	163
TAJC686*016TNJ	C	68	16	85	10	125	10.9	6	1.3	1	291	262	116
TAJD686*016TNJV	D	68	16	85	10	125	10.9	6	0.9	3	408	367	163
TAJD107*016TNJV	D	100	16	85	10	125	16	6	0.6	3	500	450	200
TAJE107*016TNJV	E	100	16	85	10	125	16	6	0.9	3	428	385	171
TAJE157*016TNJV	E	150	16	85	10	125	23	8	0.3	3	742	667	297
20 Volt @ 85°C													
TAJA105*020TNJ	A	1	20	85	13	125	0.5	4	9	1	91	82	37
TAJA155*020TNJ	A	1.5	20	85	13	125	0.5	6	6.5	1	107	97	43
TAJA225*020TNJ	A	2.2	20	85	13	125	0.5	6	5.3	1	119	107	48
TAJB225*020TNJ	B	2.2	20	85	13	125	0.5	6	3.5	1	156	140	62
TAJA335*020TNJ	A	3.3	20	85	13	125	0.7	6	4.5	1	129	116	52
TAJB335*020TNJ	B	3.3	20	85	13	125	0.7	6	3	1	168	151	67
TAJA475*020TNJ	A	4.7	20	85	13	125	0.9	6	4	1	137	123	55
TAJB475*020TNJ	B	4.7	20	85	13	125	0.9	6	3	1	168	151	67
TAJB685*020TNJ	B	6.8	20	85	13	125	1.4	6	2.5	1	184	166	74
TAJC685*020TNJ	C	6.8	20	85	13	125	1.4	6	2	1	235	211	94
TAJB106*020TNJ	B	10	20	85	13	125	2	6	2.1	1	201	181	80
TAJC106*020TNJ	C	10	20	85	13	125	2	6	1.2	1	303	272	121
TAJB156*020TNJ	B	15	20	85	13	125	3	6	2	1	206	186	82
TAJC156*020TNJ	C	15	20	85	13	125	3	6	1.7	1	254	229	102
TAJC226*020TNJ	C	22	20	85	13	125	4.4	6	1.6	1	262	236	105
TAJD226*020TNJV	D	22	20	85	13	125	4.4	6	0.9	3	408	367	163
TAJC336*020TNJ	C	33	20	85	13	125	6.6	6	1.5	1	271	244	108
TAJD336*020TNJV	D	33	20	85	13	125	6.6	6	0.9	3	408	367	163
TAJD476*020TNJV	D	47	20	85	13	125	9.4	6	0.9	3	408	367	163
TAJD686*020TNJV	D	68	20	85	13	125	13.6	6	0.4	3	612	551	245
TAJE686*020TNJV	E	68	20	85	13	125	13.6	6	0.9	3	428	385	171
TAJE107*020TNJV	E	100	20	85	13	125	20	6	0.4	3	642	578	257
25 Volt @ 85°C													
TAJA474*025TNJ	A	0.47	25	85	17	125	0.5	4	14	1	73	66	29
TAJA684*025TNJ	A	0.68	25	85	17	125	0.5	4	10	1	87	78	35
TAJA105*025TNJ	A	1	25	85	17	125	0.5	4	8	1	97	87	39
TAJA155*025TNJ	A	1.5	25	85	17	125	0.5	6	7.5	1	100	90	40
TAJB155*025TNJ	B	1.5	25	85	17	125	0.5	6	5	1	130	117	52
TAJA225*025TNJ	A	2.2	25	85	17	125	0.6	6	7	1	104	93	41
TAJB225*025TNJ	B	2.2	25	85	17	125	0.6	6	4.5	1	137	124	55
TAJA335*025TNJ	A	3.3	25	85	17	125	0.8	6	3.7	1	142	128	57
TAJB335*025TNJ	B	3.3	25	85	17	125	0.8	6	3.5	1	156	140	62
TAJB475*025TNJ	B	4.7	25	85	17	125	1.2	6	1.5	1	238	214	95
TAJC475*025TNJ	C	4.7	25	85	17	125	1.2	6	2.4	1	214	193	86
TAJB685*025TNJ	B	6.8	25	85	17	125	1.7	6	2.8	1	174	157	70
TAJC685*025TNJ	C	6.8	25	85	17	125	1.7	6	2	1	235	211	94
TAJC106*025TNJ	C	10	25	85	17	125	2.5	6	1.8	1	247	222	99
TAJD106*025TNJV	D	10	25	85	17	125	2.5	6	1.2	3	354	318	141
TAJC156*025TNJ	C	15	25	85	17	125	3.8	6	1.6	1	262	236	105
TAJD156*025TNJV	D	15	25	85	17	125	3.8	6	1	3	387	349	155
TAJC226*025TNJ	C	22	25	85	17	125	5.5	6	1.4	1	280	252	112
TAJD226*025TNJV	D	22	25	85	17	125	5.5	6	0.9	3	408	367	163
TAJD336*025TNJV	D	33	25	85	17	125	8.3	6	0.9	3	408	367	163
TAJD476*025TNJV	D	47	25	85	17	125	11.8	6	0.9	3	408	367	163
TAJE476*025TNJV	E	47	25	85	17	125	11.8	6	0.9	3	428	385	171
TAJE107*025TNJV	E	100	25	85	17	125	25	10	0.3	3	742	667	297
35 Volt @ 85°C													
TAJA334*035TNJ	A	0.33	35	85	23	125	0.5	4	15	1	71	64	28
TAJA474*035TNJ	A	0.47	35	85	23	125	0.5	4	12	1	79	71	32
TAJA684*035TNJ	A	0.68	35	85	23	125	0.5	4	8	1	97	87	39
TAJA105*035TNJ	A	1	35	85	23	125	0.5	4	7.5	1	100	90	40
TAJB105*035TNJ	B	1	35	85	23	125	0.5	4	6.5	1	114	103	46
TAJA155*035TNJ	A	1.5	35	85	23	125	0.5	6	7.5	1	100	90	40
TAJB155*035TNJ	B	1.5	35	85	23	125	0.5	6	5.2	1	128	115	51
TAJB225*035TNJ	B	2.2	35	85	23	125	0.8	6	4.2	1	142	128	57
TAJC225*035TNJ	C	2.2	35	85	23	125	0.8	6	3.5	1	177	160	71
TAJB335*035TNJ	B	3.3	35	85	23	125	1.2	6	3.5	1	156	140	62
TAJC335*035TNJ	C	3.3	35	85	23	125	1.2	6	2.5	1	210	189	84
TAJB475*035TNJ	B	4.7	35	85	23	125	1.6	6	3.1	1	166	149	66
TAJC475*035TNJ	C	4.7	35	85	23	125	1.6	6	2.2	1	224	201	89
TAJD475*035TNJV	D	4.7	35	85	23	125	1.6	6	1.5	3	316	285	126
TAJC685*035TNJ	C	6.8	35	85	23	125	2.4	6	1.8	1	247	222	99
TAJD685*035TNJV	D	6.8	35	85	23	125	2.4	6	1.3	3	340	306	136
TAJC106*035TNJ	C	10	35	85	23	125	3.5	6	1.6	1	262	236	105

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AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	MSL	100kHz RMS Current (mA)		
											25°C	85°C	125°C
TAJD106*035TNJV	D	10	35	85	23	125	3.5	6	1	3	387	349	155
TAJD156*035TNJV	D	15	35	85	23	125	5.3	6	0.9	3	408	367	163
TAJD226*035TNJV	D	22	35	85	23	125	7.7	6	0.9	3	408	367	163
TAJE226*035TNJV	E	22	35	85	23	125	7.7	6	0.5	3	574	517	230
TAJD336*035TNJV	D	33	35	85	23	125	11.6	6	0.9	3	408	367	163
TAJE336*035TNJV	E	33	35	85	23	125	11.6	6	0.9	3	428	385	171
50 Volt @ 85°C													
TAJA224*050TNJ	A	0.22	50	85	33	125	0.5	4	18	1	65	58	26
TAJA334*050TNJ	A	0.33	50	85	33	125	0.5	4	17	1	66	60	27
TAJA474*050TNJ	A	0.47	50	85	33	125	0.5	4	9.5	1	89	80	36
TAJB474*050TNJ	B	0.47	50	85	33	125	0.7	4	9.5	1	95	85	38
TAJB684*050TNJ	B	0.68	50	85	33	125	0.5	4	8	1	103	93	41
TAJB105*050TNJ	B	1	50	85	33	125	0.5	6	7	1	110	99	44
TAJC105*050TNJ	C	1	50	85	33	125	0.5	4	5.5	1	141	127	57
TAJC155*050TNJ	C	1.5	50	85	33	125	0.8	6	4.5	1	156	141	63
TAJC225*050TNJ	C	2.2	50	85	33	125	1.1	8	2.5	1	210	189	84
TAJD225*050TNJV	D	2.2	50	85	33	125	1.1	6	2.5	3	245	220	98
TAJC335*050TNJ	C	3.3	50	85	33	125	1.6	6	2.5	1	210	189	84
TAJD335*050TNJV	D	3.3	50	85	33	125	1.7	6	2	3	274	246	110
TAJC475*050TNJ	C	4.7	50	85	33	125	0.5	4	1.4	1	280	252	112
TAJD475*050TNJV	D	4.7	50	85	33	125	2.4	6	1.4	3	327	295	131
TAJD685*050TNJV	D	6.8	50	85	33	125	3.4	6	1	3	387	349	155
TAJD106*050TNJV	D	10	50	85	33	125	5	6	0.8	3	433	390	173
TAJE106*050TNJV	E	10	50	85	33	125	5	6	1	3	406	366	162
TAJE156*050TNJV	E	15	50	85	33	125	7.5	6	0.6	3	524	472	210

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

*Please use "U" instead of "T" in the suffix letter for 13" reel packaging

Please use specific PN for automotive version – see "HOW TO ORDER".

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.

For typical weight and composition see page 223.

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 Automotive Range



Standard Tantalum - Automotive Product Range

QUALIFICATION TABLE

TEST	TAJ automotive series (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	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	initial limit						
Humidity	Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.			Visual examination	no visible damage						
				DCL	1.5 x initial limit						
				ΔC/C	within ±10% of initial value						
				DF	1.2 x initial limit						
				ESR	initial limit						
Biased Humidity	Determine after leaving for 1000 hours at 85±2°C, 85% relative humidity and rated voltage and then recovery 1-2 hours at room temperature.			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±10% of initial value						
				DF	1.2 x initial limit						
				ESR	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	IL*	2 x IL*	IL*	IL*	IL*	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: 1.3 x category voltage at 125°C 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 ±5% of initial value						
				DF	initial limit						
				ESR	initial limit						

*Initial Limit