

TMJ Tantalum SMD S1gma** Series Capacitors



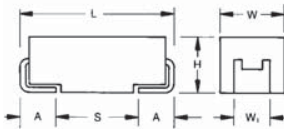
The AVX S1gma series is offering a next generation of statistical screening and process control enhancement of tantalum capacitors for professional applications with improved reliability and extremely low DCL needs.



The general features are:

- 55 to +125°C operation temperature
- basic reliability better than 0.5%/1000 hours (2x improvement over commercial series)
- improved DCL limits 0.001CV* and 0.005CV

TMJ CONSTRUCTION



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

S1gma Premium – S1gma Prime, with addition of capability statistical screening utilising the 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
 **The S1gma mark has been filed for registration mark on November 6, 2013

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)

W1 dimension applies to the termination width for A dimensional area only.

HOW TO ORDER

TMJ	U	108	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 (Contact Manufacturer) Non RoHS	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									



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CAPACITANCE AND RATED VOLTAGE, VR (VOLTAGE CODE) 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	A
0.33	334						A	A
0.47	474						A	B
0.68	684						A	B
1.0	105				A	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	D	
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						

Available Ratings

Engineering samples - please contact manufacturer

*Codes under development - subject to change

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)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	MSL	100kHz RMS Current (A)			100kHz RMS Voltage (V)		
								25°C	85°C	125°C	25°C	85°C	125°C
6.3 Volt @ 85°C (4 Volt @ 125°C)													
TMJA106*006#CQYA	A	10	6.3	0.06	6	1500	3	224	201	89	335	302	134
TMJA106*006#C^C	A	10	6.3	0.3	6	1500	3	224	201	89	335	302	134
TMJA156*006#CQYA	A	15	6.3	0.09	6	1500	3	224	201	89	335	302	134
TMJA156*006#C^C	A	15	6.3	0.45	6	1500	3	224	201	89	335	302	134
TMJB226*006#CQYA	B	22	6.3	0.13	6	600	3	376	339	151	226	203	90
TMJB226*006#C^C	B	22	6.3	0.66	6	600	3	376	339	151	226	203	90
TMJB336*006#CQYA	B	33	6.3	0.20	6	600	3	376	339	151	226	203	90
TMJB336*006#C^C	B	33	6.3	0.99	6	600	3	376	339	151	226	203	90
TMJC476*006#CQYA	C	47	6.3	0.28	6	300	3	606	545	242	182	163	73
TMJC476*006#C^C	C	47	6.3	1.41	6	300	3	606	545	242	182	163	73
TMJC686*006#CQYA	C	68	6.3	0.41	6	300	3	606	545	242	182	163	73
TMJC686*006#C^C	C	68	6.3	2.04	6	300	3	606	545	242	182	163	73
TMJC107*006#CQYA	C	100	6.3	0.60	6	300	3	606	545	242	182	163	73
TMJC107*006#C^C	C	100	6.3	3	6	300	3	606	545	242	182	163	73
TMJD157*006#CQYA	D	150	6.3	0.90	6	200	3	866	779	346	173	156	69
TMJD157*006#C^C	D	150	6.3	4.5	6	200	3	866	779	346	173	156	69
TMJD227*006#CQYA	D	220	6.3	1.32	8	200	3	866	779	346	173	156	69
TMJD227*006#C^C	D	220	6.3	6.6	8	200	3	866	779	346	173	156	69
TMJE337*006#C^C	E	330	6.3	9.9	8	200	3	908	817	363	182	163	73
TMJE477*006#C^C	E	470	6.3	14.1	8	200	3	908	817	363	182	163	73
TMJU687*006#C^C	U	680	6.3	20.4	12	250	3	812	731	325	203	183	81
10 Volt @ 85°C (7 Volt @ 125°C)													
TMJA475*010#C^C	A	4.7	10	0.24	6	2000	3	194	174	77	387	349	155
TMJA685*010#CQYA	A	6.8	10	0.07	6	2000	3	194	174	77	387	349	155
TMJA685*010#C^C	A	6.8	10	0.34	6	2000	3	194	174	77	387	349	155
TMJA106*010#CQYA	A	10	10	0.10	6	2000	3	194	174	77	387	349	155
TMJA106*010#C^C	A	10	10	0.5	6	2000	3	194	174	77	387	349	155
TMJB156*010#CQYA	B	15	10	0.15	6	700	3	348	314	139	244	220	98
TMJB156*010#C^C	B	15	10	0.75	6	700	3	348	314	139	244	220	98
TMJB226*010#CQYA	B	22	10	0.22	6	700	3	348	314	139	244	220	98
TMJB226*010#C^C	B	22	10	1.1	6	700	3	348	314	139	244	220	98
TMJC336*010#CQYA	C	33	10	0.33	6	300	3	606	545	242	182	163	73
TMJC336*010#C^C	C	33	10	1.65	6	300	3	606	545	242	182	163	73
TMJC476*010#CQYA	C	47	10	0.47	6	300	3	606	545	242	182	163	73
TMJC476*010#C^C	C	47	10	2.35	6	300	3	606	545	242	182	163	73
TMJC686*010#CQYA	C	68	10	0.68	6	300	3	606	545	242	182	163	73
TMJC686*010#C^C	C	68	10	3.4	6	300	3	606	545	242	182	163	73
TMJD107*010#CQYA	D	100	10	1.00	6	150	3	1000	900	400	150	135	60
TMJD107*010#C^C	D	100	10	5.00	6	150	3	1000	900	400	150	135	60
TMJD157*010#CQYA	D	150	10	1.50	8	150	3	1000	900	400	150	135	60
TMJD157*010#C^C	D	150	10	7.50	8	150	3	1000	900	400	150	135	60
TMJE227*010#CQYA	E	220	10	2.20	8	150	3	1049	944	420	157	142	63
TMJE227*010#C^C	E	220	10	11	8	150	3	1049	944	420	157	142	63
TMJE337*010#C^C	E	330	10	16.5	8	150	3	1049	944	420	157	142	63
TMJU477*010#C^C	U	470	10	23.5	12	200	3	908	817	363	182	163	73
16 Volt @ 85°C (10 Volt @ 125°C)													
TMJA225*016#C^C	A	2.2	16	0.18	6	3500	3	146	132	59	512	461	205
TMJA335*016#C^C	A	3.3	16	0.26	6	3500	3	146	132	59	512	461	205
TMJA475*016#CQYA	A	4.7	16	0.08	6	3500	3	146	132	59	512	461	205
TMJA475*016#C^C	A	4.7	16	0.38	6	3500	3	146	132	59	512	461	205
TMJB685*016#CQYA	B	6.8	16	0.11	6	1200	3	266	240	106	319	287	128
TMJB685*016#C^C	B	6.8	16	0.54	6	1200	3	266	240	106	319	287	128
TMJB106*016#CQYA	B	10	16	0.16	6	1200	3	266	240	106	319	287	128
TMJB106*016#C^C	B	10	16	0.80	6	1200	3	266	240	106	319	287	128
TMJB156*016#CQYA	B	15	16	0.24	6	1200	3	266	240	106	319	287	128
TMJB156*016#C^C	B	15	16	1.20	6	1200	3	266	240	106	319	287	128
TMJC226*016#CQYA	C	22	16	0.35	6	350	3	561	505	224	196	177	78
TMJC226*016#C^C	C	22	16	1.76	6	350	3	561	505	224	196	177	78
TMJC336*016#CQYA	C	33	16	0.53	6	350	3	561	505	224	196	177	78
TMJC336*016#C^C	C	33	16	2.64	6	350	3	561	505	224	196	177	78
TMJD476*016#CQYA	D	47	16	0.75	6	200	3	866	779	346	173	156	69
TMJD476*016#C^C	D	47	16	3.76	6	200	3	866	779	346	173	156	69
TMJD686*016#CQYA	D	68	16	1.09	6	200	3	866	779	346	173	156	69
TMJD686*016#C^C	D	68	16	5.44	6	200	3	866	779	346	173	156	69
TMJE107*016#CQYA	E	100	16	1.60	6	150	3	1049	944	420	157	142	63
TMJE107*016#C^C	E	100	16	8.00	6	150	3	1049	944	420	157	142	63
TMJE157*016#CQYA	E	150	16	2.40	6	150	3	1049	944	420	157	142	63
TMJE157*016#C^C	E	150	16	12	6	150	3	1049	944	420	157	142	63
TMJU227*016#C^C	U	220	16	17.6	12	200	3	908	817	363	182	163	73
20 Volt @ 85°C (13 Volt @ 125°C)													
TMJA155*020#C^C	A	1.5	20	0.15	6	3000	3	158	142	63	474	427	190
TMJA225*020#C^C	A	2.2	20	0.22	6	3000	3	158	142	63	474	427	190
TMJA335*020#CQYA	A	3.3	20	0.07	6	3000	3	158	142	63	474	427	190
TMJA335*020#C^C	A	3.3	20	0.33	6	3000	3	158	142	63	474	427	190
TMJB475*020#CQYA	B	4.7	20	0.09	6	1000	3	292	262	117	292	262	117
TMJB475*020#C^C	B	4.7	20	0.47	6	1000	3	292	262	117	292	262	117



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AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	MSL	100kHz RMS Current (A)			100kHz RMS Voltage (V)		
								25°C	85°C	125°C	25°C	85°C	125°C
TMJB685*020#CQYA	B	6.8	20	0.14	6	1000	3	292	262	117	292	262	117
TMJB685*020#C^C	B	6.8	20	0.68	6	1000	3	292	262	117	292	262	117
TMJC106*020#CQYA	C	10	20	0.20	6	500	3	469	422	188	235	211	94
TMJC106*020#C^C	C	10	20	1	6	500	3	469	422	188	235	211	94
TMJC156*020#CQYA	C	15	20	0.30	6	500	3	469	422	188	235	211	94
TMJC156*020#C^C	C	15	20	1.5	6	500	3	469	422	188	235	211	94
TMJC226*020#CQYA	C	22	20	0.44	6	500	3	469	422	188	235	211	94
TMJC226*020#C^C	C	22	20	2.2	6	500	3	469	422	188	235	211	94
TMJD336*020#CQYA	D	33	20	0.66	6	250	3	775	697	310	194	174	77
TMJD336*020#C^C	D	33	20	3.3	6	250	3	775	697	310	194	174	77
TMJD476*020#CQYA	D	47	20	0.94	6	250	3	775	697	310	194	174	77
TMJD476*020#C^C	D	47	20	4.70	6	250	3	775	697	310	194	174	77
TMJE686*020#C^C	E	68	20	6.8	6	200	3	908	817	363	182	163	73
TMJE107*020#C^C	E	100	20	10	6	200	3	908	817	363	182	163	73
TMJU157*020#C^C	U	150	20	15	12	250	3	812	731	325	203	183	81
25 Volt @ 85°C (17 Volt @ 125°C)													
TMJA105*025#C^C	A	1	25	0.13	4	3000	3	158	142	63	474	427	190
TMJA155*025#C^C	A	1.5	25	0.19	6	3000	3	158	142	63	474	427	190
TMJB225*025#CQYA	B	2.2	25	0.06	6	2000	3	206	186	82	412	371	165
TMJB225*025#C^C	B	2.2	25	0.28	6	2000	3	206	186	82	412	371	165
TMJB335*025#CQYA	B	3.3	25	0.08	6	2000	3	206	186	82	412	371	165
TMJB335*025#C^C	B	3.3	25	0.41	6	2000	3	206	186	82	412	371	165
TMJB475*025#CQYA	B	4.7	25	0.12	6	2000	3	206	186	82	412	371	165
TMJB475*025#C^C	B	4.7	25	0.59	6	2000	3	206	186	82	412	371	165
TMJC685*025#CQYA	C	6.8	25	0.17	6	600	3	428	385	171	257	231	103
TMJC685*025#C^C	C	6.8	25	0.85	6	600	3	428	385	171	257	231	103
TMJC106*025#CQYA	C	10	25	0.25	6	600	3	428	385	171	257	231	103
TMJC106*025#C^C	C	10	25	1.25	6	600	3	428	385	171	257	231	103
TMJC156*025#CQYA	C	15	25	0.38	6	600	3	428	385	171	257	231	103
TMJC156*025#C^C	C	15	25	1.88	6	600	3	428	385	171	257	231	103
TMJD226*025#CQYA	D	22	25	0.55	6	400	3	612	551	245	245	220	98
TMJD226*025#C^C	D	22	25	2.75	6	400	3	612	551	245	245	220	98
TMJD336*025#CQYA	D	33	25	0.83	6	400	3	612	551	245	245	220	98
TMJD336*025#C^C	D	33	25	4.13	6	400	3	612	551	245	245	220	98
TMJD476*025#CQYA	D	47	25	1.18	6	400	3	612	551	245	245	220	98
TMJD476*025#C^C	D	47	25	5.88	6	400	3	612	551	245	245	220	98
TMJU686*025#C^C	U	68	25	8.5	12	450	3	606	545	242	272	245	109
TMJU107*025#C^C	U	100	25	12.5	12	450	3	606	545	242	272	245	109
35 Volt @ 85°C (23 Volt @ 125°C)													
TMJA334*035#C^C	A	0.33	35	0.06	4	6000	3	112	101	45	671	604	268
TMJA474*035#C^C	A	0.47	35	0.08	4	6000	3	112	101	45	671	604	268
TMJA684*035#C^C	A	0.68	35	0.12	4	6000	3	112	101	45	671	604	268
TMJB105*035#C^C	B	1	35	0.18	4	2500	3	184	166	74	461	415	184
TMJB155*035#C^C	B	1.5	35	0.26	6	2500	3	184	166	74	461	415	184
TMJB225*035#C^C	B	2.2	35	0.39	6	2500	3	184	166	74	461	415	184
TMJB335*035#CQYA	B	3.3	35	0.12	6	2500	3	184	166	74	461	415	184
TMJB335*035#C^C	B	3.3	35	0.58	6	2500	3	184	166	74	461	415	184
TMJC475*035#CQYA	C	4.7	35	0.16	6	600	3	428	385	171	257	231	103
TMJC475*035#C^C	C	4.7	35	0.82	6	600	3	428	385	171	257	231	103
TMJC685*035#CQYA	C	6.8	35	0.24	6	600	3	428	385	171	257	231	103
TMJC685*035#C^C	C	6.8	35	1.19	6	600	3	428	385	171	257	231	103
TMJC106*035#CQYA	C	10	35	0.35	6	600	3	428	385	171	257	231	103
TMJC106*035#C^C	C	10	35	1.75	6	600	3	428	385	171	257	231	103
TMJD156*035#CQYA	D	15	35	0.53	6	400	3	612	551	245	245	220	98
TMJD156*035#C^C	D	15	35	2.63	6	400	3	612	551	245	245	220	98
TMJD226*035#CQYA	D	22	35	0.77	6	400	3	612	551	245	245	220	98
TMJD226*035#C^C	D	22	35	3.85	6	400	3	612	551	245	245	220	98
TMJE336*035#C^C	E	33	35	5.78	6	250	3	812	731	325	203	183	81
TMJU476*035#C^C	U	47	35	8.23	12	300	3	742	667	297	222	200	89
50 Volt @ 85°C (33 Volt @ 125°C)													
TMJA224*050#C^C	A	0.22	50	0.06	4	7000	3	104	93	41	725	652	290
TMJA334*050#C^C	A	0.33	50	0.08	4	7000	3	104	93	41	725	652	290
TMJB474*050#C^C	B	0.47	50	0.12	4	2000	3	206	186	82	412	371	165
TMJB684*050#C^C	B	0.68	50	0.17	4	2000	3	206	186	82	412	371	165
TMJC105*050#C^C	C	1	50	0.25	4	1500	3	271	244	108	406	366	162
TMJC155*050#C^C	C	1.5	50	0.38	6	1500	3	271	244	108	406	366	162
TMJC225*050#C^C	C	2.2	50	0.55	6	1500	3	271	244	108	406	366	162
TMJC335*050#CQYA	C	3.3	50	0.17	6	1500	3	271	244	108	406	366	162
TMJC335*050#C^C	C	3.3	50	0.83	6	1500	3	271	244	108	406	366	162
TMJD475*050#CQYA	D	4.7	50	0.24	4.5	600	3	500	450	200	300	270	120
TMJD475*050#C^C	D	4.7	50	1.18	4.5	600	3	500	450	200	300	270	120
TMJD685*050#CQYA	D	6.8	50	0.34	4.5	600	3	500	450	200	300	270	120
TMJD685*050#C^C	D	6.8	50	1.7	4.5	600	3	500	450	200	300	270	120
TMJE106*050#C^C	E	10	50	2.5	4.5	400	3	642	578	257	231	203	103
TMJU156*050#C^C	U	15	50	3.75	12	450	3	606	545	242	272	245	109
TMJU226*050#C^C	U	22	50	5.5	12	450	3	606	545	242	272	245	109

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.

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.

