TMJ Tantalum

SMD S1gma™ Series Capacitors



The S1gma™ series is offering a next generation of statistical screening and process control enhancement of tantalum capacitors for professional applications with improved reliability and extremely low DCL needs.

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

SnPb termination option is not RoHS compliant.

FEATURES

- -55 to +125°C Operation Temperature
- Basic Reliability Better than 0.5%/1000 hours
- 100% Surge Current Tested
- (2x Improvement Over Commercial Series)
- Improved DCL Limits 0.001CV* and 0.005CV

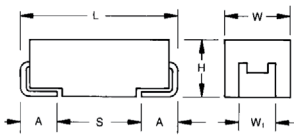
S1gma™ Prime – Utilizes 3 S1gma™ electrical screening to remove possible maverick parts from the distribution.

S1gma™ Premium – S1gma™ Prime, with addition of capability statistical screening utilizing the KYOCERA AVX patented Q-Process to effectively remove components that may experience excessive parametric shifts or instability in operational life.

S1gma™ Pro Custom – A custom option where specific parameter limits and screening methods can be agreed based on 3 S1gma™ and Q-Process statistical screening based on capability techniques.

*selected codes, 0.001CV limit is available with S1gma™ Premium and Pro Custom options only

TMJ CONSTRUCTION



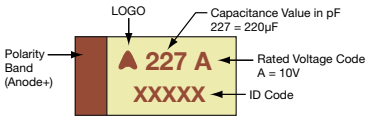
APPLICATIONS

- Wireless Battery Operated Sensors
- TPM
- Automotive
- Avionics
- Safety Systems
- Energy Harvesting

For additional information on Q-process please consult the KYOCERA AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors"

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)	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 (0.122)	1.30 (0.051)	4.40 (0.173)

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

HOW TO ORDER

TMJ	D	227	K	006	#	C	^	A
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	**Packaging** R = Pure Tin 7" Reel H = Tin Lead 7" Reel H = Non RoHS H = Please Contact Manufacturer	**ESR Range** C = Standard L = Low ESR	**Suffix** QX = S1gma™ Prime QY = S1gma™ Premium xx = S1gma™ Pro Custom	**DCL** A = 0.001CV C = 0.005CV

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%							
Leakage Current DCL:	(A) 0.001CV, (C) 0.005CV							
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:	0.5% per 1000 hours at 85°C, V_R with 0.1Ω/V series impedance, 60% confidence level							
	AEC-Q200 per request							

The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

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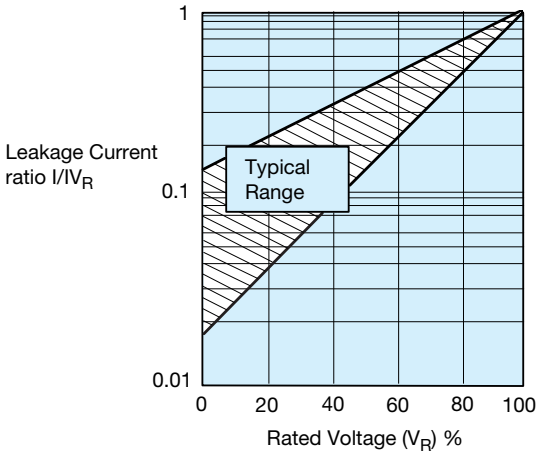
CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage (V_R) to 85°C (Voltage Code)						
µF	Code	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.22	224							A
0.33	334						A	A
0.47	474						A	B
0.68	684						A	B
1.0	105					A	B	C
1.5	155				A	A	B	C
2.2	225			A	A	B	B	C
3.3	335			A	A	B	B	C
4.7	475		A	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	U
22	226	B	B	C	C	D	D	U
33	336	B	C	C	D	D	E	
47	476	C	C	D	D	D	U	
68	686	C	C	D	E	U		
100	107	C	D	E	E	U		
150	157	D	D	E	U			
220	227	D	E	U				
330	337	E	E					
470	477	E	U					
680	687	U						

Released ratings

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

LEAKAGE CURRENT vs. RATED VOLTAGE



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RATINGS & PART NUMBER REFERENCE

Part Number	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	100kHz RMS Current (mA)			MSL
										25°C	85°C	125°C	
6.3 Volt @ 85°C													
TMJA106K006#CQYA	A	10	6.3	85	4	125	0.1	6	1500	224	201	89	3
TMJA106K006#C^C	A	10	6.3	85	4	125	0.3	6	1500	224	201	89	3
TMJA156K006#CQYA	A	15	6.3	85	4	125	0.1	6	1500	224	201	89	3
TMJA156K006#C^C	A	15	6.3	85	4	125	0.45	6	1500	224	201	89	3
TMJB226K006#C^C	B	22	6.3	85	4	125	0.66	6	600	376	339	151	3
TMJB336K006#C^C	B	33	6.3	85	4	125	0.99	6	600	376	339	151	3
TMJC476K006#CQYA	C	47	6.3	85	4	125	0.28	6	300	606	545	242	3
TMJC476K006#C^C	C	47	6.3	85	4	125	1.41	6	300	606	545	242	3
TMJC686K006#CQYA	C	68	6.3	85	4	125	0.41	6	300	606	545	242	3
TMJC686K006#C^C	C	68	6.3	85	4	125	2.04	6	300	606	545	242	3
TMJC107K006#CQYA	C	100	6.3	85	4	125	0.60	6	300	606	545	242	3
TMJC107K006#C^C	C	100	6.3	85	4	125	3	6	300	606	545	242	3
TMJD157K006#CQYA	D	150	6.3	85	4	125	0.90	6	200	866	779	346	3
TMJD157K006#C^C	D	150	6.3	85	4	125	4.5	6	200	866	779	346	3
TMJD227K006#CQYA	D	220	6.3	85	4	125	1.32	8	200	866	779	346	3
TMJD227K006#C^C	D	220	6.3	85	4	125	6.6	8	200	866	779	346	3
TMJE337K006#C^C	E	330	6.3	85	4	125	9.9	8	200	908	817	363	3
TMJE477K006#CQYA	E	470	6.3	85	4	125	2.82	8	200	908	817	363	3
TMJE477K006#C^C	E	470	6.3	85	4	125	14.1	8	200	908	817	363	3
TMJU687K006#C^C	U	680	6.3	85	4	125	20.4	12	250	812	731	325	3
10 Volt @ 85°C													
TMJA475K010#CQXC	A	4.7	10	85	7	125	0.24	6	2000	194	174	77	3
TMJA685K010#CQYA	A	6.8	10	85	7	125	0.1	6	2000	194	174	77	3
TMJA685K010#C^C	A	6.8	10	85	7	125	0.34	6	2000	194	174	77	3
TMJA106K010#CQYA	A	10	10	85	7	125	0.10	6	2000	194	174	77	3
TMJA106K010#C^C	A	10	10	85	7	125	0.5	6	2000	194	174	77	3
TMJB156K010#C^C	B	15	10	85	7	125	0.75	6	700	348	314	139	3
TMJB226K010#C^C	B	22	10	85	7	125	1.1	6	700	348	314	139	3
TMJC336K010#C^C	C	33	10	85	7	125	1.65	6	300	606	545	242	3
TMJC476K010#C^C	C	47	10	85	7	125	2.35	6	300	606	545	242	3
TMJC686K010#C^C	C	68	10	85	7	125	3.4	6	300	606	545	242	3
TMJD107K010#C^C	D	100	10	85	7	125	5.00	6	150	1000	900	400	3
TMJD157K010#C^C	D	150	10	85	7	125	7.50	8	150	1000	900	400	3
TMJE227K010#C^C	E	220	10	85	7	125	11	8	150	1049	944	420	3
TMJE337K010#CQYA	E	330	10	85	7	125	3.3	8	150	1049	944	420	3
TMJE337K010#C^C	E	330	10	85	7	125	16.5	8	150	1049	944	420	3
TMJU477K010#C^C	U	470	10	85	7	125	23.5	12	200	908	817	363	3
16 Volt @ 85°C													
TMJA225K016#CQXC	A	2.2	16	85	10	125	0.18	6	3500	146	132	59	3
TMJA335K016#CQXC	A	3.3	16	85	10	125	0.26	6	3500	146	132	59	3
TMJA475K016#C^C	A	4.7	16	85	10	125	0.38	6	3500	146	132	59	3
TMJB685K016#C^C	B	6.8	16	85	10	125	0.54	6	1200	266	240	106	3
TMJB106K016#C^C	B	10	16	85	10	125	0.80	6	1200	266	240	106	3
TMJB156K016#C^C	B	15	16	85	10	125	1.20	6	1200	266	240	106	3
TMJC226K016#C^C	C	22	16	85	10	125	1.76	6	350	561	505	224	3
TMJC336K016#C^C	C	33	16	85	10	125	2.64	6	350	561	505	224	3
TMJD476K016#C^C	D	47	16	85	10	125	3.76	6	200	866	779	346	3
TMJD686K016#C^C	D	68	16	85	10	125	5.44	6	200	866	779	346	3
TMJE107K016#C^C	E	100	16	85	10	125	8.00	6	150	1049	944	420	3
TMJE157K016#C^C	E	150	16	85	10	125	12	6	150	1049	944	420	3
TMJU227K016#C^C	U	220	16	85	10	125	17.6	1	200	908	817	363	3
20 Volt @ 85°C													
TMJA155K020#CQXC	A	1.5	20	85	13	125	0.15	6	3000	158	142	63	3
TMJA225K020#CQXC	A	2.2	20	85	13	125	0.22	6	3000	158	142	63	3
TMJA335K020#C^C	A	3.3	20	85	13	125	0.33	6	3000	158	142	63	3
TMJB475K020#C^C	B	4.7	20	85	13	125	0.47	6	1000	292	262	117	3
TMJB685K020#C^C	B	6.8	20	85	13	125	0.68	6	1000	292	262	117	3
TMJC106K020#C^C	C	10	20	85	13	125	1	6	500	469	422	188	3
TMJC156K020#C^C	C	15	20	85	13	125	1.5	6	500	469	422	188	3
TMJC226K020#C^C	C	22	20	85	13	125	2.2	6	500	469	422	188	3
TMJD336K020#C^C	D	33	20	85	13	125	3.3	6	250	775	697	310	3
TMJD476K020#C^C	D	47	20	85	13	125	4.70	6	250	775	697	310	3
TMJE686K020#C^C	E	68	20	85	13	125	6.8	6	200	908	817	363	3
TMJE107K020#C^C	E	100	20	85	13	125	10	6	200	908	817	363	3
TMJU157K020#CQXC	U	150	20	85	13	125	15	12	250	812	731	325	3
25 Volt @ 85°C													
TMJA105K025#CQXC	A	1	25	85	17	125	0.13	4	3000	158	142	63	3
TMJA155K025#CQXC	A	1.5	25	85	17	125	0.19	6	3000	158	142	63	3
TMJB225K025#C^C	B	2.2	25	85	17	125	0.28	6	2000	206	186	82	3
TMJB335K025#C^C	B	3.3	25	85	17	125	0.41	6	2000	206	186	82	3

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RATINGS & PART NUMBER REFERENCE

Part Number	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	100kHz RMS Current (mA)			MSL
										25°C	85°C	125°C	
TMJB475K025#C^C	B	4.7	25	85	17	125	0.59	6	2000	206	186	82	3
TMJC685K025#C^C	C	6.8	25	85	17	125	0.85	6	600	428	385	171	3
TMJC106K025#C^C	C	10	25	85	17	125	1.25	6	600	428	385	171	3
TMJC156K025#C^C	C	15	25	85	17	125	1.88	6	600	428	385	171	3
TMJD226K025#CQYA	D	22	25	85	17	125	0.55	6	400	612	551	245	3
TMJD226K025#C^C	D	22	25	85	17	125	2.75	6	400	612	551	245	3
TMJD336K025#CQYA	D	33	25	85	17	125	0.82	6	400	612	551	245	3
TMJD336K025#C^C	D	33	25	85	17	125	4.13	6	400	612	551	245	3
TMJD476K025#C^C	D	47	25	85	17	125	5.88	6	400	612	551	245	3
TMJU686K025#CQXC	U	68	25	85	17	125	8.5	12	450	606	545	242	3
TMJU107K025#CQXC	U	100	25	85	17	125	12.5	12	450	606	545	242	3
35 Volt @ 85°C													
TMJA334K035#CQXC	A	0.33	35	85	23	125	0.1	4	6000	112	101	45	3
TMJA474K035#CQXC	A	0.47	35	85	23	125	0.1	4	6000	112	101	45	3
TMJA684K035#CQXC	A	0.68	35	85	23	125	0.12	4	6000	112	101	45	3
TMJB105K035#CQXC	B	1	35	85	23	125	0.18	4	2500	184	166	74	3
TMJB155K035#C^C	B	1.5	35	85	23	125	0.26	6	2500	184	166	74	3
TMJB225K035#C^C	B	2.2	35	85	23	125	0.39	6	2500	184	166	74	3
TMJB335K035#C^C	B	3.3	35	85	23	125	0.58	6	2500	184	166	74	3
TMJC475K035#CQYA	C	4.7	35	85	23	125	0.16	6	600	428	385	171	3
TMJC475K035#C^C	C	4.7	35	85	23	125	0.82	6	600	428	385	171	3
TMJC685K035#C^C	C	6.8	35	85	23	125	1.19	6	600	428	385	171	3
TMJC106K035#C^C	C	10	35	85	23	125	1.75	6	600	428	385	171	3
TMJD156K035#CQYA	D	15	35	85	23	125	0.52	6	400	612	551	245	3
TMJD156K035#C^C	D	15	35	85	23	125	2.63	6	400	612	551	245	3
TMJD226K035#CQYA	D	22	35	85	23	125	0.77	6	400	612	551	245	3
TMJD226K035#C^C	D	22	35	85	23	125	3.85	6	400	612	551	245	3
TMJE336K035#CQYA	E	33	35	85	23	125	1.15	6	250	812	731	325	3
TMJE336K035#C^C	E	33	35	85	23	125	5.78	6	250	812	731	325	3
TMJU476K035#CQXC	U	47	35	85	23	125	8.23	12	300	742	667	297	3
TMJU476K035#CQYA	U	47	35	85	23	125	1.64	12	300	742	667	297	3
50 Volt @ 85°C													
TMJA224K050#CQXC	A	0.22	50	85	33	125	0.1	4	7000	104	93	41	3
TMJA334K050#CQXC	A	0.33	50	85	33	125	0.1	4	7000	104	93	41	3
TMJB474K050#CQXC	B	0.47	50	85	33	125	0.12	4	2000	206	186	82	3
TMJB684K050#CQXC	B	0.68	50	85	33	125	0.17	4	2000	206	186	82	3
TMJC105K050#C^C	C	1	50	85	33	125	0.25	4	1500	271	244	108	3
TMJC155K050#C^C	C	1.5	50	85	33	125	0.38	6	1500	271	244	108	3
TMJC225K050#CQYA	C	2.2	50	85	33	125	0.11	6	1500	271	244	108	3
TMJC225K050#C^C	C	2.2	50	85	33	125	0.55	6	1500	271	244	108	3
TMJC335K050#CQYA	C	3.3	50	85	33	125	0.17	6	1500	271	244	108	3
TMJC335K050#C^C	C	3.3	50	85	33	125	0.83	6	1500	271	244	108	3
TMJD475K050#C^C	D	4.7	50	85	33	125	1.18	4.5	600	500	450	200	3
TMJD685K050#C^C	D	6.8	50	85	33	125	1.7	4.5	600	500	450	200	3
TMJE106K050#CQYA	E	10	50	85	33	125	0.5	4.5	400	642	578	257	3
TMJE106K050#C^C	E	10	50	85	33	125	2.5	4.5	400	642	578	257	3
TMJU156K050#CQXC	U	15	50	85	33	125	3.75	12	450	606	545	242	3
TMJU226K050#CQXC	U	22	50	85	33	125	5.5	12	450	606	545	242	3

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. For typical weight and composition, refer to the *Product Safety Information Datasheet* at the end of the Polymer, Tantalum and Niobium Oxide Capacitors catalog.

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

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QUALIFICATION TABLE

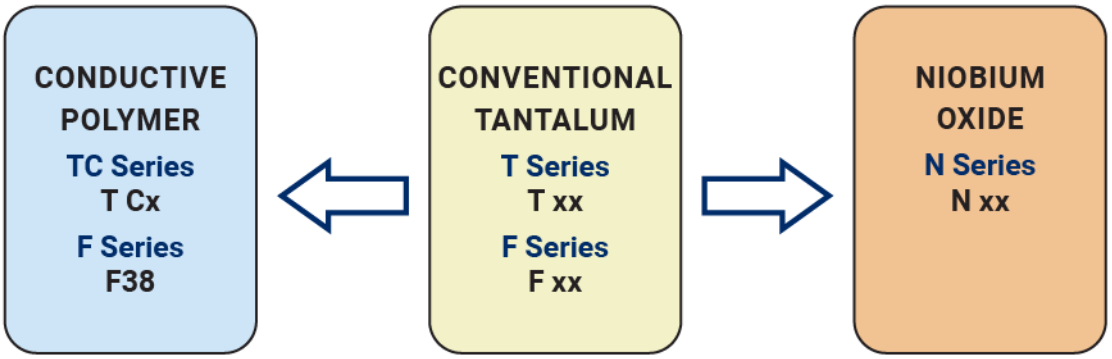
<table>
<tr><th rowspan="2">TEST</th><th colspan="10">TMJ S1gma™ series (Temperature range -55°C to +125°C)</th></tr>
<tr><th colspan="4">Condition</th><th colspan="6">Characteristics</th></tr>
<tr><td>Endurance</td><td colspan="4" rowspan="5">Apply rated voltage (Ur) at 85°C and / or category voltage (Uc) at 125°C for 2000 hours through a circuit impedance of ≤0.1Ω/V. Stabilize at room temperature for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">2 x initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±10% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">1.25 x initial limit</td></tr>
<tr><td>Storage Life</td><td colspan="4" rowspan="5">Store at 125°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">2 x initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±10% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">1.25 x initial limit</td></tr>
<tr><td>Humidity</td><td colspan="4" rowspan="5">Store at 65°C and 90 - 95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">3 x initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±10% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">1.2 x initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">1.25 x initial limit</td></tr>
<tr><td>Biased Humidity</td><td colspan="4" rowspan="5">Apply rated voltage (Ur) at 85°C, 85% relative humidity for 1000 hours. Stabilize at room temperature and humidity for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">3 x initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±10% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">1.2 x initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">1.25 x initial limit</td></tr>
<tr><td>Temperature Stability</td><td colspan="4" rowspan="7"><table><tr><th>Step</th><th>Temperature°C</th><th>Duration(min)</th></tr><tr><td>1</td><td>+20</td><td>15</td></tr><tr><td>2</td><td>-55</td><td>15</td></tr><tr><td>3</td><td>+20</td><td>15</td></tr><tr><td>4</td><td>+85</td><td>15</td></tr><tr><td>5</td><td>+125</td><td>15</td></tr><tr><td>6</td><td>+20</td><td>15</td></tr></table></td><td></td><td>+20°C</td><td>-55°C</td><td>+20°C</td><td>+85°C</td><td>+125°C</td><td>+20°C</td></tr>
<tr><td></td><td>DCL</td><td>IL*</td><td>n/a</td><td>IL*</td><td>10 x IL*</td><td>15 x IL*</td><td>1.5 x IL*</td></tr>
<tr><td></td><td>ΔC/C</td><td>n/a</td><td>+0/-10%</td><td>±5%</td><td>+10/-0%</td><td>+15/-0%</td><td>±5%</td></tr>
<tr><td></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></td><td>ESR</td><td>1.25xIL*</td><td>2.5xIL*</td><td>1.25xIL*</td><td>1.25xIL*</td><td>1.25xIL*</td><td>1.25xIL*</td></tr>
<tr><td>Surge Voltage</td><td colspan="4" rowspan="5">Apply 1.3x category voltage (Uc) at 125°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000Ω</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">2 x initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±5% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">1.25 x initial limit</td></tr>
<tr><td>Mechanical Shock</td><td colspan="4" rowspan="5">MIL-STD-202, Method 213, Condition C</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±5% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">initial limit</td></tr>
<tr><td>Vibration</td><td colspan="4" rowspan="5">MIL-STD-202, Method 204, Condition D</td><td>Visual examination</td><td colspan="5">no visible damage</td></tr>
<tr><td></td><td>DCL</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ΔC/C</td><td colspan="5">within ±5% of initial value</td></tr>
<tr><td></td><td>DF</td><td colspan="5">initial limit</td></tr>
<tr><td></td><td>ESR</td><td colspan="5">initial limit</td></tr>
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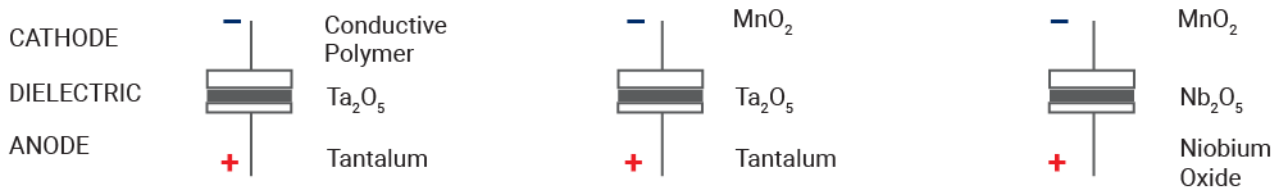
*Initial Limit

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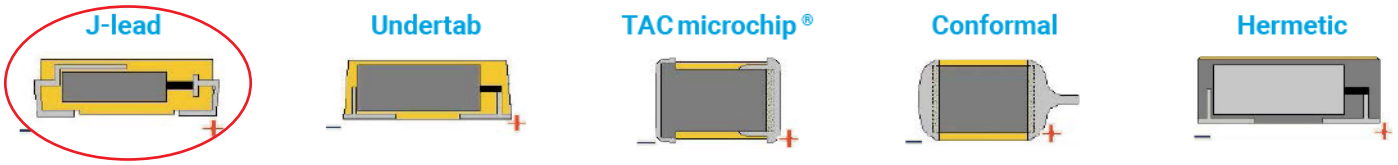
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SOLID ELECTROLYTIC CAPACITOR ROADMAP

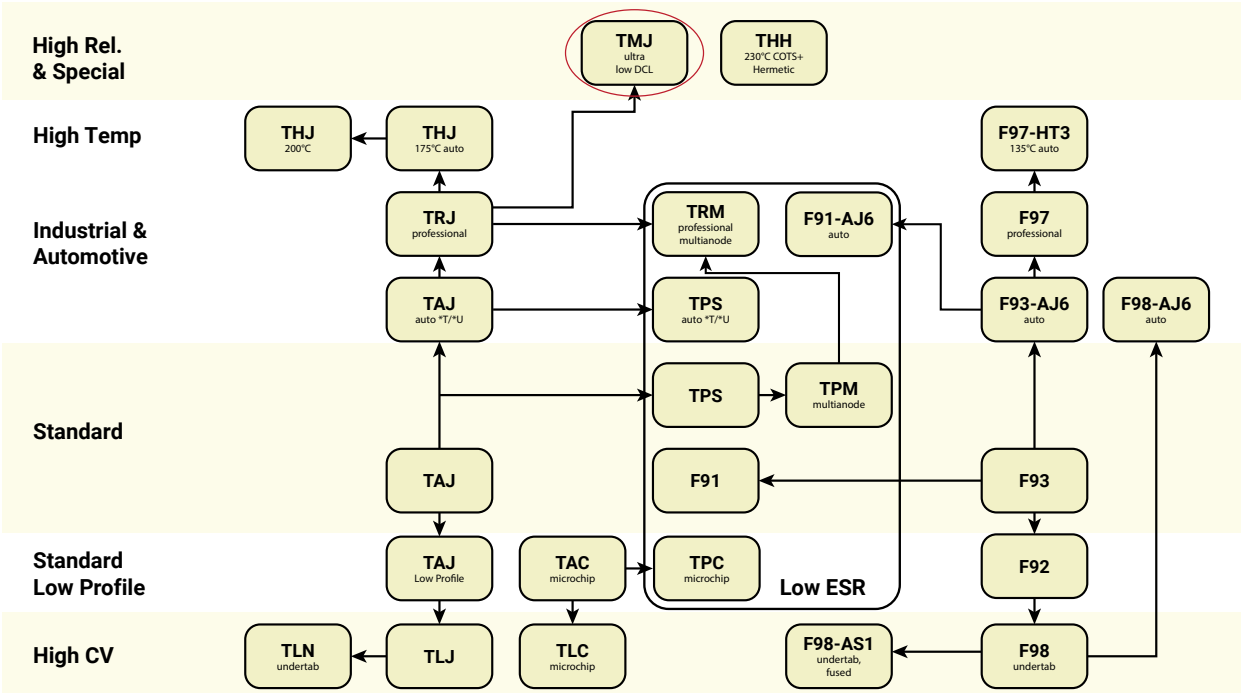




FIVE CAPACITOR CONSTRUCTION STYLES



SERIES LINE UP : CONVENTIONAL SMD MnO_2



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