

Tantalum Through-Hole Capacitors

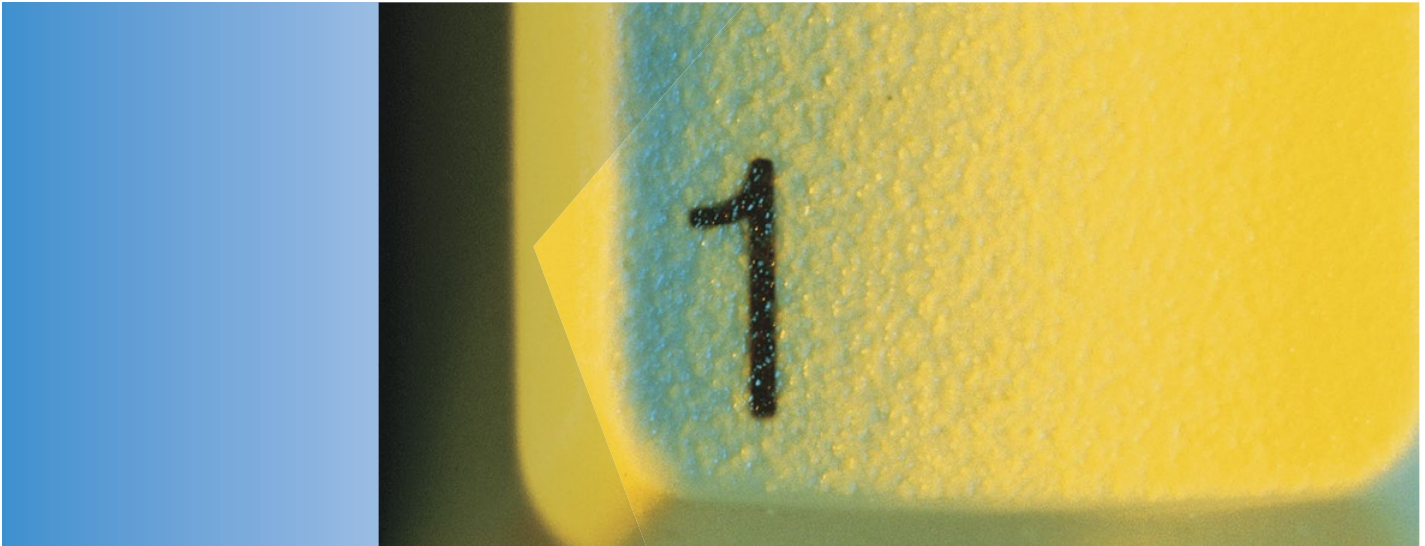
Hermetically Sealed



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One world. One source. One KEMET.

When you partner with KEMET, our entire global organization provides you with the coordinated service you need. No bouncing from supplier to supplier. No endless phone calls and web browsing. We're your single, integrated source for electronic component solutions worldwide.

Less hassles. More solutions.

Our commitment to product quality and on-time delivery has helped customers succeed for over 90 years. There's a reason KEMET components can be found in defense and aerospace equipment. Our reputation is built on a history of consistency, reliability and service.

The "Easy-to-Buy-From" company.

KEMET offers a level of responsiveness that far surpasses any other supplier. Our passion for customer service is evident throughout our global sales organization, which offers localized support bolstered by our worldwide logistics capabilities. Whether you need rush samples, technical assistance, in-person consultation, accelerated custom design, design collaboration or prototype services, we have a solution.



Made for you.

When you need custom products delivered on a tight schedule, you can trust KEMET. Get direct design consultation from global experts, who help you get the job done on time and within budget.

Working for a better world.

KEMET is dedicated to economically, environmentally and socially sustainable development. We've adopted the Electronic Industry Code of Conduct (EICC) to address all aspects of corporate responsibility. Our manufacturing facilities have won numerous environmental excellence awards and recognitions, and our supply chain is certified. We believe doing the right thing is in everyone's interest.

About KEMET.

KEMET Corporation is a leading global supplier of electronic components. We offer our customers the broadest selection of capacitor technologies in the industry across multiple dielectrics, along with an expanding range of electromechanical devices, and electromagnetic compatibility solutions. Our vision is to be the preferred supplier of electronic component solutions for customers demanding the highest standards of quality, delivery and service.

T110 Series Axial MIL-PRF-39003 Polar Type and T212 (CSR13 Style)

Overview

The KEMET standard hermetically sealed T110 Series is targeted for use in high humidity environments. These capacitors are ruggedly built, designed for miniaturized circuitry, and are especially well-suited for coupling, bypass, filtering and RC timing circuits. The T110 Series exhibits excellent stability as well as extremely low DC leakage current, dissipation factor, and

ESR/impedance over a wide temperature and frequency range. Available in standard EIA capacitance values from 0.0047 μ F to 330 μ F in $\pm 20\%$, $\pm 10\%$, and $\pm 5\%$ tolerances, the T110 Series is now offered in working voltages of 6 VDC to 125 VDC and low ESR limits. Higher CV values in comparable case sizes are available in the KEMET T410 Series.

Benefits

- Taped and reeled per EIA Specification RS-296
- Marking per MIL-STD-1285
- Qualified to MIL-PRF-39003 (CSR13 Style)
- Failure rate options: Graded - B, C, D, and G
Exponential - M, P, R, and S*
- Capacitance values of 0.0047 μ F to 330 μ F
- Tolerances of $\pm 5\%$, $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6 – 125 VDC
- Operating temperature range of -55°C to $+125^{\circ}\text{C}$
- Case sizes: A, B, C, D

**Failure rates apply to military products only*

Applications

Typical applications include coupling, bypass, filtering and RC timing circuits in miniaturized circuitry.



Ordering Information – T110

T	110	A	105	K	050	A	T	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial capacitor	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V 060 = 60 V 075 = 75 V 100 = 100 V 125 = 125 V	A = N/A	T = 100% Tin S = Standard (Sn/Pb)	All capacitors are sleeved unless specified 0100 = Without sleeve 7200 = Tape & Reel 7293 & 7443 = Ammo

Ordering Information – T212 (CSR13)

MIL product

T	212	A	105	K	050	B	S	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial Military grade capacitor	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	006 = 6V 010 = 10V 015 = 15V 020 = 20V 035 = 35V 050 = 50V 075 = 75V 100 = 100V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0 %/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard (Sn/Pb)	All capacitors are sleeved unless specified 0100 = Without sleeve 7200 = Tape & Reel 7293 & 7443 = Ammo 4250="A" surge current 4251="B" surge current 4252="C" surge current

Ordering Information – T212 (CSR13)

MIL product

M39003	/01	6003	E
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

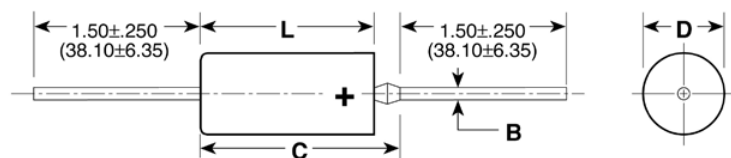
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.0047 – 330 µF @ 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 125 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (At rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL–39003, CSR13 capacitors only)	Approved failure rate: S (0.001%/k hours) - Exponential, D (0.001%/k hours) and C (0.01%/k hours) - Graded

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL-PRF-39003/1K				MIL-PRF-39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
6	2.2	A	T110A225(1)006A(3)	0.3	4										
6	2.7	A	T110A275(1)006A(3)	0.3	4										
6	3.3	A	T110A335(1)006A(3)	0.3	4										
6	3.9	A	T110A395(1)006A(3)	0.3	4										
6	4.7	A	T110A475(1)006A(3)	0.3	4										
6	5.6	A	T110A565J006A(3)	0.3	4	5001	5201	5401	5601	4001	6001	7001	8001	T212A565J006(2)S	
6	5.6	A	T110A565K006A(3)	0.3	4	2241	2481	2721	2961	4002	6002	7002	8002	T212A565K006(2)S	
6	5.6	A	T110A565M006A(3)	0.3	4										
6	6.8	A	T110A685J006A(3)	0.3	6	5002	5202	5402	5602	4003	6003	7003	8003	T212A685J006(2)S	
6	6.8	A	T110A685K006A(3)	0.3	6	2242	2482	2722	2962	4004	6004	7004	8004	T212A685K006(2)S	
6	6.8	A	T110A685M006A(3)	0.3	6	2243	2483	2723	2963	4005	6005	7005	8005	T212A685M006(2)S	
6	8.2	B	T110B825(1)006A(3)	0.3	6										
6	10.0	B	T110B106(1)006A(3)	0.3	6										
6	12.0	B	T110B126(1)006A(3)	0.5	6										
6	15.0	B	T110B156(1)006A(3)	0.9	6										
6	18.0	B	T110B186(1)006A(3)	0.9	6										
6	22.0	B	T110B226(1)006A(3)	0.9	6										
6	27.0	B	T110B276(1)006A(3)	0.9	6										
6	33.0	B	T110B336(1)006A(3)	0.9	6										
6	39.0	B	T110B396(1)006A(3)	0.9	6										
6	47.0	B	T110B476J006A(3)	1.5	6	5003	5203	5403	5603	4006	6006	7006	8006	T212B476J006(2)S	
6	47.0	B	T110B476K006A(3)	1.5	6	2244	2484	2724	2964	4007	6007	7007	8007	T212B476K006(2)S	
6	47.0	B	T110B476M006A(3)	1.5	6	2245	2485	2725	2965	4008	6008	7008	8008	T212B476M006(2)S	
6	56.0	B	T110B566J006A(3)	1.5	6	5004	5204	5404	5604	4009	6009	7009	8009	T212B566J006(2)S	
6	56.0	B	T110B566K006A(3)	1.5	6	2246	2486	2726	2966	4010	6010	7010	8010	T212B566K006(2)S	
6	56.0	B	T110B566M006A(3)	1.5	6										
6	68.0	C	T110C686(1)006A(3)	3.0	6										
6	82.0	C	T110C826(1)006A(3)	3.0	6										
6	100.0	C	T110C107(1)006A(3)	3.0	6										
6	120.0	C	T110C127(1)006A(3)	3.0	6										
6	150.0	C	T110C157J006A(3)	4.5	6	5005	5205	5405	5605	4011	6011	7011	8011	T212C157J006(2)S	
6	150.0	C	T110C157K006A(3)	4.5	6	2247	2487	2727	2967	4012	6012	7012	8012	T212C157K006(2)S	
6	150.0	C	T110C157M006A(3)	4.5	6	2248	2488	2728	2968	4013	6013	7013	8013	T212C157M006(2)S	
6	180.0	C	T110C187J006A(3)	5.5	6	5006	5206	5406	5606	4014	6014	7014	8014	T212C187J006(2)S	
6	180.0	C	T110C187K006A(3)	5.5	6	2249	2489	2729	2969	4015	6015	7015	8015	T212C187K006(2)S	
6	180.0	C	T110C187M006A(3)	5.5	6										
6	220.0	D	T110D227(1)006A(3)	6.0	8										
6	270.0	D	T110D277J006A(3)	6.0	8	5007	5207	5407	5607	4016	6016	7016	8016	T212D277J006(2)S	
6	270.0	D	T110D277K006A(3)	6.0	8	2250	2490	2730	2970	4017	6017	7017	8017	T212D277K006(2)S	
6	270.0	D	T110D277M006A(3)	6.0	8										
6	330.0	D	T110D337J006A(3)	7.5	8	5008	5208	5408	5608	4018	6018	7018	8018	T212D337J006(2)S	
6	330.0	D	T110D337K006A(3)	7.5	8	2251	2491	2731	2971	4019	6019	7019	8019	T212D337K006(2)S	
6	330.0	D	T110D337M006A(3)	7.5	8	2252	2492	2732	2972	4020	6020	7020	8020	T212D337M006(2)S	
10	1.0	A	T110A105(1)010A(3)	0.3	3										
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
10	1.2	A	T110A125(1)010A(3)	0.3	4										
10	1.5	A	T110A155(1)010A(3)	0.3	4										
10	1.8	A	T110A185(1)010A(3)	0.3	4										
10	2.2	A	T110A225(1)010A(3)	0.3	4										
10	2.7	A	T110A275(1)010A(3)	0.3	4										
10	3.3	A	T110A335(1)010A(3)	0.3	4										
10	3.9	A	T110A395J0010A(3)	0.3	4	5009	5209	5409	5609	4021	6021	7021	8021	T212A395J010(2)S	
10	3.9	A	T110A395K0010A(3)	0.3	4	2253	2493	2733	2973	4022	6022	7022	8022	T212A395K010(2)S	
10	3.9	A	T110A395M010A(3)	0.3	4										
10	4.7	A	T110A475J010A(3)	0.4	4	5010	5210	5410	5610	4023	6023	7023	8023	T212A475J010(2)S	
10	4.7	A	T110A475K010A(3)	0.4	4	2254	2494	2734	2974	4024	6024	7024	8024	T212A475K010(2)S	
10	4.7	A	T110A475M010A(3)	0.4	4	2255	2495	2735	2975	4025	6025	7025	8025	T212A475M010(2)S	
10	5.6	B	T110B565(1)010A(3)	0.4	4										
10	6.8	B	T110B685(1)010A(3)	1.0	6										
10	8.2	B	T110B825(1)010A(3)	1.0	6										
10	10.0	B	T110B106(1)010A(3)	1.0	6										
10	12.0	B	T110B126(1)010A(3)	1.0	6										
10	15.0	B	T110B156(1)010A(3)	1.0	6										
10	18.0	B	T110B186(1)010A(3)	1.0	6										
10	22.0	B	T110B226(1)010A(3)	2.0	6										
10	27.0	B	T110B276J010A(3)	2.0	6	5011	5211	5411	5611	4026	6026	7026	8026	T212B276J010(2)S	
10	27.0	B	T110B276K010(3)	2.0	6	2256	2496	2736	2976	4027	6027	7027	8027	T212B276K010(2)S	
10	27.0	B	T110B276M010A(3)	2.0	6										
10	33.0	B	T110B336J010A(3)	2.0	6	5012	5212	5412	5612	4028	6028	7028	8028	T212B336J010(2)S	
10	33.0	B	T110B336K010A(3)	2.0	6	2257	2497	2737	2977	4029	6029	7029	8029	T212B336K010(2)S	
10	33.0	B	T110B336M010A(3)	2.0	6	2258	2498	2738	2978	4030	6030	7030	8030	T212B336M010(2)S	
10	39.0	B	T110B396J010A(3)	2.0	6	5013	5213	5413	5613	4031	6031	7031	8031	T212B396J010(2)S	
10	39.0	B	T110B396K010A(3)	2.0	6	2259	2499	2739	2979	4032	6032	7032	8032	T212B396K010(2)S	
10	39.0	B	T110B396M010A(3)	2.0	6										
10	47.0	C	T110C476(1)010A(3)	3.0	6										
10	56.0	C	T110C566(1)010A(3)	3.0	6										
10	68.0	C	T110C686(1)010A(3)	3.0	6										
10	82.0	C	T110C826J010A(3)	3.0	6	5014	5214	5414	5614	4033	6033	7033	8033	T212C826J010(2)S	
10	82.0	C	T110C826K010A(3)	3.0	6	2260	2500	2740	2980	4034	6034	7034	8034	T212C826K010(2)S	
10	82.0	C	T110C826M010A(3)	3.0	6										
10	100.0	C	T110C107J010AS	5.0	6	5015	5215	5415	5615	4035	6035	7035	8035	T212C107J010(2)S	
10	100.0	C	T110C107K010AS	5.0	6	2261	2501	2741	2981	4036	6036	7036	8036	T212C107K010(2)S	
10	100.0	C	T110C107M010AS	5.0	6	2262	2502	2742	2982	4037	6037	7037	8037	T212C107M010(2)S	
10	120.0	C	T110C127J010AS	6.0	6	5016	5216	5416	5616	4038	6038	7038	8038	T212C127J010(2)S	
10	120.0	C	T110C127K010A(3)	6.0	6	2263	2503	2743	2983	4039	6039	7039	8039	T212C127K010(2)S	
10	120.0	C	T110C127M010A(3)	6.0	6										
10	150.0	D	T110D157(1)010A(3)	9.0	6										
10	180.0	D	T110D187J010A(3)	9.0	6	5017	5217	5417	5617	4040	6040	7040	8040	T212D187J010(2)S	
10	180.0	D	T110D187K010A(3)	9.0	6	2264	2504	2744	2984	4041	6041	7041	8041	T212D187K010(2)S	
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors								
						Dash Number Reference								KEMET Equivalent Military
						Failure Rate Level (%/1,000 hours)								
						MIL-PRF-39003/1K				MIL-PRF-39003/1K				
						Exponential				Graded				
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number
10	180.0	D	T110D187M010A(3)	9.0	6									
10	220.0	D	T110D227J010A(3)	10.0	8	5018	5218	5418	5618	4042	6042	7042	8042	T212D227J010(2)S
10	220.0	D	T110D227K010A(3)	10.0	8	2265	2505	2745	2985	4043	6043	7043	8043	T212D227K010(2)S
10	220.0	D	T110D227M010A(3)	10.0	8	2266	2506	2746	2986	4044	6044	7044	8044	T212D227M010(2)S
15	0.33	A	T110A334(1)015A(3)	0.3	3									
15	0.39	A	T110A394(1)015A(3)	0.3	3									
15	0.47	A	T110A474(1)015A(3)	0.3	3									
15	0.56	A	T110A564(1)015A(3)	0.3	3									
15	0.68	A	T110A684(1)015A(3)	0.3	3									
15	1.0	A	T110A105(1)015A(3)	0.3	3									
15	1.2	A	T110A125(1)015A(3)	0.3	3									
15	1.5	A	T110A155(1)015A(3)	0.3	4									
15	1.8	A	T110A185(1)015A(3)	0.3	4									
15	2.2	A	T110A225(1)015A(3)	0.3	4									
15	2.7	A	T110A275J015A(3)	0.3	4	5019	5219	5419	5619	4045	6045	7045	8045	T212A275J015(2)S
15	2.7	A	T110A275K015A(3)	0.3	4	2267	2507	2747	2987	4046	6046	7046	8046	T212A275K015(2)S
15	2.7	A	T110A275M015A(3)	0.3	4									
15	3.3	A	T110A335J015A(3)	0.4	4	5020	5220	5420	5620	4047	6047	7047	8047	T212A335J015(2)S
15	3.3	A	T110A335K015A(3)	0.4	4	2268	2508	2748	2988	4048	6048	7048	8048	T212A335K015(2)S
15	3.3	A	T110A335M015A(3)	0.4	4	2269	2509	2749	2989	4049	6049	7049	8049	T212A335M015(2)S
15	3.9	B	T110B395(1)015A(3)	0.4	4									
15	4.7	B	T110B475(1)015A(3)	0.7	4									
15	5.6	B	T110B565(1)015A(3)	0.7	4									
15	6.8	B	T110B685(1)015A(3)	0.7	6									
15	8.2	B	T110B825(1)015A(3)	0.7	6									
15	10.0	B	T110B106(1)015A(3)	1.0	6									
15	12.0	B	T110B126(1)015A(3)	1.0	6									
15	15.0	B	T110B156(1)015A(3)	2.0	6									
15	18.0	B	T110B186J015A(3)	2.0	6	5021	5221	5421	5621	4050	6050	7050	8050	T212B186J015(2)S
15	18.0	B	T110B186K015A(3)	2.0	6	2270	2510	2750	2990	4051	6051	7051	8051	T212B186K015(2)S
15	18.0	B	T110B186M015A(3)	2.0	6									
15	22.0	B	T110B226J015A(3)	2.0	6	5022	5222	5422	5622	4052	6052	7052	8052	T212B226J015(2)S
15	22.0	B	T110B226K015A(3)	2.0	6	2271	2511	2751	2991	4053	6053	7053	8053	T212B226K015(2)S
15	22.0	B	T110B226M015A(3)	2.0	6	2272	2512	2752	2992	4054	6054	7054	8054	T212B226M015(2)S
15	27.0	C	T110C276(1)015A(3)	3.0	6									
15	33.0	C	T110C336(1)015A(3)	3.0	6									
15	39.0	C	T110C396(1)015A(3)	3.0	6									
15	47.0	C	T110C476(1)015A(3)	4.0	6									
15	56.0	C	T110C566J015A(3)	4.0	6	5023	5223	5423	5623	4055	6055	7055	8055	T212C566J015(2)S
15	56.0	C	T110C566K015A(3)	4.0	6	2273	2513	2753	2993	4056	6056	7056	8056	T212C566K015(2)S
15	56.0	C	T110C566M015A(3)	4.0	6									
15	68.0	C	T110C686J015A(3)	5.0	6	5024	5224	5424	5624	4057	6057	7057	8057	T212C686J015(2)S
15	68.0	C	T110C686K015A(3)	5.0	6	2274	2514	2754	2994	4058	6058	7058	8058	T212C686K015(2)S
15	68.0	C	T110C686M015A(3)	5.0	6	2275	2515	2755	2995	4059	6059	7059	8059	T212C686M015(2)S
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors								

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
 (2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
 (3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
 Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL-PRF-39003/1K				MIL-PRF-39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
15	82.0	D	T110D826(1)015A(3)	6.0	6										
15	100.0	D	T110D107(1)015A(3)	6.0	6										
15	120.0	D	T110D127J015A(3)	6.0	6	5025	5225	5425	5625	4060	6060	7060	8060	T212D127J015(2)S	
15	120.0	D	T110D127K015A(3)	6.0	6	2276	2516	2756	2996	4061	6061	7061	8061	T212D127K015(2)S	
15	120.0	D	T110D127M015A(3)	6.0	6										
15	150.0	D	T110D157J015A(3)	8.0	6	5026	5226	5426	5626	4062	6062	7062	8062	T212D157J015(2)S	
15	150.0	D	T110D157K015A(3)	8.0	6	2277	2517	2757	2997	4063	6063	7063	8063	T212D157K015(2)S	
15	150.0	D	T110D157M015A(3)	8.0	6	2278	2518	2758	2998	4064	6064	7064	8064	T212D157M015(2)S	
20	0.047	A	T110A473(1)020A(3)	0.3	3										
20	0.056	A	T110A563(1)020A(3)	0.3	3										
20	0.068	A	T110A683(1)020A(3)	0.3	3										
20	0.082	A	T110A823(1)020A(3)	0.3	3										
20	0.10	A	T110A104(1)020A(3)	0.3	3										
20	0.12	A	T110A124(1)020A(3)	0.3	3										
20	0.15	A	T110A154(1)020A(3)	0.3	3										
20	0.18	A	T110A184(1)020A(3)	0.3	3										
20	0.22	A	T110A224(1)020A(3)	0.3	3										
20	0.27	A	T110A274(1)020A(3)	0.3	3										
20	0.33	A	T110A334(1)020A(3)	0.3	3										
20	0.39	A	T110A394(1)020A(3)	0.3	3										
20	0.47	A	T110A474(1)020A(3)	0.3	3										
20	0.56	A	T110A564(1)020A(3)	0.3	3										
20	0.68	A	T110A684(1)020A(3)	0.3	3										
20	0.82	A	T110A824(1)020A(3)	0.3	3										
20	1.0	A	T110A105(1)020A(3)	0.3	3										
20	1.2	A	T110A125J020A(3)	0.3	4	5027	5227	5427	5627	4065	6065	7065	8065	T212A125J020(2)S	
20	1.2	A	T110A125K020A(3)	0.3	4	2279	2519	2759	2999	4066	6066	7066	8066	T212A125K020(2)S	
20	1.2	A	T110A125M020A(3)	0.3	4										
20	1.5	A	T110A155J020A(3)	0.3	4	5028	5228	5428	5628	4067	6067	7067	8067	T212A155J020(2)S	
20	1.5	A	T110A155K020A(3)	0.3	4	2280	2520	2760	3000	4068	6068	7068	8068	T212A155K020(2)S	
20	1.5	A	T110A155M020A(3)	0.3	4	2281	2521	2761	3001	4069	6069	7069	8069	T212A155M020(2)S	
20	1.8	A	T110A185J020A(3)	0.3	4	5029	5229	5429	5629	4070	6070	7070	8070	T212A185J020(2)S	
20	1.8	A	T110A185K020A(3)	0.3	4	2282	2522	2762	3002	4071	6071	7071	8071	T212A185K020(2)S	
20	1.8	A	T110A185M020A(3)	0.3	4										
20	2.2	A	T110A225J020A(3)	0.4	4	5010	5230	5430	5630	4072	6072	7072	8072	T212A225J020(2)S	
20	2.2	A	T110A225K020A(3)	0.4	4	2283	2523	2763	3003	4073	6073	7073	8073	T212A225K020(2)S	
20	2.2	A	T110A225M020A(3)	0.4	4	2284	2524	2764	3004	4074	6074	7074	8074	T212A225M020(2)S	
20	2.7	B	T110B275(1)020A(3)	0.5	4										
20	3.3	B	T110B335(1)020A(3)	1.0	4										
20	3.9	B	T110B395(1)020A(3)	1.0	4										
20	4.7	B	T110B475(1)020A(3)	1.0	4										
20	5.6	B	T110B565(1)020A(3)	1.0	4										
20	6.8	B	T110B685(1)020A(3)	1.0	4										
20	8.2	B	T110B825J020A(3)	1.0	6	5031	5231	5431	5631	4075	6075	7075	8075	T212B825J020(2)S	
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL-PRF-39003/1K				MIL-PRF-39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
20	8.2	B	T110B825K020A(3)	1.0	6	2285	2525	2765	3005	4076	6076	7076	8076	T212B825K020(2)S	
20	8.2	B	T110B825M020A(3)	1.0	6										
20	10.0	B	T110B106J020A(3)	1.0	6	5032	5232	5432	5632	4077	6077	7077	8077	T212B106J020(2)S	
20	10.0	B	T110B106K020A(3)	1.0	6	2286	2526	2766	3006	4078	6078	7078	8078	T212B106K020(2)S	
20	10.0	B	T110B106M020A(3)	1.0	6	2287	2527	2767	3007	4079	6079	7079	8079	T212B106M020(2)S	
20	12.0	B	T110B126J020A(3)	1.0	6	5033	5233	5433	5633	4080	6080	7080	8080	T212B126J020(2)S	
20	12.0	B	T110B126K020A(3)	1.0	6	2288	2528	2768	3008	4081	6081	7081	8081	T212B126K020(2)S	
20	12.0	B	T110B126M020A(3)	1.0	6										
20	15.0	B	T110B156J020A(3)	2.0	6	5034	5234	5434	5634	4082	6082	7082	8082	T212B156J020(2)S	
20	15.0	B	T110B156K020A(3)	2.0	6	2289	2529	2769	3009	4083	6083	7083	8083	T212B156K020(2)S	
20	15.0	B	T110B156M020A(3)	2.0	6	2290	2530	2770	3010	4084	6084	7084	8084	T212B156M020(2)S	
20	18.0	C	T110C186(1)020A(3)	2.0	6										
20	22.0	C	T110C226(1)020A(3)	2.5	6										
20	27.0	C	T110C276J020A(3)	2.5	6	5035	5235	5435	5635	4085	6085	7085	8085	T212C276J020(2)S	
20	27.0	C	T110C276K020A(3)	2.5	6	2991	2531	2771	3011	4086	6086	7086	8086	T212C276K020(2)S	
20	27.0	C	T110C276M020A(3)	2.5	6										
20	33.0	C	T110C336J020A(3)	3.0	6	5036	5236	5436	5636	4087	6087	7087	8087	T212C336J020(2)S	
20	33.0	C	T110C336K020A(3)	3.0	6	2292	2532	2772	3012	4088	6088	7088	8088	T212C336K020(2)S	
20	33.0	C	T110C336M020A(3)	3.0	6	2293	2533	2773	3013	4089	6089	7089	8089	T212C336M020(2)S	
20	39.0	C	T110C396J020A(3)	3.0	6	5037	5237	5437	5637	4090	6090	7090	8090	T212C396J020(2)S	
20	39.0	C	T110C396K020A(3)	3.0	6	2294	2534	2774	3014	4091	6091	7091	8091	T212C396K020(2)S	
20	39.0	C	T110C396M020A(3)	3.0	6										
20	47.0	C	T110C476J020A(3)	4.5	6	5038	5238	5438	5638	4092	6092	7092	8092	T212C476J020(2)S	
20	47.0	C	T110C476K020A(3)	4.5	6	2295	2535	2775	3015	4093	6093	7093	8093	T212C476K020(2)S	
20	47.0	C	T110C476M020A(3)	4.5	6	2296	2536	2776	3016	4094	6094	7094	8094	T212C476M020(2)S	
20	56.0	D	T110D566J020A(3)	5.5	6	5039	5239	5439	5639	4095	6095	7095	8095	T212D566J020(2)S	
20	56.0	D	T110D566K020A(3)	5.5	6	2297	2537	2777	3017	4096	6096	7096	8096	T212D566K020(2)S	
20	56.0	D	T110D566M020A(3)	5.5	6										
20	68.0	D	T110D686J020A(3)	6.0	6	5040	5240	5440	5640	4097	6097	7097	8097	T212D686J020(2)S	
20	68.0	D	T110D686K020A(3)	6.0	6	2298	2538	2778	3018	4098	6098	7098	8098	T212D686K020(2)S	
20	68.0	D	T110D686M020A(3)	6.0	6	2299	2539	2779	3019	4099	6099	7099	8099	T212D686M020(2)S	
20	82.0	D	T110D826J020A(3)	6.0	6	5041	5241	5441	5641	4100	6100	7100	8100	T212D826J020(2)S	
20	82.0	D	T110D826K020A(3)	6.0	6	2300	2540	2780	3020	4101	6101	7101	8101	T212D826K020(2)S	
20	82.0	D	T110D826M020A(3)	6.0	6										
20	100.0	D	T110D107J020A(3)	10.0	6	5042	5242	5442	5642	4102	6102	7102	8102	T212D107J020(2)S	
20	100.0	D	T110D107K020A(3)	10.0	6	2301	2541	2781	3021	4103	6103	7103	8103	T212D107K020(2)S	
20	100.0	D	T110D107M020A(3)	10.0	6	2302	2542	2782	3022	4104	6104	7104	8104	T212D107M020(2)S	
35	0.0047	A	T110A472(1)035A(3)	0.1	3										
35	0.0056	A	T110A562(1)035A(3)	0.1	3										
35	0.0068	A	T110A682(1)035A(3)	0.1	3										
35	0.0082	A	T110A822(1)035A(3)	0.1	3										
35	0.01	A	T110A103(1)035A(3)	0.1	3										
35	0.012	A	T110A123(1)035A(3)	0.1	3										
35	0.015	A	T110A153(1)035A(3)	0.1	3										
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL-PRF-39003/1K				MIL-PRF-39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
35	0.018	A	T110A183(1)035A(3)	0.1	3										
35	0.022	A	T110A223(1)035A(3)	0.1	3										
35	0.027	A	T110A273(1)035A(3)	0.1	3										
35	0.033	A	T110A333(1)035A(3)	0.1	3										
35	0.039	A	T110A393(1)035A(3)	0.1	3										
35	0.047	A	T110A473(1)035A(3)	0.1	3										
35	0.056	A	T110A563(1)035A(3)	0.1	3										
35	0.068	A	T110A683(1)035A(3)	0.1	3										
35	0.082	A	T110A823(1)035A(3)	0.1	3										
35	0.1	A	T110A104(1)035A(3)	0.5	3										
35	0.12	A	T110A124(1)035A(3)	0.5	3										
35	0.15	A	T110A154(1)035A(3)	0.5	3										
35	0.18	A	T110A184(1)035A(3)	0.5	3										
35	0.22	A	T110A224(1)035A(3)	0.5	3										
35	0.27	A	T110A274(1)035A(3)	0.5	3										
35	0.33	A	T110A334(1)035A(3)	0.5	3										
35	0.39	A	T110A394(1)035A(3)	0.5	3										
35	0.47	A	T110A474(1)035A(3)	0.5	3										
35	0.56	A	T110A564(1)035A(3)	0.5	3										
35	0.68	A	T110A684(1)035A(3)	0.5	3										
35	0.82	A	T110A824(1)035A(3)	0.5	3										
35	1.0	A	T110A105(1)035A(3)	0.5	6										
35	1.2	B	T110B125(1)035A(3)	0.5	4										
35	1.5	B	T110B155(1)035A(3)	0.5	4										
35	1.8	B	T110B185(1)035A(3)	0.5	4										
35	2.2	B	T110B225(1)035A(3)	1.0	4										
35	2.7	B	T110B275(1)035A(3)	1.0	4										
35	3.3	B	T110B335(1)035A(3)	1.0	4										
35	3.9	B	T110B395(1)035A(3)	1.0	4										
35	4.7	B	T110B475(1)035A(3)	1.0	4										
35	5.6	B	T110B565J035A(3)	1.0	4	5043	5243	5443	5643	4105	6105	7105	8105	T212B565J035(2)S	
35	5.6	B	T110B565K035A(3)	1.0	4	2303	2543	2783	3023	4106	6106	7106	8106	T212B565K035(2)S	
35	5.6	B	T110B565M035A(3)	1.0	4										
35	6.8	B	T110B685J035A(3)	1.5	4	5044	5244	5444	5644	4107	6107	7107	8107	T212B685J035(2)S	
35	6.8	B	T110B685K035A(3)	1.5	4	2304	2544	2784	3024	4108	6108	7108	8108	T212B685K035(2)S	
35	6.8	B	T110B685M035A(3)	1.5	6	2305	2545	2785	3025	4109	6109	7109	8109	T212B685M035(2)S	
35	8.2	C	T110C825(1)035A(3)	3.0	4										
35	10.0	C	T110C106(1)035A(3)	3.0	4										
35	12.0	C	T110C126(1)035A(3)	3.0	4										
35	15.0	C	T110C156(1)035A(3)	3.0	4										
35	18.0	C	T110C186(1)035A(3)	3.0	4										
35	22.0	C	T110C226J035A(3)	4.0	4	5045	5245	5445	5645	4110	6110	7110	8110	T212C226J035(2)S	
35	22.0	C	T110C226K035A(3)	4.0	4	2306	2546	2786	3026	4111	6111	7111	8111	T212C226K035(2)S	
35	22.0	C	T110C226M035A(3)	4.0	4	2307	2547	2787	3027	4112	6112	7112	8112	T212C226M035(2)S	
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
35	27.0	D	T110D276J035A(3)	4.5	4	5046	5246	5446	5646	4113	6113	7113	8113	T212D276J035(2)S	
35	27.0	D	T110D276K035A(3)	4.5	4	2308	2548	2788	3028	4114	6114	7114	8114	T212D276K035(2)S	
35	27.0	D	T110D276M035A(3)	4.5	4										
35	33.0	D	T110D336J035A(3)	5.5	4	5047	5247	5447	5647	4115	6115	7115	8115	T212D336J035(2)S	
35	33.0	D	T110D336K035A(3)	5.5	4	2309	2549	2789	3029	4116	6116	7116	8116	T212D336K035(2)S	
35	33.0	D	T110D336M035A(3)	5.5	4	2310	2550	2790	3030	4117	6117	7117	8117	T212D336M035(2)S	
35	39.0	D	T110D396J035A(3)	6.0	4	5048	5248	5448	5648	4118	6118	7118	8118	T212D396J035(2)S	
35	39.0	D	T110D396K035A(3)	6.0	4	2311	2551	2791	3031	4119	6119	7119	8119	T212D396K035(2)S	
35	39.0	D	T110D396M035A(3)	6.0	4										
35	47.0	D	T110D476J035A(3)	8.0	4	5049	5249	5449	5649	4120	6120	7120	8120	T212D476J035(2)S	
35	47.0	D	T110D476K035A(3)	8.0	4	2312	2552	2792	3032	4121	6121	7121	8121	T212D476K035(2)S	
35	47.0	D	T110D476M035A(3)	8.0	4	2313	2553	2793	3033	4122	6122	7122	8122	T212D476M035(2)S	
50	0.0047	A	T110A472J050A(3)	0.1	2	5050	5250	5450	5650	4123	6123	7123	8123	T212A472J050(2)S	
50	0.0047	A	T110A472K050A(3)	0.1	2	2314	2554	2794	3034	4124	6124	7124	8124	T212A472K050(2)S	
50	0.0047	A	T110A472M050A(3)	0.1	2	2315	2555	2795	3035	4125	6125	7125	8125	T212A472M050(2)S	
50	0.0056	A	T110A562J050A(3)	0.1	2	5051	5251	5451	5651	4126	6126	7126	8126	T212A562J050(2)S	
50	0.0056	A	T110A562K050A(3)	0.1	2	2316	2556	2796	3036	4127	6127	7127	8127	T212A562K050(2)S	
50	0.0056	A	T110A562M050A(3)	0.1	2										
50	0.0068	A	T110A682J050A(3)	0.1	2	5052	5252	5452	5652	4128	6128	7128	8128	T212A682J050(2)S	
50	0.0068	A	T110A682K050A(3)	0.1	2	2317	2557	2797	3037	4129	6129	7129	8129	T212A682K050(2)S	
50	0.0068	A	T110A682M050A(3)	0.1	2	2318	2558	2798	3038	4130	6130	7130	8130	T212A682M050(2)S	
50	0.0082	A	T110A822J050A(3)	0.1	2	5053	5253	5453	5653	4131	6131	7131	8131	T212A822J050(2)S	
50	0.0082	A	T110A822K050A(3)	0.1	2	2319	2559	2799	3039	4132	6132	7132	8132	T212A822K050(2)S	
50	0.0082	A	T110A822M050A(3)	0.1	2										
50	0.01	A	T110A103J050A(3)	0.1	2	5054	5254	5454	5654	4133	6133	7133	8133	T212A103J050(2)S	
50	0.01	A	T110A103K050A(3)	0.1	2	2320	2560	2800	3040	4134	6134	7134	8134	T212A103K050(2)S	
50	0.01	A	T110A103M050A(3)	0.1	2	2321	2561	2801	3041	4135	6135	7135	8135	T212A103M050(2)S	
50	0.012	A	T110A123J050A(3)	0.1	2	5055	5255	5455	5655	4136	6136	7136	8136	T212A123J050(2)S	
50	0.012	A	T110A123K050A(3)	0.1	2	2322	2562	2802	3042	4137	6137	7137	8137	T212A123K050(2)S	
50	0.012	A	T110A123M050A(3)	0.1	2										
50	0.015	A	T110A153J050A(3)	0.1	2	5056	5256	5456	5656	4138	6138	7138	8138	T212A153J050(2)S	
50	0.015	A	T110A153K050A(3)	0.1	2	2323	2563	2803	3043	4139	6139	7139	8139	T212A153K050(2)S	
50	0.015	A	T110A153M050A(3)	0.1	2	2324	2564	2804	3044	4140	6140	7140	8140	T212A153M050(2)S	
50	0.018	A	T110A183J050A(3)	0.1	2	5057	5257	5457	5657	4141	6141	7141	8141	T212A183J050(2)S	
50	0.018	A	T110A183K050A(3)	0.1	2	2325	2565	2805	3045	4142	6142	7142	8142	T212A183K050(2)S	
50	0.018	A	T110A183M050A(3)	0.1	2										
50	0.022	A	T110A223J050A(3)	0.1	2	5058	5258	5458	5658	4143	6143	7143	8143	T212A223J050(2)S	
50	0.022	A	T110A223K050A(3)	0.1	2	2326	2566	2806	3046	4144	6144	7144	8144	T212A223K050(2)S	
50	0.022	A	T110A223M050A(3)	0.1	2	2327	2567	2807	3047	4145	6145	7145	8145	T212A223M050(2)S	
50	0.027	A	T110A273J050A(3)	0.1	2	5059	5259	5459	5659	4146	6146	7146	8146	T212A273J050(2)S	
50	0.027	A	T110A273K050A(3)	0.1	2	2328	2568	2808	3048	4147	6147	7147	8147	T212A273K050(2)S	
50	0.027	A	T110A273M050A(3)	0.1	2										
50	0.033	A	T110A333J050A(3)	0.1	2	5060	5260	5460	5660	4148	6148	7148	8148	T212A333J050(2)S	
50	0.033	A	T110A333K050A(3)	0.1	2	2329	2569	2809	3049	4149	6149	7149	8149	T212A333K050(2)S	
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
50	0.033	A	T110A333M050A(3)	0.1	2	2330	2570	2810	3050	4150	6150	7150	8150	T212A333M050(2)S	
50	0.039	A	T110A393J050A(3)	0.1	2	5061	5261	5461	5661	4151	6151	7151	8151	T212A393J050(2)S	
50	0.039	A	T110A393K050A(3)	0.1	2	2331	2571	2811	3051	4152	6152	7152	8152	T212A393K050(2)S	
50	0.039	A	T110A393M050A(3)	0.1	2										
50	0.047	A	T110A473J050A(3)	0.1	2	5062	5262	5462	5662	4153	6153	7153	8153	T212A473J050(2)S	
50	0.047	A	T110A473K050A(3)	0.1	2	2332	2572	2812	3052	4154	6154	7154	8154	T212A473K050(2)S	
50	0.047	A	T110A473M050A(3)	0.1	2	2333	2573	2813	3053	4155	6155	7155	8155	T212A473M050(2)S	
50	0.056	A	T110A563J050A(3)	0.1	2	5063	5263	5463	5663	4156	6156	7156	8156	T212A563J050(2)S	
50	0.056	A	T110A563K050A(3)	0.1	2	2334	2574	2814	3054	4157	6157	7157	8157	T212A563K050(2)S	
50	0.056	A	T110A563M050A(3)	0.1	2										
50	0.068	A	T110A683J050A(3)	0.1	2	5064	5264	5464	5664	4158	6158	7158	8158	T212A683J050(2)S	
50	0.068	A	T110A683K050A(3)	0.1	2	2335	2575	2815	3055	4159	6159	7159	8159	T212A683K050(2)S	
50	0.068	A	T110A683M050A(3)	0.1	2	2336	2576	2816	3056	4160	6160	7160	8160	T212A683M050(2)S	
50	0.082	A	T110A823J050A(3)	0.1	2	5065	5265	5465	5665	4161	6161	7161	8161	T212A823J050(2)S	
50	0.082	A	T110A823K050A(3)	0.1	2	2337	2577	2817	3057	4162	6162	7162	8162	T212A823K050(2)S	
50	0.082	A	T110A823M050A(3)	0.1	2										
50	0.1	A	T110A104J050A(3)	0.3	2	5066	5266	5466	5666	4163	6163	7163	8163	T212A104J050(2)S	
50	0.1	A	T110A104K050A(3)	0.3	2	2338	2578	2818	3058	4164	6164	7164	8164	T212A104K050(2)S	
50	0.1	A	T110A104M050A(3)	0.3	2	2339	2579	2819	3059	4165	6165	7165	8165	T212A104M050(2)S	
50	0.12	A	T110A124J050A(3)	0.3	2	5067	5267	5467	5667	4166	6166	7166	8166	T212A124J050(2)S	
50	0.12	A	T110A124K050A(3)	0.3	2	2340	2580	2820	3060	4167	6167	7167	8167	T212A124K050(2)S	
50	0.12	A	T110A124M050A(3)	0.3	2										
50	0.15	A	T110A154J050A(3)	0.3	2	5068	5268	5468	5668	4168	6168	7168	8168	T212A154J050(2)S	
50	0.15	A	T110A154K050A(3)	0.3	2	2341	2581	2821	3061	4169	6169	7169	8169	T212A154K050(2)S	
50	0.15	A	T110A154M050A(3)	0.3	2	2342	2582	2822	3062	4170	6170	7170	8170	T212A154M050(2)S	
50	0.18	A	T110A184J050A(3)	0.3	2	5069	5269	5469	5669	4171	6171	7171	8171	T212A184J050(2)S	
50	0.18	A	T110A184K050A(3)	0.3	2	2343	2583	2823	3063	4172	6172	7172	8172	T212A184K050(2)S	
50	0.18	A	T110A184M050A(3)	0.3	2										
50	0.22	A	T110A224J050A(3)	0.3	2	5070	5270	5470	5670	4173	6173	7173	8173	T212A224J050(2)S	
50	0.22	A	T110A224K050A(3)	0.3	2	2344	2584	2824	3064	4174	6174	7174	8174	T212A224K050(2)S	
50	0.22	A	T110A224M050A(3)	0.3	2	2345	2585	2825	3065	4175	6175	7175	8175	T212A224M050(2)S	
50	0.27	A	T110A274J050A(3)	0.3	2	5071	5271	5471	5671	4176	6176	7176	8176	T212A274J050(2)S	
50	0.27	A	T110A274K050A(3)	0.3	2	2346	2586	2826	3066	4177	6177	7177	8177	T212A274K050(2)S	
50	0.27	A	T110A274M050A(3)	0.3	2										
50	0.33	A	T110A334J050A(3)	0.3	2	5072	5272	5472	5672	4178	6178	7178	8178	T212A334J050(2)S	
50	0.33	A	T110A334K050A(3)	0.3	2	2347	2587	2827	3067	4179	6179	7179	8179	T212A334K050(2)S	
50	0.33	A	T110A334M050A(3)	0.3	2	2348	2588	2828	3068	4180	6180	7180	8180	T212A334M050(2)S	
50	0.39	A	T110A394J050A(3)	0.3	2	5073	5273	5473	5673	4181	6181	7181	8181	T212A394J050(2)S	
50	0.39	A	T110A394K050A(3)	0.3	2	2349	2589	2829	3069	4182	6182	7182	8182	T212A394K050(2)S	
50	0.39	A	T110A394M050A(3)	0.3	2										
50	0.47	A	T110A474J050A(3)	0.3	2	5074	5274	5474	5674	4183	6183	7183	8183	T212A474J050(2)S	
50	0.47	A	T110A474K050A(3)	0.3	2	2350	2590	2830	3070	4184	6184	7184	8184	T212A474K050(2)S	
50	0.47	A	T110A474M050A(3)	0.3	2	2351	2591	2831	3071	4185	6185	7185	8185	T212A474M050(2)S	
50	0.56	A	T110A564J050A(3)	0.3	2	5075	5275	5475	5675	4186	6186	7186	8186	T212A564J050(2)S	
50	0.56	A	T110A564K050A(3)	0.3	2										
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
50	0.56	A	T110A564K050A(3)	0.3	2	2352	2592	2832	3072	4187	6187	7187	8187	T212A564K050(2)S	
50	0.56	A	T110A564M050A(3)	0.3	2										
50	0.68	A	T110A684J050A(3)	0.3	2	5076	5276	5476	5676	4188	6188	7188	8188	T212A684J050(2)S	
50	0.68	A	T110A684K050A(3)	0.3	2	2353	2593	2833	3073	4189	6189	7189	8189	T212A684K050(2)S	
50	0.68	A	T110A684M050A(3)	0.3	2	2354	2594	2834	3074	4190	6190	7190	8190	T212A684M050(2)S	
50	0.82	A	T110A824J050A(3)	0.3	2	5077	5277	5477	5677	4191	6191	7191	8191	T212A824J050(2)S	
50	0.82	A	T110A824K050A(3)	0.3	2	2355	2595	2835	3075	4192	6192	7192	8192	T212A824K050(2)S	
50	0.82	A	T110A824M050A(3)	0.3	2										
50	1.0	A	T110A105J050A(3)	0.4	2	5078	5278	5478	5678	4193	6193	7193	8193	T212A105J050(2)S	
50	1.0	A	T110A105K050A(3)	0.4	2	2356	2596	2836	3076	4194	6194	7194	8194	T212A105K050(2)S	
50	1.0	A	T110A105M050A(3)	0.4	2	2357	2597	2837	3077	4195	6195	7195	8195	T212A105M050(2)S	
50	1.2	B	T110B125J050A(3)	0.4	4	5079	5279	5479	5679	4196	6196	7196	8196	T212B125J050(2)S	
50	1.2	B	T110B125K050A(3)	0.4	4	2358	2598	2838	3078	4197	6197	7197	8197	T212B125K050(2)S	
50	1.2	B	T110B125M050A(3)	0.4	4										
50	1.5	B	T110B155J050A(3)	0.5	4	5080	5280	5480	5680	4198	6198	7198	8198	T212B155J050(2)S	
50	1.5	B	T110B155K050A(3)	0.5	4	2359	2599	2839	3079	4199	6199	7199	8199	T212B155K050(2)S	
50	1.5	B	T110B155M050A(3)	0.5	4	2360	2600	2840	3080	4200	6200	7200	8200	T212B155M050(2)S	
50	1.8	B	T110B185J050A(3)	0.5	4	5081	5281	5481	5681	4201	6201	7201	8201	T212B185J050(2)S	
50	1.8	B	T110B185K050A(3)	0.5	4	2361	2601	2841	3081	4202	6202	7202	8202	T212B185K050(2)S	
50	1.8	B	T110B185M050A(3)	0.5	4										
50	2.2	B	T110B225J050A(3)	0.8	4	5082	5282	5482	5682	4203	6203	7203	8203	T212B225J050(2)S	
50	2.2	B	T110B225K050A(3)	0.8	4	2362	2602	2842	3082	4204	6204	7204	8204	T212B225K050(2)S	
50	2.2	B	T110B225M050A(3)	0.8	4	2363	2603	2843	3083	4205	6205	7205	8205	T212B225M050(2)S	
50	2.7	B	T110B275J050A(3)	0.8	4	5083	5283	5483	5683	4206	6206	7206	8206	T212B275J050(2)S	
50	2.7	B	T110B275K050A(3)	0.8	4	2364	2604	2844	3084	4207	6207	7207	8207	T212B275K050(2)S	
50	2.7	B	T110B275M050A(3)	0.8	4										
50	3.3	B	T110B335J050A(3)	1.2	4	5084	5284	5484	5684	4208	6208	7208	8208	T212B335J050(2)S	
50	3.3	B	T110B335K050A(3)	1.2	4	2365	2605	2845	3085	4209	6209	7209	8209	T212B335K050(2)S	
50	3.3	B	T110B335M050A(3)	1.2	4	2366	2606	2846	3086	4210	6210	7210	8210	T212B335M050(2)S	
50	3.9	B	T110B395J050A(3)	1.5	4	5085	5285	5485	5685	4211	6211	7211	8211	T212B395J050(2)S	
50	3.9	B	T110B395K050A(3)	1.5	4	2367	2607	2847	3087	4212	6212	7212	8212	T212B395K050(2)S	
50	3.9	B	T110B395M050A(3)	1.5	4										
50	4.7	B	T110B475J050A(3)	1.7	4	5086	5286	5486	5686	4213	6213	7213	8213	T212B475J050(2)S	
50	4.7	B	T110B475K050A(3)	1.7	4	2368	2608	2848	3088	4214	6214	7214	8214	T212B475K050(2)S	
50	4.7	B	T110B475M050A(3)	1.7	4	2369	2609	2849	3089	4215	6215	7215	8215	T212B475M050(2)S	
50	5.6	C	T110C565J050A(3)	2.2	4	5087	5287	5487	5687	4216	6216	7216	8216	T212C565J050(2)S	
50	5.6	C	T110C565K050A(3)	2.2	4	2370	2610	2850	3090	4217	6217	7217	8217	T212C565K050(2)S	
50	5.6	C	T110C565M050A(3)	2.2	4										
50	6.8	C	T110C685J050A(3)	2.2	4	5088	5288	5488	5688	4218	6218	7218	8218	T212C685J050(2)S	
50	6.8	C	T110C685K050A(3)	2.2	4	2371	2611	2851	3091	4219	6219	7219	8219	T212C685K050(2)S	
50	6.8	C	T110C685M050A(3)	2.2	4	2372	2612	2852	3092	4220	6220	7220	8220	T212C685M050(2)S	
50	8.2	C	T110C825J050A(3)	2.5	4	5089	5289	5489	5689	4221	6221	7221	8221	T212C825J050(2)S	
50	8.2	C	T110C825K050A(3)	2.5	4	2373	2613	2853	3093	4222	6222	7222	8222	T212C825K050(2)S	
50	8.2	C	T110C825M050A(3)	2.5	4										
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
50	10.0	C	T110C106J050A(3)	2.5	4	5090	5290	5490	5690	4223	6223	7223	8223	T212C106J050(2)S	
50	10.0	C	T110C106K050A(3)	2.5	4	2374	2614	2854	3094	4224	6224	7224	8224	T212C106K050(2)S	
50	10.0	C	T110C106M050A(3)	2.5	4	2375	2615	2855	3095	4225	6225	7225	8225	T212C106M050(2)S	
50	12.0	C	T110C126J050A(3)	3.0	4	5091	5291	5491	5691	4226	6226	7226	8226	T212C126J050(2)S	
50	12.0	C	T110C126K050A(3)	3.0	4	2376	2616	2856	3096	4227	6227	7227	8227	T212C126K050(2)S	
50	12.0	C	T110C126M050A(3)	3.0	4										
50	15.0	C	T110C156J050A(3)	4.0	4	5092	5292	5492	5692	4228	6228	7228	8228	T212C156J050(2)S	
50	15.0	C	T110C156K050A(3)	4.0	4	2377	2617	2857	3097	4229	6229	7229	8229	T212C156K050(2)S	
50	15.0	C	T110C156M050A(3)	4.0	4	2378	2618	2858	3098	4230	6230	7230	8230	T212C156M050(2)S	
50	18.0	C	T110C186J050A(3)	4.5	4	5093	5293	5493	5693	4231	6231	7231	8231	T212C186J050(2)S	
50	18.0	C	T110C186K050A(3)	4.5	4	2379	2619	2859	3099	4232	6232	7232	8232	T212C186K050(2)S	
50	18.0	C	T110C186M050A(3)	4.5	4										
50	22.0	D	T110D226J050A(3)	5.5	4	5094	5294	5494	5694	4233	6233	7233	8233	T212D226J050(2)S	
50	22.0	D	T110D226K050A(3)	5.5	4	2380	2620	2860	3100	4234	6234	7234	8234	T212D226K050(2)S	
50	22.0	D	T110D226M050A(3)	5.5	4	2381	2621	2861	3101	4235	6235	7235	8235	T212D226M050(2)S	
60	0.0047	A	T110A472(1)060A(3)	0.3	3										
60	0.0056	A	T110A562(1)060A(3)	0.3	3										
60	0.0068	A	T110A682(1)060A(3)	0.3	3										
60	0.0082	A	T110A822(1)060A(3)	0.3	3										
60	0.01	A	T110A103(1)060A(3)	0.3	3										
60	0.012	A	T110A123(1)060A(3)	0.3	3										
60	0.015	A	T110A153(1)060A(3)	0.3	3										
60	0.018	A	T110A183(1)060A(3)	0.3	3										
60	0.022	A	T110A223(1)060A(3)	0.3	3										
60	0.027	A	T110A273(1)060A(3)	0.3	3										
60	0.033	A	T110A333(1)060A(3)	0.3	3										
60	0.039	A	T110A393(1)060A(3)	0.3	3										
60	0.047	A	T110A473(1)060A(3)	0.3	3										
60	0.056	A	T110A563(1)060A(3)	0.3	3										
60	0.068	A	T110A683(1)060A(3)	0.3	3										
60	0.082	A	T110A823(1)060A(3)	0.3	3										
60	0.1	A	T110A104(1)060A(3)	0.5	3										
60	0.12	A	T110A124(1)060A(3)	0.5	3										
60	0.15	A	T110A154(1)060A(3)	0.5	3										
60	0.18	A	T110A184(1)060A(3)	0.5	3										
60	0.22	A	T110A224(1)060A(3)	0.5	3										
60	0.27	A	T110A274(1)060A(3)	0.5	3										
60	0.33	A	T110A334(1)060A(3)	0.5	3										
60	0.39	A	T110A394(1)060A(3)	0.5	3										
60	0.47	A	T110A474(1)060A(3)	0.5	3										
60	0.56	A	T110A564(1)060A(3)	0.5	3										
60	0.68	A	T110A684(1)060A(3)	0.5	3										
60	0.82	B	T110B824(1)060A(3)	0.5	3										
60	1.0	B	T110B105(1)060A(3)	0.5	3										
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.

(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.

(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.

Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
60	1.2	B	T110B125(1)060A(3)	0.5	4										
60	1.5	B	T110B155(1)060A(3)	0.5	4										
60	1.8	B	T110B185(1)060A(3)	0.5	4										
60	2.2	B	T110B225(1)060A(3)	1.0	4										
60	2.7	B	T110B275(1)060A(3)	1.0	4										
60	3.3	B	T110B335(1)060A(3)	1.5	4										
60	3.9	B	T110B395(1)060A(3)	1.5	4										
60	4.7	C	T110C475(1)060A(3)	2.0	4										
60	5.6	C	T110C565(1)060A(3)	2.0	4										
60	6.8	C	T110C685(1)060A(3)	3.0	4										
60	8.2	C	T110C825(1)060A(3)	4.0	4										
60	10.0	C	T110C106(1)060A(3)	5.0	4										
60	12.0	C	T110C126(1)060A(3)	5.0	4										
60	15.0	D	T110D156(1)060A(3)	4.0	4										
60	18.0	D	T110D186(1)060A(3)	5.0	4										
60	22.0	D	T110D226(1)060A(3)	6.0	4										
75	0.0047	A	T110A472(1)075A(3)	0.3	2										
75	0.0056	A	T110A562(1)075A(3)	0.3	2										
75	0.0068	A	T110A682(1)075A(3)	0.3	2										
75	0.0082	A	T110A822(1)075A(3)	0.3	2										
75	0.01	A	T110A103(1)075A(3)	0.3	2										
75	0.012	A	T110A123(1)075A(3)	0.3	2										
75	0.015	A	T110A153(1)075A(3)	0.3	2										
75	0.018	A	T110A183(1)075A(3)	0.3	2										
75	0.022	A	T110A223(1)075A(3)	0.3	2										
75	0.027	A	T110A273(1)075A(3)	0.3	2										
75	0.033	A	T110A333(1)075A(3)	0.3	2										
75	0.039	A	T110A393(1)075A(3)	0.3	2										
75	0.047	A	T110A473(1)075A(3)	0.3	2										
75	0.056	A	T110A563(1)075A(3)	0.3	2										
75	0.068	A	T110A683(1)075A(3)	0.3	2										
75	0.082	A	T110A823(1)075A(3)	0.3	2										
75	0.1	A	T110A104J075A(3)	0.3	2	5095	5295	5495	5695					T212A104J075(2)S	
75	0.1	A	T110A104K075A(3)	0.3	2	2382	2622	2862	3102					T212A104K075(2)S	
75	0.1	A	T110A104M075A(3)	0.3	2	2383	2623	2863	3103					T212A104M075(2)S	
75	0.12	A	T110A124J075A(3)	0.3	2	5096	5296	5496	5696					T212A124J075(2)S	
75	0.12	A	T110A124K075A(3)	0.3	2	2384	2624	2864	3104					T212A204K075(2)S	
75	0.12	A	T110A124M075A(3)	0.3	2										
75	0.15	A	T110A154J075A(3)	0.3	2	5097	5297	5497	5697					T212A154J075(2)S	
75	0.15	A	T110A154K075A(3)	0.3	2	2385	2625	2865	3105					T212A154K075(2)S	
75	0.15	A	T110A154M075A(3)	0.3	2	2386	2626	2866	3106					T212A154M075(2)S	
75	0.18	A	T110A184J075A(3)	0.3	2	5098	5298	5498	5698					T212A184J075(2)S	
75	0.18	A	T110A184K075A(3)	0.3	2	2387	2627	2867	3107					T212A184K075(2)S	
75	0.18	A	T110A184M075A(3)	0.3	2										
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.

(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.

(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.

Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
75	0.22	A	T110A224J075A(3)	0.3	2	5099	5299	5499	5699					T212A224J075(2)S	
75	0.22	A	T110A224K075A(3)	0.3	2	2388	2628	2868	3108					T212A224K075(2)S	
75	0.22	A	T110A224M075A(3)	0.3	2	2389	2629	2869	3109					T212A224M075(2)S	
75	0.27	A	T110A274J075A(3)	0.3	2	5100	5300	5500	5700					T212A274J075(2)S	
75	0.27	A	T110A274K075A(3)	0.3	2	2390	2630	2870	3110					T212A274K075(2)S	
75	0.27	A	T110A274M075A(3)	0.3	2										
75	0.33	A	T110A334J075A(3)	0.3	2	5101	5301	5501	5701					T212A334J075(2)S	
75	0.33	A	T110A334K075A(3)	0.3	2	2391	2631	2871	3111					T212A334K075(2)S	
75	0.33	A	T110A334M075A(3)	0.3	2	2392	2632	2872	3112					T212A334M075(2)S	
75	0.39	A	T110A394J075A(3)	0.3	2	5102	5302	5502	5702					T212A394J075(2)S	
75	0.39	A	T110A394K075A(3)	0.3	2	2393	2633	2873	3113					T212A394K075(2)S	
75	0.39	A	T110A394M075A(3)	0.3	2										
75	0.47	A	T110A474J075A(3)	0.3	2	5103	5303	5503	5703					T212A474J075(2)S	
75	0.47	A	T110A474K075A(3)	0.3	2	2394	2634	2874	3114					T212A474K075(2)S	
75	0.47	A	T110A474M075A(3)	0.3	2	2395	2635	2875	3115					T212A474M075(2)S	
75	0.56	A	T110A564J075A(3)	0.3	2	5104	5304	5504	5704					T212A564J075(2)S	
75	0.56	A	T110A564K075A(3)	0.3	2	2396	2636	2876	3116					T212A564K075(2)S	
75	0.56	A	T110A564M075A(3)	0.3	2										
75	0.68	A	T110A684J075A(3)	0.3	2	5105	5305	5505	5705					T212A684J075(2)S	
75	0.68	A	T110A684K075A(3)	0.3	2	2397	2637	2877	3117					T212A684K075(2)S	
75	0.68	A	T110A684M075A(3)	0.3	2	2398	2638	2878	3118					T212A684M075(2)S	
75	0.82	B	T110B824J075A(3)	0.3	2	5106	5306	5506	5706					T212B824J075(2)S	
75	0.82	B	T110B824K075A(3)	0.3	2	2399	2639	2879	3119					T212B824K075(2)S	
75	0.82	B	T110B824M075A(3)	0.3	2										
75	1.0	B	T110B105J075A(3)	0.3	2	5107	5307	5507	5707					T212B105J075(2)S	
75	1.0	B	T110B105K075A(3)	0.3	2	2400	2640	2880	3120					T212B105K075(2)S	
75	1.0	B	T110B105M075A(3)	0.3	2	2401	2641	2881	3121					T212B105M075(2)S	
75	1.2	B	T110B125J075A(3)	0.3	4	5108	5308	5508	5708					T212B125J075(2)S	
75	1.2	B	T110B125K075A(3)	0.3	4	2402	2642	2882	3122					T212B125K075(2)S	
75	1.2	B	T110B125M075A(3)	0.3	4										
75	1.5	B	T110B155J075A(3)	0.6	4	5109	5309	5509	5709					T212B155J075(2)S	
75	1.5	B	T110B155K075A(3)	0.6	4	2403	2643	2883	3123					T212B155K075(2)S	
75	1.5	B	T110B155M075A(3)	0.6	4	2404	2644	2884	3124					T212B155M075(2)S	
75	1.8	B	T110B185J075A(3)	0.7	4	5110	5310	5510	5710					T212B185J075(2)S	
75	1.8	B	T110B185K075A(3)	0.7	4	2405	2645	2885	3125					T212B185K075(2)S	
75	1.8	B	T110B185M075A(3)	0.7	4										
75	2.2	B	T110B225J075A(3)	0.8	4	5111	5311	5511	5711					T212B225J075(2)S	
75	2.2	B	T110B225K075A(3)	0.8	4	2406	2646	2886	3126					T212B225K075(2)S	
75	2.2	B	T110B225M075A(3)	0.8	4	2407	2647	2887	3127	4278	6278	7278	8278	T212B225M075(2)S	
75	2.7	B	T110B275J075A(3)	1.0	4	5112	5312	5512	5712	4279	6279	7279	8279	T212B275J075(2)S	
75	2.7	B	T110B275K075A(3)	1.0	4	2408	2648	2888	3128	4280	6280	7280	8280	T212B275K075(2)S	
75	2.7	B	T110B275M075A(3)	1.2	4										
75	3.3	B	T110B335J075A(3)	1.2	4	5113	5313	5513	5713	4281	6281	7281	8281	T212B335J075(2)S	
75	3.3	B	T110B335K075A(3)	1.2	4	2409	2649	2889	3129	4282	6282	7282	8282	T212B335K075(2)S	
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
 (2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
 (3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
 Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
75	3.3	B	T110B335M075A(3)	1.2	4	2410	2650	2890	3130	4283	6283	7283	8283	T212B335M075(2)S	
75	3.9	B	T110B395J075A(3)	1.5	4	5114	5314	5514	5714	4284	6284	7284	8284	T212B395J075(2)S	
75	3.9	B	T110B395K075A(3)	1.5	4	2411	2651	2891	3131	4285	6285	7285	8285	T212B395K075(2)S	
75	3.9	B	T110B395M075A(3)	1.5	4										
75	4.7	C	T110C475J075A(3)	3.0	4	5115	5315	5515	5715	4286	6286	7286	8286	T212C475J075(2)S	
75	4.7	C	T110C475K075A(3)	3.0	4	2412	2652	2892	3132	4287	6287	7287	8287	T212C475K075(2)S	
75	4.7	C	T110C475M075A(3)	3.0	4	2413	2653	2893	3133	4288	6288	7288	8288	T212C475M075(2)S	
75	5.6	C	T110C565J075A(3)	3.0	4	5116	5316	5516	5716	4289	6289	7289	8289	T212C565J075(2)S	
75	5.6	C	T110C565K075A(3)	3.0	4	2414	2654	2894	3134	4290	6290	7290	8290	T212C565K075(2)S	
75	5.6	C	T110C565M075A(3)	3.0	4										
75	6.8	C	T110C685J075A(3)	5.0	4	5117	5317	5517	5717	4291	6291	7291	8291	T212C685J075(2)S	
75	6.8	C	T110C685K075A(3)	5.0	4	2415	2655	2895	3135	4292	6292	7292	8292	T212C685K075(2)S	
75	6.8	C	T110C685M075A(3)	5.0	4	2416	2656	2896	3136	4293	6293	7293	8293	T212C685M075(2)S	
75	8.2	C	T110C825J075A(3)	5.0	4	5118	5318	5518	5718	4294	6294	7294	8294	T212C825J075(2)S	
75	8.2	C	T110C825K075A(3)	5.0	4	2417	2657	2897	3137	4295	6295	7295	8295	T212C825K075(2)S	
75	8.2	C	T110C825M075A(3)	5.0	4										
75	10.0	C	T110C106J075A(3)	5.0	4	5119	5319	5519	5719	4296	6296	7296	8296	T212C106J075(2)S	
75	10.0	C	T110C106K075A(3)	5.0	4	2418	2658	2898	3138	4297	6297	7297	8297	T212C106K075(2)S	
75	10.0	C	T110C106M075A(3)	5.0	4	2419	2659	2899	3139	4298	6298	7298	8298	T212C106M075(2)S	
75	12.0	D	T110D126J075A(3)	5.0	4	5120	5320	5520	5720	4299	6299	7299	8299	T212D126J075(2)S	
75	12.0	D	T110D126K075A(3)	5.0	4	2420	2660	2900	3140	4300	6300	7300	8300	T212D126K075(2)S	
75	12.0	D	T110D126M075A(3)	5.0	4										
75	15.0	D	T110D156J075A(3)	7.0	4	5121	5321	5521	5721	4301	6301	7301	8301	T212D156J075(2)S	
75	15.0	D	T110D156K075A(3)	7.0	4	2421	2661	2901	3141	4302	6302	7302	8302	T212D156K075(2)S	
75	15.0	D	T110D156M075A(3)	7.0	4	2422	2662	2902	3142	4303	6303	7303	8303	T212D156M075(2)S	
100	0.0047	A	T110A472J100A(3)	0.3	2	5122	5322	5522	5722	4304	6304	7304	*	T212A472J100(2)S	
100	0.0047	A	T110A472K100A(3)	0.3	2	2423	2663	2903	3143	4305	6305	7305	*	T212A472K100(2)S	
100	0.0047	A	T110A472M100A(3)	0.3	2	2424	2664	2904	3144	4306	6306	7306	*	T212A472M100(2)S	
100	0.0056	A	T110A562J100A(3)	0.3	2	5123	5323	5523	5723	4307	6307	7307	*	T212A562J100(2)S	
100	0.0056	A	T110A562K100A(3)	0.3	2	2425	2665	2905	3145	4308	6308	7308	*	T212A562K100(2)S	
100	0.0056	A	T110A562M100A(3)	0.3	2								*		
100	0.0068	A	T110A682J100A(3)	0.3	2	5124	5324	5524	5724	4309	6309	7309	*	T212A682J100(2)S	
100	0.0068	A	T110A682K100A(3)	0.3	2	2426	2666	2906	3146	4310	6310	7310	*	T212A682K100(2)S	
100	0.0068	A	T110A682M100A(3)	0.3	2	2427	2667	2907	3147	4311	6311	7311	*	T212A682M100(2)S	
100	0.0082	A	T110A822J100A(3)	0.3	2	5125	5325	5525	5725	4312	6312	7312	*	T212A822J100(2)S	
100	0.0082	A	T110A822K100A(3)	0.3	2	2428	2668	2908	3148	4313	6313	7313	*	T212A822K100(2)S	
100	0.0082	A	T110A822M100A(3)	0.3	2								*		
100	0.01	A	T110A103J100A(3)	0.3	2	5126	5326	5526	5726	4313	6314	7314	*	T212A103J100(2)S	
100	0.01	A	T110A103K100A(3)	0.3	2	2429	2669	2909	3149	4315	6315	7315	*	T212A103K100(2)S	
100	0.01	A	T110A103M100A(3)	0.3	2	2430	2670	2910	3150	4316	6316	7316	*	T212A103M100(2)S	
100	0.012	A	T110A123J100A(3)	0.3	2	5127	5327	5527	5727	4317	6317	7317	*	T212A123J100(2)S	
100	0.012	A	T110A123K100A(3)	0.3	2	2431	2671	2911	3151	4318	6318	7318	*	T212A123K100(2)S	
100	0.012	A	T110A123M100A(3)	0.3	2								*		
100	0.015	A	T110A153J100A(3)	0.3	2	5128	5328	5528	5728	4319	6319	7319	*	T212A153J100(2)S	
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
100	0.015	A	T110A153K100A(3)	0.3	2	2432	2672	2912	3152	4320	6320	7320	*	T212A153K100(2)S	
100	0.015	A	T110A153M100A(3)	0.3	2	2433	2673	2913	3153	4321	6321	7321	*	T212A153M100(2)S	
100	0.018	A	T110A183J100A(3)	0.3	2	5129	5329	5529	5729	4322	6322	7322	*	T212A183J100(2)S	
100	0.018	A	T110A183K100A(3)	0.3	2	2434	2674	2914	3154	4323	6323	7323	*	T212A183K100(2)S	
100	0.018	A	T110A183M100A(3)	0.3	2								*		
100	0.022	A	T110A223J100A(3)	0.3	2	5130	5330	5530	5730	4324	6324	7324	*	T212A223J100(2)S	
100	0.022	A	T110A223K100A(3)	0.3	2	2435	2675	2915	3155	4325	6325	7325	*	T212A223K100(2)S	
100	0.022	A	T110A223M100A(3)	0.3	2	2436	2676	2916	3156	4326	6326	7326	*	T212A223M100(2)S	
100	0.027	A	T110A273J100A(3)	0.3	2	5131	5331	5531	5731	4327	6327	7327	*	T212A273J100(2)S	
100	0.027	A	T110A273K100A(3)	0.3	2	2437	2677	2917	3157	4328	6328	7328	*	T212A273K100(2)S	
100	0.027	A	T110A273M100A(3)	0.3	2								*		
100	0.033	A	T110A333J100A(3)	0.3	2	5132	5332	5532	5732	4329	6329	7329	*	T212A333J100(2)S	
100	0.033	A	T110A333K100A(3)	0.3	2	2438	2678	2918	3158	4330	6330	7330	*	T212A333K100(2)S	
100	0.033	A	T110A333M100A(3)	0.3	2	2439	2679	2919	3159	4331	6331	7331	*	T212A333M100(2)S	
100	0.039	A	T110A393J100A(3)	0.3	2	5133	5333	5533	5733	4332	6332	7332	*	T212A393J075(2)S	
100	0.039	A	T110A393K100A(3)	0.3	2	2440	2680	2920	3160	4333	6333	7333	*	T212A393K075(2)S	
100	0.039	A	T110A393M100A(3)	0.3	2								*		
100	0.047	A	T110A473J100A(3)	0.3	2	5134	5334	5534	5734	4334	6334	7334	*	T212A473J100(2)S	
100	0.047	A	T110A473K100A(3)	0.3	2	2441	2681	2921	3161	4335	6335	7335	*	T212A473K100(2)S	
100	0.047	A	T110A473M100A(3)	0.3	2	2442	2682	2922	3162	4336	6336	7336	*	T212A473M100(2)S	
100	0.056	A	T110A563J100A(3)	0.3	2	5135	5335	5535	5735	4337	6337	7337	*	T212A563J100(2)S	
100	0.056	A	T110A563K100A(3)	0.3	2	2443	2683	2923	3163	4338	6338	7338	*	T212A563K100(2)S	
100	0.056	A	T110A563M100A(3)	0.3	2								*		
100	0.068	A	T110A683J100A(3)	0.3	2	5136	5336	5536	5736	4339	6339	7339	*	T212A683J100(2)S	
100	0.068	A	T110A683K100A(3)	0.3	2	2444	2684	2924	3164	4340	6340	7340	*	T212A683K100(2)S	
100	0.068	A	T110A683M100A(3)	0.3	2	2445	2685	2925	3165	4341	6341	7341	*	T212A683M100(2)S	
100	0.082	A	T110A823J100A(3)	0.3	2	5137	5337	5537	5737	4342	6342	7342	*	T212A823J100(2)S	
100	0.082	A	T110A823K100A(3)	0.3	2	2446	2686	2926	3166	4343	6343	7343	*	T212A823K100(2)S	
100	0.082	A	T110A823M100A(3)	0.3	2								*		
100	0.1	A	T110A104J100A(3)	0.3	2	5138	5338	5538	5738	4344	6344	7344	*	T212A104J100(2)S	
100	0.1	A	T110A104K100A(3)	0.3	2	2447	2687	2927	3167	4345	6345	7345	*	T212A104K100(2)S	
100	0.1	A	T110A104M100A(3)	0.3	2	2448	2688	2928	3168	4346	6346	7346	*	T212A104M100(2)S	
100	0.12	A	T110A124J100A(3)	0.3	2	5139	5339	5539	5739	4347	6347	7347	*	T212A124J100(2)S	
100	0.12	A	T110A124K100A(3)	0.3	2	2449	2689	2929	3169	4348	6348	7348	*	T212A124K100(2)S	
100	0.12	A	T110A124M100A(3)	0.3	2								*		
100	0.15	A	T110A154J100A(3)	0.3	2	5140	5340	5540	5740	4349	6349	7349	*	T212A154J100(2)S	
100	0.15	A	T110A154K100A(3)	0.3	2	2450	2690	2930	3170	4350	6350	7350	*	T212A154K100(2)S	
100	0.15	A	T110A154M100A(3)	0.3	2	2451	2691	2931	3171	4351	6351	7351	*	T212A154M100(2)S	
100	0.18	A	T110A184J100A(3)	0.3	2	5141	5341	5541	5741	4352	6352	7352	*	T212A184J100(2)S	
100	0.18	A	T110A184K100A(3)	0.3	2	2452	2692	2932	3172	4353	6353	7353	*	T212A184K100(2)S	
100	0.18	A	T110A184M100A(3)	0.3	2								*		
100	0.22	A	T110A224J100A(3)	0.3	2	5142	5342	5542	5742	4354	6354	7354	*	T212A224J100(2)S	
100	0.22	A	T110A224K100A(3)	0.3	2	2453	2693	2933	3173	4355	6355	7355	*	T212A224K100(2)S	
100	0.22	A	T110A224M100A(3)	0.3	2	2454	2694	2934	3174	4356	6356	7356	*	T212A224M100(2)S	
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/1K				MIL–PRF–39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
100	0.27	A	T110A274J100A(3)	0.3	2	5143	5343	5543	5743	4357	6357	7357	*	T212A274J100(2)S	
100	0.27	A	T110A274K100A(3)	0.3	2	2455	2695	2935	3175	4358	6358	7358	*	T212A274K100(2)S	
100	0.27	A	T110A274M100A(3)	0.3	2								*		
100	0.33	A	T110A334J100A(3)	0.3	2	5144	5344	5544	5744	4359	6359	7359	*	T212A334J100(2)S	
100	0.33	A	T110A334K100A(3)	0.3	2	2456	2696	2936	3176	4360	6360	7360	*	T212A334K100(2)S	
100	0.33	A	T110A334M100A(3)	0.3	2	2457	2697	2937	3177	4361	6361	7361	*	T212A334M100(2)S	
100	0.39	A	T110A394J100A(3)	0.3	2	5145	5345	5545	5745	4362	6362	7362	*	T212A394J100(2)S	
100	0.39	A	T110A394K100A(3)	0.3	2	2458	2698	2938	3178	4363	6363	7363	*	T212A394K100(2)S	
100	0.39	A	T110A394M100A(3)	0.3	2								*		
100	0.47	A	T110A474J100A(3)	0.3	2	5146	5346	5546	5749	4364	6364	7364	*	T212A474J100(2)S	
100	0.47	A	T110A474K100A(3)	0.3	2	2459	2699	2939	3179	4365	6365	7365	*	T212A474K100(2)S	
100	0.47	A	T110A474M100A(3)	0.3	2	2460	2700	2940	3180	4366	6366	7366	*	T212A474M100(2)S	
100	0.56	A	T110A564J100A(3)	0.3	2	5147	5347	5547	5747	4367	6367	7367	*	T212A564J100(2)S	
100	0.56	A	T110A564K100A(3)	0.3	2	2461	2701	2941	3181	4368	6368	7368	*	T212A564K100(2)S	
100	0.56	A	T110A564M100A(3)	0.3	2								*		
100	0.68	B	T110B684J100A(3)	0.3	2	5148	5348	5548	5748	4369	6369	7369	*	T212B684J100(2)S	
100	0.68	B	T110B684K100A(3)	0.3	2	2462	2702	2942	3182	4370	6370	7370	*	T212B684K100(2)S	
100	0.68	B	T110B684M100A(3)	0.3	2	2463	2703	2943	3183	4371	6371	7371	*	T212B684M100(2)S	
100	0.82	B	T110B824J100A(3)	0.4	2	5149	5349	5549	5749	4372	6372	7372	*	T212B824J100(2)S	
100	0.82	B	T110B824K100A(3)	0.4	2	2464	2704	2944	3184	4373	6373	7373	*	T212B824K100(2)S	
100	0.82	B	T110B824M100A(3)	0.4	2								*		
100	1.0	B	T110B105J100A(3)	0.5	2	5150	5350	5550	5750	4374	6374	7374	*	T212B105J100(2)S	
100	1.0	B	T110B105K100A(3)	0.5	2	2465	2705	2945	3185	4375	6375	7375	*	T212B105K100(2)S	
100	1.0	B	T110B105M100A(3)	0.5	2	2466	2706	2946	3186	4376	6376	7376	*	T212B105M100(2)S	
100	1.2	B	T110B125J100A(3)	0.5	3	5151	5351	5551	5751	4377	6377	7377	*	T212B125J100(2)S	
100	1.2	B	T110B125K100A(3)	0.5	3	2467	2707	2947	3187	4378	6378	7378	*	T212B125K100(2)S	
100	1.2	B	T110B125M100A(3)	0.5	3								*		
100	1.5	B	T110B155J100A(3)	0.7	3	5152	5352	5552	5752	4379	6379	7379	*	T212B155J100(2)S	
100	1.5	B	T110B155K100A(3)	0.7	3	2468	2708	2948	3188	4380	6380	7380	*	T212B155K100(2)S	
100	1.5	B	T110B155M100A(3)	0.7	3	2469	2709	2949	3189	4381	6381	7381	*	T212B155M100(2)S	
100	1.8	B	T110B185J100A(3)	0.7	3	5153	5353	5553	5753	4382	6382	7382	*	T212B185J100(2)S	
100	1.8	B	T110B185K100A(3)	0.7	3	2470	2710	2950	3190	4383	6383	7383	*	T212B185K100(2)S	
100	1.8	B	T110B185M100A(3)	0.7	3								*		
100	2.2	B	T110B225J100A(3)	0.9	3	5154	5354	5554	5754	4384	6384	7384	*	T212B225J100(2)S	
100	2.2	B	T110B225K100A(3)	0.9	3	2471	2711	2951	3191	4385	6385	7385	*	T212B225K100(2)S	
100	2.2	B	T110B225M100A(3)	0.9	3	2472	2712	2952	3192	4386	6386	7386	*	T212B225M100(2)S	
100	2.7	B	T110B275J100A(3)	1.1	3	5155	5355	5555	5755	4387	6387	7387	*	T212B275J100(2)S	
100	2.7	B	T110B275K100A(3)	1.1	3	2473	2713	2953	3193	4388	6388	7388	*	T212B275K100(2)S	
100	2.7	B	T110B275M100A(3)	1.1	3								*		
100	3.3	C	T110C335J100A(3)	1.5	3	5156	5356	5556	5756	4389	6389	*	*	T212C335J100(2)S	
100	3.3	C	T110C335K100A(3)	1.5	3	5157	5357	5557	5757	4390	6390	*	*	T212C335K100(2)S	
100	3.3	C	T110C335M100A(3)	1.5	3	5158	5358	5558	5758	4391	6391	*	*	T212C335M100(2)S	
100	3.9	C	T110C395J100A(3)	1.5	3	5159	5359	5559	5759	4392	6392	*	*	T212C395J100(2)S	
100	3.9	C	T110C395K100A(3)	1.5	3	5160	5360	5560	5760	4393	6393	*	*	T212C395K100(2)S	
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.
(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.
(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.
Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors								
						Dash Number Reference								KEMET Equivalent Military
						Failure Rate Level (%/1,000 hours)								
						MIL–PRF–39003/1K				MIL–PRF–39003/1K				
						Exponential				Graded				
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number
100	4.7	C	T110C475J100A(3)	2.5	3	5161	5361	5561	5761	4394	6394	*	*	T212C475J100(2)S
100	4.7	C	T110C475K100A(3)	2.5	3	5162	5362	5562	5762	4395	6395	*	*	T212C475K100(2)S
100	4.7	C	T110C475M100A(3)	2.5	3	5163	5363	5563	5763	4396	6396	*	*	T212C475M100(2)S
100	5.6	C	T110C565J100A(3)	2.5	3	5164	5364	5564	5764	4397	6397	*	*	T212C565J100(2)S
100	5.6	C	T110C565K100A(3)	2.5	3	5165	5365	5565	5765	4398	6398	*	*	T212C565K100(2)S
100	6.80	C	T110C685J100A(3)	2.5	3	5166	5366	5566	5766	4399	6399	*	*	T212C685J100(2)S
100	6.80	C	T110C685K100A(3)	2.5	3	5167	5367	5567	5767	4400	6400	*	*	T212C685K100(2)S
100	6.80	C	T110C685M100A(3)	2.5	3	5168	5368	5568	5768	4401	6401	*	*	T212C685M100(2)S
100	8.20	D	T110D825(1)100A(3)	5.0	3									
100	10.0	D	T110D106(1)100A(3)	5.0	3									
125	0.0047	A	T110A472(1)125A(3)	0.5	3									
125	0.0056	A	T110A562(1)125A(3)	0.5	3									
125	0.0068	A	T110A682(1)125A(3)	0.5	3									
125	0.0082	A	T110A822(1)125A(3)	0.5	3									
125	0.01	A	T110A103(1)125A(3)	0.5	3									
125	0.012	A	T110A123(1)125A(3)	0.5	3									
125	0.015	A	T110A153(1)125A(3)	0.5	3									
125	0.018	A	T110A183(1)125A(3)	0.5	3									
125	0.022	A	T110A223(1)125A(3)	0.5	3									
125	0.027	A	T110A273(1)125A(3)	0.5	3									
125	0.033	A	T110A333(1)125A(3)	0.5	3									
125	0.039	A	T110A393(1)125A(3)	1.5	3									
125	0.047	A	T110A473(1)125A(3)	1.5	3									
125	0.056	A	T110A563(1)125A(3)	1.5	3									
125	0.068	A	T110A683(1)125A(3)	1.5	3									
125	0.082	A	T110A823(1)125A(3)	1.5	3									
125	0.1	A	T110A104(1)125A(3)	1.5	3									
125	0.12	A	T110A124(1)125A(3)	1.5	3									
125	0.15	A	T110A154(1)125A(3)	1.5	3									
125	0.18	A	T110A184(1)125A(3)	1.5	3									
125	0.22	A	T110A224(1)125A(3)	1.5	3									
125	0.27	A	T110A274(1)125A(3)	1.5	3									
125	0.33	A	T110A334(1)125A(3)	1.5	3									
125	0.39	B	T110B394(1)125A(3)	1.5	3									
125	0.47	B	T110B474(1)125A(3)	1.5	3									
125	0.56	B	T110B564(1)125A(3)	1.5	3									
125	0.68	B	T110B684(1)125A(3)	1.5	3									
125	0.82	B	T110B824(1)125A(3)	1.5	3									
125	1.0	B	T110B105(1)125A(3)	1.5	3									
125	1.2	B	T110B125(1)125A(3)	1.5	3									
125	1.5	B	T110B155(1)125A(3)	1.5	3									
125	1.8	B	T110B185(1)125A(3)	1.5	3									
125	2.2	B	T110B225(1)125A(3)	1.5	3									
125	2.7	C	T110C275(1)125A(3)	2.0	3									
VDC	µF		(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors								

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.

(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.

(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.

Refer to Ordering Information for additional detail.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL-PRF-39003/1K				MIL-PRF-39003/1K					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
125	3.3	C	T110C335(1)125A(3)	2.0	3										
125	3.9	C	T110C395(1)125A(3)	2.0	3										
125	4.7	C	T110C475(1)125A(3)	3.0	3										
125	5.6	C	T110C565(1)125A(3)	3.0	3										
125	6.8	C	T110C685(1)125A(3)	3.0	3										
125	8.2	D	T110D825(1)125A(3)	6.0	3										
125	10.0	D	T110D106(1)125A(3)	6.0	3										
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									

(1) To complete KEMET Part Number, insert M for ±20%, K for ±10%, or J for 5%. Designates capacitance tolerance.

(2) To complete KEMET Part Number (T212), insert Graded failure rate - A for Not Applicable, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours, or G for 1%/k hours; or insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates Reliability Level.

(3) To complete KEMET Part Number (T110), insert Lead Material designator - S for Standard or T for 100% Matte Tin. Designates Termination finish.

Refer to Ordering Information for additional detail.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
$T \leq 25^{\circ}\text{C}$	$T \leq 85^{\circ}\text{C}$	$T \leq 125^{\circ}\text{C}$
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Maximum Power Dissipation: 25°C Ambient

Permissible AC ripple current can be determined by the following:

$$I(\text{max}) = Z \sqrt{P \text{ max} / R}$$

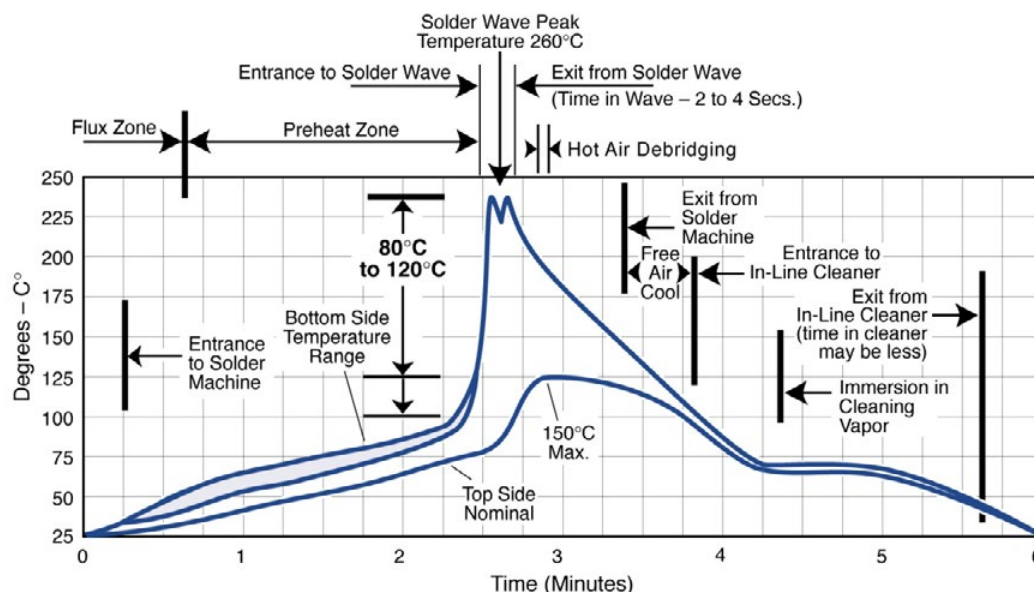
$P \text{ max}$ = maximum watts

R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Optimum Solder Wave Profile



Reverse Voltage

Although these are polar capacitors, some degree of transient voltage reversal is permissible, as seen below. The capacitors should not be operated continuously in reverse mode, even within these limits.

Temperature	Percentage of Rated Voltage
+25°C	15
+85°C	5
+125°C	1

Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL–STD–202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T110

+K 10%	← Polarity, KEMET's Identification & CAP Tol.
R56 µF	← Nominal CAP ("R" indicates decimal)
100 V	← Voltage
1330	← Date Code

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

T212

Case A

39003	← Military Specification Number
01 - K	← Specification Sheet Number & K = KEMET
6003J	← Military Dash Number & J = Jan
330 +	← Date Code & Polarity
AAAA	← Lot Symbol

Case B

M39003	← Military Specification Number
01	← Specification Sheet Number
6003J	← Military Dash Number & J = Jan
31433	← Source Code
330 AAAA +	← Date Code , Polarity & Lot Symbol

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

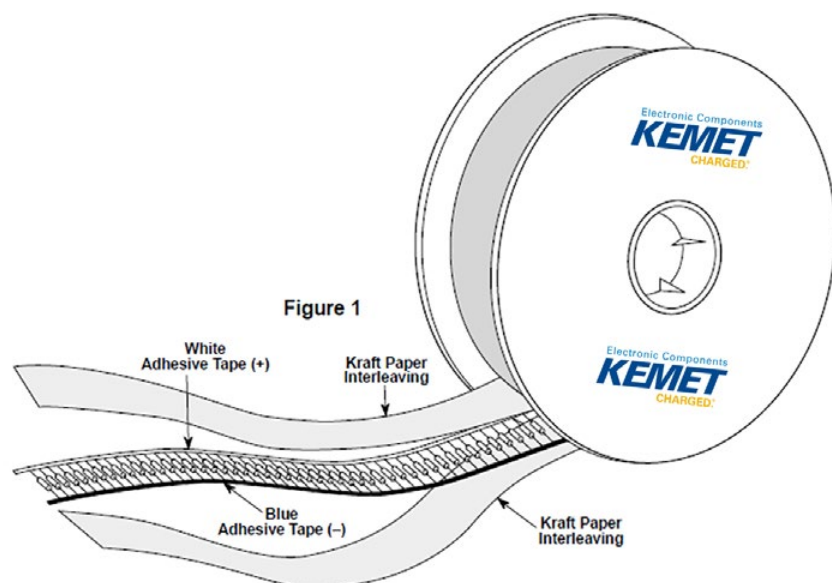


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

Overview

The KEMET T215 Series High Temperature Solder is targeted for use in high humidity environments. These capacitors are ruggedly built, designed for miniaturized circuitry, and especially well-suited for coupling, bypass, filtering, and RC timing circuits. The T215 Series exhibits excellent stability as well as extremely low DC leakage current, dissipation factor and ESR/impedance over a wide temperature and frequency range. The internal design of these devices, as well as the hermetic seal, includes high temperature solder (minimum melting point of 221°C). The

content of tin in the solder does not exceed 97%.

This assembly is especially suited for temperature conditions where solder may fail due to undesirable solder reflow.

The KEMET T215 Series is available in standard EIA capacitance values from 0.0047 μF to 330 μF in $\pm 20\%$, $\pm 10\%$ and $\pm 5\%$ tolerances, and working voltages of 6 VDC to 100 VDC and low ESR limits.

Benefits

- Internal construction solder to resist up to 221°C
- Qualified to MIL-PRF-39003 (CSR13 Style)
- Failure rate options: Graded - B, C, D, and G, and Exponential - M, P, R, and S
- Operating temperature range of -55°C to +125°C
- Capacitance values of 0.0047 μF to 330 μF
- Tolerances of $\pm 5\%$, $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6 VDC – 100 VDC
- Surge current options D, E, and F
- Taped and reeled per EIA Specification RS-296
- Marking per MIL-STD-1285
- Case sizes: A, B, C, D

Applications

Typical applications include coupling, bypass, filtering, and RC timing circuits in miniaturized circuitry.



Ordering Information

T	215	A	105	K	050	B	S	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial High Temperature Solder	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V 075 = 75 V 100 = 100 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0 %/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard (Sn/Pb)	All capacitors are sleeved unless specified. 0100 = Without sleeve 7200 = Tape & Reel 7293 = Ammo 4250 = 10 cycles, 25°C after Weibull 4251 = 10 cycles, -55 & 85°C after Weibull 4252 = 10 cycles, -55 & 85°C before Weibull

Ordering Information – (CSR13 Style)

M39003	/01	6003	E
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

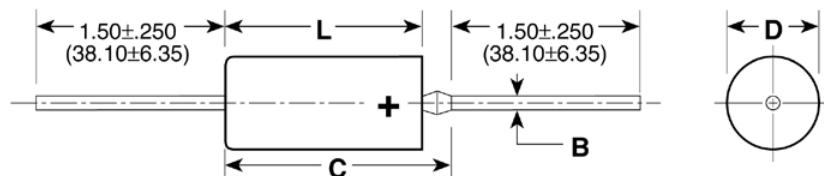
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.0047 μ F – 330 μ F @ 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 100 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL-PRF-39003, CSR13 capacitors only)	Approved failure rate: Graded G (1.0%/k hours), B (0.1%/k hours), C (0.01%/k hours), D (0.001%/k hours) and Exponential M (1.0%/k hours), P (0.1%/k hours), R (0.01%/k hours), S (0.001%/k hours)

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (0.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (0.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (0.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (0.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
6	5.6	A	T215A565J006(2)S	0.3	4	5001-	5201-	5401-	5601-	4001-	6001-	7001-	8001-
6	5.6	A	T215A565K006(2)S	0.3	4	2241-	2481-	2721-	2961-	4002-	6002-	7002-	8002-
6	6.8	A	T215A685J006(2)S	0.3	6	5002-	5202-	5402-	5602-	4003-	6003-	7003-	8003-
6	6.8	A	T215A685K006(2)S	0.3	6	2242-	2482-	2722-	2962-	4004-	6004-	7004-	8004-
6	6.8	A	T215A685M006(2)S	0.3	6	2243-	2483-	2723-	2963-	4005-	6005-	7005-	8005-
6	47.0	B	T215B476J006(2)S	1.5	6	5003-	5203-	5403-	5603-	4006-	6006-	7006-	8006-
6	47.0	B	T215B476K006(2)S	1.5	6	2244-	2484-	2724-	2964-	4007-	6007-	7007-	8007-
6	47.0	B	T215B476M006(2)S	1.5	6	2245-	2485-	2725-	2965-	4008-	6008-	7008-	8008-
6	56.0	B	T215B566J006(2)S	1.5	6	5004-	5204-	5404-	5604-	4009-	6009-	7009-	8009-
6	56.0	B	T215B566K006(2)S	1.5	6	2246-	2486-	2726-	2966-	4010-	6010-	7010-	8010-
6	150.0	C	T215C157J006(2)S	4.5	6	5005-	5205-	5405-	5605-	4011-	6011-	7011-	8011-
6	150.0	C	T215C157K006(2)S	4.5	6	2247-	2487-	2727-	2967-	4012-	6012-	7012-	8012-
6	150.0	C	T215C157M006(2)S	4.5	6	2248-	2488-	2728-	2968-	4013-	6013-	7013-	8013-
6	180.0	C	T215C187J006(2)S	5.5	6	5006-	5206-	5406-	5606-	4014-	6014-	7014-	8014-
6	180.0	C	T215C187K006(2)S	5.5	6	2249-	2489-	2729-	2969-	4015-	6015-	7015-	8015-
6	270.0	D	T215D277J006(2)S	6.0	8	5007-	5207-	5407-	5607-	4016-	6016-	7016-	8016-
6	270.0	D	T215D277K006(2)S	6.0	8	2250-	2490-	2730-	2970-	4017-	6017-	7017-	8017-
6	330.0	D	T215D337J006(2)S	7.5	8	5008-	5208-	5408-	5608-	4018-	6018-	7018-	8018-
6	330.0	D	T215D337K006(2)S	7.5	8	2251-	2491-	2731-	2971-	4019-	6019-	7019-	8019-
6	330.0	D	T215D337M006(2)S	7.5	8	2252-	2492-	2732-	2972-	4020-	6020-	7020-	8020-
10	3.9	A	T215A395J010(2)S	0.3	4	5009-	5209-	5409-	5609-	4021-	6021-	7021-	8021-
10	3.9	A	T215A395K010(2)S	0.3	4	2253-	2493-	2733-	2973-	4022-	6022-	7022-	8022-
10	4.7	A	T215A475J010(2)S	0.4	4	5010-	5210-	5410-	5610-	4023-	6023-	7023-	8023-
10	4.7	A	T215A475K010(2)S	0.4	4	2254-	2494-	2734-	2974-	4024-	6024-	7024-	8024-
10	4.7	A	T215A475M010(2)S	0.4	4	2255-	2495-	2735-	2975-	4025-	6025-	7025-	8025-
10	27.0	B	T215B276J010(2)S	2.0	6	5011-	5211-	5411-	5611-	4026-	6026-	7026-	8026-
10	27.0	B	T215B276K010(2)S	2.0	6	2256-	2496-	2736-	2976-	4027-	6027-	7027-	8027-
10	33.0	B	T215B336J010(2)S	2.0	6	5012-	5212-	5412-	5612-	4028-	6028-	7028-	8028-
10	33.0	B	T215B336K010(2)S	2.0	6	2257-	2497-	2737-	2977-	4029-	6029-	7029-	8029-
10	33.0	B	T215B336M010(2)S	2.0	6	2258-	2498-	2738-	2978-	4030-	6030-	7030-	8030-
10	39.0	B	T215B396J010(2)S	2.0	6	5013-	5213-	5413-	5613-	4031-	6031-	7031-	8031-
10	39.0	B	T215B396K010(2)S	2.0	6	2259-	2499-	2739-	2979-	4032-	6032-	7032-	8032-
10	82.0	C	T215C826J010(2)S	3.0	6	5014-	5214-	5414-	5614-	4033-	6033-	7033-	8033-
10	82.0	C	T215C826K010(2)S	3.0	6	2260-	2500-	2740-	2980-	4034-	6034-	7034-	8034-
10	100.0	C	T215C107J010(2)S	5.0	6	5015-	5215-	5415-	5615-	4035-	6035-	7035-	8035-
10	100.0	C	T215C107K010(2)S	5.0	6	2261-	2501-	2741-	2981-	4036-	6036-	7036-	8036-
10	100.0	C	T215C107M010(2)S	5.0	6	2262-	2502-	2742-	2982-	4037-	6037-	7037-	8037-
10	120.0	C	T215C127J010(2)S	6.0	6	5016-	5216-	5416-	5616-	4038-	6038-	7038-	8038-
10	120.0	C	T215C127K010(2)S	6.0	6	2263-	2503-	2743-	2983-	4039-	6039-	7039-	8039-
10	180.0	D	T215D187J010(2)S	9.0	6	5017-	5217-	5417-	5617-	4040-	6040-	7040-	8040-
10	180.0	D	T215D187K010(2)S	9.0	6	2264-	2504-	2744-	2984-	4041-	6041-	7041-	8041-
10	220.0	D	T215D227J010(2)S	10.0	8	5018-	5218-	5418-	5618-	4042-	6042-	7042-	8042-
10	220.0	D	T215D227K010(2)S	10.0	8	2265-	2505-	2745-	2985-	4043-	6043-	7043-	8043-
10	220.0	D	T215D227M010(2)S	10.0	8	2266-	2506-	2746-	2986-	4044-	6044-	7044-	8044-
15	2.7	A	T215A275J015(2)S	0.3	4	5019-	5219-	5419-	5619-	4045-	6045-	7045-	8045-
15	2.7	A	T215A275K015(2)S	0.3	4	2267-	2507-	2747-	2987-	4046-	6046-	7046-	8046-
15	3.3	A	T215A335J015(2)S	0.4	4	5020-	5220-	5420-	5620-	4047-	6047-	7047-	8047-
15	3.3	A	T215A335K015(2)S	0.4	4	2268-	2508-	2748-	2988-	4048-	6048-	7048-	8048-
15	3.3	A	T215A335M015(2)S	0.4	4	2269-	2509-	2749-	2989-	4049-	6049-	7049-	8049-
15	18.0	B	T215C826J010(2)S	2.0	6	5021-	5221-	5421-	5621-	4050-	6050-	7050-	8050-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
15	18.0	B	T215C826K010(2)S	2.0	6	2270-	2510-	2750-	2990-	4051-	6051-	7051-	8051-
15	22.0	B	T215B276J010(2)S	2.0	6	5022-	5222-	5422-	5622-	4052-	6052-	7052-	8052-
15	22.0	B	T215B276K010(2)S	2.0	6	2271-	2511-	2751-	2991-	4053-	6053-	7053-	8053-
15	22.0	B	T215B276M010(2)S	2.0	6	2272-	2512-	2752-	2992-	4054-	6054-	7054-	8054-
15	56.0	C	T215C566J015(2)S	4.0	6	5023-	5223-	5423-	5623-	4055-	6055-	7055-	8055-
15	56.0	C	T215C566K015(2)S	4.0	6	2273-	2513-	2753-	2993-	4056-	6056-	7056-	8056-
15	68.0	C	T215C686J015(2)S	5.0	6	5024-	5224-	5424-	5624-	4057-	6057-	7057-	8057-
15	68.0	C	T215C686K015(2)S	5.0	6	2274-	2514-	2754-	2994-	4058-	6058-	7058-	8058-
15	68.0	C	T215C686M015(2)S	5.0	6	2275-	2515-	2755-	2995-	4059-	6059-	7059-	8059-
15	120.0	D	T215D127J015(2)S	6.0	6	5025-	5225-	5425-	5625-	4060-	6060-	7060-	8060-
15	120.0	D	T215D127K015(2)S	6.0	6	2276-	2516-	2756-	2996-	4061-	6061-	7061-	8061-
15	150.0	D	T215D157J015(2)S	8.0	6	5026-	5226-	5426-	5626-	4062-	6062-	7062-	8062-
15	150.0	D	T215D157K015(2)S	8.0	6	2277-	2517-	2757-	2997-	4063-	6063-	7063-	8063-
15	150.0	D	T215D157M015(2)S	8.0	6	2278-	2518-	2758-	2998-	4064-	6064-	7064-	8064-
20	1.2	A	T215A125J020(2)S	0.3	4	5027-	5227-	5427-	5627-	4065-	6065-	7065-	8065-
20	1.2	A	T215A125K020(2)S	0.3	4	2279-	2519-	2759-	2999-	4066-	6066-	7066-	8066-
20	1.5	A	T215A155J020(2)S	0.3	4	5028-	5228-	5428-	5628-	4067-	6067-	7067-	8067-
20	1.5	A	T215A155K020(2)S	0.3	4	2280-	2520-	2760-	3000-	4068-	6068-	7068-	8068-
20	1.5	A	T215A155M020(2)S	0.3	4	2281-	2521-	2761-	3001-	4069-	6069-	7069-	8069-
20	1.8	A	T215A185J020(2)S	0.3	4	5029-	5229-	5429-	5629-	4070-	6070-	7070-	8070-
20	1.8	A	T215A185K020(2)S	0.3	4	2282-	2522-	2762-	3002-	4071-	6071-	7071-	8071-
20	2.2	B	T215A225J020(2)S	0.4	4	5010-	5230-	5430-	5630-	4072-	6072-	7072-	8072-
20	2.2	B	T215A225K020(2)S	0.4	4	2283-	2523-	2763-	3003-	4073-	6073-	7073-	8073-
20	2.2	B	T215A225M020(2)S	0.4	4	2284-	2524-	2764-	3004-	4074-	6074-	7074-	8074-
20	8.2	B	T215B825J020(2)S	1.0	6	5031-	5231-	5431-	5631-	4075-	6075-	7075-	8075-
20	8.2	B	T215B825K020(2)S	1.0	6	2285-	2525-	2765-	3005-	4076-	6076-	7076-	8076-
20	10.0	B	T215B106J020(2)S	1.0	6	5032-	5232-	5432-	5632-	4077-	6077-	7077-	8077-
20	10.0	B	T215B106K020(2)S	1.0	6	2286-	2526-	2766-	3006-	4078-	6078-	7078-	8078-
20	10.0	B	T215B106M020(2)S	1.0	6	2287-	2527-	2767-	3007-	4079-	6079-	7079-	8079-
20	12.0	B	T215B126J020(2)S	1.0	6	5033-	5233-	5433-	5633-	4080-	6080-	7080-	8080-
20	12.0	B	T215B126K020(2)S	1.0	6	2288-	2528-	2768-	3008-	4081-	6081-	7081-	8081-
20	15.0	B	T215B156J020(2)S	2.0	6	5034-	5234-	5434-	5634-	4082-	6082-	7082-	8082-
20	15.0	B	T215B156K020(2)S	2.0	6	2289-	2529-	2769-	3009-	4083-	6083-	7083-	8083-
20	15.0	B	T215B156M020(2)S	2.0	6	2290-	2530-	2770-	3010-	4084-	6084-	7084-	8084-
20	27.0	C	T215C276J020(2)S	2.5	6	5035-	5235-	5435-	5635-	4085-	6085-	7085-	8085-
20	27.0	C	T215C276K020(2)S	2.5	6	2291-	2531-	2771-	3011-	4086-	6086-	7086-	8086-
20	33.0	C	T215C336J020(2)S	3.0	6	5036-	5236-	5436-	5636-	4087-	6087-	7087-	8087-
20	33.0	C	T215C336K020(2)S	3.0	6	2292-	2532-	2772-	3012-	4088-	6088-	7088-	8088-
20	33.0	C	T215C336M020(2)S	3.0	6	2293-	2533-	2773-	3013-	4089-	6089-	7089-	8089-
20	39.0	C	T215C396J020(2)S	3.0	6	5037-	5237-	5437-	5637-	4090-	6090-	7090-	8090-
20	39.0	C	T215C396K020(2)S	3.0	6	2294-	2534-	2774-	3014-	4091-	6091-	7091-	8091-
20	47.0	C	T215C476J020(2)S	4.5	6	5038-	5238-	5438-	5638-	4092-	6092-	7092-	8092-
20	47.0	C	T215C476K020(2)S	4.5	6	2295-	2535-	2775-	3015-	4093-	6093-	7093-	8093-
20	47.0	C	T215C476M020(2)S	4.5	6	2296-	2536-	2776-	3016-	4094-	6094-	7094-	8094-
20	56.0	D	T215D566J020(2)S	5.5	6	5039-	5239-	5439-	5639-	4095-	6095-	7095-	8095-
20	56.0	D	T215D566K020(2)S	5.5	6	2297-	2537-	2777-	3017-	4096-	6096-	7096-	8096-
20	68.0	D	T215D686J020(2)S	6.0	6	5040-	5240-	5440-	5640-	4097-	6097-	7097-	8097-
20	68.0	D	T215D686K020(2)S	6.0	6	2298-	2538-	2778-	3018-	4098-	6098-	7098-	8098-
20	68.0	D	T215D686M020(2)S	6.0	6	2299-	2539-	2779-	3019-	4099-	6099-	7099-	8099-
20	82.0	D	T215D826J020(2)S	6.0	6	5041-	5241-	5441-	5641-	4100-	6100-	7100-	8100-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
20	82.0	D	T215D826K020(2)S	6.0	6	2300-	2540-	2780-	3020-	4101-	6101-	7101-	8101-
20	100.0	D	T215D107J020(2)S	10.0	6	5042-	5242-	5442-	5642-	4102-	6102-	7102-	8102-
20	100.0	D	T215D107K020(2)S	10.0	6	2301-	2541-	2781-	3021-	4103-	6103-	7103-	8103-
20	100.0	D	T215D107M020(2)S	10.0	6	2302-	2542-	2782-	3022-	4104-	6104-	7104-	8104-
35	5.6	B	T215B565J035(2)S	1.0	4	5043-	5243-	5443-	5643-	4105-	6105-	7105-	8105-
35	5.6	B	T215B565K035(2)S	1.0	4	2303-	2543-	2783-	3023-	4106-	6106-	7106-	8106-
35	6.8	B	T215B685J035(2)S	1.5	4	5044-	5244-	5444-	5644-	4107-	6107-	7107-	8107-
35	6.8	B	T215B685K035(2)S	1.5	4	2304-	2544-	2784-	3024-	4108-	6108-	7108-	8108-
35	6.8	B	T215B685M035(2)S	1.5	6	2305-	2545-	2785-	3025-	4109-	6109-	7109-	8109-
35	22.0	C	T215C226J035(2)S	4.0	4	5045-	5245-	5445-	5645-	4110-	6110-	7110-	8110-
35	22.0	C	T215C226K035(2)S	4.0	4	2306-	2546-	2786-	3026-	4111-	6111-	7111-	8111-
35	22.0	C	T215C226M035(2)S	4.0	4	2307-	2547-	2787-	3027-	4112-	6112-	7112-	8112-
35	27.0	D	T215D276J035(2)S	4.5	4	5046-	5246-	5446-	5646-	4113-	6113-	7113-	8113-
35	27.0	D	T215D276K035(2)S	4.5	4	2308-	2548-	2788-	3028-	4114-	6114-	7114-	8114-
35	33.0	D	T215D336J035(2)S	5.5	4	5047-	5247-	5447-	5647-	4115-	6115-	7115-	8115-
35	33.0	D	T215D336K035(2)S	5.5	4	2309-	2549-	2789-	3029-	4116-	6116-	7116-	8116-
35	33.0	D	T215D336M035(2)S	5.5	4	2310-	2550-	2790-	3030-	4117-	6117-	7117-	8117-
35	39.0	D	T215D396J035(2)S	6.0	4	5048-	5248-	5448-	5648-	4118-	6118-	7118-	8118-
35	39.0	D	T215D396K035(2)S	6.0	4	2311-	2551-	2791-	3031-	4119-	6119-	7119-	8119-
35	47.0	D	T215D476J035(2)S	8.0	4	5049-	5249-	5449-	5649-	4120-	6120-	7120-	8120-
35	47.0	D	T215D476K035(2)S	8.0	4	2312-	2552-	2792-	3032-	4121-	6121-	7121-	8121-
35	47.0	D	T215D476M035(2)S	8.0	4	2313-	2553-	2793-	3033-	4122-	6122-	7122-	8122-
50	0.0047	A	T215A472J050(2)S	0.1	2	5050-	5250-	5450-	5650-	4123-	6123-	7123-	8123-
50	0.0047	A	T215A472K050(2)S	0.1	2	2314-	2554-	2794-	3034-	4124-	6124-	7124-	8124-
50	0.0047	A	T215A472M050(2)S	0.1	2	2315-	2555-	2795-	3035-	4125-	6125-	7125-	8125-
50	0.0056	A	T215A562J050(2)S	0.1	2	5051-	5251-	5451-	5651-	4126-	6126-	7126-	8126-
50	0.0056	A	T215A562K050(2)S	0.1	2	2316-	2556-	2796-	3036-	4127-	6127-	7127-	8127-
50	0.0068	A	T215A682J050(2)S	0.1	2	5052-	5252-	5452-	5652-	4128-	6128-	7128-	8128-
50	0.0068	A	T215A682K050(2)S	0.1	2	2317-	2557-	2797-	3037-	4129-	6129-	7129-	8129-
50	0.0068	A	T215A682M050(2)S	0.1	2	2318-	2558-	2798-	3038-	4130-	6130-	7130-	8130-
50	0.0082	A	T215A822J050(2)S	0.1	2	5053-	5253-	5453-	5653-	4131-	6131-	7131-	8131-
50	0.0082	A	T215A822K050(2)S	0.1	2	2319-	2559-	2799-	3039-	4132-	6132-	7132-	8132-
50	0.01	A	T215A103J050(2)S	0.1	2	5054-	5254-	5454-	5654-	4133-	6133-	7133-	8133-
50	0.01	A	T215A103K050(2)S	0.1	2	2320-	2560-	2800-	3040-	4134-	6134-	7134-	8134-
50	0.01	A	T215A103M050(2)S	0.1	2	2321-	2561-	2801-	3041-	4135-	6135-	7135-	8135-
50	0.012	A	T215A123J050(2)S	0.1	2	5055-	5255-	5455-	5655-	4136-	6136-	7136-	8136-
50	0.012	A	T215A123K050(2)S	0.1	2	2322-	2562-	2802-	3042-	4137-	6137-	7137-	8137-
50	0.015	A	T215A153J050(2)S	0.1	2	5056-	5256-	5456-	5656-	4138-	6138-	7138-	8138-
50	0.015	A	T215A153K050(2)S	0.1	2	2323-	2563-	2803-	3043-	4139-	6139-	7139-	8139-
50	0.015	A	T215A153M050(2)S	0.1	2	2324-	2564-	2804-	3044-	4140-	6140-	7140-	8140-
50	0.018	A	T215A183J050(2)S	0.1	2	5057-	5257-	5457-	5657-	4141-	6141-	7141-	8141-
50	0.018	A	T215A183K050(2)S	0.1	2	2325-	2565-	2805-	3045-	4142-	6142-	7142-	8142-
50	0.022	A	T215A223J050(2)S	0.1	2	5058-	5258-	5458-	5658-	4143-	6143-	7143-	8143-
50	0.022	A	T215A223K050(2)S	0.1	2	2326-	2566-	2806-	3046-	4144-	6144-	7144-	8144-
50	0.022	A	T215A223M050(2)S	0.1	2	2327-	2567-	2807-	3047-	4145-	6145-	7145-	8145-
50	0.027	A	T215A273J050(2)S	0.1	2	5059-	5259-	5459-	5659-	4146-	6146-	7146-	8146-
50	0.027	A	T215A273K050(2)S	0.1	2	2328-	2568-	2808-	3048-	4147-	6147-	7147-	8147-
50	0.033	A	T215A333J050(2)S	0.1	2	5060-	5260-	5460-	5660-	4148-	6148-	7148-	8148-
50	0.033	A	T215A333K050(2)S	0.1	2	2329-	2569-	2809-	3049-	4149-	6149-	7149-	8149-
50	0.033	A	T215A333M050(2)S	0.1	2	2330-	2570-	2810-	3050-	4150-	6150-	7150-	8150-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
50	0.039	A	T215A393J050(2)S	0.1	2	5061-	5261-	5461-	5661-	4151-	6151-	7151-	8151-
50	0.039	A	T215A393K050(2)S	0.1	2	2331-	2571-	2811-	3051-	4152-	6152-	7152-	8152-
50	0.047	A	T215A473J050(2)S	0.1	2	5062-	5262-	5462-	5662-	4153-	6153-	7153-	8153-
50	0.047	A	T215A473K050(2)S	0.1	2	2332-	2572-	2812-	3052-	4154-	6154-	7154-	8154-
50	0.047	A	T215A473M050(2)S	0.1	2	2333-	2573-	2813-	3053-	4155-	6155-	7155-	8155-
50	0.056	A	T215A563J050(2)S	0.1	2	5063-	5263-	5463-	5663-	4156-	6156-	7156-	8156-
50	0.056	A	T215A563K050(2)S	0.1	2	2334-	2574-	2814-	3054-	4157-	6157-	7157-	8157-
50	0.068	A	T215A683J050(2)S	0.1	2	5064-	5264-	5464-	5664-	4158-	6158-	7158-	8158-
50	0.068	A	T215A683K050(2)S	0.1	2	2335-	2575-	2815-	3055-	4159-	6159-	7159-	8159-
50	0.068	A	T215A683M050(2)S	0.1	2	2336-	2576-	2816-	3056-	4160-	6160-	7160-	8160-
50	0.082	A	T215A823J050(2)S	0.1	2	5065-	5265-	5465-	5665-	4161-	6161-	7161-	8161-
50	0.082	A	T215A823K050(2)S	0.1	2	2337-	2577-	2817-	3057-	4162-	6162-	7162-	8162-
50	0.1	A	T215A104J050(2)S	0.3	2	5066-	5266-	5466-	5666-	4163-	6163-	7163-	8163-
50	0.1	A	T215A104K050(2)S	0.3	2	2338-	2578-	2818-	3058-	4164-	6164-	7164-	8164-
50	0.1	A	T215A104M050(2)S	0.3	2	2339-	2579-	2819-	3059-	4165-	6165-	7165-	8165-
50	0.12	A	T215A124J050(2)S	0.3	2	5067-	5267-	5467-	5667-	4166-	6166-	7166-	8166-
50	0.12	A	T215A124K050(2)S	0.3	2	2340-	2580-	2820-	3060-	4167-	6167-	7167-	8167-
50	0.15	A	T215A154J050(2)S	0.3	2	5068-	5268-	5468-	5668-	4168-	6168-	7168-	8168-
50	0.15	A	T215A154K050(2)S	0.3	2	2341-	2581-	2821-	3061-	4169-	6169-	7169-	8169-
50	0.15	A	T215A154M050(2)S	0.3	2	2342-	2582-	2822-	3062-	4170-	6170-	7170-	8170-
50	0.18	A	T215A184J050(2)S	0.3	2	5069-	5269-	5469-	5669-	4171-	6171-	7171-	8171-
50	0.18	A	T215A184K050(2)S	0.3	2	2343-	2583-	2823-	3063-	4172-	6172-	7172-	8172-
50	0.22	A	T215A224J050(2)S	0.3	2	5070-	5270-	5470-	5670-	4173-	6173-	7173-	8173-
50	0.22	A	T215A224K050(2)S	0.3	2	2344-	2584-	2824-	3064-	4174-	6174-	7174-	8174-
50	0.22	A	T215A224M050(2)S	0.3	2	2345-	2585-	2825-	3065-	4175-	6175-	7175-	8175-
50	0.27	A	T215A274J050(2)S	0.3	2	5071-	5271-	5471-	5671-	4176-	6176-	7176-	8176-
50	0.27	A	T215A274K050(2)S	0.3	2	2346-	2586-	2826-	3066-	4177-	6177-	7177-	8177-
50	0.33	A	T215A334J050(2)S	0.3	2	5072-	5272-	5472-	5672-	4178-	6178-	7178-	8178-
50	0.33	A	T215A334K050(2)S	0.3	2	2347-	2587-	2827-	3067-	4179-	6179-	7179-	8179-
50	0.33	A	T215A334M050(2)S	0.3	2	2348-	2588-	2828-	3068-	4180-	6180-	7180-	8180-
50	0.39	A	T215A394J050(2)S	0.3	2	5073-	5273-	5473-	5673-	4181-	6181-	7181-	8181-
50	0.39	A	T215A394K050(2)S	0.3	2	2349-	2589-	2829-	3069-	4182-	6182-	7182-	8182-
50	0.47	A	T215A474J050(2)S	0.3	2	5074-	5274-	5474-	5674-	4183-	6183-	7183-	8183-
50	0.47	A	T215A474K050(2)S	0.3	2	2350-	2590-	2830-	3070-	4184-	6184-	7184-	8184-
50	0.47	A	T215A474M050(2)S	0.3	2	2351-	2591-	2831-	3071-	4185-	6185-	7185-	8185-
50	0.56	A	T215A564J050(2)S	0.3	2	5075-	5275-	5475-	5675-	4186-	6186-	7186-	8186-
50	0.56	A	T215A564K050(2)S	0.3	2	2352-	2592-	2832-	3072-	4187-	6187-	7187-	8187-
50	0.68	A	T215A684J050(2)S	0.3	2	5076-	5276-	5476-	5676-	4188-	6188-	7188-	8188-
50	0.68	A	T215A684K050(2)S	0.3	2	2353-	2593-	2833-	3073-	4189-	6189-	7189-	8189-
50	0.68	A	T215A684M050(2)S	0.3	2	2354-	2594-	2834-	3074-	4190-	6190-	7190-	8190-
50	0.82	A	T215A824J050(2)S	0.3	2	5077-	5277-	5477-	5677-	4191-	6191-	7191-	8191-
50	0.82	A	T215A824K050(2)S	0.3	2	2355-	2595-	2835-	3075-	4192-	6192-	7192-	8192-
50	1.0	A	T215A105J050(2)S	0.4	2	5078-	5278-	5478-	5678-	4193-	6193-	7193-	8193-
50	1.0	A	T215A105K050(2)S	0.4	2	2356-	2596-	2836-	3076-	4194-	6194-	7194-	8194-
50	1.0	A	T215A105M050(2)S	0.4	2	2357-	2597-	2837-	3077-	4195-	6195-	7195-	8195-
50	1.2	B	T215B125J050(2)S	0.4	4	5079-	5279-	5479-	5679-	4196-	6196-	7196-	8196-
50	1.2	B	T215B125K050(2)S	0.4	4	2358-	2598-	2838-	3078-	4197-	6197-	7197-	8197-
50	1.5	B	T215B155J050(2)S	0.5	4	5080-	5280-	5480-	5680-	4198-	6198-	7198-	8198-
50	1.5	B	T215B155K050(2)S	0.5	4	2359-	2599-	2839-	3079-	4199-	6199-	7199-	8199-
50	1.5	B	T215B155M050(2)S	0.5	4	2360-	2600-	2840-	3080-	4200-	6200-	7200-	8200-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
50	1.8	B	T215B185J050(2)S	0.5	4	5081-	5281-	5481-	5681-	4201-	6201-	7201-	8201-
50	1.8	B	T215B185K050(2)S	0.5	4	2361-	2601-	2841-	3081-	4202-	6202-	7202-	8202-
50	2.2	B	T215B225J050(2)S	0.8	4	5082-	5282-	5482-	5682-	4203-	6203-	7203-	8203-
50	2.2	B	T215B225K050(2)S	0.8	4	2362-	2602-	2842-	3082-	4204-	6204-	7204-	8204-
50	2.2	B	T215B225M050(2)S	0.8	4	2363-	2603-	2843-	3083-	4205-	6205-	7205-	8205-
50	2.7	B	T215B275J050(2)S	0.8	4	5083-	5283-	5483-	5683-	4206-	6206-	7206-	8206-
50	2.7	B	T215B275K050(2)S	0.8	4	2364-	2604-	2844-	3084-	4207-	6207-	7207-	8207-
50	3.3	B	T215B335J050(2)S	1.2	4	5084-	5284-	5484-	5684-	4208-	6208-	7208-	8208-
50	3.3	B	T215B335K050(2)S	1.2	4	2365-	2605-	2845-	3085-	4209-	6209-	7209-	8209-
50	3.3	B	T215B335M050(2)S	1.2	4	2366-	2606-	2846-	3086-	4210-	6210-	7210-	8210-
50	3.9	B	T215B395J050(2)S	1.5	4	5085-	5285-	5485-	5685-	4211-	6211-	7211-	8211-
50	3.9	B	T215B395K050(2)S	1.5	4	2367-	2607-	2847-	3087-	4212-	6212-	7212-	8212-
50	4.7	B	T215B475J050(2)S	1.7	4	5086-	5286-	5486-	5686-	4213-	6213-	7213-	8213-
50	4.7	B	T215B475K050(2)S	1.7	4	2368-	2608-	2848-	3088-	4214-	6214-	7214-	8214-
50	4.7	B	T215B475M050(2)S	1.7	4	2369-	2609-	2849-	3089-	4215-	6215-	7215-	8215-
50	5.6	C	T215C565J050(2)S	2.2	4	5087-	5287-	5487-	5687-	4216-	6216-	7216-	8216-
50	5.6	C	T215C565K050(2)S	2.2	4	2370-	2610-	2850-	3090-	4217-	6217-	7217-	8217-
50	6.8	C	T215C685J050(2)S	2.2	4	5088-	5288-	5488-	5688-	4218-	6218-	7218-	8218-
50	6.8	C	T215C685K050(2)S	2.2	4	2371-	2611-	2851-	3091-	4219-	6219-	7219-	8219-
50	6.8	C	T215C685M050(2)S	2.2	4	2372-	2612-	2852-	3092-	4220-	6220-	7220-	8220-
50	8.2	C	T215C825J050(2)S	2.5	4	5089-	5289-	5489-	5689-	4221-	6221-	7221-	8221-
50	8.2	C	T215C825K050(2)S	2.5	4	2373-	2613-	2853-	3093-	4222-	6222-	7222-	8222-
50	10.0	C	T215C106J050(2)S	2.5	4	5090-	5290-	5490-	5690-	4223-	6223-	7223-	8223-
50	10.0	C	T215C106K050(2)S	2.5	4	2374-	2614-	2854-	3094-	4224-	6224-	7224-	8224-
50	10.0	C	T215C106M050(2)S	2.5	4	2375-	2615-	2855-	3095-	4225-	6225-	7225-	8225-
50	12.0	C	T215C126J050(2)S	3.0	4	5091-	5291-	5491-	5691-	4226-	6226-	7226-	8226-
50	12.0	C	T215C126K050(2)S	3.0	4	2376-	2616-	2856-	3096-	4227-	6227-	7227-	8227-
50	15.0	C	T215C156J050(2)S	4.0	4	5092-	5292-	5492-	5692-	4228-	6228-	7228-	8228-
50	15.0	C	T215C156K050(2)S	4.0	4	2377-	2617-	2857-	3097-	4229-	6229-	7229-	8229-
50	15.0	C	T215C156M050(2)S	4.0	4	2378-	2618-	2858-	3098-	4230-	6230-	7230-	8230-
50	18.0	C	T215C186J050(2)S	4.5	4	5093-	5293-	5493-	5693-	4231-	6231-	7231-	8231-
50	18.0	C	T215C186K050(2)S	4.5	4	2379-	2619-	2859-	3099-	4232-	6232-	7232-	8232-
50	22.0	D	T215D226J050(2)S	5.5	4	5094-	5294-	5494-	5694-	4233-	6233-	7233-	8233-
50	22.0	D	T215D226K050(2)S	5.5	4	2380-	2620-	2860-	3100-	4234-	6234-	7234-	8234-
50	22.0	D	T215D226M050(2)S	5.5	4	2381-	2621-	2861-	3101-	4235-	6235-	7235-	8235-
75	0.1	A	T215A104J075(2)S	0.3	2	5095-	5295-	5495-	5695-	4236-	6236-	7236-	8236-
75	0.1	A	T215A104K075(2)S	0.3	2	2382-	2622-	2862-	3102-	4237-	6237-	7237-	8237-
75	0.1	A	T215A104M075(2)S	0.3	2	2383-	2623-	2863-	3103-	4238-	6238-	7238-	8238-
75	0.12	A	T215A124J075(2)S	0.3	2	5096-	5296-	5496-	5696-	4239-	6239-	7239-	8239-
75	0.12	A	T215A124K075(2)S	0.3	2	2384-	2624-	2864-	3104-	4240-	6240-	7240-	8240-
75	0.15	A	T215A154J075(2)S	0.3	2	5097-	5297-	5497-	5697-	4241-	6241-	7241-	8241-
75	0.15	A	T215A154K075(2)S	0.3	2	2385-	2625-	2865-	3105-	4242-	6242-	7242-	8242-
75	0.15	A	T215A154M075(2)S	0.3	2	2386-	2626-	2866-	3106-	4243-	6243-	7243-	8243-
75	0.18	A	T215A184J075(2)S	0.3	2	5098-	5298-	5498-	5698-	4244-	6244-	7244-	8244-
75	0.18	A	T215A184K075(2)S	0.3	2	2387-	2627-	2867-	3107-	4245-	6245-	7245-	8245-
75	0.22	A	T215A224J075(2)S	0.3	2	5099-	5299-	5499-	5699-	4246-	6246-	7246-	8246-
75	0.22	A	T215A224K075(2)S	0.3	2	2388-	2628-	2868-	3108-	4247-	6247-	7247-	8247-
75	0.22	A	T215A224M075(2)S	0.3	2	2389-	2629-	2869-	3109-	4248-	6248-	7248-	8248-
75	0.27	A	T215A274J075(2)S	0.3	2	5100-	5300-	5500-	5700-	4249-	6249-	7249-	8249-
75	0.27	A	T215A274K075(2)S	0.3	2	2390-	2630-	2870-	3110-	4250-	6250-	7250-	8250-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
75	0.33	A	T215A334J075(2)S	0.3	2	5101-	5301-	5501-	5701-	4251-	6251-	7251-	8251-
75	0.33	A	T215A334K075(2)S	0.3	2	2391-	2631-	2871-	3111-	4252-	6252-	7252-	8252-
75	0.33	A	T215A334M075(2)S	0.3	2	2392-	2632-	2872-	3112-	4253-	6253-	7253-	8253-
75	0.39	A	T215A394J075(2)S	0.3	2	5102-	5302-	5502-	5702-	4254-	6254-	7254-	8254-
75	0.39	A	T215A394K075(2)S	0.3	2	2393-	2633-	2873-	3113-	4255-	6255-	7255-	8255-
75	0.47	A	T215A474J075(2)S	0.3	2	5103-	5303-	5503-	5703-	4256-	6256-	7256-	8256-
75	0.47	A	T215A474K075(2)S	0.3	2	2394-	2634-	2874-	3114-	4257-	6257-	7257-	8257-
75	0.47	A	T215A474M075(2)S	0.3	2	2395-	2635-	2875-	3115-	4258-	6258-	7258-	8258-
75	0.56	A	T215A564J075(2)S	0.3	2	5104-	5304-	5504-	5704-	4259-	6259-	7259-	8259-
75	0.56	A	T215A564K075(2)S	0.3	2	2396-	2636-	2876-	3116-	4260-	6260-	7260-	8260-
75	0.68	A	T215A684J075(2)S	0.3	2	5105-	5305-	5505-	5705-	4261-	6261-	7261-	8261-
75	0.68	A	T215A684K075(2)S	0.3	2	2397-	2637-	2877-	3117-	4262-	6262-	7262-	8262-
75	0.68	A	T215A684M075(2)S	0.3	2	2398-	2638-	2878-	3118-	4263-	6263-	7263-	8263-
75	0.82	B	T215B824J075(2)S	0.3	2	5106-	5306-	5506-	5706-	4264-	6264-	7264-	8264-
75	0.82	B	T215B824K075(2)S	0.3	2	2399-	2639-	2879-	3119-	4265-	6265-	7265-	8265-
75	1.0	B	T215B105J075(2)S	0.3	2	5107-	5307-	5507-	5707-	4266-	6266-	7266-	8266-
75	1.0	B	T215B105K075(2)S	0.3	2	2400-	2640-	2880-	3120-	4267-	6267-	7267-	8267-
75	1.0	B	T215B105M075(2)S	0.3	2	2401-	2641-	2881-	3121-	4268-	6268-	7268-	8268-
75	1.2	B	T215B125J075(2)S	0.3	4	5108-	5308-	5508-	5708-	4269-	6269-	7269-	8269-
75	1.2	B	T215B125K075(2)S	0.3	4	2402-	2642-	2882-	3122-	4270-	6270-	7270-	8270-
75	1.5	B	T215B155J075(2)S	0.6	4	5109-	5309-	5509-	5709-	4271-	6271-	7271-	8271-
75	1.5	B	T215B155K075(2)S	0.6	4	2403-	2643-	2883-	3123-	4272-	6272-	7272-	8272-
75	1.5	B	T215B155M075(2)S	0.6	4	2404-	2644-	2884-	3124-	4273-	6273-	7273-	8273-
75	1.8	B	T215B185J075(2)S	0.7	4	5110-	5310-	5510-	5710-	4274-	6274-	7274-	8274-
75	1.8	B	T215B185K075(2)S	0.7	4	2405-	2645-	2885-	3125-	4275-	6275-	7275-	8275-
75	2.2	B	T215B225J075(2)S	0.8	4	5111-	5311-	5511-	5711-	4276-	6276-	7276-	8276-
75	2.2	B	T215B225K075(2)S	0.8	4	2406-	2646-	2886-	3126-	4277-	6277-	7277-	8277-
75	2.2	B	T215B225M075(2)S	0.8	4	2407-	2647-	2887-	3127-	4278-	6278-	7278-	8278-
75	2.7	B	T215B275J075(2)S	1.0	4	5112-	5312-	5512-	5712-	4279-	6279-	7279-	8279-
75	2.7	B	T215B275K075(2)S	1.0	4	2408-	2648-	2888-	3128-	4280-	6280-	7280-	8280-
75	3.3	B	T215B335J075(2)S	1.2	4	5113-	5313-	5513-	5713-	4281-	6281-	7281-	8281-
75	3.3	B	T215B335K075(2)S	1.2	4	2409-	2649-	2889-	3129-	4282-	6282-	7282-	8282-
75	3.3	B	T215B335M075(2)S	1.2	4	2410-	2650-	2890-	3130-	4283-	6283-	7283-	8283-
75	3.9	B	T215B395J075(2)S	1.5	4	5114-	5314-	5514-	5714-	4284-	6284-	7284-	8284-
75	3.9	B	T215B395K075(2)S	1.5	4	2411-	2651-	2891-	3131-	4285-	6285-	7285-	8285-
75	4.7	C	T215C475J075(2)S	3.0	4	5115-	5315-	5515-	5715-	4286-	6286-	7286-	8286-
75	4.7	C	T215C475K075(2)S	3.0	4	2412-	2652-	2892-	3132-	4287-	6287-	7287-	8287-
75	4.7	C	T215C475M075(2)S	3.0	4	2413-	2653-	2893-	3133-	4288-	6288-	7288-	8288-
75	5.6	C	T215C565J075(2)S	3.0	4	5116-	5316-	5516-	5716-	4289-	6289-	7289-	8289-
75	5.6	C	T215C565K075(2)S	3.0	4	2414-	2654-	2894-	3134-	4290-	6290-	7290-	8290-
75	6.8	C	T215C685J075(2)S	5.0	4	5117-	5317-	5517-	5717-	4291-	6291-	7291-	8291-
75	6.8	C	T215C685K075(2)S	5.0	4	2415-	2655-	2895-	3135-	4292-	6292-	7292-	8292-
75	6.8	C	T215C685M075(2)S	5.0	4	2416-	2656-	2896-	3136-	4293-	6293-	7293-	8293-
75	8.2	C	T215C825J075(2)S	5.0	4	5118-	5318-	5518-	5718-	4294-	6294-	7294-	8294-
75	8.2	C	T215C825K075(2)S	5.0	4	2417-	2657-	2897-	3137-	4295-	6295-	7295-	8295-
75	10.0	C	T215C106J075(2)S	5.0	4	5119-	5319-	5519-	5719-	4296-	6296-	7296-	8296-
75	10.0	C	T215C106K075(2)S	5.0	4	2418-	2658-	2898-	3138-	4297-	6297-	7297-	8297-
75	10.0	C	T215C106M075(2)S	5.0	4	2419-	2659-	2899-	3139-	4298-	6298-	7298-	8298-
75	12.0	D	T215D126J075(2)S	5.0	4	5120-	5320-	5520-	5720-	4299-	6299-	7299-	8299-
75	12.0	D	T215D126JK07(2)S	5.0	4	2420-	2660-	2900-	3140-	4300-	6300-	7300-	8300-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
75	15.0	D	T215D156J075(2)S	7.0	4	5121-	5321-	5521-	5721-	4301-	6301-	7301-	8301-
75	15.0	D	T215D156K075(2)S	7.0	4	2421-	2661-	2901-	3141-	4302-	6302-	7302-	8302-
75	15.0	D	T215D156M075(2)S	7.0	4	2422-	2662-	2902-	3142-	4303-	6303-	7303-	8303-
100	0.0047	A	T215A472J100(2)S	0.3	2	5122-	5322-	5522-	5722-	4304-	6304-	7304-	*
100	0.0047	A	T215A472K100(2)S	0.3	2	2423-	2663-	2903-	3143-	4305-	6305-	7305-	*
100	0.0047	A	T215A472M100(2)S	0.3	2	2424-	2664-	2904-	3144-	4306-	6306-	7306-	*
100	0.0056	A	T215A562J100(2)S	0.3	2	5123-	5323-	5523-	5723-	4307-	6307-	7307-	*
100	0.01	A	T215A562K100(2)S	0.3	2	2425-	2665-	2905-	3145-	4308-	6308-	7308-	*
100	0.0068	A	T215A682J100(2)S	0.3	2	5124-	5324-	5524-	5724-	4309-	6309-	7309-	*
100	0.0068	A	T215A682K100(2)S	0.3	2	2426-	2666-	2906-	3146-	4310-	6310-	7310-	*
100	0.0068	A	T215A682M100(2)S	0.3	2	2427-	2667-	2907-	3147-	4311-	6311-	7311-	*
100	0.0082	A	T215A822J100(2)S	0.3	2	5125-	5325-	5525-	5725-	4312-	6312-	7312-	*
100	0.0082	A	T215A822K100(2)S	0.3	2	2428-	2668-	2908-	3148-	4313-	6313-	7313-	*
100	0.01	A	T215A103J100(2)S	0.3	2	5126-	5326-	5526-	5726-	4313-	6314-	7314-	*
100	0.01	A	T215A103K100(2)S	0.3	2	2429-	2669-	2909-	3149-	4315-	6315-	7315-	*
100	0.01	A	T215A103M100(2)S	0.3	2	2430-	2670-	2910-	3150-	4316-	6316-	7316-	*
100	0.012	A	T215A123J100(2)S	0.3	2	5127-	5327-	5527-	5727-	4317-	6317-	7317-	*
100	0.012	A	T215A123K100(2)S	0.3	2	2431-	2671-	2911-	3151-	4318-	6318-	7318-	*
100	0.015	A	T215A153J100(2)S	0.3	2	5128-	5328-	5528-	5728-	4319-	6319-	7319-	*
100	0.015	A	T215A153K100(2)S	0.3	2	2432-	2672-	2912-	3152-	4320-	6320-	7320-	*
100	0.015	A	T215A153M100(2)S	0.3	2	2433-	2673-	2913-	3153-	4321-	6321-	7321-	*
100	0.018	A	T215A183J100(2)S	0.3	2	5129-	5329-	5529-	5729-	4322-	6322-	7322-	*
100	0.018	A	T215A183K100(2)S	0.3	2	2434-	2674-	2914-	3154-	4323-	6323-	7323-	*
100	0.022	A	T215A223J100(2)S	0.3	2	5130-	5330-	5530-	5730-	4324-	6324-	7324-	*
100	0.022	A	T215A223K100(2)S	0.3	2	2435-	2675-	2915-	3155-	4325-	6325-	7325-	*
100	0.022	A	T215A223M100(2)S	0.3	2	2436-	2676-	2916-	3156-	4326-	6326-	7326-	*
100	0.027	A	T215A273J100(2)S	0.3	2	5131-	5331-	5531-	5731-	4327-	6327-	7327-	*
100	0.027	A	T215A273K100(2)S	0.3	2	2437-	2677-	2917-	3157-	4328-	6328-	7328-	*
100	0.033	A	T215A333J100(2)S	0.3	2	5132-	5332-	5532-	5732-	4329-	6329-	7329-	*
100	0.033	A	T215A333K100(2)S	0.3	2	2438-	2678-	2918-	3158-	4330-	6330-	7330-	*
100	0.033	A	T215A333M100(2)S	0.3	2	2439-	2679-	2919-	3159-	4331-	6331-	7331-	*
100	0.039	A	T215A393J100(2)S	0.3	2	5133-	5333-	5533-	5733-	4332-	6332-	7332-	*
100	0.039	A	T215A393K100(2)S	0.3	2	2440-	2680-	2920-	3160-	4333-	6333-	7333-	*
100	0.047	A	T215A473J100(2)S	0.3	2	5134-	5334-	5534-	5734-	4334-	6334-	7334-	*
100	0.047	A	T215A473K100(2)S	0.3	2	2441-	2681-	2921-	3161-	4335-	6335-	7335-	*
100	0.047	A	T215A473M100(2)S	0.3	2	2442-	2682-	2922-	3162-	4336-	6336-	7336-	*
100	0.056	A	T215A563J100(2)S	0.3	2	5135-	5335-	5535-	5735-	4337-	6337-	7337-	*
100	0.056	A	T215A563K100(2)S	0.3	2	2443-	2683-	2923-	3163-	4338-	6338-	7338-	*
100	0.068	A	T215A683J100(2)S	0.3	2	5136-	5336-	5536-	5736-	4339-	6339-	7339-	*
100	0.068	A	T215A683K100(2)S	0.3	2	2444-	2684-	2924-	3164-	4340-	6340-	7340-	*
100	0.068	A	T215A683M100(2)S	0.3	2	2445-	2685-	2925-	3165-	4341-	6341-	7341-	*
100	0.082	A	T215A823J100(2)S	0.3	2	5137-	5337-	5537-	5737-	4342-	6342-	7342-	*
100	0.082	A	T215A823K100(2)S	0.3	2	2446-	2686-	2926-	3166-	4343-	6343-	7343-	*
100	0.1	A	T215A104J100(2)S	0.3	2	5138-	5338-	5538-	5738-	4344-	6344-	7344-	*
100	0.1	A	T215A104K100(2)S	0.3	2	2447-	2687-	2927-	3167-	4345-	6345-	7345-	*
100	0.1	A	T215A104M100(2)S	0.3	2	2448-	2688-	2928-	3168-	4346-	6346-	7346-	*
100	0.12	A	T215A124J100(2)S	0.3	2	5139-	5339-	5539-	5739-	4347-	6347-	7347-	*
100	0.12	A	T215A124K100(2)S	0.3	2	2449-	2689-	2929-	3169-	4348-	6348-	7348-	*
100	0.15	A	T215A154J100(2)S	0.3	2	5140-	5340-	5540-	5740-	4349-	6349-	7349-	*
100	0.15	A	T215A154K100(2)S	0.3	2	2450-	2690-	2930-	3170-	4350-	6350-	7350-	*
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/1K				MIL-PRF-39003/1K			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
100	0.15	A	T215A154M100(2)S	0.3	2	2451-	2691-	2931-	3171-	4351-	6351-	7351-	*
100	0.18	A	T215A184J100(2)S	0.3	2	5141-	5341-	5541-	5741-	4352-	6352-	7352-	*
100	0.18	A	T215A184K100(2)S	0.3	2	2452-	2692-	2932-	3172-	4353-	6353-	7353-	*
100	0.22	A	T215A224J100(2)S	0.3	2	5142-	5342-	5542-	5742-	4354-	6354-	7354-	*
100	0.22	A	T215A224K100(2)S	0.3	2	2453-	2693-	2933-	3173-	4355-	6355-	7355-	*
100	0.22	A	T215A224M100(2)S	0.3	2	2454-	2694-	2934-	3174-	4356-	6356-	7356-	*
100	0.27	A	T215A274J100(2)S	0.3	2	5143-	5343-	5543-	5743-	4357-	6357-	7357-	*
100	0.27	A	T215A274K100(2)S	0.3	2	2455-	2695-	2935-	3175-	4358-	6358-	7358-	*
100	0.33	A	T215A334J100(2)S	0.3	2	5144-	5344-	5544-	5744-	4359-	6359-	7359-	*
100	0.33	A	T215A334K100(2)S	0.3	2	2456-	2696-	2936-	3176-	4360-	6360-	7360-	*
100	0.33	A	T215A334M100(2)S	0.3	2	2457-	2697-	2937-	3177-	4361-	6361-	7361-	*
100	0.39	A	T215A394J100(2)S	0.3	2	5145-	5345-	5545-	5745-	4362-	6362-	7362-	*
100	0.39	A	T215A394K100(2)S	0.3	2	2458-	2698-	2938-	3178-	4363-	6363-	7363-	*
100	0.47	A	T215A474J100(2)S	0.3	2	5146-	5346-	5546-	5749-	4364-	6364-	7364-	*
100	0.47	A	T215A474K100(2)S	0.3	2	2459-	2699-	2939-	3179-	4365-	6365-	7365-	*
100	0.47	A	T215A474M100(2)S	0.3	2	2460-	2700-	2940-	3180-	4366-	6366-	7366-	*
100	0.56	A	T215A564J100(2)S	0.3	2	5147-	5347-	5547-	5747-	4367-	6367-	7367-	*
100	0.56	A	T215A564K100(2)S	0.3	2	2461-	2701-	2941-	3181-	4368-	6368-	7368-	*
100	0.68	B	T215B684J100(2)S	0.3	2	5148-	5348-	5548-	5748-	4369-	6369-	7369-	*
100	0.68	B	T215B684K100(2)S	0.3	2	2462-	2702-	2942-	3182-	4370-	6370-	7370-	*
100	0.68	B	T215B684M100(2)S	0.3	2	2463-	2703-	2943-	3183-	4371-	6371-	7371-	*
100	0.82	B	T215B824J100(2)S	0.4	2	5149-	5349-	5549-	5749-	4372-	6372-	7372-	*
100	0.82	B	T215B824K100(2)S	0.4	2	2464-	2704-	2944-	3184-	4373-	6373-	7373-	*
100	1.0	B	T215B105J100(2)S	0.5	2	5150-	5350-	5550-	5750-	4374-	6374-	7374-	*
100	1.0	B	T215B105K100(2)S	0.5	2	2465-	2705-	2945-	3185-	4375-	6375-	7375-	*
100	1.0	B	T215B105M100(2)S	0.5	2	2466-	2706-	2946-	3186-	4376-	6376-	7376-	*
100	1.2	B	T215B125J100(2)S	0.5	3	5151-	5351-	5551-	5751-	4377-	6377-	7377-	*
100	1.2	B	T215B125K100(2)S	0.5	3	2467-	2707-	2947-	3187-	4378-	6378-	7378-	*
100	1.5	B	T215B155J100(2)S	0.7	3	5152-	5352-	5552-	5752-	4379-	6379-	7379-	*
100	1.5	B	T215B155K100(2)S	0.7	3	2468-	2708-	2948-	3188-	4380-	6380-	7380-	*
100	1.5	B	T215B155M100(2)S	0.7	3	2469-	2709-	2949-	3189-	4381-	6381-	7381-	*
100	1.8	B	T215B185J100(2)S	0.7	3	5153-	5353-	5553-	5753-	4382-	6382-	7382-	*
100	1.8	B	T215B185K100(2)S	0.7	3	2470-	2710-	2950-	3190-	4383-	6383-	7383-	*
100	2.2	B	T215B225J100(2)S	0.9	3	5154-	5354-	5554-	5754-	4384-	6384-	7384-	*
100	2.2	B	T215B225K100(2)S	0.9	3	2471-	2711-	2951-	3191-	4385-	6385-	7385-	*
100	2.2	B	T215B225M100(2)S	0.9	3	2472-	2712-	2952-	3192-	4386-	6386-	7386-	*
100	2.7	B	T215B275J100(2)S	1.1	3	5155-	5355-	5555-	5755-	4387-	6387-	7387-	*
100	2.7	B	T215B275K100(2)S	1.1	3	2473-	2713-	2953-	3193-	4388-	6388-	7388-	*
100	3.3	C	T215C335J100(2)S	1.5	3	5156-	5356-	5556-	5756-	4389-	6389-	*	*
100	3.3	C	T215C335K100(2)S	1.5	3	5157-	5357-	5557-	5757-	4390-	6390-	*	*
100	3.3	C	T215C335M100(2)S	1.5	3	5158-	5358-	5558-	5758-	4391-	6391-	*	*
100	3.9	C	T215C395J100(2)S	1.5	3	5159-	5359-	5559-	5759-	4392-	6392-	*	*
100	3.9	C	T215C395K100(2)S	1.5	3	5160-	5360-	5560-	5760-	4393-	6393-	*	*
100	4.7	C	T215C475J100(2)S	2.5	3	5161-	5361-	5561-	5761-	4394-	6394-	*	*
100	4.7	C	T215C475K100(2)S	2.5	3	5162-	5362-	5562-	5762-	4395-	6395-	*	*
100	4.7	C	T215C475M100(2)S	2.5	3	5163-	5363-	5563-	5763-	4396-	6396-	*	*
100	5.6	C	T215C565J100(2)S	2.5	3	5164-	5364-	5564-	5764-	4397-	6397-	*	*
100	5.6	C	T215C565K100(2)S	2.5	3	5165-	5365-	5565-	5765-	4398-	6398-	*	*
100	6.80	C	T215C685J100(2)S	2.5	3	5166-	5366-	5566-	5766-	4399-	6399-	*	*
100	6.80	C	T215C685K100(2)S	2.5	3	5167-	5367-	5567-	5767-	4400-	6400-	*	*
100	6.80	C	T215C685M100(2)S	2.5	3	5168-	5368-	5568-	5768-	4401-	6401-	*	*
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors							

(2) To complete KEMET part number (T215), insert graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates reliability level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P_{max}/R}$$

P max = maximum watts

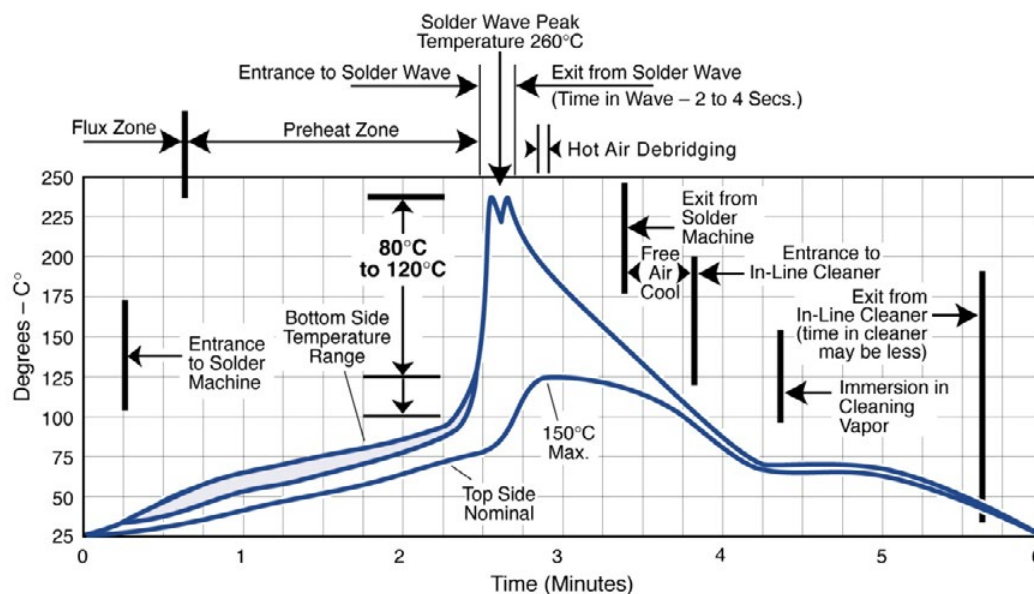
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile



Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T215

Case A

39003	← Military Specification Number
01 - K	← Specification Sheet Number & K = KEMET
6003H J	← Military Dash Number & J = January
316 +	← Date Code & Polarity
AAAA	← Lot Symbol

Case B

M39003	← Military Specification Number
01	← Specification Sheet Number
6003H J	← Military Dash Number & J = January
31433	← Source Code
316 AAAA +	← Date Code , Polarity & Lot Symbol

Case C & D

M39003	← Military Specification Number
01 - 8020H J	← Specification Sheet Number, Military Dash Number and J= January
330μF +	← Capacitance Value & Polarity
31433	← Source Code
316 AAAA K	← Date Code, Lot Symbol & K = KEMET

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature— reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

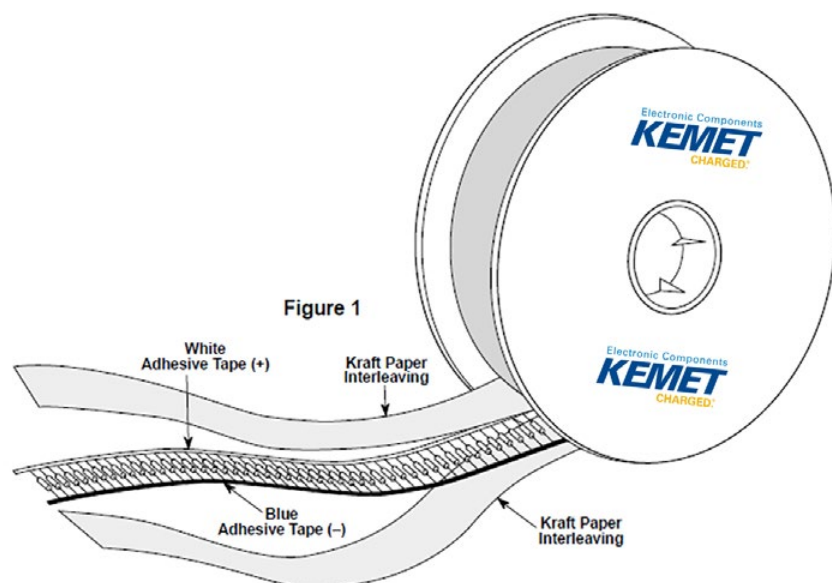


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

T111 Series Axial MIL–PRF–39003 Non-Polar and T213 (CSR91 Style)

Overview

The T111/T213 Series is primarily designed for use in tuned low frequency circuits, phasing low voltage AC motors, servo systems and other applications where reversal of polarity is a primary consideration. The T111 unit consists of two polar T110 Series hermetically sealed tantalum capacitors, electrically and mechanically connected back-to-back and supported by an

outer corrosion-resistant metal sleeve. They exhibit comparable electrical and performance characteristics of T110 Series.

Available in capacitance values from 0.0023 μF to 160 μF in $\pm 20\%$ and $\pm 10\%$ tolerances, the T111 series is offered in working voltages of 6 VDC to 100 VDC at +85°C.

Benefits

- Taped and reeled per EIA Specification RS–296
- Marking per MIL–STD–1285
- Qualified to MIL–PRF–39003 (CSR91 Style)
- Failure rate options: Graded - B, C, D, and G Exponential - M, P, R, and S*
- Capacitance values of 0.0023 μF to 160 μF
- Tolerances of $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6 – 100 VDC
- Operating temperature range of -55°C to +125°C
- Case sizes: A, B, C, D

**Failure rates apply to military products only*

Applications

Typical applications include use in tuned low frequency circuits, phasing low voltage AC motors, servo systems and other applications where reversal of polarity is a primary consideration.



Ordering Information – T111

T	111	A	105	K	050	A	S	
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial capacitor	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V 075 = 75 V 100 = 100 V	A = N/A	S = Standard (Sn/Pb)	All capacitors are sleeved unless specified

Ordering Information – T213 (CSR91 Style)

MIL product

T	213	A	115	K	020	B	S	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial Military grade capacitor	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6V 010 = 10V 015 = 15V 020 = 20V 035 = 35V 050 = 50V 075 = 75V 100 = 100V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0 %/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard (Sn/Pb)	All capacitors are sleeved unless specified 0100 = Without sleeve 7200 = Tape & Reel 7293 & 7443 = Ammo 4250="A" surge current 4251="B" surge current 4252="C" surge current

Ordering Information – T213 (CSR13 Style)

MIL product

M39003	/04	3007	E
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

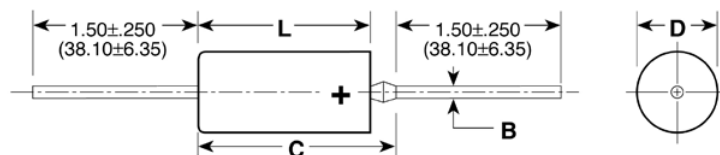
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.0023 µF–160 µF @ 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 100 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (At rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL–39003, CSR91 capacitors only)	Approved failure rate: S (0.001%/k hours) - Exponential, D (0.001%/k hours) - Graded

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.147 (3.73)	0.565 (14.35)	0.161 (4.09)	0.575 (14.61)	0.020 (.51)	0.750 (19.05)
B	0.194 (4.93)	0.916 (23.27)	0.207 (5.26)	0.955 (24.26)	0.020 (.51)	1.130 (28.70)
C	0.300 (7.62)	1.340 (34.04)	0.314 (7.98)	1.350 (34.29)	0.025 (.64)	1.525 (38.74)
D	0.362 (9.19)	1.540 (39.12)	0.376 (9.55)	1.550 (39.37)	0.025 (.64)	1.725 (43.82)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR91) Capacitors										KEMET Equivalent Military
						Dash Number Reference										
						Failure Rate Level (%/1,000 hours)										
						MIL-PRF-39003/4C				MIL-PRF-39003/4C						
						Exponential				Graded						
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number		
6	2.8	A	T111A285K006AS	0.3	4	0221	0441	0661	0881	6001	3001	4001	5001	T213A285K006(1)S		
6	3.4	A	T111A345K006AS	0.3	6	0222	0442	0662	0882	6002	3002	4002	5002	T213A345K006(1)S		
6	3.4	A	T111A345M006AS	0.3	6	0223	0443	0663	0883	6003	3003	4003	5003	T213A345M006(1)S		
6	23.0	B	T111B236K006AS	1.5	6	0224	0444	0664	0884	6004	3004	4004	5004	T213B236K006(1)S		
6	23.0	B	T111A236M006AS	1.5	6	0225	0445	0665	0885	6005	3005	4005	5005	T213B236M006(1)S		
6	28.0	B	T111A286K006AS	1.5	6	0226	0446	0666	0886	6006	3006	4006	5006	T213B286K006(1)S		
6	75.0	C	T111C756K006AS	4.5	6	0227	0447	0667	0887	6007	3007	4007	5007	T213C756K006(1)S		
6	75.0	C	T111C756M006AS	4.5	6	0228	0448	0668	0888	6008	3008	4008	5008	T213C756M006(1)S		
6	90.0	C	T111C906K006AS	4.5	6	0229	0449	0669	0889	6009	3009	4009	5009	T213C906K006(1)S		
6	90.0	C	T111C906M006AS	5.5	6	0230	0450	0670	0890					T213C906M006(1)S		
6	130.0	D	T111D137K006AS	6.0	8	0231	0451	0671	0891	6010	3010	4010	5010	T213D137K006(1)S		
6	130.0	D	T111D137M006AS	6.0	8	0232	0452	0672	0892					T213D137M006(1)S		
6	160.0	D	T111D167K006AS	7.5	8	0233	0453	0673	0893	6011	3011	4011	5011	T213D167K006(1)S		
6	160.0	D	T111D167M006AS	7.5	8	0234	0454	0674	0894	6012	3012	4012	5012	T213D167M006(1)S		
10	1.9	A	T111A195K010AS	0.3	4	0235	0455	0675	0895	6013	3013	4013	5013	T213A195K010(1)S		
10	2.3	A	T111A235K010AS	0.4	4	0236	0456	0676	0896	6014	3014	4014	5014	T213A235K010(1)S		
10	2.3	A	T111A235M010AS	0.4	4	0237	0457	0677	0897	6015	3015	4015	5015	T213A235M010(1)S		
10	13.0	B	T111B136K010AS	2.0	6	0238	0458	0678	0898	6016	3016	4016	5016	T213B136K010(1)S		
10	16.0	B	T111B166K010AS	2.0	6	0239	0459	0679	0899	6017	3017	4017	5017	T213B166K010(1)S		
10	16.0	B	T111B166M010AS	2.0	6	0240	0460	0680	0900	6018	3018	4018	5018	T213B166M010(1)S		
10	19.0	B	T111B196K010AS	2.0	6	0241	0461	0681	0901	6019	3019	4019	5019	T213B196K010(1)S		
10	41.0	C	T111C416K010AS	3.0	6	0242	0462	0682	0902	6020	3020	4020	5020	T213C416K010(1)S		
10	50.0	C	T111C506K010AS	5.0	6	0243	0463	0683	0903	6021	3021	4021	5021	T213C506K010(1)S		
10	50.0	C	T111C506M010AS	5.0	6	0244	0464	0684	0904	6022	3022	4022	5022	T213C506M010(1)S		
10	60.0	C	T111C606K010AS	6.0	6	0245	0465	0685	0905	6023	3023	4023	5023	T213C606K010(1)S		
10	60.0	C	T111C606M010AS	6.0	6	0246	0466	0686	0906					T213C606M010(1)S		
10	90.0	D	T111D906K010AS	9.0	6	0247	0467	0687	0907	6024	3024	4024	5024	T213D906K010(1)S		
10	110.0	D	T111D117K010AS	10.0	8	0248	0468	0688	0908	6025	3025	4025	5025	T213D117K010(1)S		
10	100.0	D	T111D117M010AS	10.0	8	0249	0469	0689	0909	6026	3026	4026	5026	T213D117M010(1)S		
15	1.3	A	T111A135K015AS	0.3	4	0250	0470	0690	0910	6027	3027	4027	5027	T213A135K015(1)S		
15	1.6	A	T111A165K015AS	0.4	4	0251	0471	0691	0911	6028	3028	4028	5028	T213A165K015(1)S		
15	1.6	A	T111A165M015AS	0.4	4	0252	0472	0692	0912	6029	3029	4029	5029	T213A165M015(1)S		
15	9.0	B	T111B905K015AS	2.0	6	0253	0473	0693	0913	6030	3030	4030	5030	T213B905K015(1)S		
15	10.0	B	T111B106K015AS	1.5	6											
15	11.0	B	T111B116K015AS	2.0	6	0254	0474	0694	0914	6031	3031	4031	5031	T213B116K015(1)S		
15	11.0	B	T111B116M015AS	2.0	6	0255	0475	0695	0915	6032	3032	4032	5032	T213B116M015(1)S		
15	28.0	C	T111C286K015AS	4.0	6	0256	0476	0696	0916	6033	3033	4033	5033	T213C286K015(1)S		
15	34.0	C	T111C346K015AS	5.0	6	0257	0477	0697	0917	6034	3034	4034	5034	T213C346K015(1)S		
15	34.0	C	T111C346M015AS	5.0	6	0258	0478	0698	0918	6035	3035	4035	5035	T213C346M015(1)S		
15	60.0	D	T111D606K015AS	6.0	6	0259	0479	0699	0919	6036	3036	4036	5036	T213D606K015(1)S		
15	75.0	D	T111D756K015AS	10.0	6	0260	0480	0700	0920	6037	3037	4037	5037	T213D756K015(1)S		
15	75.0	D	T111D756M015AS	10.0	6	0261	0481	0701	0921	6038	3038	4038	5038	T213D756M015(1)S		
20	0.6	A	T111A604K020AS	0.3	4	0262	0482	0702	0922	6039	3039	4039	5039	T213A604K020(1)S		
20	0.75	A	T111A754K020AS	0.3	4	0263	0483	0703	0923	6040	3040	4040	5040	T213A754K020(1)S		
20	0.75	A	T111A754M020AS	0.3	4	0264	0484	0704	0924	6041	3041	4041	5041	T213A754M020(1)S		
20	0.9	A	T111A904K020AS	0.3	4	0265	0485	0705	0925	6042	3042	4042	5042	T213A904K020(1)S		
20	1.1	A	T111A115K020AS	0.4	4	0266	0486	0706	0926	6043	3043	4043	5043	T213A115K020(1)S		
20	1.1	A	T111A115M020AS	0.4	4	0267	0487	0707	0927	6044	3044	4044	5044	T213A115M020(1)S		
20	4.1	B	T111B415K020AS	1.0	6	0268	0488	0708	0928	6045	3045	4045	5045	T213B415K020(1)S		
20	5.0	B	T111B505K020AS	1.0	6	0269	0489	0709	0929	6046	3046	4046	5046	T213B505K020(1)S		
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number		
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors										

(1) To complete KEMET part number, insert failure rate code from Ordering Information table.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR91) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/4C				MIL–PRF–39003/4C					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
20	5.0	B	T111B505M020AS	1.0	6	0270	0490	0710	0930	6047	3047	4047	5047	T213B505M020(1)S	
20	6.0	B	T111B605K020AS	1.0	6	0271	0491	0711	0931	6048	3048	4048	5048	T213B605K020(1)S	
20	7.5	B	T111B755K020AS	2.0	6	0272	0492	0712	0932	6049	3049	4049	5049	T213B755K020(1)S	
20	7.5	B	T111B755M020AS	2.0	6	0273	0493	0713	0933	6050	3050	4050	5050	T213B755M020(1)S	
20	13.0	C	T111C136K020AS	2.5	6	0274	0494	0714	0934	6051	3051	4051	5051	T213C136K020(1)S	
20	16.0	C	T111C166K020AS	3.0	6	0275	0495	0715	0935	6052	3052	4052	5052	T213C166K020(1)S	
20	16.0	C	T111C166M020AS	3.0	6	0276	0496	0716	0936	6053	3053	4053	5053	T213C166M020(1)S	
20	19.0	C	T111C196K020AS	3.0	6	0277	0497	0717	0937	6054	3054	4054	5054	T213C196K020(1)S	
20	23.0	C	T111C236K020AS	4.5	6	0278	0498	0718	0938	6055	3055	4055	5055	T213C236K020(1)S	
20	23.0	C	T111C236M020AS	4.5	6	0279	0499	0719	0939	6056	3056	4056	5056	T213C236M020(1)S	
20	28.0	D	T111D286K020AS	5.5	6	0280	0500	0720	0940	6057	3057	4057	5057	T213D286K020(1)S	
20	34.0	D	T111D346K020AS	6.0	6	0281	0501	0721	0941	6058	3058	4058	5058	T213D346K020(1)S	
20	34.0	D	T111D346M020AS	6.0	6	0282	0502	0722	0942	6059	3059	4059	5059	T213D346M020(1)S	
20	41.0	D	T111D416K020AS	6.0	6	0283	0503	0723	0943	6060	3060	4060	5060	T213D416K020(1)S	
20	50.0	D	T111D506K020AS	10.0	6	0284	0504	0724	0944	6061	3061	4061	5061	T213D506K020(1)S	
20	50.0	D	T111D506M020AS	10.0	6	0285	0505	0725	0945	6062	3062	4062	5062	T213D506M020(1)S	
35	2.8	B	T111B285K035AS	1.0	4	0289	0509	0729	0949	6063	3063	4063	5063	T213B285K035(1)S	
35	3.4	B	T111B345K035AS	1.5	4	0290	0510	0730	0950	6064	3064	4064	5064	T213B345K035(1)S	
35	3.4	B	T111B345M035AS	1.5	4	0291	0511	0731	0951	6065	3065	4065	5065	T213B345M035(1)S	
35	11.0	C	T111C116K035AS	4.0	4	0292	0512	0732	0952	6066	3066	4066	5066	T213C116K035(1)S	
35	11.0	C	T111C116M035AS	4.0	4	0293	0513	0733	0953	6067	3067	4067	5067	T213C116M035(1)S	
35	13.0	D	T111D136K035AS	4.5	4	0294	0514	0734	0954	6068	3068	4068	5068	T213D136K035(1)S	
35	16.0	D	T111D166K035AS	5.5	4	0295	0515	0735	0955	6069	3069	4069	5069	T213D166K035(1)S	
35	16.0	D	T111D166M035AS	5.5	4	0296	0516	0736	0956	6070	3070	4070	5070	T213D166M035(1)S	
35	19.0	D	T111D196K035AS	6.0	4	0297	0517	0737	0957	6071	3071	4071	5071	T213D196K035(1)S	
35	23.0	D	T111D236K035AS	8.0	4	0298	0518	0738	0958	6072	3072	4072	5072	T213D236K035(1)S	
35	23.0	D	T111D236M035AS	8.0	4	0299	0519	0739	0959	6073	3073	4073	5073	T213D236M035(1)S	
50	0.0023	A	T111A232K050AS	0.1	2	1171	1241	1311	1381	6074	3074	4074	5074	T213A232K050(1)S	
50	0.0023	A	T111A232M050AS	0.1	2	1172	1242	1312	1382	6075	3075	4075	5075	T213A232M050(1)S	
50	0.0028	A	T111A282K050AS	0.1	2	1173	1243	1313	1383	6076	3076	4076	5076	T213A282K050(1)S	
50	0.0034	A	T111A342K050AS	0.1	2	1174	1244	1314	1384	6077	3077	4077	5077	T213A342K050(1)S	
50	0.0034	A	T111A342M050AS	0.1	2	1175	1245	1315	1385	6078	3078	4078	5078	T213A342M050(1)S	
50	0.0041	A	T111A412K050AS	0.1	2	1176	1246	1316	1386	6079	3079	4079	5079	T213A412K050(1)S	
50	0.005	A	T111A502K050AS	0.1	2	1177	1247	1317	1387	6080	3080	4080	5080	T213A502K050(1)S	
50	0.005	A	T111A502M050AS	0.1	2	1178	1248	1318	1388	6081	3081	4081	5081	T213A502M050(1)S	
50	0.006	A	T111A602K050AS	0.1	2	1179	1249	1319	1389	6082	3082	4082	5082	T213A602K050(1)S	
50	0.0075	A	T111A752K050AS	0.1	2	1180	1250	1320	1390	6083	3083	4083	5083	T213A752K050(1)S	
50	0.0075	A	T111A752M050AS	0.1	2	1181	1251	1321	1391	6084	3084	4084	5084	T213A752M050(1)S	
50	0.009	A	T111A902K050AS	0.1	2	1182	1252	1322	1392	6085	3085	4085	5085	T213A902K050(1)S	
50	0.011	A	T111A113K050AS	0.1	2	1183	1253	1323	1393	6086	3086	4086	5086	T213A113K050(1)S	
50	0.011	A	T111A113M050AS	0.1	2	1184	1254	1324	1394	6087	3087	4087	5087	T213A113M050(1)S	
50	0.013	A	T111A133K050AS	0.1	2	1185	1255	1325	1395	6088	3088	4088	5088	T213A133K050(1)S	
50	0.016	A	T111A163K050AS	0.1	2	1186	1256	1326	1396	6089	3089	4089	5089	T213A163K050(1)S	
50	0.016	A	T111A163M050AS	0.1	2	1187	1257	1327	1397	6090	3090	4090	5090	T213A163M050(1)S	
50	0.019	A	T111A193K050AS	0.1	2	1188	1258	1328	1398	6091	3091	4091	5091	T213A193K050(1)S	
50	0.023	A	T111A233K050AS	0.1	2	1189	1259	1329	1399	6092	3092	4092	5092	T213A233K050(1)S	
50	0.023	A	T111A233M050AS	0.1	2	1190	1260	1330	1400	6093	3093	4093	5093	T213A233M050(1)S	
50	0.028	A	T111A283K050AS	0.1	2	1191	1261	1331	1401	6094	3094	4094	5094	T213A283K050(1)S	
50	0.034	A	T111A343K050AS	0.1	2	1192	1262	1332	1402	6095	3095	4095	5095	T213A343K050(1)S	
50	0.034	A	T111A343M050AS	0.1	2	1193	1263	1333	1403	6096	3096	4096	5096	T213A343M050(1)S	
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET part number, insert failure rate code from Ordering Information table.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR91) Capacitors									KEMET Equivalent Military
						Dash Number Reference									
						Failure Rate Level (%/1,000 hours)									
						MIL–PRF–39003/4C				MIL–PRF–39003/4C					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
50	0.041	A	T111A413K050AS	0.1	2	1194	1264	1334	1404	6097	3097	4097	5097	T213A413K050(1)S	
50	0.05	A	T111A503K050AS	0.3	2	1195	1265	1335	1405	6098	3098	4098	5098	T213A503K050(1)S	
50	0.05	A	T111A503M050AS	0.3	2	1196	1266	1336	1406	6099	3099	4099	5099	T213A503M050(1)S	
50	0.06	A	T111A603K050AS	0.3	2	1197	1267	1337	1407	6100	3100	4100	5100	T213A603K050(1)S	
50	0.075	A	T111A753K050AS	0.3	2	1198	1268	1338	1408	6101	3101	4101	5101	T213A753K050(1)S	
50	0.075	A	T111A753M050AS	0.3	2	1199	1269	1339	1409	6102	3102	4102	5102	T213A753M050(1)S	
50	0.09	A	T111A903K050AS	0.3	2	1200	1270	1340	1410	6103	3103	4103	5103	T213A903K050(1)S	
50	0.11	A	T111A114K050AS	0.3	2	1201	1271	1341	1411	6104	3104	4104	5014	T213A114K050(1)S	
50	0.11	A	T111A114M050AS	0.3	2	1202	1272	1342	1412	6105	3105	4105	5105	T213A114M050(1)S	
50	0.13	A	T111A134K050AS	0.3	2	1203	1273	1343	1413	6106	3106	4106	5106	T213A134K050(1)S	
50	0.16	A	T111A164K050AS	0.3	2	1204	1274	1344	1414	6107	3107	4107	5107	T213A164K050(1)S	
50	0.16	A	T111A164M050AS	0.3	2	1205	1275	1345	1415	6108	3108	4108	5108	T213A164M050(1)S	
50	0.19	A	T111A194K050AS	0.3	2	1206	1276	1346	1416	6109	3109	4109	5109	T213A194K050(1)S	
50	0.23	A	T111A234K050AS	0.3	2	1207	1277	1347	1417	6110	3110	4110	5110	T213A234K050(1)S	
50	0.23	A	T111A234M050AS	0.3	2	1208	1278	1348	1418	6111	3111	4111	5111	T213A234M050(1)S	
50	0.28	A	T111A284K050AS	0.3	2	1209	1279	1349	1419	6112	3112	4112	5112	T213A284K050(1)S	
50	0.34	A	T111A344K050AS	0.3	2	1210	1280	1350	1420	6113	3113	4113	5113	T213A344K050(1)S	
50	0.34	A	T111A344M050AS	0.3	2	1211	1281	1351	1421	6114	3114	4114	5114	T213A344M050(1)S	
50	0.41	A	T111A414K050AS	0.3	2	0300	0520	0740	0960	6115	3115	4115	5115	T213A414K050(1)S	
50	0.5	A	T111A504K050AS	0.4	2	0301	0521	0741	0961	6116	3116	4116	5116	T213A504K050(1)S	
50	0.5	A	T111A504M050AS	0.4	2	0302	0522	0742	0962	6117	3117	4117	5117	T213A504M050(1)S	
50	0.6	B	T111B604K050AS	0.4	4	1212	1282	1352	1422	6118	3118	4118	5118	T213B604K050(1)S	
50	0.6	B	T111B604M050AS	0.4	4										
50	0.75	B	T111B754K050AS	0.5	4	2001	2101	2201	2301	6119	3119	4119	5119	T213B754K050(1)S	
50	0.75	B	T111B754M050AS	0.5	4	2002	2102	2202	2302	6120	3120	4120	5120	T213B754M050(1)S	
50	0.9	B	T111B904K050AS	0.5	4	1215	1285	1355	1425	6121	3121	4121	5121	T213B904K050(1)S	
50	0.9	B	T111B904M050AS	0.5	4										
50	1.1	B	T111B115K050AS	0.8	4	1216	1286	1356	1426	6122	3122	4122	5122	T213B115K050(1)S	
50	1.1	B	T111B115M050AS	0.8	4	1217	1287	1357	1427	6123	3123	4123	5123	T213B115M050(1)S	
50	1.3	B	T111B135K050AS	1.0	4	1218	1288	1358	1428	6124	3124	4124	5124	T213B135K050(1)S	
50	1.3	B	T111B135M050AS	1.0	4										
50	1.6	B	T111B165K050AS	1.2	4	1219	1289	1359	1429	6125	3125	4125	5125	T213B165K050(1)S	
50	1.6	B	T111B165M050AS	1.2	4	1220	1290	1360	1430	6126	3126	4126	5126	T213B165M050(1)S	
50	1.9	B	T111B195K050AS	1.5	4	1221	1291	1361	1431	6127	3127	4127	5127	T213B195K050(1)S	
50	1.9	B	T111B195M050AS	1.5	4										
50	2.3	B	T111B235K050AS	1.7	4	1222	1292	1362	1432	6128	3128	4128	5128	T213B235K050(1)S	
50	2.3	B	T111B235M050AS	1.7	4	1223	1293	1363	1433	6129	3129	4129	5129	T213B235M050(1)S	
50	2.8	C	T111C285K050AS	2.2	4	1224	1294	1364	1434	6130	3130	4130	5130	T213C285K050(1)S	
50	2.8	C	T111C285M050AS	2.2	4										
50	3.4	C	T111C345K050AS	2.2	4	1225	1295	1365	1435	6131	3131	4131	5131	T213C345K050(1)S	
50	3.4	C	T111C345M050AS	2.2	4	1226	1296	1366	1436	6132	3132	4132	5132	T213C345M050(1)S	
50	4.1	C	T111C415K050AS	2.5	4	1227	1297	1367	1437	6133	3133	4133	5133	T213C415K050(1)S	
50	4.1	C	T111C415M050AS	2.5	4										
50	5.0	C	T111C505K050AS	2.5	4	1228	1298	1368	1438	6134	3134	4134	5134	T213C505K050(1)S	
50	5.0	C	T111C505M050AS	2.5	4	1229	1299	1369	1439	6135	3135	4135	5135	T213C505M050(1)S	
50	6.0	C	T111C605K050AS	3.0	4	0303	0523	0743	0963	6136	3136	4136	5136	T213C605K050(1)S	
50	6.0	C	T111C605M050AS	3.0	4										
50	7.5	C	T111C755K050AS	4.1	4	0304	0524	0744	0964	6137	3137	4137	5137	T213C755K050(1)S	
50	7.5	C	T111C755M050AS	4.1	4	0305	0525	0745	0965	6138	3138	4138	5138	T213C755M050(1)S	
50	9.0	C	T111C905K050AS	4.5	4	0306	0526	0746	0966	6139	3139	4139	5139	T213C905K050(1)S	
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL–PRF–39003 (CSR13) Capacitors									

(1) To complete KEMET part number, insert failure rate code from Ordering Information table.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR91) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 hours)									
						MIL-PRF-39003/4C				MIL-PRF-39003/4C					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
50	9.0	C	T111C905M050AS	4.5	4										
50	11.0	D	T111D116K050AS	5.5	4	0307	0527	0747	0967	6140	3140	4040	5140	T213AD116K050(1)S	
50	11.0	D	T111D116M050AS	5.5	4	0308	0528	0748	0968	6141	3141	4041	5141	T213D116M050(1)S	
75	0.34	A	T111A344K075AS	0.3	2	0309	0529	0749	0969	6142	3142	4142	5142	T213A344K075(1)S	
75	0.34	A	T111A344M075AS	0.3	2	0310	0530	0750	0970	6143	3143	4143	5143	T213A344M075(1)S	
75	0.41	B	T111B414K075AS	0.3	2	2008	2108	2208	2308	6144	3144	4144	5144	T213B414K075(1)S	
75	0.5	B	T111B504K075AS	0.4	2	2009	2109	2209	2309	6145	3145	4145	5145	T213B504K075(1)S	
75	0.5	B	T111B504M075AS	0.4	2	2010	2110	2210	2310	6146	3146	4146	5146	T213B504M075(1)S	
75	0.6	B	T111B604K075AS	0.4	4	2011	2111	2211	2311	6147	3147	4147	5147	T213B604K075(1)S	
75	0.75	B	T111B754K075AS	0.6	4	2012	2112	2212	2312	6148	3148	4148	5148	T213B754K075(1)S	
75	0.75	B	T111B754MK075AS	0.6	4	2013	2113	2213	2313	6149	3149	4149	5149	T213B754M075(1)S	
75	0.9	B	T111B904K075AS	0.7	4	2014	2114	2214	2314	6150	3150	4150	5150	T213B904K075(1)S	
75	1.1	B	T111B115K075AS	0.8	4	2015	2115	2215	2315	6151	3151	4151	5151	T213B115K075(1)S	
75	1.1	B	T111B115M075AS	0.8	4	2016	2116	2216	2316	6152	3152	4152	5152	T213B115M075(1)S	
75	1.3	B	T111B135K075AS	1.0	4	2017	2117	2217	2317	6153	3153	4153	5153	T213B135K075(1)S	
75	1.6	B	T111B165K075AS	1.2	4	0311	0531	0751	0971	6154	3154	4154	5154	T213B165K075(1)S	
75	1.6	B	T111B165M075AS	1.2	4	0312	0532	0752	0972	6155	3155	4155	5155	T213B165M075(1)S	
75	1.9	B	T111B195K075AS	1.5	4	0313	0533	0753	0973	6156	3156	4156	5156	T213B195K075(1)S	
75	2.3	C	T111C235K075AS	3.0	4	2003	2103	2203	2303	6157	3157	4157	5157	T213C235K075(1)S	
75	2.3	C	T111C235M075AS	3.0	4	2004	2104	2204	2304	6158	3158	4158	5158	T213C235M075(1)S	
75	2.8	C	T111C285K075AS	3.0	4	2005	2105	2205	2305	6159	3159	4159	5159	T213C285K075(1)S	
75	3.4	C	T111C345K075AS	5.0	4	2006	2106	2206	2306	6160	3160	4160	5160	T213C345K075(1)S	
75	3.4	C	T111C345M075AS	5.0	4	2007	2107	2207	2307	6161	3161	4161	5161	T213C345M075(1)S	
75	4.1	C	T111C415K075AS	5.0	4	0314	0534	0754	0974	6162	3162	4162	5162	T213C415K075(1)S	
75	5.0	C	T111C505K075AS	5.0	4	0315	0535	0755	0975	6163	3163	4163	5163	T213C505K075(1)S	
75	5.0	C	T111C505M075AS	5.0	4	0316	0536	0756	0976	6164	3164	4164	5164	T213C505M075(1)S	
75	6.0	D	T111D605K075AS	5.0	4	0317	0537	0757	0977	6165	3165	4165	5165	T213D605K075(1)S	
75	7.5	D	T111D755K075AS	7.0	4	0318	0538	0758	0978	6166	3166	4166	5166	T213D755K075(1)S	
75	7.5	D	T111D755M075AS	7.0	4	0319	0539	0759	0979	6167	3167	4167	5167	T213D755M075(1)S	
100	0.0023	A	T111A232K100AS	0.3	2	0320	0540	0760	0980	6168	3168	4168	*	T213A232K100(1)S	
100	0.0023	A	T111A232M100AS	0.3	2	0321	0541	0761	0981	6169	3169	4169	*	T213A232M100(1)S	
100	0.0028	A	T111A282K100AS	0.3	2	0322	0542	0762	0982	6170	3170	4170	*	T213A282K100(1)S	
100	0.0034	A	T111A342K100AS	0.3	2	0323	0543	0763	0983	6171	3171	4171	*	T213A342K100(1)S	
100	0.0034	A	T111A342M100AS	0.3	2	0324	0544	0764	0984	6172	3172	4172	*	T213A342M100(1)S	
100	0.0041	A	T111A412K100AS	0.3	2	0325	0545	0765	0985	6173	3173	4173	*	T213A412K100(1)S	
100	0.005	A	T111A502K100AS	0.3	2	0326	0546	0766	0986	6174	3174	4174	*	T213A502K100(1)S	
100	0.005	A	T111A502M100AS	0.3	2	0327	0547	0767	0987	6175	3175	4175	*	T213A502M100(1)S	
100	0.006	A	T111A602K100AS	0.3	2	0328	0548	0768	0988	6176	3176	4176	*	T213A602K100(1)S	
100	0.0075	A	T111A752K100AS	0.3	2	0329	0549	0769	0989	6177	3177	4177	*	T213A752K100(1)S	
100	0.0075	A	T111A752M100AS	0.3	2	0330	0550	0770	0990	6178	3178	4178	*	T213A752M100(1)S	
100	0.009	A	T111A902K100AS	0.3	2	0331	0551	0771	0991	6179	3179	4179	*	T213A902K100(1)S	
100	0.011	A	T111A113K100AS	0.3	2	0332	0552	0772	0992	6180	3180	4180	*	T213A113K100(1)S	
100	0.011	A	T111A113M100AS	0.3	2	0333	0553	0773	0993	6181	3181	4181	*	T213A113M100(1)S	
100	0.013	A	T111A133K100AS	0.3	2	0334	0554	0774	0994	6182	3182	4182	*	T213A133K100(1)S	
100	0.016	A	T111A163K100AS	0.3	2	0335	0555	0775	0995	6183	3183	4183	*	T213A163K100(1)S	
100	0.016	A	T111A163M100AS	0.3	2	0336	0556	0776	0996	6184	3184	4184	*	T213A163M100(1)S	
100	0.019	A	T111A193K100AS	0.3	2	0337	0557	0777	0997	6185	3185	4185	*	T213A193K100(1)S	
100	0.023	A	T111A233K100AS	0.3	2	0338	0558	0778	0998	6186	3186	4186	*	T213A223K100(1)S	
100	0.023	A	T111A233M100AS	0.3	2	0339	0559	0779	0999	6187	3187	4187	*	T213A223M100(1)S	
100	0.028	A	T111A283K100AS	0.3	2	0340	0560	0780	1000	6188	3188	4188	*	T213A283K100(1)S	
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors									

(1) To complete KEMET part number, insert failure rate code from Ordering Information table.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR91) Capacitors										KEMET Equivalent Military
						Dash Number Reference										
						Failure Rate Level (%/1,000 hours)										
						MIL-PRF-39003/4C				MIL-PRF-39003/4C						
						Exponential				Graded						
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number		
100	0.034	A	T111A343K100AS	0.3	2	0341	0561	0781	1001	6189	3189	4189	*	T213A343K100(1)S		
100	0.034	A	T111A343M100AS	0.3	2	0342	0562	0782	1002	6190	3190	4190	*	T213A343M100(1)S		
100	0.041	A	T111A413K100AS	0.3	2	0343	0563	0783	1003	6191	3191	4191	*	T213A413K100(1)S		
100	0.050	A	T111A503K100AS	0.3	2	0344	0564	0784	1004	6192	3192	4192	*	T213A503K100(1)S		
100	0.050	A	T111A503M100AS	0.3	2	0345	0565	0785	1005	6193	3193	4193	*	T213A503M100(1)S		
100	0.060	A	T111A603K100AS	0.3	2	0346	0566	0786	1006	6194	3194	4194	*	T213A603K100(1)S		
100	0.075	A	T111A753K100AS	0.3	2	0347	0567	0787	1007	6195	3195	4195	*	T213A753K100(1)S		
100	0.075	A	T111A753M100AS	0.3	2	0348	0568	0788	1008	6196	3196	4196	*	T213A753M100(1)S		
100	0.09	A	T111A903K100AS	0.3	2	0349	0569	0789	1009	6197	3197	4197	*	T213A903K100(1)S		
100	0.11	A	T111A114K100AS	0.3	2	0350	0570	0790	1010	6198	3198	4198	*	T213A114K100(1)S		
100	0.11	A	T111A114M100AS	0.3	2	0351	0571	0791	1011	6199	3199	4199	*	T213A114M100(1)S		
100	0.13	A	T111A134K100AS	0.3	2	0352	0572	0792	1012	6200	3200	4200	*	T213A134K100(1)S		
100	0.16	A	T111A164K100AS	0.3	2	0353	0573	0793	1013	6201	3201	4201	*	T213A164K100(1)S		
100	0.16	A	T111A164M100AS	0.3	2	0354	0574	0794	1014	6202	3202	4202	*	T213A164M100(1)S		
100	0.19	A	T111A194K100AS	0.3	2	0355	0575	0795	1015	6203	3203	4203	*	T213A194K100(1)S		
100	0.23	A	T111A234K100AS	0.3	2	0356	0576	0796	1016	6204	3204	4204	*	T213A234K100(1)S		
100	0.23	A	T111A234M100AS	0.3	2	0357	0577	0797	1017	6205	3205	4205	*	T213A234M100(1)S		
100	0.28	A	T111A284K100AS	0.3	2	0358	0578	0798	1018	6206	3206	4206	*	T213A284K100(1)S		
100	0.34	B	T111B344K100AS	0.3	2	0359	0579	0799	1019	6207	3207	4207	*	T213B344K100(1)S		
100	0.34	B	T111B344M100AS	0.3	2	0360	0580	0800	1020	6208	3208	4208	*	T213B344M100(1)S		
100	0.41	B	T111B414K100AS	0.4	2	0361	0581	0801	1021	6209	3209	4209	*	T213B414K100(1)S		
100	0.5	B	T111B504K100AS	0.5	2	0362	0582	0802	1022	6210	3210	4210	*	T213B504K100(1)S		
100	0.5	B	T111B504M100AS	0.5	2	0363	0583	0803	1023	6211	3211	4211	*	T213B504M100(1)S		
100	0.6	B	T111B604K100AS	0.5	3	0364	0584	0804	1024	6212	3212	4212	*	T213B604K100(1)S		
100	0.75	B	T111B754K100AS	0.7	3	0365	0585	0805	1025	6213	3213	4213	*	T213B754K100(1)S		
100	0.8	B	T111B754M100AS	0.7	3	0366	0586	0806	1026	6214	3214	4214	*	T213B754M100(1)S		
100	0.9	B	T111B904K100AS	0.7	3	0367	0587	0807	1027	6215	3215	4215	*	T213B904K100(1)S		
100	1.1	B	T111B115K100AS	0.9	3	0368	0588	0808	1028	6216	3216	4216	*	T213B115K100(1)S		
100	1.1	B	T111B115M100AS	0.9	3	0369	0589	0809	1029	6217	3217	4217	*	T213B115M100(1)S		
100	1.3	B	T111B135K100AS	1.1	3	0370	0590	0810	1030	6218	3218	4218	*	T213B135K100(1)S		
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minimum	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)	Part Number		
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR13) Capacitors										

(1) To complete KEMET part number, insert failure rate code from Ordering Information table.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P max/R}$$

P max = maximum watts

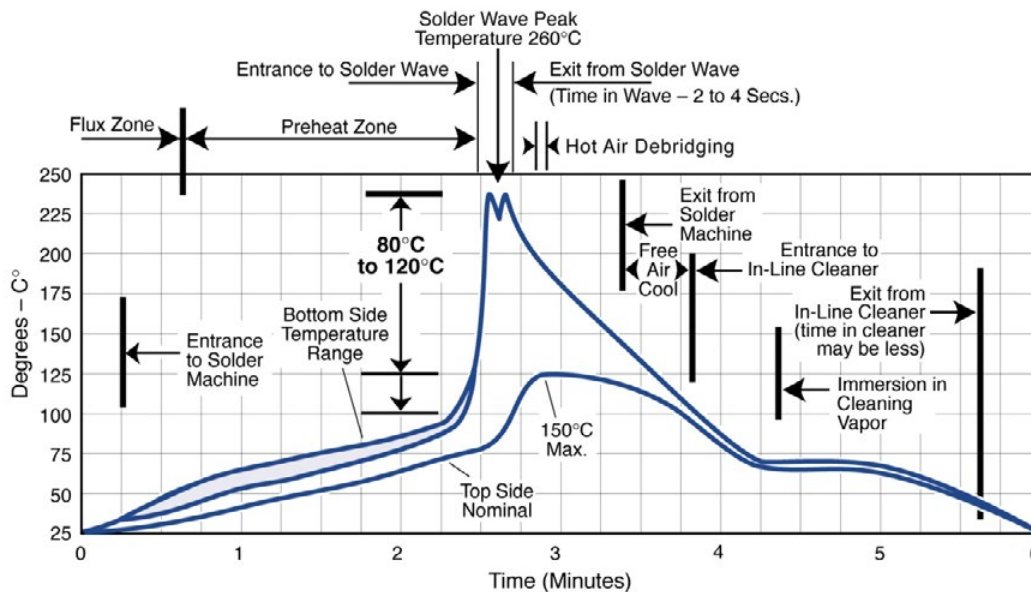
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile



Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T111

+K 10%	← Polarity, KEMET's Identification & CAP Tol.
6R0 μ F	← Nominal CAP ("R" indicates decimal)
20 V	← Voltage
1330AB	← Date Code and Batch Code

T213

Case A,B,C,D

M39003	← Military Specification Number
04 -3007J	← Specification Sheet Number, Military dash number & J = JAN
75 μ F	← CAP value
10% 6VNP	← CAP Tolerance & Voltage rating
1330 XY 31433	← Lot Symbol, Lot Code, Source Code

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

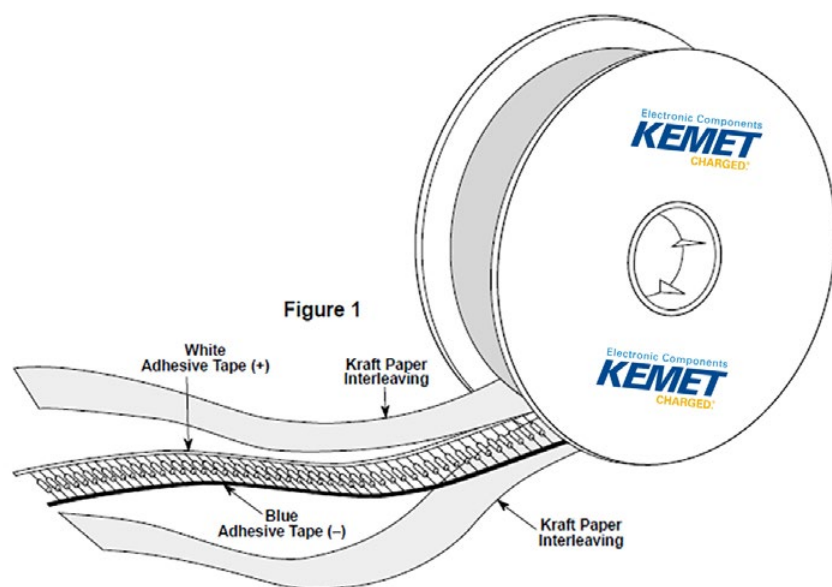


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec
A	60/Box	3,000	C-7200
B	30/Box	2,000	C-7200
C	10/Card	N/A	N/A
D	10/Card	N/A	N/A

T222 Series Axial MIL–PRF–39003 Polar Miniature (CSR09 Style)

Overview

The KEMET ultra-miniature T222 Series solid tantalum capacitors are especially designed for miniaturization and employ a unique glass-to-metal compression end seal which has no protruding eyelet. This flush end seal construction ideally suits the T222 Series for all miniature high density packaging applications. The capacitors consist of a dry porous tantalum

pellet hermetically sealed in a solder coated metal case with solder coated alloy 52 and solder coated nickel. The T222 series is approved to all ratings and failure rates of MIL–PRF–39003/2.

Benefits

- Taped and reeled per EIA Specification RS–296
- Marking per MIL–STD–1285
- Qualified to MIL–PRF–39003 (CSR09 Style)
- Failure rate options: Graded - B, C, D, and G
Exponential - M, P, R, and S*
- Capacitance values of 0.047 μ F to 18 μ F
- Tolerances of $\pm 5\%$, and $\pm 10\%$
- Voltage rating of 6 – 75 VDC
- Operating temperature range of -55°C to $+125^{\circ}\text{C}$
- Case sizes: A & B

**Failure rates apply to military products only*

Applications

KEMET ultra-miniature T222 Series solid tantalum capacitors are especially designed for miniaturization.



Ordering Information

T	222	A	225	K	010	B	S	C
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	T222 (CSR09)	A, B	First two digits represent significant figures. Third digit specifies number of zeros.	J = $\pm 5\%$ K = $\pm 10\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V 075 = 75 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard Positive: Alloy 52 (solder-coated) Negative: Solder-coated nickel	All capacitors are sleeved unless specified

Ordering Information – T222 (CSR09 Style)

MIL product

M39003	/02	2061	D
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

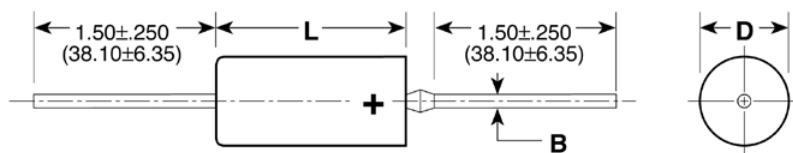
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.047 – 18 μ F @ 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%)
Rated Voltage Range	6 – 75 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL–39003, CSR13 capacitors only)	Approved failure rate: S (0.001%/k hours) - Exponential, D (0.001%/k hours) - Graded

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B Wire Diameter
	D ±0.005 ±(.13)	L	D	L	
A	0.085 (2.16)	0.245 ± .015 (6.22 ± .38) -.010 (-.25)	.090 ± .009 (2.29 ± .23)	.250 ± .031 (6.35 ± .79) -.015 (-.38)	.016 ± .005 (.41 ± .13) -.001 (-.03)
B	0.127 (3.23)	0.375 ± .015 (.93 ± .38)	.138 ± .010 (3.51 ± .25)	.390 ± .015 (9.91 ± .38)	.016 ± .005 (.41 ± .13) -.001 (-.03)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 Hours)							
						MIL-PRF-39003/2J				MIL-PRF-39003/2J			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
6	2.7	A	T222A275J006(1)S	0.6	6	1001	1061	1121	1181	5001	2001	3001	4001
6	2.7	A	T222A275K006(1)S	0.6	6	0001	0061	0121	0181	5002	2002	3002	4002
6	18.0	B	T222B186J006(1)S	1.4	6	1002	1062	1122	1182	5003	2003	3003	4003
6	18.0	B	T222B186K006(1)S	1.4	6	0002	0062	0122	0182	5004	2004	3004	4004
10	1.8	A	T222A185J010(1)S	0.6	6	1007	1067	1127	1187	5005	2005	3005	4005
10	1.8	A	T222A185K010(1)S	0.6	6	0007	0067	0127	0187	5006	2006	3006	4006
10	2.2	A	T222A225J010(1)S	0.6	6	1008	1068	1128	1188	5007	2007	3007	4007
10	2.2	A	T222A225K010(1)S	0.6	6	0008	0068	0128	0188	5008	2008	3008	4008
10	10.0	B	T222B106J010(1)S	2.0	6	1009	1069	1129	1189	5009	2009	3009	4009
10	10.0	B	T222B106K010(1)S	2.0	6	0009	0069	0129	0189	5010	2010	3010	4010
10	12.0	B	T222B126J010(1)S	2.0	6	1010	1070	1130	1190	5011	2011	3011	4011
10	12.0	B	T222B126K010(1)S	2.0	6	0010	0070	0130	0190	5012	2012	3012	4012
10	15.0	B	T222B156J010(1)S	2.0	6	1011	1071	1131	1191	5013	2013	3013	4013
10	15.0	B	T222B156K010(1)S	2.0	6	0011	0071	0131	0191	5014	2014	3014	4014
15	1.0	A	T222A105J015(1)S	0.6	6	1012	1072	1132	1192	5015	2015	3015	4015
15	1.0	A	T222A105K015(1)S	0.6	6	0012	0072	0132	0192	5016	2016	3016	4016
15	1.2	A	T222A125J015(1)S	0.6	6	1013	1073	1133	1193	5017	2017	3017	4017
15	1.2	A	T222A125K015(1)S	0.6	6	0013	0073	0133	0193	5018	2018	3018	4018
15	1.5	A	T222A155J015(1)S	0.6	6	1014	1074	1134	1194	5019	2019	3019	4019
15	1.5	A	T222A155K015(1)S	0.6	6	0014	0074	0134	0194	5020	2020	3020	4020
15	8.2	B	T222B825J015(1)S	1.8	6	1015	1075	1135	1195	5021	2021	3021	4021
15	8.2	B	T222B825K015(1)S	1.8	6	0015	0075	0135	0195	5022	2022	3022	4022
20	0.56	A	T222A564J020(1)S	0.6	3	1016	1076	1136	1196	5023	2023	3023	4023
20	0.56	A	T222A564K020(1)S	0.6	3	0016	0076	0136	0196	5024	2024	3024	4024
20	0.68	A	T222A684J020(1)S	0.6	3	1017	1077	1137	1197	5025	2025	3025	4025
20	0.68	A	T222A684K020(1)S	0.6	3	0017	0077	0137	0197	5026	2026	3026	4026
20	0.82	A	T222A824J020(1)S	0.6	3	1018	1078	1138	1198	5027	2027	3027	4027
20	0.82	A	T222A824K020(1)S	0.6	3	0018	0078	0138	0198	5028	2028	3028	4028
20	1.0	A	T222A105J020(1)S	0.6	3	1019	1079	1139	1199	5029	2029	3029	4029
20	1.0	A	T222A105K020(1)S	0.6	3	0019	0079	0139	0199	5030	2030	3030	4030
20	3.3	B	T222B335J020(1)S	1.0	3	1020	1080	1140	1200	5031	2031	3031	4031
20	3.3	B	T222B335K020(1)S	1.0	3	0020	0080	0140	0200	5032	2032	3032	4032
20	3.9	B	T222B395J020(1)S	2.0	3	1021	1081	1141	1201	5033	2033	3033	4033
20	3.9	B	T222B395K020(1)S	2.0	3	0021	0081	0141	0201	5034	2034	3034	4034
20	4.7	B	T222B475J020(1)S	2.0	3	1022	1082	1142	1202	5035	2035	3035	4035
20	4.7	B	T222B475K020(1)S	2.0	3	0022	0082	0142	0202	5036	2036	3036	4036
20	5.6	B	T222B565J020(1)S	2.0	3	1023	1083	1143	1203	5037	2037	3037	4037
20	5.6	B	T222B565K020(1)S	2.0	3	0023	0083	0143	0203	5038	2038	3038	4038
20	6.8	B	T222B685J020(1)S	2.0	3	1024	1084	1144	1204	5039	2039	3039	4039
20	6.8	B	T222B685K020(1)S	2.0	3	0024	0084	0144	0204	5040	2040	3040	4040
35	0.33	A	T222A334J035(1)S	0.6	3	1025	1085	1145	1205	5041	2041	3041	4041
35	0.33	A	T222A334K035(1)S	0.6	3	0025	0085	0145	0205	5042	2042	3042	4042
35	0.39	A	T222A394J035(1)S	0.6	3	1026	1086	1146	1206	5043	2043	3043	4043
35	0.39	A	T222A394K035(1)S	0.6	3	0026	0086	0146	0206	5044	2044	3044	4044
35	0.47	A	T222A474J035(1)S	0.6	3	1027	1087	1147	1207	5045	2045	3045	4045
35	0.47	A	T222A474K035(1)S	0.6	3	0027	0087	0147	0207	5046	2046	3046	4046
35	2.2	B	T222B225J035(1)S	1.4	3	1028	1088	1148	1208	5047	2047	3047	4047
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							

(1) To complete KEMET Part Number (T222), insert Graded failure rate - A for Not Applicable, B for 0.1%/k hours, C for 0.01%/k hours, D for 0.001%/k hours or G for 1%/k hours. Designates Reliability Level.

(2) To complete KEMET Part Number (T222), insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 Hours)							
						MIL-PRF-39003/2J				MIL-PRF-39003/2J			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
35	2.2	B	T222B225K035(1)S	1.4	3	0028	0088	0148	0208	5048	2048	3048	4048
35	2.7	B	T222B275J035(1)S	1.4	3	1029	1089	1149	1209	5049	2049	3049	4049
35	2.7	B	T222B275K035(1)S	1.4	3	0029	0089	0149	0209	5050	2050	3050	4050
50	0.22	A	T222A224J050(1)S	0.6	3	1030	1090	1150	1210	5051	2051	3051	4051
50	0.22	A	T222A224K050(1)S	0.6	3	0030	0090	0150	0210	5052	2052	3052	4052
50	0.27	A	T222A274J050(1)S	0.6	3	1031	1091	1151	1211	5053	2053	3053	4053
50	0.27	A	T222A274K050(1)S	0.6	3	0031	0091	0151	0211	5054	2054	3054	4054
50	1.5	B	T222B155J050(1)S	1.4	3	1032	1092	1152	1212	5055	2055	3055	4055
50	1.5	B	T222B155K050(1)S	1.4	3	0032	0092	0152	0212	5056	2056	3056	4056
50	1.8	B	T222B185J050(1)S	1.4	3	1033	1093	1153	1213	5057	2057	3057	4057
50	1.8	B	T222B185K050(1)S	1.4	3	0033	0093	0153	0213	5058	2058	3058	4058
75	0.047	A	T222A473J075(1)S	0.6	3	1034	1094	1154	1214	5059	2059	3059	4059
75	0.047	A	T222A473K075(1)S	0.6	3	0034	0094	0154	0214	5060	2060	3060	4060
75	0.056	A	T222A563J075(1)S	0.6	3	1035	1095	1155	1215	5061	2061	3061	4061
75	0.056	A	T222A563K075(1)S	0.6	3	0035	0095	0155	0215	5062	2062	3062	4062
75	0.068	A	T222A683J075(1)S	0.6	3	1036	1096	1156	1216	5063	2063	3063	4063
75	0.068	A	T222A683K075(1)S	0.6	3	0036	0096	0156	0216	5064	2064	3064	4064
75	0.082	A	T222A823J075(1)S	1.8	3	1037	1097	1157	1217	5065	2065	3065	4065
75	0.082	A	T222A823K075(1)S	1.8	3	0037	0097	0157	0217	5066	2066	3066	4066
75	0.10	A	T222A104J075(1)S	0.6	3	1038	1098	1158	1218	5067	2067	3067	4067
75	0.10	A	T222A104K075(1)S	0.6	3	0038	0098	0158	0218	5068	2068	3068	4068
75	0.12	A	T222A124J075(1)S	0.6	3	1039	1099	1159	1219	5069	2069	3069	4069
75	0.12	A	T222A124K075(1)S	0.6	3	0039	0099	0159	0219	5070	2070	3070	4070
75	0.15	A	T222A154J075(1)S	0.6	3	1040	1100	1160	1220	5071	2071	3071	4071
75	0.15	A	T222A154K075(1)S	0.6	3	0040	0100	0160	0220	5072	2072	3072	4072
75	0.18	A	T222A184J075(1)S	0.6	3	1041	1101	1161	1221	5073	2073	3073	4073
75	0.18	A	T222A184K075(1)S	0.6	3	0041	0101	0161	0221	5074	2074	3074	4074
75	0.22	B	T222B224J075(1)S	1.0	3	1042	1102	1162	1222	5075	2075	3075	4075
75	0.22	B	T222B224K075(1)S	1.0	3	0042	0102	0162	0222	5076	2076	3076	4076
75	0.27	B	T222B274J075(1)S	2.0	3	1043	1103	1163	1223	5077	2077	3077	4077
75	0.27	B	T222B274K075(1)S	2.0	3	0043	0103	0163	0223	5078	2078	3078	4078
75	0.33	B	T222B334J075(1)S	2.0	3	1044	1104	1164	1224	5079	2079	3079	4079
75	0.33	B	T222B334K075(1)S	2.0	3	0044	0104	0164	0224	5080	2080	3080	4080
75	0.39	B	T222B394J075(1)S	2.0	3	1045	1105	1165	1225	5081	2081	3081	4081
75	0.39	B	T222B394K075(1)S	2.0	3	0045	0105	0165	0225	5082	2082	3082	4082
75	0.47	B	T222B474J075(1)S	2.0	3	1046	1106	1166	1226	5083	2083	3083	4083
75	0.47	B	T222B474K075(1)S	2.0	3	0046	0106	0166	0226	5084	2084	3084	4084
75	0.56	B	T222B564J075(1)S	0.6	3	1047	1107	1167	1227	5085	2085	3085	4085
75	0.56	B	T222B564K075(1)S	0.6	3	0047	0107	0167	0227	5086	2086	3086	4086
75	0.68	B	T222B684J075(1)S	0.6	3	1048	1108	1168	1228	5087	2087	3087	4087
75	0.68	B	T222B684K075(1)S	0.6	3	0048	0108	0168	0228	5088	2088	3088	4088
75	0.82	B	T222B824J075(1)S	0.6	3	1049	1109	1169	1229	5089	2089	3089	4089
75	0.82	B	T222B824K075(1)S	0.6	3	0049	0109	0169	0229	5090	2090	3090	4090
75	1.0	B	T222B105J075(1)S	1.4	3	1050	1110	1170	1230	5091	2091	3091	4091
75	1.0	B	T222B105K075(1)S	1.4	3	0050	0110	0170	0230	5092	2092	3092	4092
75	1.2	B	T222B125J075(1)S	1.4	3	1051	1111	1171	1231	5093	2093	3093	4093
75	1.2	B	T222B125K075(1)S	1.4	3	0051	0111	0171	0231	5094	2094	3094	4094
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							

(1) To complete KEMET Part Number (T222), insert Graded failure rate - A for Not Applicable, B for 0.1%/k hours, C for 0.01%/k hours, D for 0.001%/k hours or G for 1%/k hours. Designates Reliability Level.

(2) To complete KEMET Part Number (T222), insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates reliability level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Maximum Power Dissipation: 25°C Ambient

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P_{max}/R}$$

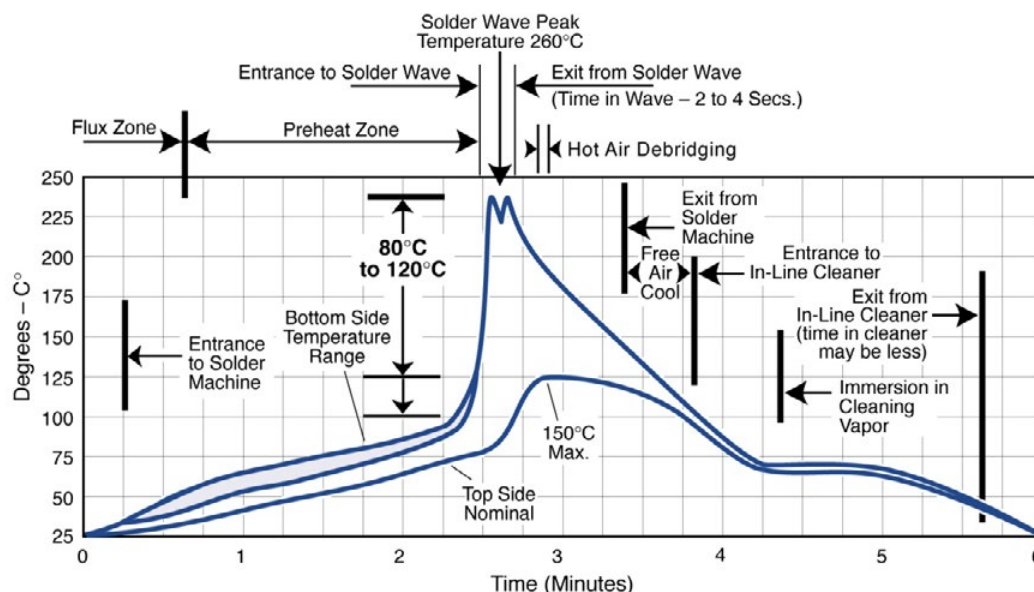
P max = maximum watts

R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Optimum Solder Wave Profile



Reverse Voltage

Although these are polar capacitors, some degree of transient voltage reversal is permissible, as seen below. The capacitors should not be operated continuously in reverse mode, even within these limits.

Temperature	Percentage of Rated Voltage
+25°C	15
+85°C	5
+125°C	1

Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T222

39003	← Military Specification Number
02 - K	← Specification Sheet Number & K = KEMET
2061J	← Military Dash Number & J = Jan
+ 330	← Polarity and Date Code
AB	

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature— reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

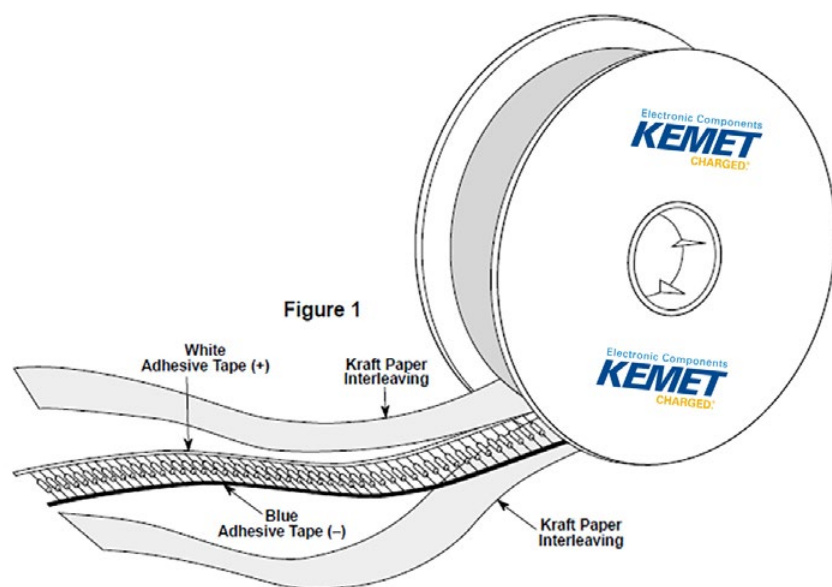


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity
A/B	50/Tray
A	300/Box
B	150/Box

Overview

The KEMET T225 High Temperature Solder Series of solid tantalum capacitors is especially designed for miniaturization and employs a unique glass-to-metal compression end seal that has no protruding eyelet. This flush end seal construction ideally suits the T225 Series for all miniature high density packaging applications. The capacitors consist of a dry porous tantalum pellet, hermetically sealed in a solder coated metal case with solder coated alloy 52 and solder coated nickel.

The internal design of these devices, as well as the hermetic seal, includes high temperature solder (minimum melting point of 221°C). The content of tin in the solder does not exceed 97%. This assembly is especially suited for temperature conditions where solder may fail due to undesirable solder reflow.

The T225 series is approved to all ratings and failure rates of MIL-PRF-39003/2.

Benefits

- Internal construction solder to resist up to 221°C
- Qualified to MIL-PRF-39003 (CSR09 Style)
- Failure rate options: Graded - B, C, D, and G, and Exponential - M, P, R, and S
- Surge current options D, E, and F
- Operating temperature range of -55°C to +125°C
- Capacitance values of 0.047 μ F to 18 μ F
- Tolerances of $\pm 5\%$, and $\pm 10\%$
- Voltage rating of 6 – 75 VDC
- Case sizes: A and B
- Taped and reeled per EIA Specification RS-296
- Marking per MIL-STD-1285

Applications

KEMET's T225 High Temperature Solder Series of solid tantalum capacitors is especially designed for miniaturization.



Ordering Information

T	225	A	225	K	010	B	S	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial High Temperature Solder	A, B	First two digits represent significant figures. Third digit specifies number of zeros to follow.	J = $\pm 5\%$ K = $\pm 10\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V 075 = 75 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard	All capacitors are sleeved unless specified. 0100 = Without sleeve 7200 = Tape & Reel 7293 = Ammo 4250 = 10 cycles, 25°C after Weibull 4251 = 10 cycles, -55 & 85°C after Weibull 4252 = 10 cycles, -55 & 85°C before Weibull

Ordering Information – (CSR09 Style)

M39003	/02	3036	D
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

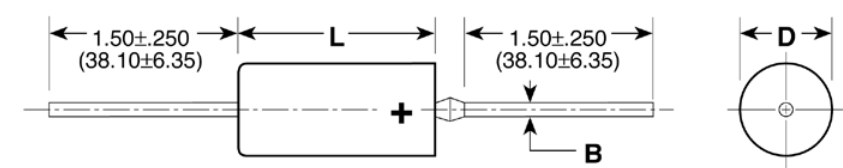
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.047 – 18 μ F @ 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%)
Rated Voltage Range	6 – 75 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL-PRF-39003, CSR09 capacitors only)	Approved failure rate: Graded G (1.0%/k hours), B (0.1%/k hours), C (0.01%/k hours), D (0.001%/k hours) and Exponential M (1.0%/k hours), P (0.1%/k hours), R (0.01%/k hours), S (0.001%/k hours)

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B Wire Diameter
	$D \pm 0.005 \pm (0.13)$	L	D	L	
A	0.085 (2.16)	$0.245 + 0.015 (6.22 + 0.38)$ $- 0.010 (-0.25)$	0.090 ± 0.009 (2.29 $\pm$ 0.23)	$0.250 + 0.031 (6.35 + 0.79)$ $- 0.015 (-0.38)$	$0.016 + 0.005 (0.41 + 0.13)$ $- 0.001 (-0.03)$
B	0.127 (3.23)	$0.375 \pm 0.015 (0.53 \pm 0.38)$	0.138 ± 0.010 (3.51 $\pm$ 0.25)	0.390 ± 0.015 (9.91 $\pm$ 0.38)	$0.016 + 0.005 (0.41 + 0.13)$ $- 0.001 (-0.03)$

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/2J				MIL-PRF-39003/2J			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
6	2.7	A	T225A275J006(1)S	0.6	6	1001-	1061-	1121-	1181-	5001-	2001-	3001-	4001-
6	2.7	A	T225A275K006(1)S	0.6	6	0001-	0061-	0121-	0181-	5002-	2002-	3002-	4002-
6	18.0	B	T225B186J006(1)S	1.4	6	1002-	1062-	1122-	1182-	5003-	2003-	3003-	4003-
6	18.0	B	T225B186K006(1)S	1.4	6	0002-	0062-	0122-	0182-	5004-	2004-	3004-	4004-
10	1.8	A	T225A185J010(1)S	0.6	6	1007-	1067-	1127-	1187-	5005-	2005-	3005-	4005-
10	1.8	A	T225A185K010(1)S	0.6	6	0007-	0067-	0127-	0187-	5006-	2006-	3006-	4006-
10	2.2	A	T225A225J010(1)S	0.6	6	1008-	1068-	1128-	1188-	5007-	2007-	3007-	4007-
10	2.2	A	T225A225K010(1)S	0.6	6	0008-	0068-	0128-	0188-	5008-	2008-	3008-	4008-
10	10.0	B	T225B106J010(1)S	2.0	6	1009-	1069-	1129-	1189-	5009-	2009-	3009-	4009-
10	10.0	B	T225B106K010(1)S	2.0	6	0009-	0069-	0129-	0189-	5010-	2010-	3010-	4010-
10	12.0	B	T225B126J010(1)S	2.0	6	1010-	1070-	1130-	1190-	5011-	2011-	3011-	4011-
10	12.0	B	T225B126K010(1)S	2.0	6	0010-	0070-	0130-	0190-	5012-	2012-	3012-	4012-
10	15.0	B	T225B156J010(1)S	2.0	6	1011-	1071-	1131-	1191-	5013-	2013-	3013-	4013-
10	15.0	B	T225B156K010(1)S	2.0	6	0011-	0071-	0131-	0191-	5014-	2014-	3014-	4014-
15	1.0	A	T225A105J015(1)S	0.6	6	1012-	1072-	1132-	1192-	5015-	2015-	3015-	4015-
15	1.0	A	T225A105K015(1)S	0.6	6	0012-	0072-	0132-	0192-	5016-	2016-	3016-	4016-
15	1.2	A	T225A125J015(1)S	0.6	6	1013-	1073-	1133-	1193-	5017-	2017-	3017-	4017-
15	1.2	A	T225A125K015(1)S	0.6	6	0013-	0073-	0133-	0193-	5018-	2018-	3018-	4018-
15	1.5	A	T225A155J015(1)S	0.6	6	1014-	1074-	1134-	1194-	5019-	2019-	3019-	4019-
15	1.5	A	T225A155K015(1)S	0.6	6	0014-	0074-	0134-	0194-	5020-	2020-	3020-	4020-
15	8.2	B	T225B825J015(1)S	1.8	6	1015-	1075-	1135-	1195-	5021-	2021-	3021-	4021-
15	8.2	B	T225B825K015(1)S	1.8	6	0015-	0075-	0135-	0195-	5022-	2022-	3022-	4022-
20	0.56	A	T225A564J020(1)S	0.6	3	1016-	1076-	1136-	1196-	5023-	2023-	3023-	4023-
20	0.56	A	T225A564K020(1)S	0.6	3	0016-	0076-	0136-	0196-	5024-	2024-	3024-	4024-
20	0.68	A	T225A684J020(1)S	0.6	3	1017-	1077-	1137-	1197-	5025-	2025-	3025-	4025-
20	0.68	A	T225A684K020(1)S	0.6	3	0017-	0077-	0137-	0197-	5026-	2026-	3026-	4026-
20	0.82	A	T225A824J020(1)S	0.6	3	1018-	1078-	1138-	1198-	5027-	2027-	3027-	4027-
20	0.82	A	T225A824K020(1)S	0.6	3	0018-	0078-	0138-	0198-	5028-	2028-	3028-	4028-
20	1.0	A	T225A105J020(1)S	0.6	3	1019-	1079-	1139-	1199-	5029-	2029-	3029-	4029-
20	1.0	A	T225A105K020(1)S	0.6	3	0019-	0079-	0139-	0199-	5030-	2030-	3030-	4030-
20	3.3	B	T225B335J020(1)S	1.0	3	1020-	1080-	1140-	1200-	5031-	2031-	3031-	4031-
20	3.3	B	T225B335K020(1)S	1.0	3	0020-	0080-	0140-	0200-	5032-	2032-	3032-	4032-
20	3.9	B	T225B395J020(1)S	2.0	3	1021-	1081-	1141-	1201-	5033-	2033-	3033-	4033-
20	3.9	B	T225B395K020(1)S	2.0	3	0021-	0081-	0141-	0201-	5034-	2034-	3034-	4034-
20	4.7	B	T225B475J020(1)S	2.0	3	1022-	1082-	1142-	1202-	5035-	2035-	3035-	4035-
20	4.7	B	T225B475K020(1)S	2.0	3	0022-	0082-	0142-	0202-	5036-	2036-	3036-	4036-
20	5.6	B	T225B565J020(1)S	2.0	3	1023-	1083-	1143-	1203-	5037-	2037-	3037-	4037-
20	5.6	B	T225B565K020(1)S	2.0	3	0023-	0083-	0143-	0203-	5038-	2038-	3038-	4038-
20	6.8	B	T225B685J020(1)S	2.0	3	1024-	1084-	1144-	1204-	5039-	2039-	3039-	4039-
20	6.8	B	T225B685K020(1)S	2.0	3	0024-	0084-	0144-	0204-	5040-	2040-	3040-	4040-
35	0.33	A	T225A334J035(1)S	0.6	3	1025-	1085-	1145-	1205-	5041-	2041-	3041-	4041-
35	0.33	A	T225A334K035(1)S	0.6	3	0025-	0085-	0145-	0205-	5042-	2042-	3042-	4042-
35	0.39	A	T225A394J035(1)S	0.6	3	1026-	1086-	1146-	1206-	5043-	2043-	3043-	4043-
35	0.39	A	T225A394K035(1)S	0.6	3	0026-	0086-	0146-	0206-	5044-	2044-	3044-	4044-
35	0.47	A	T225A474J035(1)S	0.6	3	1027-	1087-	1147-	1207-	5045-	2045-	3045-	4045-
35	0.47	A	T225A474K035(1)S	0.6	3	0027-	0087-	0147-	0207-	5046-	2046-	3046-	4046-
35	2.2	B	T225B225J035(1)S	1.4	3	1028-	1088-	1148-	1208-	5047-	2047-	3047-	4047-
35	2.2	B	T225B225K035(1)S	1.4	3	0028-	0088-	0148-	0208-	5048-	2048-	3048-	4048-
35	2.7	B	T225B275J035(1)S	1.4	3	1029-	1089-	1149-	1209-	5049-	2049-	3049-	4049-
35	2.7	B	T225B275K035(1)S	1.4	3	0029-	0089-	0149-	0209-	5050-	2050-	3050-	4050-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							

(1) To complete KEMET Part Number (T225), insert Graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates Reliability Level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/2J				MIL-PRF-39003/2J			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
50	0.22	A	T225A224J050(1)S	0.6	3	1030-	1090-	1150-	1210-	5051-	2051-	3051-	4051-
50	0.22	A	T225A224K050(1)S	0.6	3	0030-	0090-	0150-	0210-	5052-	2052-	3052-	4052-
50	0.27	A	T225A274J050(1)S	0.6	3	1031-	1091-	1151-	1211-	5053-	2053-	3053-	4053-
50	0.27	A	T225A274K050(1)S	0.6	3	0031-	0091-	0151-	0211-	5054-	2054-	3054-	4054-
50	1.5	B	T225B155J050(1)S	1.4	3	1032-	1092-	1152-	1212-	5055-	2055-	3055-	4055-
50	1.5	B	T225B155K050(1)S	1.4	3	0032-	0092-	0152-	0212-	5056-	2056-	3056-	4056-
50	1.8	B	T225B185J050(1)S	1.4	3	1033-	1093-	1153-	1213-	5057-	2057-	3057-	4057-
50	1.8	B	T225B185K050(1)S	1.4	3	0033-	0093-	0153-	0213-	5058-	2058-	3058-	4058-
75	0.047	A	T225A473J075(1)S	0.6	3	1034-	1094-	1154-	1214-	5059-	2059-	3059-	4059-
75	0.047	A	T225A473K075(1)S	0.6	3	0034-	0094-	0154-	0214-	5060-	2060-	3060-	4060-
75	0.056	A	T225A563J075(1)S	0.6	3	1035-	1095-	1155-	1215-	5061-	2061-	3061-	4061-
75	0.056	A	T225A563K075(1)S	0.6	3	0035-	0095-	0155-	0215-	5062-	2062-	3062-	4062-
75	0.068	A	T225A683J075(1)S	0.6	3	1036-	1096-	1156-	1216-	5063-	2063-	3063-	4063-
75	0.068	A	T225A683K075(1)S	0.6	3	0036-	0096-	0156-	0216-	5064-	2064-	3064-	4064-
75	0.082	A	T225A823J075(1)S	1.8	3	1037-	1097-	1157-	1217-	5065-	2065-	3065-	4065-
75	0.082	A	T225A823K075(1)S	1.8	3	0037-	0097-	0157-	0217-	5066-	2066-	3066-	4066-
75	0.10	A	T225A104J075(1)S	0.6	3	1038-	1098-	1158-	1218-	5067-	2067-	3067-	4067-
75	0.10	A	T225A104K075(1)S	0.6	3	0038-	0098-	0158-	0218-	5068-	2068-	3068-	4068-
75	0.12	A	T225A124J075(1)S	0.6	3	1039-	1099-	1159-	1219-	5069-	2069-	3069-	4069-
75	0.12	A	T225A124K075(1)S	0.6	3	0039-	0099-	0159-	0219-	5070-	2070-	3070-	4070-
75	0.15	A	T225A154J075(1)S	0.6	3	1040-	1100-	1160-	1220-	5071-	2071-	3071-	4071-
75	0.15	A	T225A154K075(1)S	0.6	3	0040-	0100-	0160-	0220-	5072-	2072-	3072-	4072-
75	0.18	A	T225A184J075(1)S	0.6	3	1041-	1101-	1161-	1221-	5073-	2073-	3073-	4073-
75	0.18	A	T225A184K075(1)S	0.6	3	0041-	0101-	0161-	0221-	5074-	2074-	3074-	4074-
75	0.22	B	T225B224J075(1)S	1.0	3	1042-	1102-	1162-	1222-	5075-	2075-	3075-	4075-
75	0.22	B	T225B224K075(1)S	1.0	3	0042-	0102-	0162-	0222-	5076-	2076-	3076-	4076-
75	0.27	B	T225B274J075(1)S	2.0	3	1043-	1103-	1163-	1223-	5077-	2077-	3077-	4077-
75	0.27	B	T225B274K075(1)S	2.0	3	0043-	0103-	0163-	0223-	5078-	2078-	3078-	4078-
75	0.33	B	T225B334J075(1)S	2.0	3	1044-	1104-	1164-	1224-	5079-	2079-	3079-	4079-
75	0.33	B	T225B334K075(1)S	2.0	3	0044-	0104-	0164-	0224-	5080-	2080-	3080-	4080-
75	0.39	B	T225B394J075(1)S	2.0	3	1045-	1105-	1165-	1225-	5081-	2081-	3081-	4081-
75	0.39	B	T225B394K075(1)S	2.0	3	0045-	0105-	0165-	0225-	5082-	2082-	3082-	4082-
75	0.47	B	T225B474J075(1)S	2.0	3	1046-	1106-	1166-	1226-	5083-	2083-	3083-	4083-
75	0.47	B	T225B474K075(1)S	2.0	3	0046-	0106-	0166-	0226-	5084-	2084-	3084-	4084-
75	0.56	B	T225B564J075(1)S	0.6	3	1047-	1107-	1167-	1227-	5085-	2085-	3085-	4085-
75	0.56	B	T225B564K075(1)S	0.6	3	0047-	0107-	0167-	0227-	5086-	2086-	3086-	4086-
75	0.68	B	T225B684J075(1)S	0.6	3	1048-	1108-	1168-	1228-	5087-	2087-	3087-	4087-
75	0.68	B	T225B684K075(1)S	0.6	3	0048-	0108-	0168-	0228-	5088-	2088-	3088-	4088-
75	0.82	B	T225B824J075(1)S	0.6	3	1049-	1109-	1169-	1229-	5089-	2089-	3089-	4089-
75	0.82	B	T225B824K075(1)S	0.6	3	0049-	0109-	0169-	0229-	5090-	2090-	3090-	4090-
75	1.0	B	T225B105J075(1)S	1.4	3	1050-	1110-	1170-	1230-	5091-	2091-	3091-	4091-
75	1.0	B	T225B105K075(1)S	1.4	3	0050-	0110-	0170-	0230-	5092-	2092-	3092-	4092-
75	1.2	B	T225B125J075(1)S	1.4	3	1051-	1111-	1171-	1231-	5093-	2093-	3093-	4093-
75	1.2	B	T225B125K075(1)S	1.4	3	0051-	0111-	0171-	0231-	5094-	2094-	3094-	4094-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR09) Capacitors							

(1) To complete KEMET Part Number (T225), insert Graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates Reliability Level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
$T \leq 25^{\circ}\text{C}$	$T \leq 85^{\circ}\text{C}$	$T \leq 125^{\circ}\text{C}$
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(\text{max}) = Z \sqrt{P \text{ max}/R}$$

$P \text{ max}$ = maximum watts

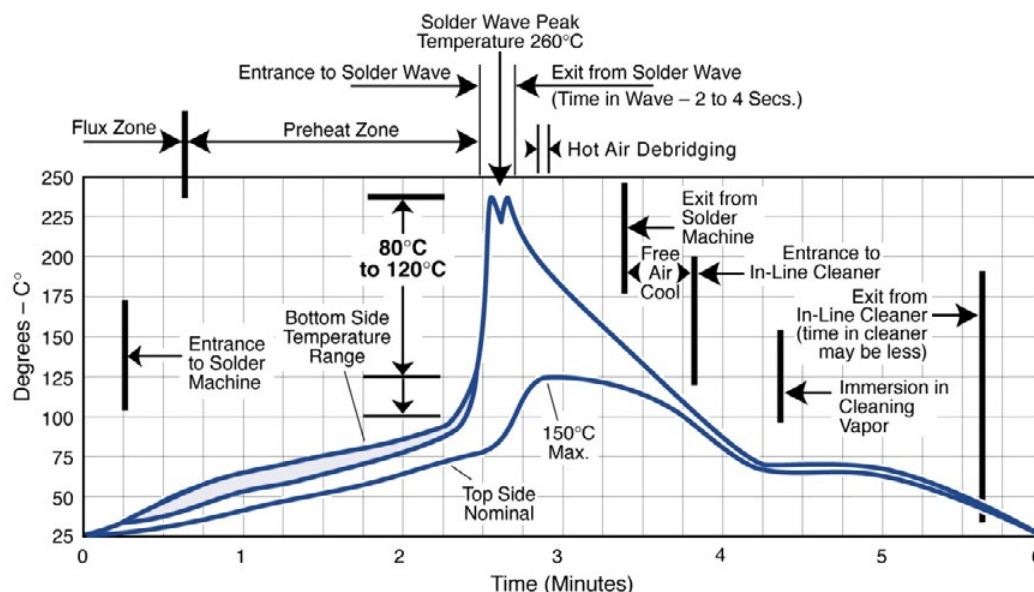
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile

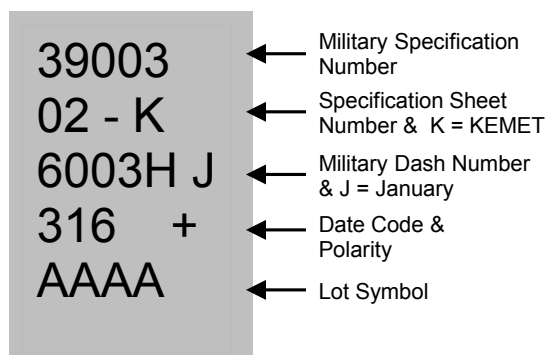


Mounting

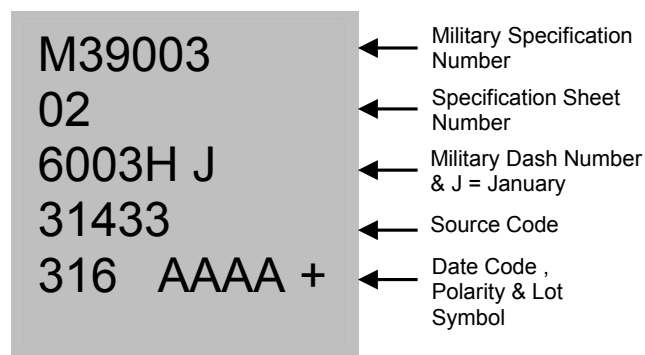
All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

Case A



Case B



Date Code

1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	11 = 2nd week of March

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

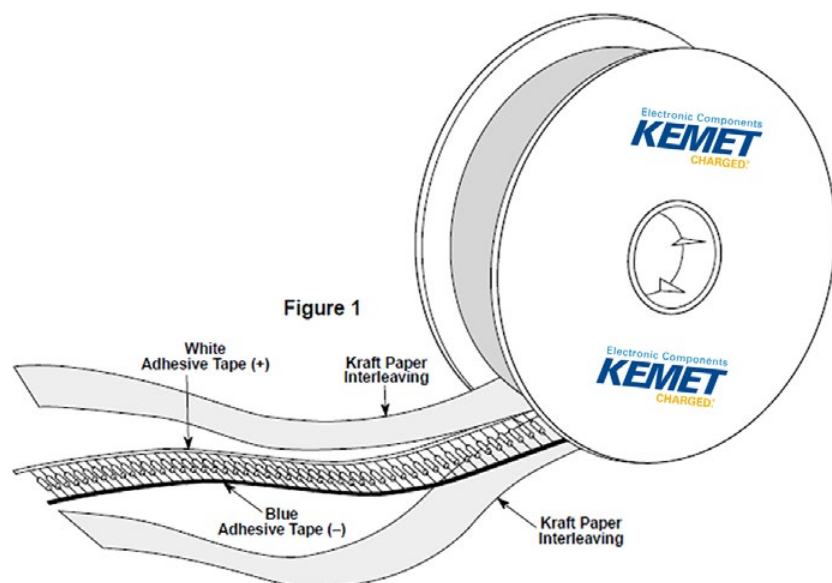


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity
A/B	50/Tray
A	300/Box
B	150/Box

T140 Series Axial MIL–PRF–39003 Polar Type and T242 (CSR23 Style)

Overview

The KEMET standard MIL case hermetically sealed T140 Series (Extended Capacitance Range) is compact, ruggedly built and designed for miniaturized circuitry. The capacitors are especially well-suited for coupling, bypass filtering and RC timing circuits. The T140 Series exhibits excellent stability, low DC leakage

current, dissipation factor, and ESR/impedance over a wide temperature and frequency range. Available in standard EIA capacitance values from 0.82 μF to 1,200 μF in $\pm 20\%$ and $\pm 10\%$ tolerances and working voltages of 6 VDC to 60 VDC.

Benefits

- Taped and reeled per EIA Specification RS–296
- Marking per MIL–STD–1285
- Qualified to MIL–PRF–39003 (CSR23 Style)
- Failure rate options: Graded - B, C, D and G
Exponential - M, P, R, and S*
- Capacitance values of 0.82 μF to 1200 μF
- Tolerances of $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6 VDC–60 VDC
- Operating temperature range of -55°C to $+125^{\circ}\text{C}$
- Case sizes: A, B, C, D

**Failure rates apply to military products only*

Applications

Typical applications include coupling, bypass, filtering and RC timing circuits in miniaturized circuitry.



Ordering Information – T140

T	140	A	105	K	050	A	S	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial Capacitor	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6V 010 = 10V 015 = 15V 020 = 20V 030 = 30V 035 = 35V 060 = 60V 050 = 50V 060 = 60V	A = N/A	S = Standard (Sn/Pb) T = 100% Tin	All capacitors are sleeved unless specified. 0100 = Without sleeve 7200 = Tape & Reel 7293 = Ammo 4250 = 10 cycles, 25°C after Weibull 4251 = 10 cycles, -55 & 85°C after Weibull 4252 = 10 cycles, -55 & 85°C before Weibull

Ordering Information – T242 (CSR23 Style)

T	242	A	105	K	050	A	S	C
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	T242 = CSR23	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6V 010 = 10V 015 = 15V 020 = 20V 030 = 30V 035 = 35V 060 = 60V 050 = 50V 060 = 60V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard	All capacitors are sleeved unless specified

Ordering Information – T242 (CSR23 Style)

MIL product

M39003	/03	3075	E
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

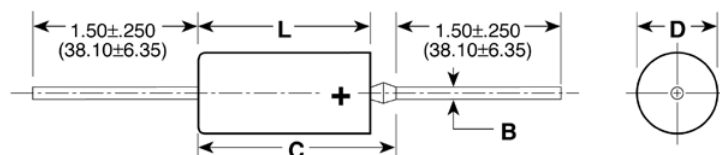
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.82 – 1,200 μ F @ 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 60 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL–39003, CSR13 capacitors only)	Approved failure rate: S (0.001%/k hours) - Exponential, D (0.001%/k hours) - Graded

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 Hours)									
						MIL-PRF-39003/3F				MIL-PRF-39003/3F					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
6	8.2	A	T140A825(1)006A(3)	0.9	6										
6	10.0	A	T140A106K006A(3)	0.9	6	0101	0201	0301	0401	5001	2001	3001	4001	T242A106K006(2)S	
6	10.0	A	T140A106M006A(3)	0.9	6	0102	0202	0302	0402	5002	2002	3002	4002	T242A106M006(2)S	
6	12.0	A	T140A126K006A(3)	1.0	6	0103	0203	0303	0403	5003	2003	3003	4003	T242A126K006(2)S	
6	12.0	A	T140A126M006A(3)	1.0	6										
6	68.0	B	T140B686(1)006A(3)	3.0	6										
6	82.0	B	T140B826(1)006A(3)	3.0	6										
6	100.0	B	T140B107K006A(3)	6.0	6	0104	0204	0304	0404	5004	2004	3004	4004	T242B107K006(2)S	
6	100.0	B	T140B107M006A(3)	6.0	6	0105	0205	0305	0405	5005	2005	3005	4005	T242B107M006(2)S	
6	220.0	C	T140C227(1)006A(3)	10.0	8										
6	270.0	C	T140C277(1)006A(3)	10.0	8										
6	330.0	C	T140C337K006A(3)	10.0	8	0106	0206	0306	0406	5006	2006	3006	4006	T242C337K006(2)S	
6	330.0	C	T140C337M006A(3)	10.0	8	0107	0207	0307	0407	5007	2007	3007	4007	T242C337M006(2)S	
6	390.0	C	T140C397K006A(3)	10.0	10	0108	0208	0308	0408	5008	2008	3008	4008	T242C397K006(2)S	
6	390.0	C	T140C397M006A(3)	10.0	10										
6	470.0	C	T140C477K006A(3)	10.0	10	0109	0209	0309	0409	5009	2009	3009	4009	T242C477K006(2)S	
6	470.0	C	T140C477M006A(3)	10.0	10	0110	0210	0310	0410	5010	2010	3010	4010	T242C477M006(2)S	
6	560.0	D	T140D567(1)006A(3)	20.0	10										
6	680.0	D	T140D687K006A(3)	20.0	10	0111	0211	0311	0411	5011	2011	3011	4011	T242D687K006(2)S	
6	680.0	D	T140D687M006A(3)	20.0	10	0112	0212	0312	0412	5012	2012	3012	4012	T242D687M006(2)S	
6	820.0	D	T140D827K006A(3)	20.0	10	0113	0213	0313	0413	5013	2013	3013	4013	T242D827K006(2)S	
6	820.0	D	T140D827M006A(3)	20.0	10										
6	1000.0	D	T140D108K006A(3)	20.0	10	0114	0214	0314	0414	5014	2014	3014	4014	T242D108K006(2)S	
6	1000.0	D	T140D108M006A(3)	20.0	10	0115	0215	0315	0415	5015	2015	3015	4015	T242D108M006(2)S	
6	1200.0	D	T140D128M006A(3)	20.0	10										
10	5.6	A	T140A565(1)010A(3)	1.0	4										
10	6.8	A	T140A685K010A(3)	1.0	6	0116	0216	0316	0416	5016	2016	3016	4016	T242A685K010(2)S	
10	6.8	A	T140A685M010A(3)	1.0	6	0117	0217	0317	0417	5017	2017	3017	4017	T242A685M010(2)S	
10	8.2	A	T140A825K010A(3)	1.2	6	0118	0218	0318	0418	5018	2018	3018	4018	T242A825K010(2)S	
10	8.2	A	T140A825M010A(3)	1.2	6										
10	47.0	B	T140B476K010A(3)	4.0	6	0119	0219	0319	0419	5019	2019	3019	4019	T242B476K010(2)S	
10	47.0	B	T140B476M010A(3)	4.0	6	0120	0220	0320	0420	5020	2020	3020	4020	T242B476M010(2)S	
10	56.0	B	T140B566K010A(3)	5.0	6	0121	0221	0321	0421	5021	2021	3021	4021	T242B566K010(2)S	
10	56.0	B	T140B566M010A(3)	5.0	6										
10	68.0	B	T140B686K010A(3)	6.0	6	0122	0222	0322	0422	5022	2022	3022	4022	T242B686K010(2)S	
10	68.0	B	T140B686M010A(3)	6.0	6	0123	0223	0323	0423	5023	2023	3023	4023	T242B686M010(2)S	
10	82.0	B	T140B826K010A(3)	7.0	6	0124	0224	0324	0424	5024	2024	3024	4024	T242B826K010(2)S	
10	82.0	B	T140B826M010A(3)	7.0	6										
10	150.0	C	T140C157(1)010A(3)	8.0	8										
10	180.0	C	T140C187(1)010A(3)	8.0	8										
10	220.0	C	T140C227K010A(3)	12.0	8	0125	0225	0325	0425	5025	2025	3025	4025	T242C227K010(2)S	
10	220.0	C	T140C227M010A(3)	12.0	8	0126	0226	0326	0426	5026	2026	3026	4026	T242C227M010(2)S	
10	270.0	C	T140C277K010A(3)	13.0	8	0127	0227	0327	0427	5027	2027	3027	4027	T242C277K010(2)S	
10	270.0	C	T140C277M010A(3)	13.0	8										
10	330.0	D	T140D337(1)010A(3)	16.0	8										
10	390.0	D	T140D397K010A(3)	16.0	10	0128	0228	0328	0428	5028	2028	3028	4028	T242D397K010(2)S	
10	390.0	D	T140D397M010A(3)	16.0	10										
10	470.0	D	T140D477K010A(3)	16.0	10	0129	0229	0329	0429	5029	2029	3029	4029	T242D477K010(2)S	
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									

(1) To complete KEMET part number, insert M for ±20% or K for ± 10%. Designates capacitance tolerance.

(2) To complete KEMET part number (T242), insert failure rate code from Ordering Information table.

(3) To complete KEMET T140 Part Number, insert Lead Material designator: S – Standard or T – 100% Matte Tin. Designates termination finish.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 Hours)									
						MIL-PRF-39003/3F				MIL-PRF-39003/3F					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
10	470.0	D	T140D477M010A(3)	16.0	10	0130	0230	0330	0430	5030	2030	3030	4030	T242D477M010(2)S	
10	560.0	D	T140D567K010A(3)	20.0	10	0131	0231	0331	0431	5031	2031	3031	4031	T242D567K010(2)S	
10	560.0	D	T140D567M010A(3)	20.0	10										
15	3.9	A	T140A395(1)015A(3)	1	4										
15	4.7	A	T140A475K015A(3)	1	4	0132	0232	0332	0432	5032	2032	3032	4032	T242A475K015(2)S	
15	4.7	A	T140A475M015A(3)	1	4	0133	0233	0333	0433	5033	2033	3033	4033	T242A475M015(2)S	
15	5.6	A	T140A565K015A(3)	1.3	4	0134	0234	0334	0434	5034	2034	3034	4034	T242A565K015(2)S	
15	5.6	A	T140A565M015A(3)	1.3	4										
15	27.0	B	T140B276(1)015A(3)	3	6										
15	33.0	B	T140B336K015A(3)	5	6	0135	0235	0335	0435	5035	2035	3035	4035	T242B336K015(2)S	
15	33.0	B	T140B336M015A(3)	5	6	0136	0236	0336	0436	5036	2036	3036	4036	T242B336M015(2)S	
15	39.0	B	T140B396K015A(3)	5.3	6	0137	0237	0337	0437	5037	2037	3037	4037	T242B396K015(2)S	
15	39.0	B	T140B396M015A(3)	5.3	6										
15	82.0	C	T140C826(1)015A(3)	8	6										
15	100.0	C	T140C107(1)015A(3)	10	6										
15	120.0	C	T140C127(1)015A(3)	10	6										
15	150.0	C	T140C157K015A(3)	15	8	0138	0238	0338	0438	5038	2038	3038	4038	T242C157K015(2)S	
15	150.0	C	T140C157M015A(3)	15	8	0139	0239	0339	0439	5039	2039	3039	4039	T242C157M015(2)S	
15	180.0	C	T140C187K015A(3)	15	8	0140	0240	0340	0440	5040	2040	3040	4040	T242C187K015(2)S	
15	180.0	C	T140C187M015A(3)	15	8										
15	220.0	D	T140D227K015A(3)	20	8	0141	0241	0341	0441	5041	2041	3041	4041	T242D227K015(2)S	
15	220.0	D	T140D227M015A(3)	20	8	0142	0242	0342	0442	5042	2042	3042	4042	T242D227M015(2)S	
15	270.0	D	T140D277K015A(3)	20	8	0143	0243	0343	0443	5043	2043	3043	4043	T242D277K015(2)S	
15	270.0	D	T140D277M015A(3)	20	8										
15	330.0	D	T140D337K015A(3)	20	8	0144	0244	0344	0444	5044	2044	3044	4044	T242D337K015(2)S	
15	330.0	D	T140D337M015A(3)	20	8	0145	0245	0345	0445	5045	2045	3045	4045	T242D337M015(2)S	
20	2.7	A	T140A275K020A(3)	0.8	4	0146	0246	0346	0446	5046	2046	3046	4046	T242A275K020(2)S	
20	2.7	A	T140A275M020A(3)	0.8	4										
20	3.3	A	T140A335K020A(3)	1.0	4	0147	0247	0347	0447	5047	2047	3047	4047	T242A335K020(2)S	
20	3.3	A	T140A335M020A(3)	1.0	4	0148	0248	0348	0448	5048	2048	3048	4048	T242A335M020(2)S	
20	3.9	A	T140A395K020A(3)	1.2	4	0149	0249	0349	0449	5049	2049	3049	4049	T242A395K020(2)S	
20	3.9	A	T140A395M020A(3)	1.2	4										
20	18.0	B	T140B186K020A(3)	3.0	6	0150	0250	0350	0450	5050	2050	3050	4050	T242B186K020(2)S	
20	18.0	B	T140B186M020A(3)	3.0	6										
20	22.0	B	T140B226K020A(3)	3.0	6	0151	0251	0351	0451	5051	2051	3051	4051	T242B226K020(2)S	
20	22.0	B	T140B226M020A(3)	3.0	6	0152	0252	0352	0452	5052	2052	3052	4052	T242B226M020(2)S	
20	27.0	B	T140B276K020A(3)	4.0	6	0153	0253	0353	0453	5053	2053	3053	4053	T242B276K020(2)S	
20	27.0	B	T140B276M020A(3)	4.0	6										
20	56.0	C	T140C566K020A(3)	7.0	6	0154	0254	0354	0454	5054	2054	3054	4054	T242C566K020(2)S	
20	56.0	C	T140C566M020A(3)	7.0	6										
20	68.0	C	T140C686K020A(3)	8.0	6	0155	0255	0355	0455	5055	2055	3055	4055	T242C686K020(2)S	
20	68.0	C	T140C686M020A(3)	8.0	6	0156	0256	0356	0456	5056	2056	3056	4056	T242C686M020(2)S	
20	82.0	C	T140C826K020A(3)	10.0	6	0157	0257	0357	0457	5057	2057	3057	4057	T242C826K020(2)S	
20	82.0	C	T140C826M020A(3)	10.0	6										
20	100.0	C	T140C107K020A(3)	12.0	6	0158	0258	0358	0458	5058	2058	3058	4058	T242C107K020(2)S	
20	100.0	C	T140C107M020A(3)	12.0	6	0159	0259	0359	0459	5059	2059	3059	4059	T242C107M020(2)S	
20	120.0	C	T140C127K020A(3)	12.0	6	0160	0260	0360	0460	5060	2060	3060	4060	T242C127K020(2)S	
20	120.0	C	T140C127M020A(3)	12.0	6										
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									

(1) To complete KEMET part number, insert M for ±20% or K for ± 10%. Designates capacitance tolerance.

(2) To complete KEMET part number (T242), insert failure rate code from Ordering Information table.

(3) To complete KEMET T140 Part Number, insert Lead Material designator: S – Standard or T – 100% Matte Tin. Designates termination finish.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 Hours)									
						MIL-PRF-39003/3F				MIL-PRF-39003/3F					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
20	150.0	D	T140D157K020A(3)	15.0	8	0161	0261	0361	0461	5061	2061	3061	4061	T242D157K020(2)S	
20	150.0	D	T140D157M020A(3)	15.0	8	0162	0262	0362	0462	5062	2062	3062	4062	T242D157M020(2)S	
20	180.0	D	T140D187K020A(3)	15.0	8	0163	0263	0363	0463	5063	2063	3063	4063	T242D187K020(2)S	
20	180.0	D	T140D187M020A(3)	15.0	8										
30	1.2	A	T140A125(1)030A(3)	1.0	4										
30	1.5	A	T140A155(1)030A(3)	1.0	4										
30	1.8	A	T140A185(1)030A(3)	1.0	4										
30	2.2	A	T140A225(1)030A(3)	1.0	4										
30	2.7	A	T140A275(1)030A(3)	1.0	4										
30	12.0	B	T140B126(1)030A(3)	3.0	4										
30	15.0	B	T140B156(1)030A(3)	3.0	4										
30	18.0	B	T140B186(1)030A(3)	3.0	4										
30	33.0	C	T140C336(1)030A(3)	6.0	6										
30	39.0	C	T140C396(1)030A(3)	6.0	6										
30	47.0	C	T140C476(1)030A(3)	7.0	6										
30	56.0	C	T140C566(1)030A(3)	7.0	6										
30	68.0	C	T140C686(1)030A(3)	7.0	6										
30	82.0	D	T140D826(1)030A(3)	10.0	6										
30	100.0	D	T140D107(1)030A(3)	10.0	8										
35	1.2	A	T140A125(1)035A(3)	0.6	4										
35	1.5	A	T140A155(1)035A(3)	0.8	4										
35	1.8	A	T140A185K035A(3)	1.0	4	0164	0264	0364	0464	5064	2064	3064	4064	T242A185K035(2)S	
35	1.8	A	T140A185M035A(3)	1.0	4										
35	8.2	B	T140B825K035A(3)	3.0	4	0165	0265	0365	0465	5065	2065	3065	4065	T242B825K035(2)S	
35	8.2	B	T140B825M035A(3)	3.0	4										
35	10.0	B	T140B106K035A(3)	3.0	4	0166	0266	0366	0466	5066	2066	3066	4066	T242B106K035(2)S	
35	10.0	B	T140B106M035A(3)	3.0	4	0167	0267	0367	0467	5067	2067	3067	4067	T242B106M035(2)S	
35	27.0	C	T140C276(1)035A(3)	7.0	6										
35	33.0	C	T140C336K035A(3)	8.0	6	0168	0268	0368	0468	5068	2068	3068	4068	T242C336K035(2)S	
35	33.0	C	T140C336M035A(3)	8.0	6	0169	0269	0369	0469	5069	2069	3069	4069	T242C336M035(2)S	
35	39.0	C	T140C396K035A(3)	10.0	6	0170	0270	0370	0470	5070	2070	3070	4070	T242C396K035(2)S	
35	39.0	C	T140C396M035A(3)	10.0	6										
35	47.0	C	T140C476K035A(3)	10.0	6	0171	0271	0371	0471	5071	2071	3071	4071	T242C476K035(2)S	
35	47.0	C	T140C476M035A(3)	10.0	6	0172	0272	0372	0472	5072	2072	3072	4072	T242C476M035(2)S	
35	56.0	D	T140D566K035A(3)	12.0	6	0173	0273	0373	0473	5073	2073	3073	4073	T242D566K035(2)S	
35	56.0	D	T140D566M035A(3)	12.0	6										
35	68.0	D	T140D686K035A(3)	12.0	6	0174	0274	0374	0474	5074	2074	3074	4074	T242D686K035(2)S	
35	68.0	D	T140D686M035A(3)	12.0	6	0175	0275	0375	0475	5075	2075	3075	4075	T242D686M035(2)S	
35	82.0	D	T140D826(1)035A(3)	20.0	8										
35	100.0	D	T140D107(1)035A(3)	20.0	8										
50	1.2	A	T140A125K050A(3)	0.6	4	0176	0276	0376	0476	5076	2076	3076	4076	T242A125K050(2)S	
50	1.2	A	T140A125M050A(3)	0.6	4										
50	1.5	A	T140A155K050A(3)	0.8	4	0177	0277	0377	0477	5077	2077	3077	4077	T242A155K050(2)S	
50	1.5	A	T140A155M050A(3)	0.8	4	0178	0278	0378	0478	5078	2078	3078	4078	T242A155M050(2)S	
50	5.6	B	T140B565K050A(3)	2.5	4	0179	0279	0379	0479	5079	2079	3079	4079	T242B565K050(2)S	
50	5.6	B	T140B565M050A(3)	2.5	4										
50	6.8	B	T140B685K050A(3)	2.5	4	0180	0280	0380	0480	5080	2080	3080	4080	T242B685K050(2)S	
50	6.8	B	T140B685M050A(3)	2.5	4	0181	0281	0381	0481	5081	2081	3081	4081	T242B685M050(2)S	
VDC	µF	Case Size Code	(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									

(1) To complete KEMET part number, insert M for ±20% or K for ± 10%. Designates capacitance tolerance.

(2) To complete KEMET part number (T242), insert failure rate code from Ordering Information table.

(3) To complete KEMET T140 Part Number, insert Lead Material designator: S – Standard or T – 100% Matte Tin. Designates termination finish.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									
						Dash Number Reference								KEMET Equivalent Military	
						Failure Rate Level (%/1,000 Hours)									
						MIL-PRF-39003/3F				MIL-PRF-39003/3F					
						Exponential				Graded					
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
50	22.0	C	T140C226K050A(3)	7.0	6	0182	0282	0382	0482	5082	2082	3082	4082	T242C226K050(2)S	
50	22.0	C	T140C226M050A(3)	7.0	6	0183	0283	0383	0483	5083	2083	3083	4083	T242C226M050(2)S	
50	27.0	C	T140C276K050A(3)	8.0	6	0184	0284	0384	0484	5084	2084	3084	4084	T242C276K050(2)S	
50	27.0	C	T140C276M050A(3)	8.0	6										
50	33.0	D	T140D336K050A(3)	10.0	6	0185	0285	0385	0485	5085	2085	*	*	T242D336K050(2)S	
50	33.0	D	T140D336M050A(3)	10.0	6	0186	0286	0386	0486	5086	2086	*	*	T242D336M050(2)S	
50	39.0	D	T140D396K050A(3)	10.0	6	0187	0287	0387	0487	5087	2087	*	*	T242D396K050(2)S	
50	39.0	D	T140D396M050A(3)	10.0	6										
50	47.0	D	T140D476M050A(3)	10.0	6										
60	0.82	A	T140A824(1)060A(3)	0.5	4										
60	1.0	A	T140A105(1)060A(3)	0.5	4										
60	4.7	B	T140B475(1)060A(3)	3.0	4										
60	5.6	B	T140B565(1)060A(3)	3.0	4										
60	15.0	C	T140C156(1)060A(3)	5.0	6										
60	18.0	C	T140C186(1)060A(3)	6.0	6										
60	22.0	C	T140C226(1)060A(3)	7.0	6										
60	27.0	D	T140D276(1)060A(3)	10.0	6										
60	33.0	D	T140D336(1)060A(3)	10.0	6										
VDC	µF	Case Size Code	(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Cap		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors									

(1) To complete KEMET part number, insert M for ±20% or K for ± 10%. Designates capacitance tolerance.

(2) To complete KEMET part number (T242), insert failure rate code from Ordering Information table.

(3) To complete KEMET T140 Part Number, insert Lead Material designator: S – Standard or T – 100% Matte Tin. Designates termination finish.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Maximum Power Dissipation: 25°C Ambient

Permissible AC ripple current can be determined by the following:

$$I(\max) = Z \sqrt{P \max / R}$$

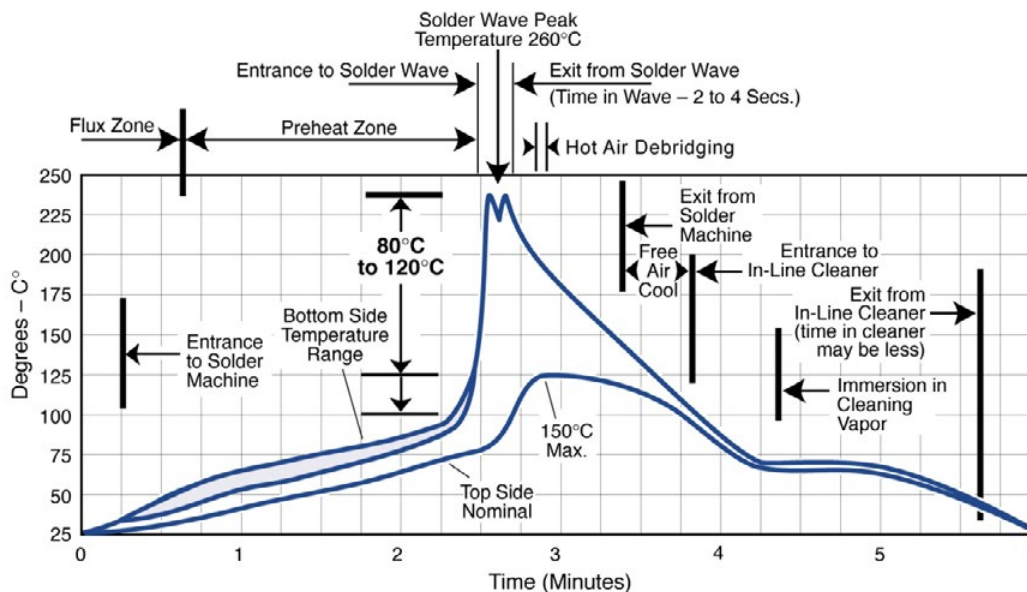
P max = maximum watts

R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Optimum Solder Wave Profile



Reverse Voltage

Although these are polar capacitors, some degree of transient voltage reversal is permissible, as seen below. The capacitors should not be operated continuously in reverse mode, even within these limits.

Temperature	Percentage of Rated Voltage
+25°C	15
+85°C	5
+125°C	1

Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T140

+K 10%	←	Polarity, KEMET's Identification & CAP Tol.
5R6 μ F	←	Nominal CAP ("R" indicates decimal)
10 V	←	Voltage
1330	←	Date Code

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

T242

Case A

39003	←	Military Specification Number
03 - K	←	Specification Sheet Number & K = KEMET
6003J	←	Military Dash Number & J = Jan
330 +	←	Date Code & Polarity
AAAA	←	Lot Symbol

Case B

M39003	←	Military Specification Number
03	←	Specification Sheet Number
6003J	←	Military Dash Number & J = Jan
31433	←	Source Code
330 AAAA +	←	Date Code, Polarity & Lot Symbol

Case C & D

M39003	←	Military Specification Number
03 - 8020J	←	Specification Sheet Number, Military Dash Number and J= Jan
330 μ F +	←	Capacitance Value & Polarity
31433	←	Source Code
330 AAAA K	←	Date Code, Lot Symbol & K = KEMET

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

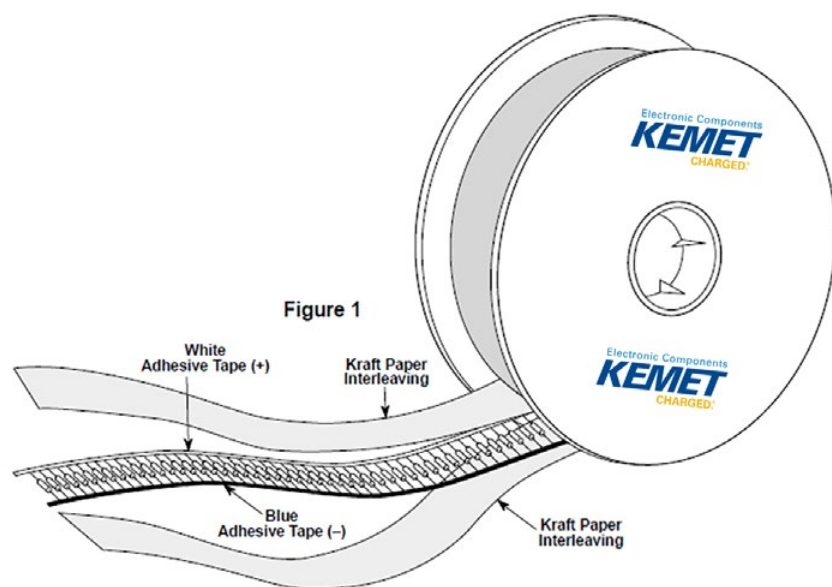


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

Overview

The KEMET standard MIL case hermetically sealed T245 Series (Extended Capacitance Range) is compact, ruggedly built and designed for miniaturized circuitry. The capacitors are especially well-suited for coupling, bypass filtering and RC timing circuits. The T245 Series exhibits excellent stability, low DC leakage current, dissipation factor, and ESR/impedance over a wide temperature and frequency range.

Applications

Typical applications include coupling, bypass, filtering and RC timing circuits in miniaturized circuitry.

Benefits

- Internal construction solder to resist up to 221°C
- Operating temperature range of -55°C to +125°C
- Qualified to MIL-PRF-39003 (CSR23 Style)
- Failure rate options: Graded - B, C, D, and G and Exponential - M, P, R, and S
- Capacitance values of 1.2 μF to 1,000 μF
- Tolerances of $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6 VDC – 50 VDC
- Surge current options D, E, and F
- Taped and reeled per EIA Specification RS-296
- Marking per MIL-STD-1285
- Case sizes: A, B, C, D



Ordering Information

T	245	A	105	K	050	A	S	7200
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial High Temperature Solder	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard	All capacitors are sleeved unless specified. 0100 = Without sleeve 7200 = Tape & Reel 7293 = Ammo 4250 = 10 cycles, 25°C after Weibull 4251 = 10 cycles, -55 & 85°C after Weibull 4252 = 10 cycles, -55 & 85°C before Weibull

Ordering Information – (CSR23 Style)

M39003	/03	3075	E
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	D = C-4250 E = C-4251 F = C-4252 H = No C-Spec

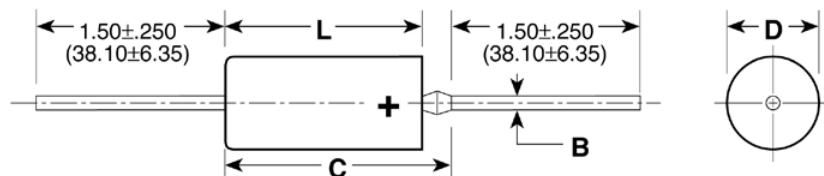
Orders should be entered by the military specification number, including the dash number and surge option letter (D, E, F, or H).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	1.2 – 1,000 μ F @ 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 50 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL-PRF-39003, CSR23 capacitors only)	Approved failure rate: Graded G (1.0%/k hours), B (0.1%/k hours), C (0.01%/k hours), D (0.001%/k hours) and Exponential M (1.0%/k hours), P (0.1%/k hours), R (0.01%/k hours), S (0.001%/k hours)

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (0.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (0.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (0.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (0.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/3J				MIL-PRF-39003/3J			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
6	10.0	A	T245A106K006(1)S	0.9	6	0101-	0201-	0301-	0401-	5001-	2001-	3001-	4001-
6	10.0	A	T245A106M006(1)S	0.9	6	0102-	0202-	0302-	0402-	5002-	2002-	3002-	4002-
6	12.0	A	T245A126K006(1)S	1.0	6	0103-	0203-	0303-	0403-	5003-	2003-	3003-	4003-
6	100.0	B	T245B107K006(1)S	6.0	6	0104-	0204-	0304-	0404-	5004-	2004-	3004-	4004-
6	100.0	B	T245B107M006(1)S	6.0	6	0105-	0205-	0305-	0405-	5005-	2005-	3005-	4005-
6	330.0	C	T245C337K006(1)S	10.0	8	0106-	0206-	0306-	0406-	5006-	2006-	3006-	4006-
6	330.0	C	T245C337M006(1)S	10.0	8	0107-	0207-	0307-	0407-	5007-	2007-	3007-	4007-
6	390.0	C	T245C397K006(1)S	10.0	10	0108-	0208-	0308-	0408-	5008-	2008-	3008-	4008-
6	470.0	C	T245C477K006(1)S	10.0	10	0109-	0209-	0309-	0409-	5009-	2009-	3009-	4009-
6	470.0	C	T245C477M006(1)S	10.0	10	0110-	0210-	0310-	0410-	5010-	2010-	3010-	4010-
6	680.0	D	T245D687K006(1)S	20.0	10	0111-	0211-	0311-	0411-	5011-	2011-	3011-	4011-
6	680.0	D	T245D687M006(1)S	20.0	10	0112-	0212-	0312-	0412-	5012-	2012-	3012-	4012-
6	820.0	D	T245D827K006(1)S	20.0	10	0113-	0213-	0313-	0413-	5013-	2013-	3013-	4013-
6	1000.0	D	T245D108K006(1)S	20.0	10	0114-	0214-	0314-	0414-	5014-	2014-	3014-	4014-
6	1000.0	D	T245D108M006(1)S	20.0	10	0115-	0215-	0315-	0415-	5015-	2015-	3015-	4015-
10	6.8	A	T245A685K010(1)S	1.0	6	0116-	0216-	0316-	0416-	5016-	2016-	3016-	4016-
10	6.8	A	T245A685M010(1)S	1.0	6	0117-	0217-	0317-	0417-	5017-	2017-	3017-	4017-
10	8.2	A	T245A825K010(1)S	1.2	6	0118-	0218-	0318-	0418-	5018-	2018-	3018-	4018-
10	47.0	B	T245B476K010(1)S	4.0	6	0119-	0219-	0319-	0419-	5019-	2019-	3019-	4019-
10	47.0	B	T245B476M010(1)S	4.0	6	0120-	0220-	0320-	0420-	5020-	2020-	3020-	4020-
10	56.0	B	T245B566K010(1)S	5.0	6	0121-	0221-	0321-	0421-	5021-	2021-	3021-	4021-
10	68.0	B	T245B686K010(1)S	6.0	6	0122-	0222-	0322-	0422-	5022-	2022-	3022-	4022-
10	68.0	B	T245B686M010(1)S	6.0	6	0123-	0223-	0323-	0423-	5023-	2023-	3023-	4023-
10	82.0	B	T245B826K010(1)S	7.0	6	0124-	0224-	0324-	0424-	5024-	2024-	3024-	4024-
10	220.0	C	T245C227K010(1)S	12.0	8	0125-	0225-	0325-	0425-	5025-	2025-	3025-	4025-
10	220.0	C	T245C227M010(1)S	12.0	8	0126-	0226-	0326-	0426-	5026-	2026-	3026-	4026-
10	270.0	C	T245C277K010(1)S	13.0	8	0127-	0227-	0327-	0427-	5027-	2027-	3027-	4027-
10	390.0	D	T245D397K010(1)S	16.0	10	0128-	0228-	0328-	0428-	5028-	2028-	3028-	4028-
10	470.0	D	T245D477K010(1)S	16.0	10	0129-	0229-	0329-	0429-	5029-	2029-	3029-	4029-
10	470.0	D	T245D477M010(1)S	16.0	10	0130-	0230-	0330-	0430-	5030-	2030-	3030-	4030-
10	560.0	D	T245D567K010(1)S	20.0	10	0131-	0231-	0331-	0431-	5031-	2031-	3031-	4031-
15	4.7	A	T245A475K015(1)S	1	4	0132-	0232-	0332-	0432-	5032-	2032-	3032-	4032-
15	4.7	A	T245A475M015(1)S	1	4	0133-	0233-	0333-	0433-	5033-	2033-	3033-	4033-
15	5.6	A	T245A565K015(1)S	1.3	4	0134-	0234-	0334-	0434-	5034-	2034-	3034-	4034-
15	33.0	B	T245B336K015(1)S	5	6	0135-	0235-	0335-	0435-	5035-	2035-	3035-	4035-
15	33.0	B	T245B336M015(1)S	5	6	0136-	0236-	0336-	0436-	5036-	2036-	3036-	4036-
15	39.0	B	T245B396K015(1)S	5.3	6	0137-	0237-	0337-	0437-	5037-	2037-	3037-	4037-
15	150.0	C	T245C157K015(1)S	15	8	0138-	0238-	0338-	0438-	5038-	2038-	3038-	4038-
15	150.0	C	T245C157M015(1)S	15	8	0139-	0239-	0339-	0439-	5039-	2039-	3039-	4039-
15	180.0	C	T245C187K015(1)S	15	8	0140-	0240-	0340-	0440-	5040-	2040-	3040-	4040-
15	220.0	D	T245D227K015(1)S	20	8	0141-	0241-	0341-	0441-	5041-	2041-	3041-	4041-
15	220.0	D	T245D227M015(1)S	20	8	0142-	0242-	0342-	0442-	5042-	2042-	3042-	4042-
15	270.0	D	T245D277K015(1)S	20	8	0143-	0243-	0343-	0443-	5043-	2043-	3043-	4043-
15	330.0	D	T245D337K015(1)S	20	8	0144-	0244-	0344-	0444-	5044-	2044-	3044-	4044-
15	330.0	D	T245D337M015(1)S	20	8	0145-	0245-	0345-	0445-	5045-	2045-	3045-	4045-
20	2.7	A	T245A275K020(1)S	0.8	4	0146-	0246-	0346-	0446-	5046-	2046-	3046-	4046-
20	3.3	A	T245A335K020(1)S	1.0	4	0147-	0247-	0347-	0447-	5047-	2047-	3047-	4047-
20	3.3	A	T245A335M020(1)S	1.0	4	0148-	0248-	0348-	0448-	5048-	2048-	3048-	4048-
20	3.9	A	T245A395K020(1)S	1.2	4	0149-	0249-	0349-	0449-	5049-	2049-	3049-	4049-
20	18.0	B	T245B186K020(1)S	3.0	6	0150-	0250-	0350-	0450-	5050-	2050-	3050-	4050-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors							

(1) To complete KEMET Part Number (T245), insert Graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates Reliability Level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Military Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/3J				MIL-PRF-39003/3J			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
20	22.0	B	T245B226K020(1)S	3.0	6	0151-	0251-	0351-	0451-	5051-	2051-	3051-	4051-
20	22.0	B	T245B226M020(1)S	3.0	6	0152-	0252-	0352-	0452-	5052-	2052-	3052-	4052-
20	27.0	B	T245B276K020(1)S	4.0	6	0153-	0253-	0353-	0453-	5053-	2053-	3053-	4053-
20	56.0	C	T245C566K020(1)S	7.0	6	0154-	0254-	0354-	0454-	5054-	2054-	3054-	4054-
20	68.0	C	T245C686K020(1)S	8.0	6	0155-	0255-	0355-	0455-	5055-	2055-	3055-	4055-
20	68.0	C	T245C686M020(1)S	8.0	6	0156-	0256-	0356-	0456-	5056-	2056-	3056-	4056-
20	82.0	C	T245C826K020(1)S	10.0	6	0157-	0257-	0357-	0457-	5057-	2057-	3057-	4057-
20	100.0	C	T245C107K020(1)S	12.0	6	0158-	0258-	0358-	0458-	5058-	2058-	3058-	4058-
20	100.0	C	T245C107M020(1)S	12.0	6	0159-	0259-	0359-	0459-	5059-	2059-	3059-	4059-
20	120.0	C	T245C127K020(1)S	12.0	6	0160-	0260-	0360-	0460-	5060-	2060-	3060-	4060-
20	150.0	D	T245D157K020(1)S	15.0	8	0161-	0261-	0361-	0461-	5061-	2061-	3061-	4061-
20	150.0	D	T245D157M020(1)S	15.0	8	0162-	0262-	0362-	0462-	5062-	2062-	3062-	4062-
20	180.0	D	T245D187K020(1)S	15.0	8	0163-	0263-	0363-	0463-	5063-	2063-	3063-	4063-
35	1.8	A	T245A185K035(1)S	1.0	4	0164-	0264-	0364-	0464-	5064-	2064-	3064-	4064-
35	8.2	B	T245B825K035(1)S	3.0	4	0165-	0265-	0365-	0465-	5065-	2065-	3065-	4065-
35	10.0	B	T245B106K035(1)S	3.0	4	0166-	0266-	0366-	0466-	5066-	2066-	3066-	4066-
35	10.0	B	T245B106M035(1)S	3.0	4	0167-	0267-	0367-	0467-	5067-	2067-	3067-	4067-
35	33.0	C	T245C336K035(1)S	8.0	6	0168-	0268-	0368-	0468-	5068-	2068-	3068-	4068-
35	33.0	C	T245C336M035(1)S	8.0	6	0169-	0269-	0369-	0469-	5069-	2069-	3069-	4069-
35	39.0	C	T245C396K035(1)S	10.0	6	0170-	0270-	0370-	0470-	5070-	2070-	3070-	4070-
35	47.0	C	T245C476K035(1)S	10.0	6	0171-	0271-	0371-	0471-	5071-	2071-	3071-	4071-
35	47.0	C	T245C476M035(1)S	10.0	6	0172-	0272-	0372-	0472-	5072-	2072-	3072-	4072-
35	56.0	D	T245D566K035(1)S	12.0	6	0173-	0273-	0373-	0473-	5073-	2073-	3073-	4073-
35	68.0	D	T245D686K035(1)S	12.0	6	0174-	0274-	0374-	0474-	5074-	2074-	3074-	4074-
35	68.0	D	T245D686M035(1)S	12.0	6	0175-	0275-	0375-	0475-	5075-	2075-	3075-	4075-
50	1.2	A	T245A125K050(1)S	0.6	4	0176-	0276-	0376-	0476-	5076-	2076-	3076-	4076-
50	1.5	A	T245A155K050(1)S	0.8	4	0177-	0277-	0377-	0477-	5077-	2077-	3077-	4077-
50	1.5	A	T245A155M050(1)S	0.8	4	0178-	0278-	0378-	0478-	5078-	2078-	3078-	4078-
50	5.6	B	T245B565K050(1)S	2.5	4	0179-	0279-	0379-	0479-	5079-	2079-	3079-	4079-
50	6.8	B	T245B685K050(1)S	2.5	4	0180-	0280-	0380-	0480-	5080-	2080-	3080-	4080-
50	6.8	B	T245B685M050(1)S	2.5	4	0181-	0281-	0381-	0481-	5081-	2081-	3081-	4081-
50	22.0	C	T245C226K050(1)S	7.0	6	0182-	0282-	0382-	0482-	5082-	2082-	3082-	4082-
50	22.0	C	T245C226M050(1)S	7.0	6	0183-	0283-	0383-	0483-	5083-	2083-	3083-	4083-
50	27.0	C	T245C276K050(1)S	8.0	6	0184-	0284-	0384-	0484-	5084-	2084-	3084-	4084-
50	33.0	D	T245D336K050(1)S	10.0	6	0185-	0285-	0385-	0485-	5085-	2085-	3085-	4085-
50	33.0	D	T245D336M050(1)S	10.0	6	0186-	0286-	0386-	0486-	5086-	2086-	3086-	4086-
50	39.0	D	T245D396K050(1)S	10.0	6	0187-	0287-	0387-	0487-	5087-	2087-	3087-	4087-
VDC	µF	Case Size Code	(see below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR23) Capacitors							

(1) To complete KEMET Part Number (T245), insert Graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates Reliability Level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P_{max}/R}$$

P max = maximum watts

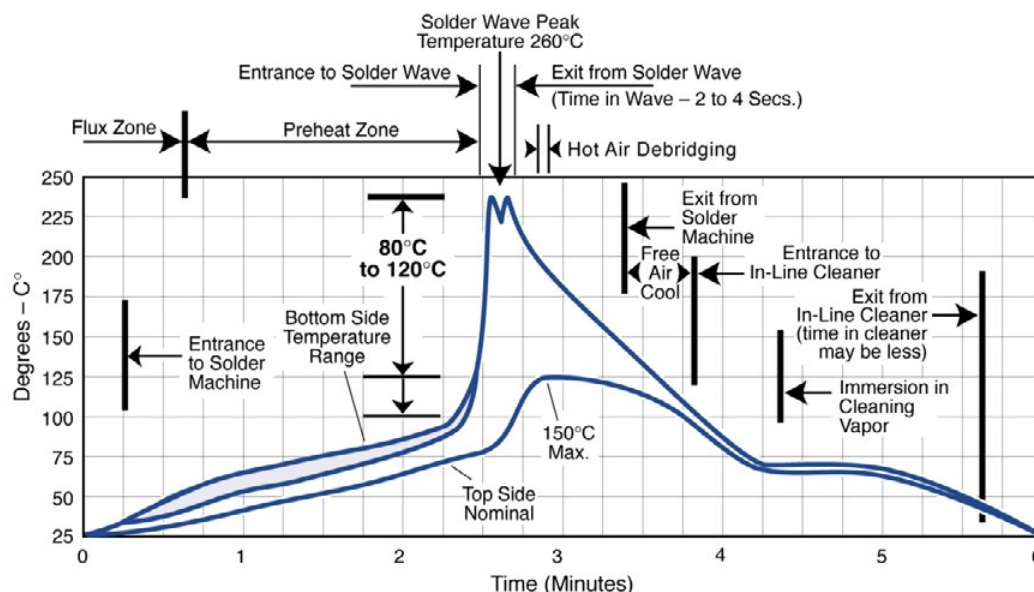
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile



Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

Case A

39003	← Military Specification Number
03 - K	← Specification Sheet Number & K = KEMET
6003H J	← Military Dash Number & J = January
316 +	← Date Code & Polarity
AAAA	← Lot Symbol

Case B

M39003	← Military Specification Number
03	← Specification Sheet Number
6003H J	← Military Dash Number & J = January
31433	← Source Code
316 AAAA +	← Date Code , Polarity & Lot Symbol

Date Code

1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	11 = 2nd week of March

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature— reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

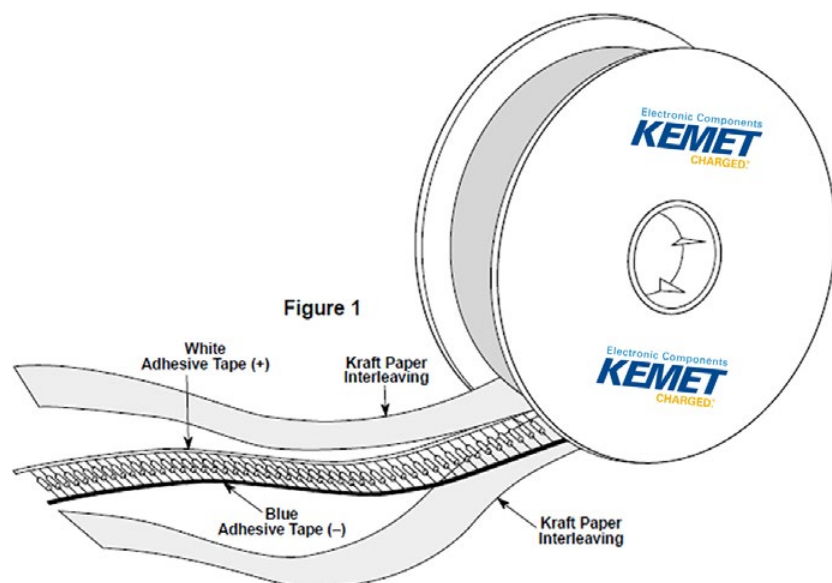


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

Overview

The hermetically sealed T252 Series solid tantalum capacitors offer high capacitance-to-volume ratios and are offered in standard MIL style A, B, C, and D cases. They meet or exceed the environmental and mechanical requirements of MIL–C–39003. Designed to operate from -55°C to +125°C, The T252 Series exhibits exceptionally low DC leakage, dissipation

factor and impedance characteristics. They are ideal for coupling, bypass, filtering and timing circuits, and are excellent substitutes for wet tantalum's in low voltage applications. These parts are available in style CSR33 (T252 Series) per MIL–PRF–39003/06 in capacitance value of 1.2 μ F to 1000 μ F and working voltages pF 6 VDC to 50 VDC.

Benefits

- Taped and reeled per EIA Specification RS–296
- Marking per MIL–STD–1285
- Qualified to MIL–PRF–39003 (CSR33 Style)
- Failure rate options: Graded - B, C, D and G
Exponential - M, P, R, and S*
- Capacitance values of 1.2 μ F to 1000 μ F
- Tolerances of $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6 – 50 VDC
- Operating temperature range of -55°C to +125°C
- Case sizes: A, B, C, D

**Failure rates apply to military products only*

Applications

These capacitors are ideal for coupling, bypass, filtering and timing circuits, and are excellent substitutes for wet tantalum's in low voltage applications.



Ordering Information

T	252	A	125	K	050	M	S	C
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	252 (CSR33)	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard	All capacitors are sleeved unless specified

Ordering Information – T252 (CSR33 Style)

MIL product

M39003	/06	4073	H
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	E = C-4251 F = C-4252

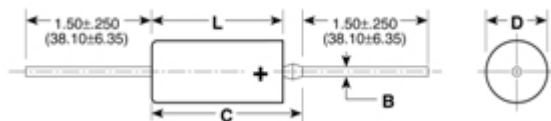
Orders should be entered by the military specification number, including the dash number and surge option letter (E, or F).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	1.2 – 1,000 μ F @ 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 50 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL–39003, CSR13 capacitors only)	Approved failure rate: S (0.001%/k hours) - Exponential, D (0.001%/k hours) - Graded

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors									KEMET Equivalent Military
					Dash Number Reference									
					Failure Rate Level (%/1,000 Hours)									
					MIL-PRF-39003/6F				MIL-PRF-39003/6F					
					Exponential				Graded					
VDC	µF		µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
6	10.0	A	0.5	6	0001	0101	0201	0301	5001	2001	3001	4001	T252A106K006(1)S	
6	10.0	A	0.5	6	0002	0102	0202	0302	5002	2002	3002	4002	T252A106M006(1)S	
6	12.0	A	0.5	6	0003	0103	0203	0303	5003	2003	3003	4003	T252A126K006(1)S	
6	100.0	B	1.0	8	0004	0104	0204	0304	5004	2004	3004	4004	T252B107K006(1)S	
6	100.0	B	1.0	8	0005	0105	0205	0305	5005	2005	3005	4005	T252B107M006(1)S	
6	330.0	C	2.0	8	0006	0106	0206	0306	5006	2006	3006	4006	T252C337K006(1)S	
6	330.0	C	2.0	8	0007	0107	0207	0307	5007	2007	3007	4007	T252C337M006(1)S	
6	390.0	C	2.0	10	0008	0108	0208	0308	5008	2008	3008	4008	T252C397K006(1)S	
6	470.0	C	2.0	10	0009	0109	0209	0309	5009	2009	3009	4009	T252C477K006(1)S	
6	470.0	C	2.0	10	0010	0110	0210	0310	5010	2010	3010	4010	T252C477M006(1)S	
6	680.0	D	5.0	10	0011	0111	0211	0311	5011	2011	3011	4011	T252D687K006(1)S	
6	680.0	D	5.0	10	0012	0112	0212	0312	5012	2012	3012	4012	T252D687M006(1)S	
6	820.0	D	5.0	10	0013	0113	0213	0313	5013	2013	3013	4013	T252D827K006(1)S	
6	1000.0	D	5.0	10	0014	0114	0214	0314	5014	2014	3014	4014	T252D108K006(1)S	
6	1000.0	D	5.0	10	0015	0115	0215	0315	5015	2015	3015	4015	T252D108M006(1)S	
10	6.8	A	0.5	6	0016	0116	0216	0316	5016	2016	3016	4016	T252A685K010(1)S	
10	6.8	A	0.5	6	0017	0117	0217	0317	5017	2017	3017	4017	T252A685M010(1)S	
10	8.2	A	0.5	6	0018	0118	0218	0318	5018	2018	3018	4018	T252A825K010(1)S	
10	47.0	B	1.0	6	0019	0119	0219	0319	5019	2019	3019	4019	T252B476K010(1)S	
10	47.0	B	1.0	6	0020	0120	0220	0320	5020	2020	3020	4020	T252B476M010(1)S	
10	56.0	B	1.0	6	0021	0121	0221	0321	5021	2021	3021	4021	T252B566K010(1)S	
10	68.0	B	1.0	6	0022	0122	0222	0322	5022	2022	3022	4022	T252B686K010(1)S	
10	68.0	B	1.0	6	0023	0123	0223	0323	5023	2023	3023	4023	T252B686M010(1)S	
10	82.0	B	1.0	6	0024	0124	0224	0324	5024	2024	3024	4024	T252B826K010(1)S	
10	220.0	C	1.0	8	0025	0125	0225	0325	5025	2025	3025	4025	T252C227K010(1)S	
10	220.0	C	1.0	8	0026	0126	0226	0326	5026	2026	3026	4026	T252C227M010(1)S	
10	270.0	C	2.0	8	0027	0127	0227	0327	5027	2027	3027	4027	T252C277K010(1)S	
10	390.0	D	2.0	10	0028	0128	0228	0328	5028	2028	3028	4028	T252D397K010(1)S	
10	470.0	D	4.0	10	0029	0129	0229	0329	5029	2029	3029	4029	T252D477K010(1)S	
10	470.0	D	4.0	10	0030	0130	0230	0330	5030	2030	3030	4030	T252D477M010(1)S	
10	560.0	D	4.0	10	0031	0131	0231	0331	5031	2031	3031	4031	T252D567K010(1)S	
15	4.7	A	0.5	4	0032	0132	0232	0332	5032	2032	3032	4032	T252A475K015(1)S	
15	4.7	A	0.5	4	0033	0133	0233	0333	5033	2033	3033	4033	T252A475M015(1)S	
15	5.6	A	0.5	4	0034	0134	0234	0334	5034	2034	3034	4034	T252A565K015(1)S	
15	33.0	B	1.0	6	0035	0135	0235	0335	5035	2035	3035	4035	T252B336K015(1)S	
15	33.0	B	1.0	6	0036	0136	0236	0336	5036	2036	3036	4036	T252B336M015(1)S	
15	39.0	B	1.0	6	0037	0137	0237	0337	5037	2037	3037	4037	T252B396K015(1)S	
15	150.0	C	1.0	8	0038	0138	0238	0338	5038	2038	3038	4038	T252C157K015(1)S	
15	150.0	C	1.0	8	0039	0139	0239	0339	5039	2039	3039	4039	T252C157M015(1)S	
15	180.0	C	2.0	8	0040	0140	0240	0340	5040	2040	3040	4040	T252C187K015(1)S	
15	220.0	D	2.0	8	0041	0141	0241	0341	5041	2041	3041	4041	T252D227K015(1)S	
15	220.0	D	2.0	8	0042	0142	0242	0342	5042	2042	3042	4042	T252D227M015(1)S	
15	270.0	D	2.0	8	0043	0143	0243	0343	5043	2043	3043	4043	T252D277K015(1)S	
15	330.0	D	2.0	8	0044	0144	0244	0344	5044	2044	3044	4044	T252D337K015(1)S	
15	330.0	D	2.0	8	0045	0145	0245	0345	5045	2045	3045	4045	T252D337M015(1)S	
20	2.7	A	0.5	4	0046	0146	0246	0346	5046	2046	3046	4046	T252A275K020(1)S	
20	3.3	A	0.5	4	0047	0147	0247	0347	5047	2047	3047	4047	T252A335K020(1)S	
20	3.3	A	0.5	4	0048	0148	0248	0348	5048	2048	3048	4048	T252A335M020(1)S	
VDC	µF	Case Size Code	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors									

(1) To complete KEMET Part Number (T252), insert Graded failure rate - A for Not Applicable, B for 0.1%/k hours, C for 0.01%/k hours, D for 0.001%/k hours or G for 1%/k hours. Designates Reliability Level.

(2) To complete KEMET Part Number (T252), insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors									KEMET Equivalent Military
					Dash Number Reference									
					Failure Rate Level (%/1,000 Hours)									
					MIL-PRF-39003/6F				MIL-PRF-39003/6F					
					Exponential				Graded					
VDC	µF		µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
20	3.9	A	0.5	4	0049	0149	0249	0349	5049	2049	3049	4049	T252A395K020(1)S	
20	18.0	B	1.0	6	0050	0150	0250	0350	5050	2050	3050	4050	T252B186K020(1)S	
20	22.0	B	1.0	6	0051	0151	0251	0351	5051	2051	3051	4051	T252B226K020(1)S	
20	22.0	B	1.0	6	0052	0152	0252	0352	5052	2052	3052	4052	T252B226M020(1)S	
20	27.0	B	1.0	6	0053	0153	0253	0353	5053	2053	3053	4053	T252B276K020(1)S	
20	56.0	C	1.0	6	0054	0154	0254	0354	5054	2054	3054	4054	T252C556K020(1)S	
20	68.0	C	1.0	6	0055	0155	0255	0355	5055	2055	3055	4055	T252C686K020(1)S	
20	68.0	C	1.0	6	0056	0156	0256	0356	5056	2056	3056	4056	T252C686M020(1)S	
20	82.0	C	1.0	6	0057	0157	0257	0357	5057	2057	3057	4057	T252C826K020(1)S	
20	100.0	C	1.0	6	0058	0158	0258	0358	5058	2058	3058	4058	T252C107K020(1)S	
20	100.0	C	1.0	6	0059	0159	0259	0359	5059	2059	3059	4059	T25C107M020(1)S	
20	120.0	C	1.0	6	0060	0160	0260	0360	5060	2060	3060	4060	T252C127K020(1)S	
20	150.0	D	2.0	8	0061	0161	0261	0361	5061	2061	3061	4061	T252D157K020(1)S	
20	150.0	D	2.0	8	0062	0162	0262	0362	5062	2062	3062	4062	T252D157M020(1)S	
20	180.0	D	2.0	8	0063	0163	0263	0363	5063	2063	3063	4063	T252D187K020(1)S	
35	1.8	A	0.5	4	0064	0164	0264	0364	5064	2064	3064	4064	T252A185K035(1)S	
35	8.2	B	1.0	6	0065	0165	0265	0365	5065	2065	3065	4065	T252B825K035(1)S	
35	10.0	B	1.0	6	0066	0166	0266	0366	5066	2066	3066	4066	T252B106K035(1)S	
35	10.0	B	1.0	6	0067	0167	0267	0367	5067	2067	3067	4067	T252B106M035(1)S	
35	33.0	C	1.0	6	0068	0168	0268	0368	5068	2068	3068	4068	T252C336K035(1)S	
35	33.0	C	1.0	6	0069	0169	0269	0369	5069	2069	3069	4069	T252C336M035(1)S	
35	39.0	C	1.0	6	0070	0170	0270	0370	5070	2070	3070	4070	T252C396K035(1)S	
35	47.0	C	1.0	6	0071	0171	0271	0371	5071	2071	3071	4071	T252C476K035(1)S	
35	47.0	C	1.0	6	0072	0172	0272	0372	5072	2072	3072	4072	T252C476M035(1)S	
35	56.0	D	2.0	6	0073	0173	0273	0373	5073	2073	3073	4073	T252D566K035(1)S	
35	68.0	D	2.0	6	0074	0174	0274	0374	5074	2074	3074	4074	T252D686K035(1)S	
35	68.0	D	2.0	6	0075	0175	0275	0375	5075	2075	3075	4075	T252D686M035(1)S	
50	1.2	A	0.5	4	0076	0176	0276	0376	5076	2076	3076	4076	T252A125K050(1)S	
50	1.5	A	0.5	4	0077	0177	0277	0377	5077	2077	3077	4077	T252A155K050(1)S	
50	1.5	A	0.5	4	0078	0178	0278	0378	5078	2078	3078	4078	T252A155M050(1)S	
50	5.6	B	1.0	4	0079	0179	0279	0379	5079	2079	3079	4079	T252B565K050(1)S	
50	6.8	B	1.0	6	0080	0180	0280	0380	5080	2080	3080	4080	T252B685K050(1)S	
50	6.8	B	1.0	6	0081	0181	0281	0381	5081	2081	3081	4081	T252B685M050(1)S	
50	22.0	C	1.0	6	0082	0182	0282	0382	5082	2082	3082	4082	T252C226K050(1)S	
50	22.0	C	1.0	6	0083	0183	0283	0383	5083	2083	3083	4083	T252C226M050(1)S	
50	27.0	C	1.0	6	0084	0184	0284	0384	5084	2084	3084	4084	T252C276K050(1)S	
50	33.0	D	1.0	6	0085	0185	0285	0385	5085	2085	*	*	T252D336K050(1)S	
50	33.0	D	1.0	6	0086	0186	0286	0386	5086	2086	*	*	T252D336M050(1)S	
50	39.0	D	1.0	6	0087	0187	0287	0387	5087	2087	*	*	T252D396K050(1)S	
VDC	µF	Case Size Code	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number	
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors									

(1) To complete KEMET Part Number (T252), insert Graded failure rate - A for Not Applicable, B for 0.1%/k hours, C for 0.01%/k hours, D for 0.001%/k hours or G for 1%/k hours. Designates Reliability Level.

(2) To complete KEMET Part Number (T252), insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates reliability level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Maximum Power Dissipation: 25°C Ambient

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P_{max}/R}$$

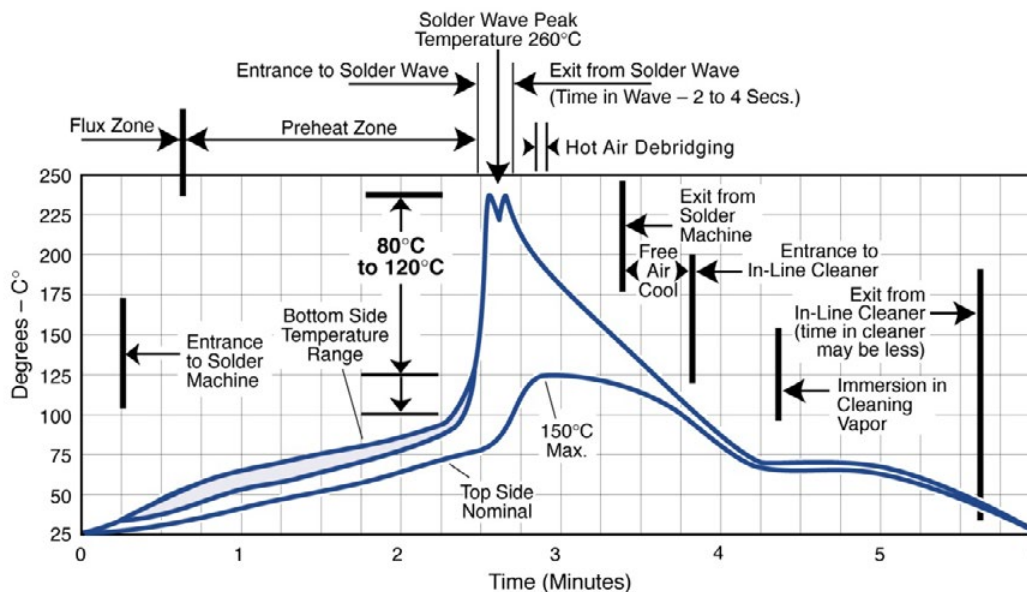
P max = maximum watts

R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Optimum Solder Wave Profile



Reverse Voltage

Although these are polar capacitors, some degree of transient voltage reversal is permissible, as seen below. The capacitors should not be operated continuously in reverse mode, even within these limits.

Temperature	Percentage of Rated Voltage
+25°C	15
+85°C	5
+125°C	1

Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T252

Case A

39003	← Military Specification Number
06 - K	← Specification Sheet Number & K = KEMET
2064J	← Military Dash Number & J = Jan
330 +	← Date Code & Polarity
AAAA	← Lot Symbol

Case B

M39003	← Military Specification Number
03	← Specification Sheet Number
2065J	← Military Dash Number & J = Jan
31433	← Source Code
330 AAAA +	← Date Code, Polarity & Lot Symbol

Case C & D

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

M39003	← Military Specification Number
03 - 4073J	← Specification Sheet Number, Military Dash Number and J = Jan
330μF +	← Capacitance Value & Polarity
31433	← Source Code
330 AAAA K	← Date Code, Lot Symbol & K = KEMET

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

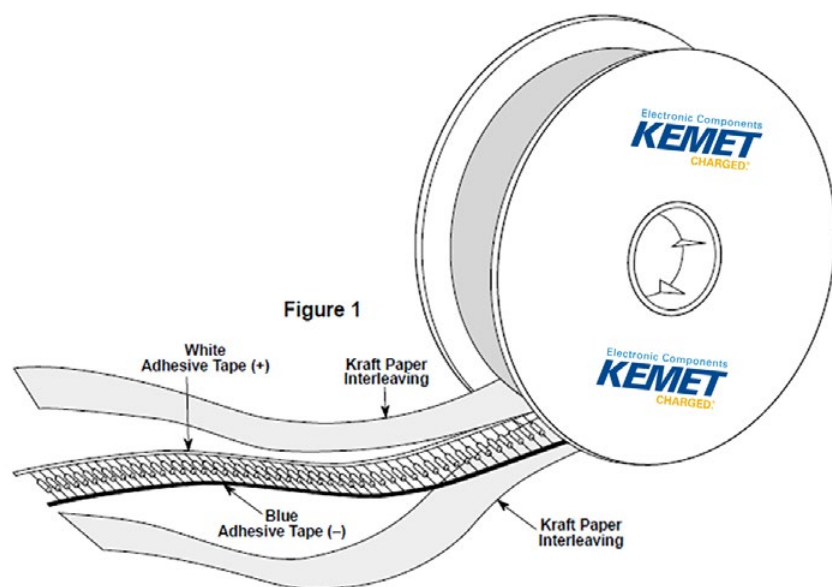


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

Overview

The KEMET T255 High Temperature Solder Series of solid tantalum capacitors offers high capacitance-to-volume ratios and is available in standard MIL style A, B, C, and D cases. These devices meet or exceed the environmental and mechanical requirements of MIL-PRF-39003. Designed to operate from -55°C to +125°C, the internal design of these capacitors, as well as the hermetic seal, includes high temperature solder (minimum melting point of 221°C). The

content of tin in the solder does not exceed 97%. This assembly is especially suited for temperature conditions where solder may fail due to undesirable solder reflow.

The T255 Series exhibits exceptionally low DC leakage, dissipation factor and impedance characteristics. These parts are available in Style CSR33 per MIL-PRF-39003/06.

Benefits

- Internal construction solder to resist up to 221°C
- Failure rate options: Graded - B, C, D, and G, and Exponential - M, P, R, and S
- Surge current options D, E, and F
- Taped and reeled per EIA Specification RS-296
- Marking per MIL-STD-1285
- Qualified to MIL-PRF-39003 (CSR33 Style)
- Operating temperature range of -55°C to +125°C
- Capacitance values of 1.2 μ F to 1,000 μ F
- Tolerances of $\pm 10\%$, and $\pm 20\%$
- Voltage rating of 6 VDC – 50 VDC
- Marking per MIL-STD-1285
- Case sizes: A, B, C, D

Applications

These capacitors are ideal for coupling, bypass, filtering and timing circuits, and are excellent substitutes for wet tantalums in low voltage applications.



Ordering Information

T	255	A	125	K	050	M	S	C
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/ Military Product Only	Lead Material	Specification
T = Tantalum	Hermetically Sealed Axial High Temperature Solder	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros to follow.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours G = 1.0%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard	4251 = 10 cycles, -55 & 85°C after Weibull 4252 = 10 cycles, -55 & 85°C before Weibull

Ordering Information – T255 (CSR33 Style)

M39003	/06	4073	H
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	E = C-4251 F = C-4252

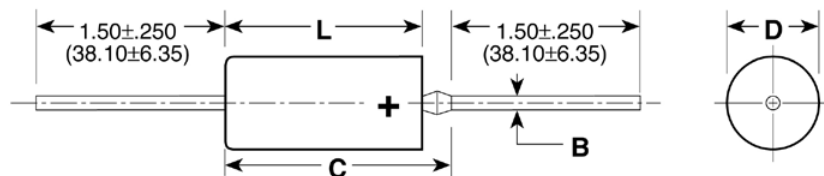
Orders should be entered by the military specification number, including the dash number and surge option letter (E, F).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	1.2 – 1,000 μF @ 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 50 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table (for reference only)
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL-PRF-39003, CSR33 capacitors only)	Approved failure rate: Graded G (1.0%/k hours), B (0.1%/k hours), C (0.01%/k hours), D (0.001%/k hours) and Exponential M (1.0%/k hours), P (0.1%/k hours), R (0.01%/k hours), S (0.001%/k hours)

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (0.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (0.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (0.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (0.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/6F				MIL-PRF-39003/6F			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
6	10.0	A	T255A106K006(1)S	0.5	6	0001-	0101-	0201-	0301-	5001-	2001-	3001-	4001-
6	10.0	A	T255A106M006(1)S	0.5	6	0002-	0102-	0202-	0302-	5002-	2002-	3002-	4002-
6	12.0	A	T255A126K006(1)S	0.5	6	0003-	0103-	0203-	0303-	5003-	2003-	3003-	4003-
6	100.0	B	T255B107K006(1)S	1.0	8	0004-	0104-	0204-	0304-	5004-	2004-	3004-	4004-
6	100.0	B	T255B107M006(1)S	1.0	8	0005-	0105-	0205-	0305-	5005-	2005-	3005-	4005-
6	330.0	C	T255C337K006(1)S	2.0	8	0006-	0106-	0206-	0306-	5006-	2006-	3006-	4006-
6	330.0	C	T255C337M006(1)S	2.0	8	0007-	0107-	0207-	0307-	5007-	2007-	3007-	4007-
6	390.0	C	T255C397K006(1)S	2.0	10	0008-	0108-	0208-	0308-	5008-	2008-	3008-	4008-
6	470.0	C	T255C477K006(1)S	2.0	10	0009-	0109-	0209-	0309-	5009-	2009-	3009-	4009-
6	470.0	C	T255C477M006(1)S	2.0	10	0010-	0110-	0210-	0310-	5010-	2010-	3010-	4010-
6	680.0	D	T255D687K006(1)S	5.0	10	0011-	0111-	0211-	0311-	5011-	2011-	3011-	4011-
6	680.0	D	T255D687M006(1)S	5.0	10	0012-	0112-	0212-	0312-	5012-	2012-	3012-	4012-
6	820.0	D	T255D827K006(1)S	5.0	10	0013-	0113-	0213-	0313-	5013-	2013-	3013-	4013-
6	1000.0	D	T255D108K006(1)S	5.0	10	0014-	0114-	0214-	0314-	5014-	2014-	3014-	4014-
6	1000.0	D	T255D108M006(1)S	5.0	10	0015-	0115-	0215-	0315-	5015-	2015-	3015-	4015-
10	6.8	A	T255A685K010(1)S	0.5	6	0016-	0116-	0216-	0316-	5016-	2016-	3016-	4016-
10	6.8	A	T255A685M010(1)S	0.5	6	0017-	0117-	0217-	0317-	5017-	2017-	3017-	4017-
10	8.2	A	T255A825K010(1)S	0.5	6	0018-	0118-	0218-	0318-	5018-	2018-	3018-	4018-
10	47.0	B	T255B476K010(1)S	1.0	6	0019-	0119-	0219-	0319-	5019-	2019-	3019-	4019-
10	47.0	B	T255B476M010(1)S	1.0	6	0020-	0120-	0220-	0320-	5020-	2020-	3020-	4020-
10	56.0	B	T255B566K010(1)S	1.0	6	0021-	0121-	0221-	0321-	5021-	2021-	3021-	4021-
10	68.0	B	T255B686K010(1)S	1.0	6	0022-	0122-	0222-	0322-	5022-	2022-	3022-	4022-
10	68.0	B	T255B686M010(1)S	1.0	6	0023-	0123-	0223-	0323-	5023-	2023-	3023-	4023-
10	82.0	B	T255B826K010(1)S	1.0	6	0024-	0124-	0224-	0324-	5024-	2024-	3024-	4024-
10	220.0	C	T255C227K010(1)S	1.0	8	0025-	0125-	0225-	0325-	5025-	2025-	3025-	4025-
10	220.0	C	T255C227M010(1)S	1.0	8	0026-	0126-	0226-	0326-	5026-	2026-	3026-	4026-
10	270.0	C	T255C277K010(1)S	2.0	8	0027-	0127-	0227-	0327-	5027-	2027-	3027-	4027-
10	390.0	D	T255D397K010(1)S	2.0	10	0028-	0128-	0228-	0328-	5028-	2028-	3028-	4028-
10	470.0	D	T255D477K010(1)S	4.0	10	0029-	0129-	0229-	0329-	5029-	2029-	3029-	4029-
10	470.0	D	T255D477M010(1)S	4.0	10	0030-	0130-	0230-	0330-	5030-	2030-	3030-	4030-
10	560.0	D	T255D567K010(1)S	4.0	10	0031-	0131-	0231-	0331-	5031-	2031-	3031-	4031-
15	4.7	A	T255A475K015(1)S	0.5	4	0032-	0132-	0232-	0332-	5032-	2032-	3032-	4032-
15	4.7	A	T255A475M015(1)S	0.5	4	0033-	0133-	0233-	0333-	5033-	2033-	3033-	4033-
15	5.6	A	T255A565K015(1)S	0.5	4	0034-	0134-	0234-	0334-	5034-	2034-	3034-	4034-
15	33.0	B	T255B336K015(1)S	1.0	6	0035-	0135-	0235-	0335-	5035-	2035-	3035-	4035-
15	33.0	B	T255B336M015(1)S	1.0	6	0036-	0136-	0236-	0336-	5036-	2036-	3036-	4036-
15	39.0	B	T255B396K015(1)S	1.0	6	0037-	0137-	0237-	0337-	5037-	2037-	3037-	4037-
15	150.0	C	T255C157K015(1)S	1.0	8	0038-	0138-	0238-	0338-	5038-	2038-	3038-	4038-
15	150.0	C	T255C157M015(1)S	1.0	8	0039-	0139-	0239-	0339-	5039-	2039-	3039-	4039-
15	180.0	C	T255C187K015(1)S	2.0	8	0040-	0140-	0240-	0340-	5040-	2040-	3040-	4040-
15	220.0	D	T255D227K015(1)S	2.0	8	0041-	0141-	0241-	0341-	5041-	2041-	3041-	4041-
15	220.0	D	T255D227M015(1)S	2.0	8	0042-	0142-	0242-	0342-	5042-	2042-	3042-	4042-
15	270.0	D	T255D277K015(1)S	2.0	8	0043-	0143-	0243-	0343-	5043-	2043-	3043-	4043-
15	330.0	D	T255D337K015(1)S	2.0	8	0044-	0144-	0244-	0344-	5044-	2044-	3044-	4044-
15	330.0	D	T255D337M015(1)S	2.0	8	0045-	0145-	0245-	0345-	5045-	2045-	3045-	4045-
20	2.7	A	T255A275K020(1)S	0.5	4	0046-	0146-	0246-	0346-	5046-	2046-	3046-	4046-
20	3.3	A	T255A335K020(1)S	0.5	4	0047-	0147-	0247-	0347-	5047-	2047-	3047-	4047-
20	3.3	A	T255A335M020(1)S	0.5	4	0048-	0148-	0248-	0348-	5048-	2048-	3048-	4048-
20	3.9	A	T255A395K020(1)S	0.5	4	0049-	0149-	0249-	0349-	5049-	2049-	3049-	4049-
20	18.0	B	T255B186K020(1)S	1.0	6	0050-	0150-	0250-	0350-	5050-	2050-	3050-	4050-
VDC	µF	Case Size Code	(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors							

(1) To complete KEMET Part Number (T255), insert Graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates Reliability Level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors							
						Dash Number Reference							
						Failure Rate Level (%/1,000 hours)							
						MIL-PRF-39003/6F				MIL-PRF-39003/6F			
						Exponential				Graded			
VDC	µF		(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
20	22.0	B	T255B226K020(1)S	1.0	6	0051-	0151-	0251-	0351-	5051-	2051-	3051-	4051-
20	22.0	B	T255B226M020(1)S	1.0	6	0052-	0152-	0252-	0352-	5052-	2052-	3052-	4052-
20	27.0	B	T255B276K020(1)S	1.0	6	0053-	0153-	0253-	0353-	5053-	2053-	3053-	4053-
20	56.0	C	T255C566K020(1)S	1.0	6	0054-	0154-	0254-	0354-	5054-	2054-	3054-	4054-
20	68.0	C	T255C686K020(1)S	1.0	6	0055-	0155-	0255-	0355-	5055-	2055-	3055-	4055-
20	68.0	C	T255C686M020(1)S	1.0	6	0056-	0156-	0256-	0356-	5056-	2056-	3056-	4056-
20	82.0	C	T255C826K020(1)S	1.0	6	0057-	0157-	0257-	0357-	5057-	2057-	3057-	4057-
20	100.0	C	T255C107K020(1)S	1.0	6	0058-	0158-	0258-	0358-	5058-	2058-	3058-	4058-
20	100.0	C	T255107M020(1)S	1.0	6	0059-	0159-	0259-	0359-	5059-	2059-	3059-	4059-
20	120.0	C	T255C127K020(1)S	1.0	6	0060-	0160-	0260-	0360-	5060-	2060-	3060-	4060-
20	150.0	D	T255D157K020(1)S	2.0	8	0061-	0161-	0261-	0361-	5061-	2061-	3061-	4061-
20	150.0	D	T255D157M020(1)S	2.0	8	0062-	0162-	0262-	0362-	5062-	2062-	3062-	4062-
20	180.0	D	T255D187K020(1)S	2.0	8	0063-	0163-	0263-	0363-	5063-	2063-	3063-	4063-
35	1.8	A	T255A185K035(1)S	0.5	4	0064-	0164-	0264-	0364-	5064-	2064-	3064-	4064-
35	8.2	B	T255B825K035(1)S	1.0	6	0065-	0165-	0265-	0365-	5065-	2065-	3065-	4065-
35	10.0	B	T255B106K035(1)S	1.0	6	0066-	0166-	0266-	0366-	5066-	2066-	3066-	4066-
35	10.0	B	T255B106M035(1)S	1.0	6	0067-	0167-	0267-	0367-	5067-	2067-	3067-	4067-
35	33.0	C	T255C336K035(1)S	1.0	6	0068-	0168-	0268-	0368-	5068-	2068-	3068-	4068-
35	33.0	C	T255C336M035(1)S	1.0	6	0069-	0169-	0269-	0369-	5069-	2069-	3069-	4069-
35	39.0	C	T255C396K035(1)S	1.0	6	0070-	0170-	0270-	0370-	5070-	2070-	3070-	4070-
35	47.0	C	T255C476K035(1)S	1.0	6	0071-	0171-	0271-	0371-	5071-	2071-	3071-	4071-
35	47.0	C	T255C476M035(1)S	1.0	6	0072-	0172-	0272-	0372-	5072-	2072-	3072-	4072-
35	56.0	D	T255D566K035(1)S	2.0	6	0073-	0173-	0273-	0373-	5073-	2073-	3073-	4073-
35	68.0	D	T255D686K035(1)S	2.0	6	0074-	0174-	0274-	0374-	5074-	2074-	3074-	4074-
35	68.0	D	T255D686M035(1)S	2.0	6	0075-	0175-	0275-	0375-	5075-	2075-	3075-	4075-
50	1.2	A	T255A125K050(1)S	0.5	4	0076-	0176-	0276-	0376-	5076-	2076-	3076-	4076-
50	1.5	A	T255A155K050(1)S	0.5	4	0077-	0177-	0277-	0377-	5077-	2077-	3077-	4077-
50	1.5	A	T255A155M050(1)S	0.5	4	0078-	0178-	0278-	0378-	5078-	2078-	3078-	4078-
50	5.6	B	T255B565K050(1)S	1.0	4	0079-	0179-	0279-	0379-	5079-	2079-	3079-	4079-
50	6.8	B	T255B685K050(1)S	1.0	6	0080-	0180-	0280-	0380-	5080-	2080-	3080-	4080-
50	6.8	B	T255B685M050(1)S	1.0	6	0081-	0181-	0281-	0381-	5081-	2081-	3081-	4081-
50	22.0	C	T255C226K050(1)S	1.0	6	0082-	0182-	0282-	0382-	5082-	2082-	3082-	4082-
50	22.0	C	T255C226M050(1)S	1.0	6	0083-	0183-	0283-	0383-	5083-	2083-	3083-	4083-
50	27.0	C	T255C276K050(1)S	1.0	6	0084-	0184-	0284-	0384-	5084-	2084-	3084-	4084-
50	33.0	D	T255D336K050(1)S	1.0	6	0085-	0185-	0285-	0385-	5085-	2085-	*	*
50	33.0	D	T255D336M050(1)S	1.0	6	0086-	0186-	0286-	0386-	5086-	2086-	*	*
50	39.0	D	T255D396K050(1)S	1.0	6	0087-	0187-	0287-	0387-	5087-	2087-	*	*
VDC	µF	Case Size Code	(See below for part options)	µA @ 25°C Max/5 Minutes	120 Hz Maximum	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)
Rated Voltage	Rated Capacitance		KEMET Part Number	DC Leakage	DF % @ 25°C	MIL-PRF-39003 (CSR33) Capacitors							

(1) To complete KEMET Part Number (T255), insert Graded failure rate: G for 1%/k hours, B for .1%/k hours, C for .01%/k hours, D for .001%/k hours or the exponential rate letter. Designates Reliability Level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P_{max}/R}$$

P max = maximum watts

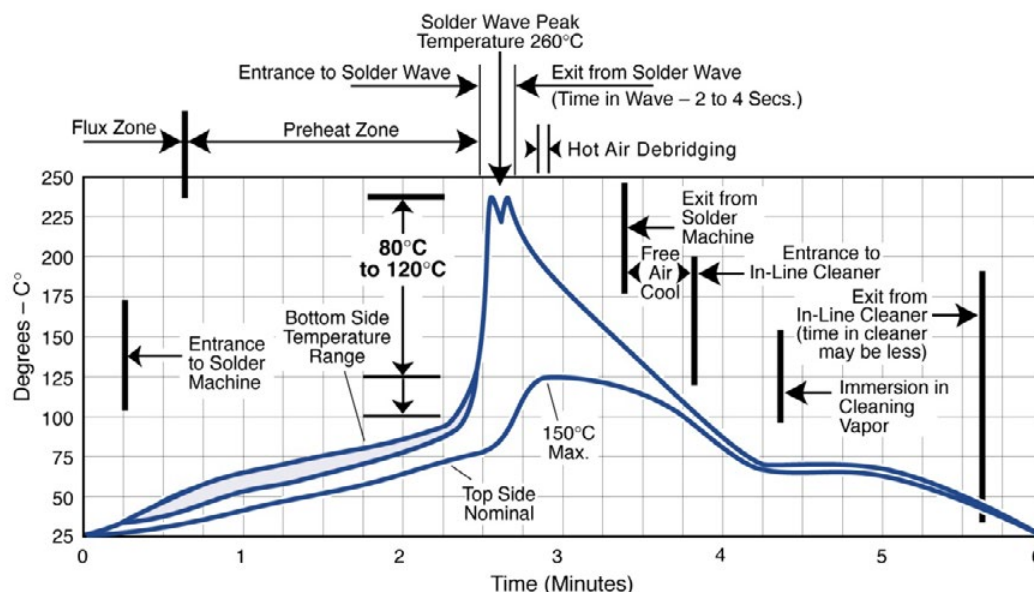
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile

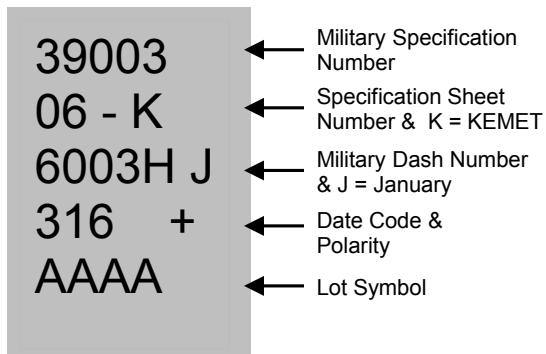


Mounting

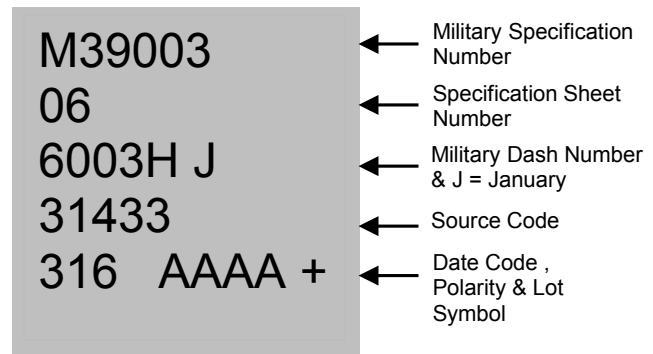
All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

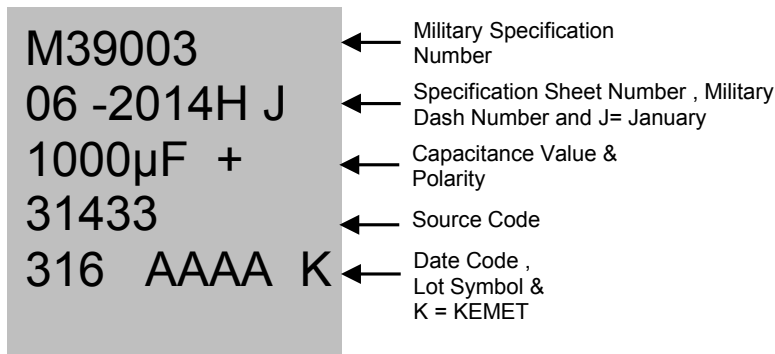
Case A



Case B



Case C & D



Date Code	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	11 = 2nd week of March

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature— reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

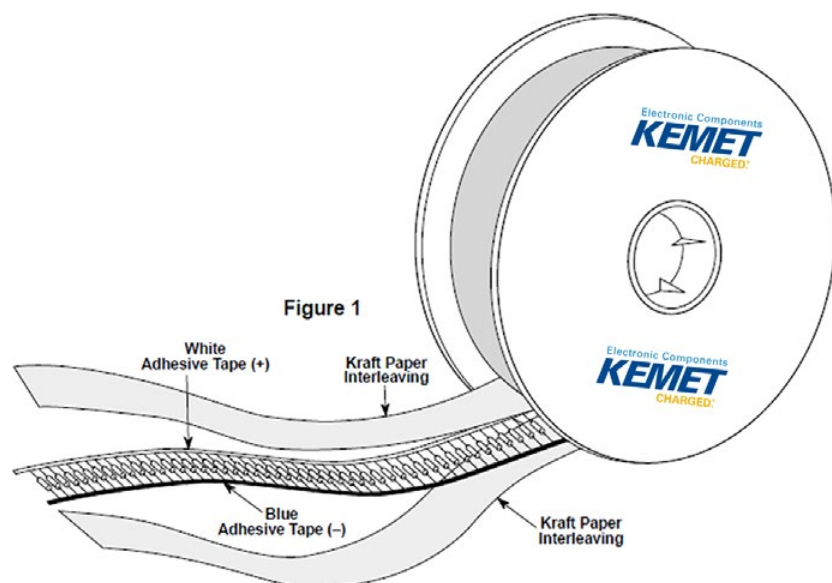


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

T216 Series Axial MIL–PRF–39003 (CSS13 Style) and T256 (CSS33 Style)

Overview

T216 and T256 are KEMET's designation for MIL Style CSS13 and CSS33 capacitors. The T216/T256 Series is qualified to all failure rates per MIL–PRF–39003/10. Products meeting this specification have passed rigorous test requirements and

are used in space applications or other equally demanding environments. These capacitors provide circuit designers with an excellent choice for blocking, bypass, decoupling, filtering, and timing applications.

Benefits

- Taped and reeled per EIA Specification RS–296
- Marking per MIL–STD–1285
- Qualified to MIL–PRF–39003 (CSS13 and CSS33 Style)
- Failure rate options: Graded - B, C
- The T216 is available in capacitance ratings from 0.12 μF to 330 μF and voltage rating from 6 – 75 VDC
- The T256 is available in capacitance ratings from 1.2 μF to 1,000 μF and voltage rating from 6 – 50 VDC
- Tolerances of $\pm 10\%$
- Operating temperature range of -55°C to $+125^{\circ}\text{C}$
- Case sizes: A, B, C, D

Applications

These capacitors provide circuit designers an excellent choice for blocking, bypass, decoupling, filtering, and timing applications.



Ordering Information – T216/T256

T	216	A	106	K	050	C	S	
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate	Lead Material	C-Spec
T = Tantalum	216 (MIL-C-39003/10, CSS13) 256 (MIL-C-39003/10, CSS33)	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V 075 = 75 V	Graded: B = 0.1%/k hours C = 0.01%/k hours	S = Standard (Solder-coated nickel)	Blank = Sleeved 0100 = Unsleeved 7200 = Tape & Reel

Ordering Information – T216 (CSS13 Style)

MIL product

M39003	/10	2049	S
Capacitor Class	Slash	Dash Number	Sleeve
Military Specification Number	Specification Sheet Number	Failure Rate Level	S = Sleeved U = Unsleeved use C - 0100

Ordering Information – T256 (CSS33 Style)

MIL product

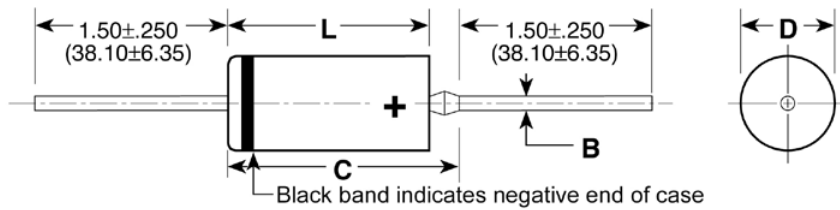
M39003	/10	2549	S
Capacitor Class	Slash	Dash Number	Sleeve
Military Specification Number	Specification Sheet Number	Failure Rate Level	S = Sleeved U = Unsleeved use C - 0100

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	CSS13 = 0.12 μ F – 330 μ F @ 120 Hz/25°C CSS33 = 1.2 μ F – 1000 μ F @ 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%)
Rated Voltage Range	CSS13 = 6 – 75 V CSS33 = 6 – 50 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +125°C)
Failure Rate (MIL-PRF-39003, CSS13 & CSS33 capacitors only)	Approved failure rate: C (0.01%/k hours) - Graded

Dimensions – Millimeters (Inches)

Metric will govern



Case Size	Uninsulated		Insulated		B ± 0.002 (.05)	C Maximum
	D ± 0.005 (.13)	L ± 0.031 (.79)	D ± 0.010 (.25)	L ± 0.031 (.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (.64)	0.922 (23.42)

Table 1A – T216 Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS13 Style)		
						Dash Number Reference		KEMET Equivalent Military
						Failure Rate Level (%/1,000 Hours)		
						MIL-PRF-39003/10		
						Graded		
VDC	µF		µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
6	5.6	A	0.3	4	0.90	2001(1)	3001(1)	T216A565K006(2)S
6	6.8	A	0.3	6	0.80	2002(1)	3002(1)	T216A685K006(2)S
6	47.0	B	1.5	6	0.24	2003(1)	3003(1)	T216B476K006(2)S
6	56.0	B	1.5	6	0.24	2004(1)	3004(1)	T216B566K006(2)S
6	150.0	C	4.5	8	0.09	2005(1)	3005(1)	T216C157K006(2)S
6	180.0	C	5.5	8	0.08	2006(1)	3006(1)	T216C187K006(2)S
6	270.0	D	6.5	8	0.07	2007(1)	3007(1)	T216D277K006(2)S
6	330.0	D	7.5	8	0.06	2008(1)	3008(1)	T216D337K006(2)S
10	3.9	A	0.3	4	1.00	2009(1)	3009(1)	T216A395K010(2)S
10	4.7	A	0.4	4	0.90	2010(1)	3010(1)	T216A475K010(2)S
10	27.0	B	2.0	6	0.25	2011(1)	3011(1)	T216B276K010(2)S
10	33.0	B	2.5	6	0.24	2012(1)	3012(1)	T216B336K010(2)S
10	39.0	B	2.5	6	0.24	2013(1)	3013(1)	T216B396K010(2)S
10	82.0	C	4.0	6	0.12	2014(1)	3014(1)	T216C826K010(2)S
10	100.0	C	5.0	8	0.11	2015(1)	3015(1)	T216C107K010(2)S
10	120.0	C	6.0	8	0.10	2016(1)	3016(1)	T216C127K010(2)S
10	180.0	D	9.0	8	0.08	2017(1)	3017(1)	T216D187K010(2)S
10	220.0	D	10.0	8	0.07	2018(1)	3018(1)	T216D227K010(2)S
15	2.7	A	0.3	4	1.20	2019(1)	3019(1)	T216A275K015(2)S
15	3.3	A	0.4	4	1.00	2020(1)	3020(1)	T216A335K015(2)S
15	18.0	B	2.0	6	0.27	2021(1)	3021(1)	T216B186K015(2)S
15	22.0	B	2.0	6	0.26	2022(1)	3022(1)	T216B226K015(2)S
15	56.0	C	4.0	6	0.15	2023(1)	3023(1)	T216C566K015(2)S
15	68.0	C	5.0	6	0.13	2024(1)	3024(1)	T216C686K015(2)S
15	120.0	D	9.0	8	0.09	2025(1)	3025(1)	T216D127K015(2)S
15	150.0	D	10.0	8	0.09	2026(1)	3026(1)	T216D157K015(2)S
20	1.2	A	0.3	4	1.40	2027(1)	3027(1)	T216A125K020(2)S
20	1.5	A	0.3	4	1.30	2028(1)	3028(1)	T216A155K020(2)S
20	1.8	A	0.3	4	1.25	2029(1)	3029(1)	T216A185K020(2)S
20	2.2	A	0.4	4	1.20	2030(1)	3030(1)	T216A225K020(2)S
20	8.2	B	1.0	6	0.39	2031(1)	3031(1)	T216B825K020(2)S
20	10.0	B	1.5	6	0.35	2032(1)	3032(1)	T216B106K020(2)S
20	12.0	B	1.8	6	0.32	2033(1)	3033(1)	T216B126K020(2)S
20	15.0	B	2.0	6	0.29	2034(1)	3034(1)	T216B156K020(2)S
20	27.0	C	2.5	6	0.21	2035(1)	3035(1)	T216C276K020(2)S
20	33.0	C	3.5	6	0.19	2036(1)	3036(1)	T216C336K020(2)S
20	39.0	C	4.0	6	0.17	2037(1)	3037(1)	T216C396K020(2)S
20	47.0	C	4.5	6	0.16	2038(1)	3038(1)	T216C476K020(2)S
20	56.0	D	5.5	6	0.13	2039(1)	3039(1)	T216D566K020(2)S
20	68.0	D	7.0	6	0.12	2040(1)	3040(1)	T216D686K020(2)S
20	82.0	D	8.0	6	0.11	2041(1)	3041(1)	T216D826K020(2)S
20	100.0	D	10.0	8	0.10	2042(1)	3042(1)	T216D107K020(2)S
35	5.6	B	1.3	4	0.47	2043(1)	3043(1)	T216B565K035(2)S
35	6.8	B	1.5	6	0.43	2044(1)	3044(1)	T216B685K035(2)S
35	22.0	C	4.0	6	0.25	2045(1)	3045(1)	T216C226K035(2)S
35	27.0	D	4.5	6	0.18	2046(1)	3046(1)	T216D276K035(2)S
35	33.0	D	5.5	6	0.17	2047(1)	3047(1)	T216D336K035(2)S
35	39.0	D	7.0	6	0.15	2048(1)	3048(1)	T216D396K035(2)S
VDC	µF	Case Size Code	µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS13 Style)		

(1) To complete MIL-PRF-39003 dash part number, insert S for sleeved or U for unsleeved. If "U" ordered also use C0100.

(2) To complete KEMET Part Number (T216, T256), insert Graded failure rate - B for .1%/k hours, C for .01%/k hours. Designates reliability level.

Table 1A – T216 Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS13 Style)		
						Dash Number Reference		KEMET Equivalent Military
						Failure Rate Level (%/1,000 Hours)		
						MIL-PRF-39003/10		
						Graded		
VDC	µF		µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
35	47.0	D	8.0	6	0.14	2049(1)	3049(1)	T216D476K035(2)S
50	0.12	A	0.3	4	6.50	2067(1)	3067(1)	T216A124K050(2)S
50	0.15	A	0.3	4	5.50	2068(1)	3068(1)	T216A154K050(2)S
50	0.18	A	0.3	4	5.00	2069(1)	3069(1)	T216A184K050(2)S
50	0.22	A	0.3	4	4.00	2070(1)	3070(1)	T216A224K050(2)S
50	0.27	A	0.3	4	3.50	2071(1)	3071(1)	T216A274K050(2)S
50	0.33	A	0.3	4	3.30	2072(1)	3072(1)	T216A334K050(2)S
50	0.39	A	0.3	4	3.20	2073(1)	3073(1)	T216A394K050(2)S
50	0.47	A	0.3	4	3.00	2074(1)	3074(1)	T216A474K050(2)S
50	0.56	A	0.3	4	2.50	2075(1)	3075(1)	T216A564K050(2)S
50	0.68	A	0.3	4	1.80	2076(1)	3076(1)	T216A684K050(2)S
50	0.82	A	0.3	4	1.60	2077(1)	3077(1)	T216A824K050(2)S
50	1.0	A	0.4	4	1.40	2078(1)	3078(1)	T216A105K050(2)S
50	1.2	B	0.4	4	1.20	2079(1)	3079(1)	T216B125K050(2)S
50	1.5	B	0.6	4	1.10	2080(1)	3080(1)	T216B155K050(2)S
50	1.8	B	0.7	4	0.92	2081(1)	3081(1)	T216B185K050(2)S
50	2.2	B	0.8	4	0.80	2082(1)	3082(1)	T216B225K050(2)S
50	2.7	B	1.0	4	0.68	2083(1)	3083(1)	T216B275K050(2)S
50	3.3	B	1.2	4	0.62	2084(1)	3084(1)	T216B335K050(2)S
50	3.9	B	1.5	4	0.56	2085(1)	3085(1)	T216B395K050(2)S
50	4.7	B	1.7	4	0.51	2086(1)	3086(1)	T216B475K050(2)S
50	5.6	C	2.2	4	0.44	2087(1)	3087(1)	T216C565K050(2)S
50	6.8	C	2.2	6	0.40	2088(1)	3088(1)	T216C685K050(2)S
50	8.2	C	2.5	6	0.36	2089(1)	3089(1)	T216C825K050(2)S
50	10.0	C	2.5	6	0.33	2090(1)	3090(1)	T216C106K050(2)S
50	12.0	C	3.0	6	0.30	2091(1)	3091(1)	T216C126K050(2)S
50	15.0	C	4.0	6	0.27	2092(1)	3092(1)	T216C156K050(2)S
50	18.0	C	4.5	6	0.25	2093(1)	3093(1)	T216C186K050(2)S
50	22.0	D	5.5	6	0.20	2094(1)	3094(1)	T216D226K050(2)S
75	0.15	A	0.3	4	4.4	2097(1)	3097(1)	T216A154K075(2)S
75	0.18	A	0.3	4	4.0	2098(1)	3098(1)	T216A184K075(2)S
75	0.22	A	0.3	4	3.5	2099(1)	3099(1)	T216A224K075(2)S
75	0.27	A	0.3	4	3.1	2100(1)	3100(1)	T216A274K075(2)S
75	0.33	A	0.3	4	2.8	2101(1)	3101(1)	T216A334K075(2)S
75	0.39	A	0.3	4	2.6	2102(1)	3102(1)	T216A394K075(2)S
75	0.47	A	0.3	4	2.4	2103(1)	3103(1)	T216A474K075(2)S
75	0.56	A	0.3	4	2.25	2104(1)	3104(1)	T216A564K075(2)S
75	0.68	A	0.3	4	2.10	2105(1)	3105(1)	T216A684K075(2)S
75	0.82	B	0.3	4	1.47	2106(1)	3106(1)	T216B824K075(2)S
75	1.0	B	0.4	4	1.40	2107(1)	3107(1)	T216B105K075(2)S
75	1.2	B	0.4	4	1.33	2108(1)	3108(1)	T216B125K075(2)S
75	1.5	B	0.6	4	1.06	2109(1)	3109(1)	T216B155K075(2)S
75	1.8	B	0.7	4	0.92	2110(1)	3110(1)	T216B185K075(2)S
75	2.2	B	0.8	4	0.80	2111(1)	3111(1)	T216B225K075(2)S
75	2.7	B	1.0	4	0.68	2112(1)	3112(1)	T216B275K075(2)S
75	3.3	B	1.2	4	0.62	2113(1)	3113(1)	T216B335K075(2)S
75	3.9	B	1.5	4	0.56	2114(1)	3114(1)	T216B395K075(2)S
75	4.7	C	3.0	4	0.47	2115(1)	3115(1)	T216C475K075(2)S
VDC	µF	Case Size Code	µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS13 Style)		

(1) To complete MIL-PRF-39003 dash part number, insert S for sleeved or U for unsleeved. If "U" ordered also use C0100.

(2) To complete KEMET Part Number (T216, T256), insert Graded failure rate - B for .1%/k hours, C for .01%/k hours. Designates reliability level.

Table 1A – T216 Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS13 Style)		
						Dash Number Reference		KEMET Equivalent Military
						Failure Rate Level (%/1,000 Hours)		
						MIL-PRF-39003/10		
						Graded		
VDC	µF		µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
75	5.6	C	3.0	4	0.44	2116(1)	3116(1)	T216C565K075(2)S
75	6.8	C	5.0	6	0.44	2117(1)	3117(1)	T216C685K075(2)S
75	8.2	C	5.0	6	0.36	2118(1)	3118(1)	T216C825K075(2)S
75	10.0	C	5.0	6	0.33	2119(1)	3119(1)	T216C106K075(2)S
75	12.0	D	5.0	6	0.26	2120(1)	3120(1)	T216D126K075(2)S
75	15.0	D	7.0	6	0.23	2121(1)	3121(1)	T216D156K075(2)S
VDC	µF	Case Size Code	µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS13 Style)		

Table 1B – T256 Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS33 Style)		
						Dash Number Reference		KEMET Equivalent Military
						Failure Rate Level (%/1,000 Hours)		
						MIL-PRF-39003/10		
						Graded		
VDC	µF		µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
6	10.0	A	0.5	6	0.70	2500(1)	3500(1)	T256A106K006(2)S
6	12.0	A	0.5	6	0.60	2501(1)	3501(1)	T256A126K006(2)S
6	100.0	B	1.0	8	0.20	2502(1)	3502(1)	T256B107K006(2)S
6	330.0	C	2.0	8	0.065	2503(1)	3503(1)	T256B107K006(2)S
6	390.0	C	2.0	10	0.065	2504(1)	3504(1)	T256C337K006(2)S
6	470.0	C	2.0	10	0.060	2505(1)	3505(1)	T256C397K006(2)S
6	680.0	D	5.0	10	0.060	2506(1)	3506(1)	T256D687K006(2)S
6	820.0	D	5.0	10	0.055	2507(1)	3507(1)	T256D827K006(2)S
6	1000.0	D	5.0	10	0.050	2508(1)	3508(1)	T256D108K006(2)S
10	6.8	A	0.5	6	0.80	2509(1)	3509(1)	T256A685K010(2)S
10	8.2	A	0.5	6	0.70	2510(1)	3510(1)	T256A825K010(2)S
10	47.0	B	1.0	6	0.22	2511(1)	3511(1)	T256B476K010(2)S
10	56.0	B	1.0	6	0.20	2512(1)	3512(1)	T256B566K010(2)S
10	68.0	B	1.0	6	0.18	2513(1)	3513(1)	T256B686K010(2)S
10	82.0	B	1.0	6	0.15	2514(1)	3514(1)	T256B826K010(2)S
VDC	µF	Case Size Code	µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	ESR	MIL-PRF-39003 (CSS33 Style)		

(1) To complete MIL–PRF–39003 dash part number, insert S for sleeved or U for unsleeved. If “U” ordered also use C0100.

(2) To complete KEMET Part Number (T216, T256), insert Graded failure rate - B for .1%/k hours, C for .01%/k hours. Designates reliability level.

Table 1B – T256 Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	DC Leakage	DF % @ 25°C	ESR	MIL–PRF–39003 (CSS33 Style)		
						Dash Number Reference		KEMET Equivalent Military
						Failure Rate Level (%/1,000 Hours)		
						MIL–PRF–39003/10		
						Graded		
VDC	µF		µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
10	220.0	C	1.0	2	0.090	2515(1)	3515(1)	T256C227K010(2)S
10	270.0	C	2.0	2	0.075	2516(1)	3516(1)	T256C277K010(2)S
10	390.0	D	2.0	10	0.070	2517(1)	3517(1)	T256D397K010(2)S
10	470.0	D	4.0	10	0.065	2518(1)	3518(1)	T256D477K010(2)S
10	560.0	D	4.0	10	0.060	2519(1)	3519(1)	T256D567K010(2)S
15	4.7	A	0.5	4	0.90	2520(1)	3520(1)	T256A475K015(2)S
15	5.6	A	0.5	4	0.80	2521(1)	3521(1)	T256A565K015(2)S
15	33.0	B	1.0	6	0.24	2522(1)	3522(1)	T256B336K015(2)S
15	39.0	B	1.0	6	0.22	2523(1)	3523(1)	T256B396K015(2)S
15	150.0	C	1.0	8	0.10	2524(1)	3524(1)	T256C157K015(2)S
15	180.0	C	2.0	8	0.09	2525(1)	3525(1)	T256C187K015(2)S
15	220.0	D	2.0	8	0.07	2526(1)	3526(1)	T256D227K015(2)S
15	270.0	D	2.0	8	0.065	2527(1)	3527(1)	T256D277K015(2)S
15	330.0	D	2.0	8	0.060	2528(1)	3528(1)	T256D337K015(2)S
20	2.7	A	0.5	4	1.15	2529(1)	3529(1)	T256A275K020(2)S
20	3.3	A	0.5	4	0.95	2530(1)	3530(1)	T256A335K020(2)S
20	3.9	A	0.5	4	0.90	2531(1)	3531(1)	T256A395K020(2)S
20	18.0	B	1.0	6	0.27	2532(1)	3532(1)	T256B186K020(2)S
20	22.0	B	1.0	6	0.26	2533(1)	3533(1)	T256B226K020(2)S
20	27.0	B	1.0	6	0.24	2534(1)	3534(1)	T256B276K020(2)S
20	56.0	C	1.0	6	0.15	2535(1)	3535(1)	T256C566K020(2)S
20	68.0	C	1.0	6	0.14	2536(1)	3536(1)	T256C686K020(2)S
20	82.0	C	1.0	6	0.12	2537(1)	3537(1)	T256C826K020(2)S
20	100.0	C	1.0	6	0.10	2538(1)	3538(1)	T256C107K020(2)S
20	120.0	C	1.0	6	0.09	2539(1)	3539(1)	T256C127K020(2)S
20	150.0	D	2.0	8	0.08	2540(1)	3540(1)	T256D157K020(2)S
20	180.0	D	2.0	8	0.07	2541(1)	3541(1)	T256D187K020(2)S
35	1.8	A	0.5	4	0.20	2542(1)	3542(1)	T256A185K035(2)S
35	8.2	B	1.0	6	0.40	2543(1)	3543(1)	T256B825K035(2)S
35	10.0	B	1.0	6	0.35	2544(1)	3544(1)	T256B106K035(2)S
35	33.0	C	1.0	6	0.19	2545(1)	3545(1)	T256C336K035(2)S
35	39.0	C	1.0	6	0.17	2546(1)	3546(1)	T256C396K035(2)S
35	47.0	C	1.0	6	0.15	2547(1)	3547(1)	T256C476K035(2)S
35	56.0	D	2.0	6	0.13	2548(1)	3548(1)	T256D566K035(2)S
35	68.0	D	2.0	6	0.12	2549(1)	3549(1)	T256D686K035(2)S
50	1.2	A	0.5	4	1.30	2550(1)	3550(1)	T256A125K050(2)S
50	1.5	A	0.5	4	1.20	2551(1)	3551(1)	T256A155K050(2)S
50	5.6	B	1.0	4	0.47	2552(1)	3552(1)	T256B565K050(2)S
50	6.8	B	1.0	6	0.43	2553(1)	3553(1)	T256B685K050(2)S
50	22.0	C	1.0	6	0.22	2554(1)	3554(1)	T256C226K050(2)S
50	27.0	C	1.0	6	0.20	2555(1)	3555(1)	T256C276K050(2)S
50	33.0	D	1.0	6	0.18	2556(1)	3556(1)	T256D336K050(2)S
50	39.0	D	1.0	6	0.16	2557(1)	3557(1)	T256D396K050(2)S
VDC	µF	Case Size Code	µA @ 25°C Maximum/5 Minutes	120 Hz Maximum	Ω @25°C 100 kHz Max	B (0.1)	C (0.01)	Part Number
Rated Voltage	Rated Capacitance		DC Leakage	DF % @ 25°C	ESR	MIL–PRF–39003 (CSS33 Style)		

(1) To complete MIL–PRF–39003 dash part number, insert S for sleeved or U for unsleeved. If “U” ordered also use C0100.

(2) To complete KEMET Part Number (T216, T256), insert Graded failure rate - B for .1%/k hours, C for .01%/k hours. Designates reliability level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P_{max}/R}$$

P max = maximum watts

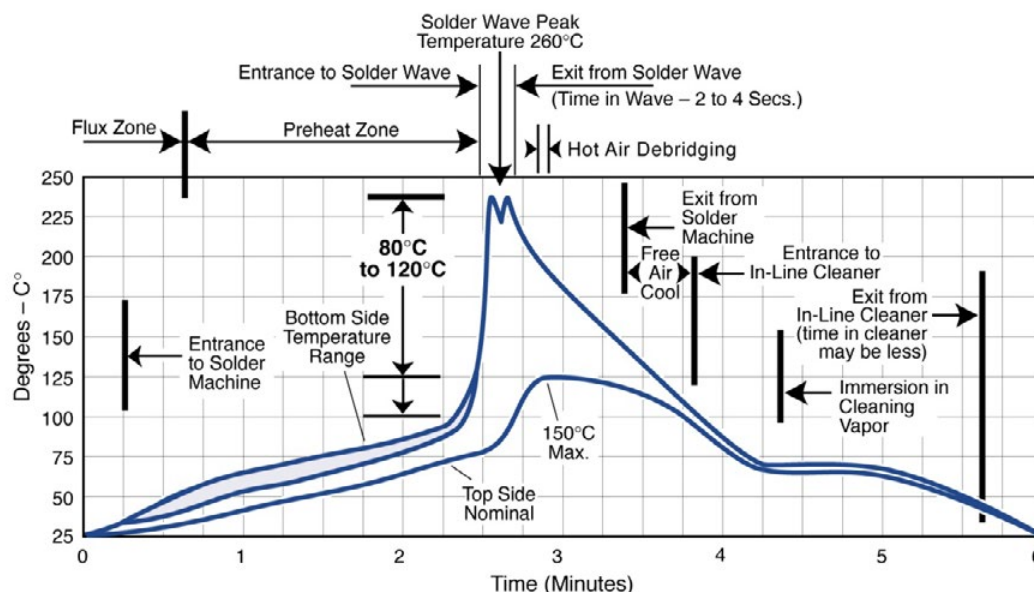
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile



Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial lead solid tantalum capacitors.

Capacitor Marking

Case A

39003	← Military Specification Number
10 - K	← Specification Sheet Number & K = KEMET
3078S	← Military Dash Number & "S" for sleeved
+ J327	← Polarity, JAN Date Code
XYA	← Lot, unique lot code

Date Code – Case A	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	27 = 1st week of July

After the MIL dash number would be an S or U (sleeved or unsleeved)
Black band denotes negative end

Case B

M39003	← Military Specification Number
10 -	← Specification Sheet Number
3082SJ	← Military Dash Number, "S" for sleeved and "J" for JAN
31433	← Source Code
+327	← Polarity, date code
XYAK	← Lot code, unique lot code and trademark

Date Code – Case B	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digits = Week of the Year	27 = 1st week of July

After the MIL dash number would be an S or U (sleeved or unsleeved)
Black band denotes negative end

Case C & D

M39003	← Military Specification Number
10 -2049SJ	← Specification Sheet Number, military dash number, "S" for sleeved, and "J" for JAN
+ 47 μ F	← Positive terminal identifier and capacitance value
10% 35V	← Capacitance tolerance and voltage rating
31433	← Source Code
1327 XYA K	← Date Code, lot code, unique lot code and trademark

Date Code – Case C & D	
1 st and 2 nd digits = Last two digits of Year	12 = 2012 13 = 2013 14 = 2014
3 rd and 4 th digits = Week of the Year	27 = 1st week of July

After the MIL dash number would be an S or U (sleeved or unsleeved)
Black band denotes negative end

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

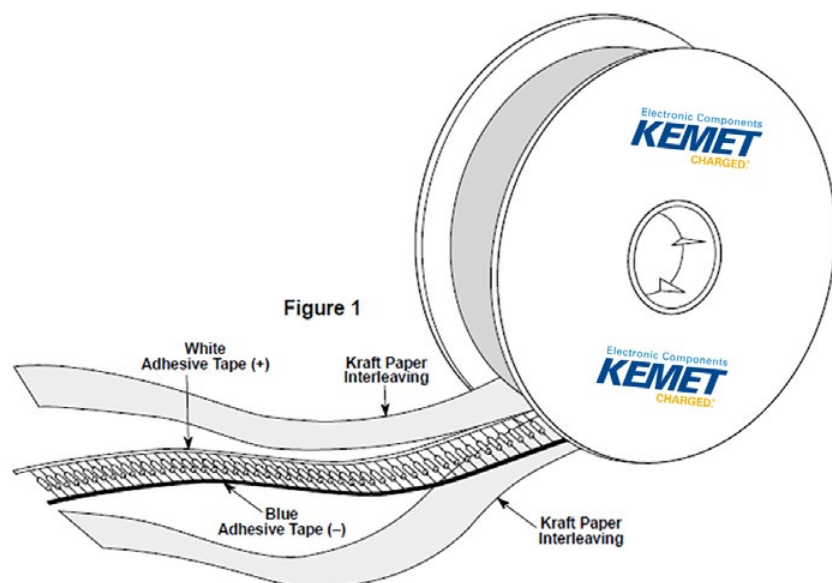


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec
A	40/Tray	3,500	C-7200
B	30/Tray	2,500	C-7200
C	20/Tray	500	C-7200
D	20/Tray	400	C-7200

Overview

KEMET's T262 Series (CSR21 Style) hermetically sealed solid tantalum capacitors are qualified to MIL–C–39003/09. This series is similar to KEMET's popular T212 (CSR13 per MIL–PRF–39003/01) capacitors, but offer higher ripple current handling capability and exhibit exceptionally low equivalent series

resistance (ESR). The T262 Series is ideal for filtering applications and in military power supplies where low ESR is essential. These capacitors are 100% surge current tested and their dissipation factor is screened at 1 kHz.

Benefits

- Taped and reeled per EIA Specification RS–296
- Marking per MIL–STD–1285
- Qualified to MIL–PRF–39003 (CSR21 Style)
- Failure rate options: Graded - B, C, D, and G
Exponential - M, P, R, and S*
- Capacitance values of 5.6 μ F to 330 μ F
- Tolerances of $\pm 5\%$, $\pm 10\%$, and $\pm 20\%$
- Voltage rating of 6 – 50 VDC
- Operating temperature range of -55°C to $+125^{\circ}\text{C}$
- 100% surge current test available on all case sizes
- Dissipation factor is screened at 1 kHz
- Case sizes: C, D

**Failure rates apply to military products only*

Applications

The T262 Series is ideal for filtering applications and in defense power supplies where low ESR is essential.



Ordering Information

T	262	C	106	K	050	C	S
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate	Lead Material
T = Tantalum	Hermetically Sealed Axial Capacitor	C, D	First two digits represent significant figures. Third digit specifies number of zeros.	J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	006 = 6 V 010 = 10 V 015 = 15 V 020 = 20 V 035 = 35 V 050 = 50 V	Graded: B = 0.1%/k hours C = 0.01%/k hours D = 0.001%/k hours Exponential: M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard (Solder-coated nickel)

Ordering Information – T262 (CSR21 Style)

MIL product

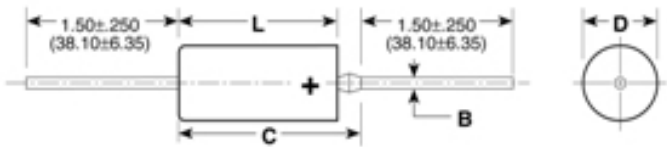
M39003	/09	3074	H
Capacitor Class	Slash	Dash Number	Surge Option
Military Specification Number	Specification Sheet Number	Failure Rate Level	E = C-4251 F = C-4252

Orders should be entered by the military specification number, including the dash number and surge option letter (E, or F).

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	5.6 – 330 μ F @ 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 50 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate (MIL-39003, CSR13 capacitors only)	Approved failure rate: S (0.001%/k hours) - Exponential, D (0.001%/k hours) - Graded

Dimensions – Millimeters (Inches)
Metric will govern



Case Size	Uninsulated		Insulated		B ±0.002 ±(.05)	C Maximum
	D ±0.005 ±(.13)	L ±0.031 ±(.79)	D ±0.010 ±(.25)	L ±0.031 ±(.79)		
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Cap	Case Size Code	DC Leakage	DF	ESR	Ripple Current	MIL-PRF-39003/09 (CSR21) Capacitors										KEMET Equivalent Military
							Dash Number Reference										
							Failure Rate Level (%/1,000 Hours)										
							MIL-PRF-39003/9D				MIL-PRF-39003/9D						
							Exponential				Graded						
VDC	μF		μA @ 25°C Max/5 Min	% @ 25°C 120 Hz Max	Ω @ 25°C 100 kHz Max	Arms @ 25°C 40 kHz Max	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number		
6	150.0	C	4.5	10	0.065	3.3	0001	0101	0201	0301	5001	2001	3001	4001	T262C157J006(1)S		
6	150.0	C	4.5	10	0.065	3.3	0002	0102	0202	0302	5002	2002	3002	4002	T262C157K006(1)S		
6	150.0	C	4.5	10	0.065	3.3	0003	0103	0203	0303	5003	2003	3003	4003	T262C157M006(1)S		
6	180.0	C	5.5	10	0.060	3.4	0004	0104	0204	0304	5004	2004	3004	4004	T262C187J006(1)S		
6	180.0	C	5.5	10	0.060	3.4	0005	0105	0205	0305	5005	2005	3005	4005	T262C187K006(1)S		
6	270.0	D	6.5	10	0.050	4.1	0006	0106	0206	0306	5006	2006	3006	4006	T262D277J006(1)S		
6	270.0	D	6.5	10	0.050	4.1	0007	0107	0207	0307	5007	2007	3007	4007	T262D277K006(1)S		
6	330.0	D	7.5	12	0.045	4.3	0008	0108	0208	0308	5008	2008	3008	4008	T262D337J006(1)S		
6	330.0	D	7.5	12	0.045	4.3	0009	0109	0209	0309	5009	2009	3009	4009	T262D337K006(1)S		
6	330.0	D	7.5	12	0.045	4.3	0010	0110	0210	0310	5010	2010	3010	4010	T262D337M006(1)S		
10	82.0	C	4.0	8	0.085	2.9	0011	0111	0211	0311	5011	2011	3011	4011	T262C826J010(1)S		
10	82.0	C	4.0	8	0.085	2.9	0012	0112	0212	0312	5012	2012	3012	4012	T262C826K010(1)S		
10	100.0	C	5.0	8	0.075	3.0	0013	0113	0213	0313	5013	2013	3013	4013	T262C107J010(1)S		
10	100.0	C	5.0	8	0.075	3.0	0014	0114	0214	0314	5014	2014	3014	4014	T262C107K010(1)S		
10	100.0	C	5.0	8	0.075	3.0	0015	0115	0215	0315	5015	2015	3015	4015	T262C107M010(1)S		
10	120.0	C	6.0	8	0.070	3.2	0016	0116	0216	0316	5016	2016	3016	4016	T262C127J010(1)S		
10	120.0	C	6.0	8	0.070	3.2	0017	0117	0217	0317	5017	2017	3017	4017	T262C127K010(1)S		
10	180.0	D	9.0	8	0.060	3.7	0018	0118	0218	0318	5018	2018	3018	4018	T262D187J010(1)S		
10	180.0	D	9.0	8	0.060	3.7	0019	0119	0219	0319	5019	2019	3019	4019	T262D187K010(1)S		
10	220.0	D	10.0	10	0.055	3.9	0020	0120	0220	0320	5020	2020	3020	4020	T262D227J010(1)S		
10	220.0	D	10.0	10	0.055	3.9	0021	0121	0221	0321	5021	2021	3021	4021	T262D227K010(1)S		
10	220.0	D	10.0	10	0.055	3.9	0022	0122	0222	0322	5022	2022	3022	4022	T262D227M010(1)S		
15	56.0	C	4.0	6	0.100	2.6	0023	0123	0223	0323	5023	2023	3023	4023	T262C566J015(1)S		
15	56.0	C	4.0	6	0.100	2.6	0024	0124	0224	0324	5024	2024	3024	4024	T262C566K015(1)S		
15	68.0	C	5.0	6	0.095	2.7	0025	0125	0225	0325	5025	2025	3025	4025	T262C686J015(1)S		
15	68.0	C	5.0	6	0.095	2.7	0026	0126	0226	0326	5026	2026	3026	4026	T262C686K015(1)S		
15	68.0	C	5.0	6	0.095	2.7	0027	0127	0227	0327	5027	2027	3027	4027	T262C686M015(1)S		
15	120.0	D	9.0	8	0.070	3.5	0028	0128	0228	0328	5028	2028	3028	4028	T262D127J015(1)S		
15	120.0	D	9.0	8	0.070	3.5	0029	0129	0229	0329	5029	2029	3029	4029	T262D127K015(1)S		
15	150.0	D	10.0	8	0.065	3.6	0030	0130	0230	0330	5030	2030	3030	4030	T262D157J015(1)S		
15	150.0	D	10.0	8	0.065	3.6	0031	0131	0231	0331	5031	2031	3031	4031	T262D157K015(1)S		
15	150.0	D	10.0	8	0.065	3.6	0032	0132	0232	0332	5032	2032	3032	4032	T262D157M015(1)S		
20	27.0	C	2.5	5	0.145	2.2	0033	0133	0233	0333	5033	2033	3033	4033	T262C276J020(1)S		
20	27.0	C	2.5	5	0.145	2.2	0034	0134	0234	0334	5034	2034	3034	4034	T262C276K020(1)S		
20	33.0	C	3.5	5	0.130	2.3	0035	0135	0235	0335	5035	2035	3035	4035	T262C336J020(1)S		
20	33.0	C	3.5	5	0.130	2.3	0036	0136	0236	0336	5036	2036	3036	4036	T262C336K020(1)S		
20	33.0	C	3.5	5	0.130	2.3	0037	0137	0237	0337	5037	2037	3037	4037	T262C336M020(1)S		
20	39.0	C	4.0	5	0.120	2.4	0038	0138	0238	0338	5038	2038	3038	4038	T262C396J020(1)S		
20	39.0	C	4.0	5	0.120	2.4	0039	0139	0239	0339	5039	2039	3039	4039	T262C396K020(1)S		
20	47.0	C	4.5	6	0.110	2.5	0040	0140	0240	0340	5040	2040	3040	4040	T262C476J020(1)S		
20	47.0	C	4.5	6	0.110	2.5	0041	0141	0241	0341	5041	2041	3041	4041	T262C476K020(1)S		
20	47.0	C	4.5	6	0.110	2.5	0042	0142	0242	0342	5042	2042	3042	4042	T262C476M020(1)S		
20	56.0	D	5.5	6	0.100	2.9	0043	0143	0243	0343	5043	2043	3043	4043	T262D566J020(1)S		
20	56.0	D	5.5	6	0.100	2.9	0044	0144	0244	0344	5044	2044	3044	4044	T262D566K020(1)S		
20	68.0	D	7.0	6	0.095	3.0	0045	0145	0245	0345	5045	2045	3045	4045	T262D686J020(1)S		
20	68.0	D	7.0	6	0.095	3.0	0046	0146	0246	0346	5046	2046	3046	4046	T262D686K020(1)S		
20	68.0	D	7.0	6	0.095	3.0	0047	0147	0247	0347	5047	2047	3047	4047	T262D686M020(1)S		
VDC	μF	Case Size Code	μA @ 25°C Max/5 Min	% @ 25°C 120 Hz Max	Ω @ 25°C 100 kHz Max	Arms @ 25°C 40 kHz Max	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number		
Rated Voltage	Rated Cap		DC Leakage	DF	ESR	Ripple Current	MIL-PRF-39003/09 (CSR21) Capacitors										

(1) To complete KEMET Part Number (T262), insert Graded failure rate - A for Not Applicable, B for 0.1%/k hours, C for 0.01%/k hours, D for 0.001%/k hours or G for 1%/k hours. Designates Reliability Level.

(2) To complete KEMET Part Number (T262), insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates reliability level.

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Cap	Case Size Code	DC Leakage	DF	ESR	Ripple Current	MIL-PRF-39003/09 (CSR21) Capacitors										KEMET Equivalent Military
							Dash Number Reference										
							Failure Rate Level (%/1,000 Hours)										
							MIL-PRF-39003/9D				MIL-PRF-39003/9D						
							Exponential				Graded						
VDC	μF		μA @ 25°C Max/5 Min	% @ 25°C 120 Hz Max	Ω @ 25°C 100 kHz Max	Arms @ 25°C 40 kHz Max	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number		
20	82.0	D	8.0	6	0.085	3.1	0048	0148	0248	0348	5048	2048	3048	4048	T262D826J020(1)S		
20	82.0	D	8.0	6	0.085	3.1	0049	0149	0249	0349	5049	2049	3049	4049	T262D826K020(1)S		
20	100.0	D	10.0	8	0.075	3.3	0050	0150	0250	0350	5050	2050	3050	4050	T262D107J020(1)S		
20	100.0	D	10.0	8	0.075	3.3	0051	0151	0251	0351	5051	2051	3051	4051	T262D107K020(1)S		
20	100.0	D	10.0	8	0.075	3.3	0052	0152	0252	0352	5052	2052	3052	4052	T262D107M020(1)S		
35	22.0	C	4.0	4	0.160	2.1	0053	0153	0253	0353	5053	2053	3053	4053	T262C226J035(1)S		
35	22.0	C	4.0	4	0.160	2.1	0054	0154	0254	0354	5054	2054	3054	4054	T262C226K035(1)S		
35	22.0	C	4.0	4	0.160	2.1	0055	0155	0255	0355	5055	2055	3055	4055	T262C226M035(1)S		
35	27.0	D	4.5	4	0.145	2.4	0056	0156	0256	0356	5056	2056	3056	4056	T262D276J035(1)S		
35	27.0	D	4.5	4	0.145	2.4	0057	0157	0257	0357	5057	2057	3057	4057	T262D276K035(1)S		
35	33.0	D	5.5	5	0.130	2.5	0058	0158	0258	0358	5058	2058	3058	4058	T262D336J035(1)S		
35	33.0	D	5.5	5	0.130	2.5	0059	0159	0259	0359	5059	2059	3059	4059	T262D336K035(1)S		
35	33.0	D	5.5	5	0.130	2.5	0060	0160	0260	0360	5060	2060	3060	4060	T262D336M035(1)S		
35	39.0	D	7.0	5	0.120	2.6	0061	0161	0261	0361	5061	2061	3061	4061	T262D396J035(1)S		
35	39.0	D	7.0	5	0.120	2.6	0062	0162	0262	0362	5062	2062	3062	4062	T262D396K035(1)S		
35	47.0	D	8.0	5	0.110	2.7	0063	0163	0263	0363	5063	2063	3063	4063	T262D476J035(1)S		
35	47.0	D	8.0	5	0.110	2.7	0064	0164	0264	0364	5064	2064	3064	4064	T262D476K035(1)S		
35	47.0	D	8.0	5	0.110	2.7	0065	0165	0265	0365	5065	2065	3065	4065	T262D476M035(1)S		
50	5.6	C	2.2	3	0.300	1.5	0066	0166	0266	0366	5066	2066	3066	4066	T262C565J050(1)S		
50	5.6	C	2.2	3	0.300	1.5	0067	0167	0267	0367	5067	2067	3067	4067	T262C565K050(1)S		
50	6.8	C	2.2	3	0.275	1.6	0068	0168	0268	0368	5068	2068	3068	4068	T262C685J050(1)S		
50	6.8	C	2.2	3	0.275	1.6	0069	0169	0269	0369	5069	2069	3069	4069	T262C685K050(1)S		
50	6.8	C	2.2	3	0.275	1.6	0070	0170	0270	0370	5070	2070	3070	4070	T262C685M050(1)S		
50	8.2	C	2.5	3	0.250	1.6	0071	0171	0271	0371	5071	2071	3071	4071	T262C825J050(1)S		
50	8.2	C	2.5	3	0.250	1.6	0072	0172	0272	0372	5072	2072	3072	4072	T262C825K050(1)S		
50	10.0	C	2.5	3	0.230	1.7	0073	0173	0273	0373	5073	2073	3073	4073	T262C106J050(1)S		
50	10.0	C	2.5	3	0.230	1.7	0074	0174	0274	0374	5074	2074	3074	4074	T262C106K050(1)S		
50	10.0	C	2.5	3	0.230	1.7	0075	0175	0275	0375	5075	2075	3075	4075	T262C106M050(1)S		
50	12.0	C	3.0	3	0.210	1.8	0076	0176	0276	0376	5076	2076	3076	4076	T262C126J050(1)S		
50	12.0	C	3.0	3	0.210	1.8	0077	0177	0277	0377	5077	2077	3077	4077	T262C126K050(1)S		
50	15.0	C	4.0	3	0.190	1.9	0078	0178	0278	0378	5078	2078	3078	4078	T262C156J050(1)S		
50	15.0	C	4.0	3	0.190	1.9	0079	0179	0279	0379	5079	2079	3079	4079	T262C156K050(1)S		
50	15.0	C	4.0	3	0.190	1.9	0080	0180	0280	0380	5080	2080	3080	4080	T262C156M050(1)S		
50	18.0	C	4.5	4	0.175	2.0	0081	0181	0281	0381	5081	2081	3081	4081	T262C186J050(1)S		
50	18.0	C	4.5	4	0.175	2.0	0082	0182	0282	0382	5082	2082	3082	4082	T262C186K050(1)S		
50	22.0	D	5.5	4	0.160	2.3	0083	0183	0283	0383	5083	2083	3083	4083	T262D226J050(1)S		
50	22.0	D	5.5	4	0.160	2.3	0084	0184	0284	0384	5084	2084	3084	4084	T262D226K050(1)S		
50	22.0	D	5.5	4	0.160	2.3	0085	0185	0285	0385	5085	2085	3085	4085	T262D226M050(1)S		
VDC	μF	Case Size Code	μA @ 25°C Max/5 Min	% @ 25°C 120 Hz Max	Ω @ 25°C 100 kHz Max	Arms @ 25°C 40 kHz Max	M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1)	B (0.1)	C (0.01)	D (0.001)	Part Number		
Rated Voltage	Rated Cap		DC Leakage	DF	ESR	Ripple Current	MIL-PRF-39003/09 (CSR21) Capacitors										

(1) To complete KEMET Part Number (T262), insert Graded failure rate - A for Not Applicable, B for 0.1%/k hours, C for 0.01%/k hours, D for 0.001%/k hours or G for 1%/k hours. Designates Reliability Level.

(2) To complete KEMET Part Number (T262), insert Exponential failure rate - M for 1%/k hours, P for .1%/k hours, R for .01%/k hours, or S for .001%/k hours. Designates reliability level.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
$T \leq 25^{\circ}\text{C}$	$T \leq 85^{\circ}\text{C}$	$T \leq 125^{\circ}\text{C}$
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Permissible AC ripple current can be determined by the following:

$$I(\text{max}) = Z \sqrt{P \text{ max}/R}$$

$P \text{ max}$ = maximum watts

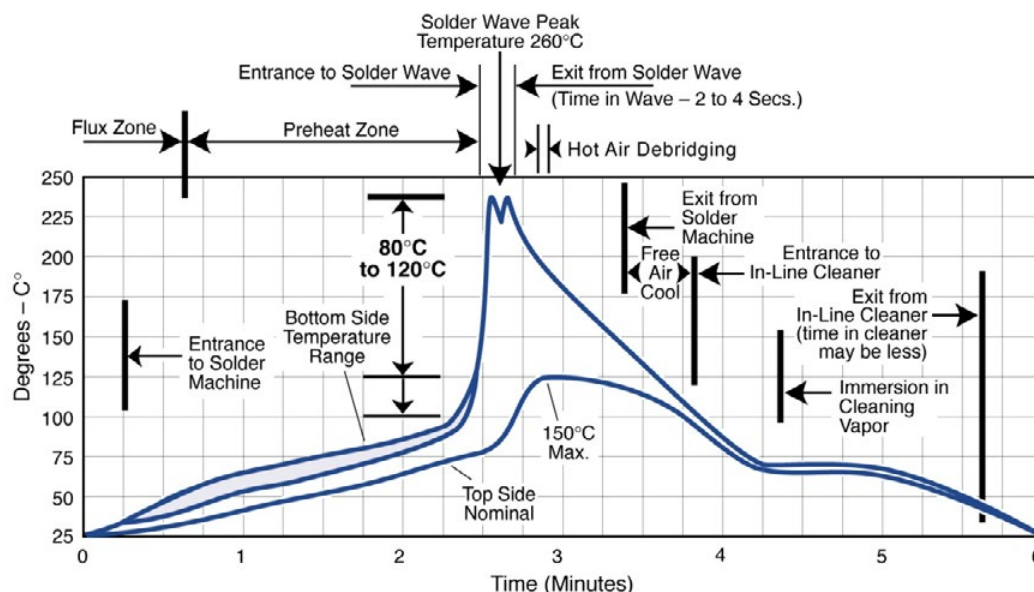
R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Maximum Power Dissipation: 25°C Ambient

Optimum Solder Wave Profile



Reverse Voltage

Although these are polar capacitors, some degree of transient voltage reversal is permissible, as seen below. The capacitors should not be operated continuously in reverse mode, even within these limits.

Temperature	Percentage of Rated Voltage
+25°C	15
+85°C	5
+125°C	1

Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

T262

Case C & D

M39003	← Military Specification Number
09 - 3074J	← Specification Sheet Number, Military Dash Number and J= Jan
10μF +	← Capacitance Value & Polarity
31433	← Source Code
330 AAAA K	← Date Code, Lot Symbol & K = KEMET

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature— reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Tape & Reel Packaging Information

KEMET offers standard reeling of Solid Tantalum Capacitors for automatic insertion or lead forming machines per EIA Specification RS-296E.

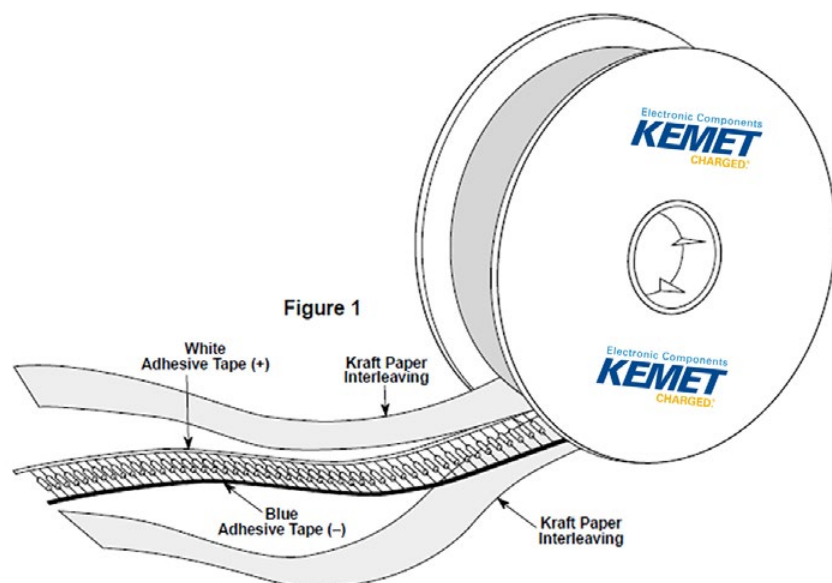


Table 2 – Packaging Quantity

Case Size	Standard Bulk Quantity	Standard Reel Quantity	Reel C-Spec	Ammo Pack Quantity	Ammo Pack C-Spec
A	150/Box	3,500	C-7200	1,500	C-7293
B	75/Box	2,500	C-7200	1,000	Class I
C	20/Tray	500	C-7200	250	C-7442
D	20/Tray	400	C-7200	250	Class II C-7443 Class III

Overview

The KEMET T550 Series Polymer Hermetic Seal (PHS) is a tantalum capacitor with a Ta anode and Ta₂O₅ dielectric. A conductive organic polymer replaces the traditionally used MnO₂ or wet electrolyte as the cathode plate of the capacitor. This results in very low ESR and improved capacitance retention at high frequency and low temperature. The T550 Series PHS also exhibits a benign failure mode which eliminates the case breach that can occur in wet tantalum types. Additionally, this part may be operated at voltages up to 80% of rated voltage with equivalent or better reliability than traditional MnO₂ or wet tantalum capacitors operated at 50% of rated voltage.

T550 Series PHS also offers higher ripple current handling capability and a lower ESR range than wet tantalums. With reduced ESR and enhanced capacitance retention at higher frequencies and low temperatures, the T550 Series PHS provides the highest total capacitance and the most economical solution for high power applications, all within an approximately 25% lighter package than the equivalent wet tantalum capacitor.

Benefits

- Includes F-Tech anode which eliminates hidden defects in the dielectric
- 100% Simulated Breakdown Screening™
- +105°C maximum operating temperature
- Capacitance: 20 µF to 820 µF
- Approved for DLA Drawing 13030
- Voltage rating of 6 VDC – 75 VDC
- Polymer cathode technology
- ≤ 0.0075 CV (µA) at rated voltage after 5 minutes
- Extremely low ESR
- High frequency capacitance retention
- Low temperature capacitance retention
- 100% accelerated steady state aging
- 100% surge current tested
- Volumetrically efficient
- Use at up to 80% of rated voltage
- Non-ignition failure mode
- Approximately 25% lighter than equivalent wet tantalum
- Case dimensions equivalent to MIL-PRF-39006/22/25/30/31

Applications

Typical applications include high voltage power management such as buck/boost converters, filtering, hold-up capacitors, and other high ripple current applications.



Ordering Information

T	550	B	107	M	025	A	T	4251
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate/Design	Lead Material	Surge Option
T = Tantalum	550 = Polymer Hermetic Seal	B	First two digits represent significant figures. Third digit specifies number of zeros.	K = $\pm 10\%$ M = $\pm 20\%$	006 = 6.3 V 008 = 8 V 015 = 15 V 025 = 25 V 040 = 40 V 050 = 50 V 060 = 60 V 075 = 75 V	A = N/A B* = Standard reliability T* = High reliability	T = 100% tin (Sn) plated H = Tin/lead (SnPb) solder coated (5% Pb minimum)	4250 surge current, 10 cycles +25°C 4251 surge current, 10 cycles, -55°C and +85°C

* Only available on select parts. Refer to part number table for details.

Ordering Information – DLA 13030

13030	-01	K	A	S	L	B
Drawing Number	Dash Number	Capacitance Tolerance	Surge Current Testing	Insulation	Lead Length	Level
	See Part Numbers list	K = ± 10 percent, M = ± 20 percent	A: +25°C $\pm 5^\circ\text{C}$, 10 cycles, after constant voltage conditioning	S = sleeved U = unsleeved	L = 1.50 inches (standard), T = 2.25 inches (optional).	B = standard reliability T = high reliability

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 105°C *
Rated Capacitance Range	20 μF to 820 μF @ 120 Hz/25°C *
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 75 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table
Leakage Current	Refer to Part Number Electrical Specification Table (@ Rated voltage up to +85°C and 78% of rated voltage applied at 105°C)
Packaging	According MIL-PRF-39006

KEMET does not recommend storage above 85°C.

* Additional case sizes, capacitance/voltage and operating temperature under development.

Qualification

Test Performed	Method Reference	Test Conditions
Reliability and Environmental Tests		
AC Ripple Life at 85°C	MIL-PRF-39006	85°C, 40 kHz ripple current, 2,000 hours
85°C Life	MIL-PRF-39006	85°C, rated voltage, 2,000 hours
105°C Life	KEMET Standard	105°C, 0.78 x rated voltage, 2,000 hours
Surge Voltage	MIL-PRF-39006	85°C, 1.15 x rated voltage, 1,000 cycles, except Delta Cap shall be +10%/-20%
Surge Current	MIL-PRF-39003	+25 °C, 10 cycles (Option A): Option B available
Low Temperature Storage	MIL-PRF-39006	-62°C for 72 hours followed by 1 hour at 125°C
Reverse Voltage	KEMET Catalog	1 V for 8 hours maximum at 25°C, 1 V for 2 hours maximum at 70°C
Physical, Mechanical and Process Tests		
Visual and Mechanical Examination (Internal and External)	MIL-PRF-39006	Case dimensions, marking
Terminal Strength	MIL-PRF-39006	Pull test and wire lead bend test
Resistance to Solvents	MIL-PRF-39006	Immersion in (3) solvents
Resistance to Soldering Heat	MIL-PRF-39006	Immersed to within 0.05 inch of capacitor body
Solderability	MIL-PRF-39006	Depth of insertion in flux and solder to within 0.062 inch of welded joint
Shock and Vibration	MIL-STD-202, Methods 213, 204	Shock Method 213: Condition I, 100 g peak; Vibration Method 204: Condition D, 20 g peak
Barometric Pressure (reduced)	MIL-PRF-39006	150,000 feet for 5 minutes, voltage applied for 1 minute
Salt Atmosphere (corrosion)	MIL-PRF-39006	Subjected to fine mist of salt solution
Moisture Resistance	MIL-PRF-39006	65°C at 6 volts
Dielectric Withstanding Voltage	MIL-PRF-39006	2,000 VDC, 60 seconds, sleeving examined for evidence of breakdown
Insulation Resistance	MIL-PRF-39003	500 VDC, 1 minute, insulation resistance not less than 1,000 MΩ
Electrical Characterization		
Temperature Stability	Reference MIL-PRF-39006	-55°C to 105°C
Frequency Scan	KEMET Standard	Impedance, ESR and capacitance versus frequency

Qualification – DLA Approval Inspection

Inspection	Test Name	DLA Requirement Paragraph	SS/Lot
Group I	Shock (specified pulse) ¹	3.3.4	6 (Per case size)
	Vibration, high frequency ¹	3.3.5	
	Thermal shock	3.3.6	
	Salt Atmosphere	3.3.7	
Group II	Solderability	3.3.8	12
	Terminal Strength	3.3.9	
	Surge Voltage ²	3.3.10	
	Moisture Resistance	3.3.11	
	Dielectric withstanding voltage	3.3.12	
	Insulation Resistance	3.3.13	
	Low Temperature (storage)	3.3.14	
Group III	Stability at low and high temperatures	3.3.15	13
	Reverse Voltage	3.3.23	12 per condition
Group IV	Life at 85°C	3.3.16	102
Group V	AC Ripple life at 85°C	3.3.18	8 Per case size
Group VI	Life at 105°C	3.3.17	40
	Barometric pressure	3.3.20	
Group VII	Resistance to Solvents	3.3.21	6
	Resistance to Soldering Heat	3.3.22	

¹ No failures for mechanical shock or vibration tests shall be permitted.

² Surge voltage change in capacitance limits are wider than those in some subsequent tests.

It may be necessary to perform initial measurements again, prior to the individual tests of Group II.

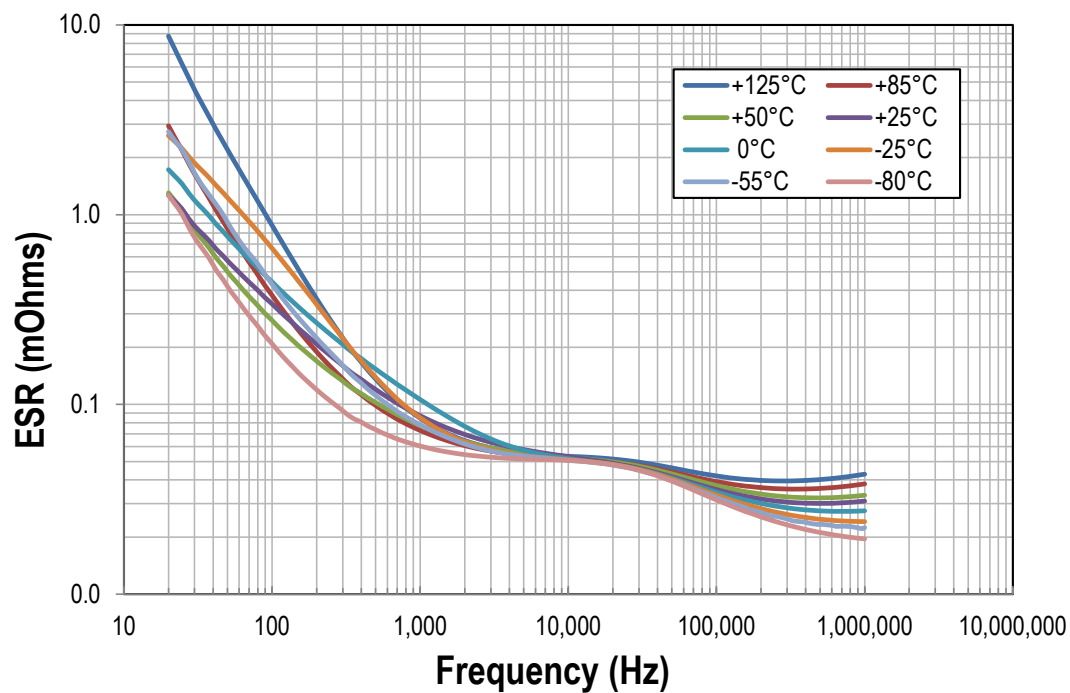
Product Level:

Inspection of product for delivery shall consist of:

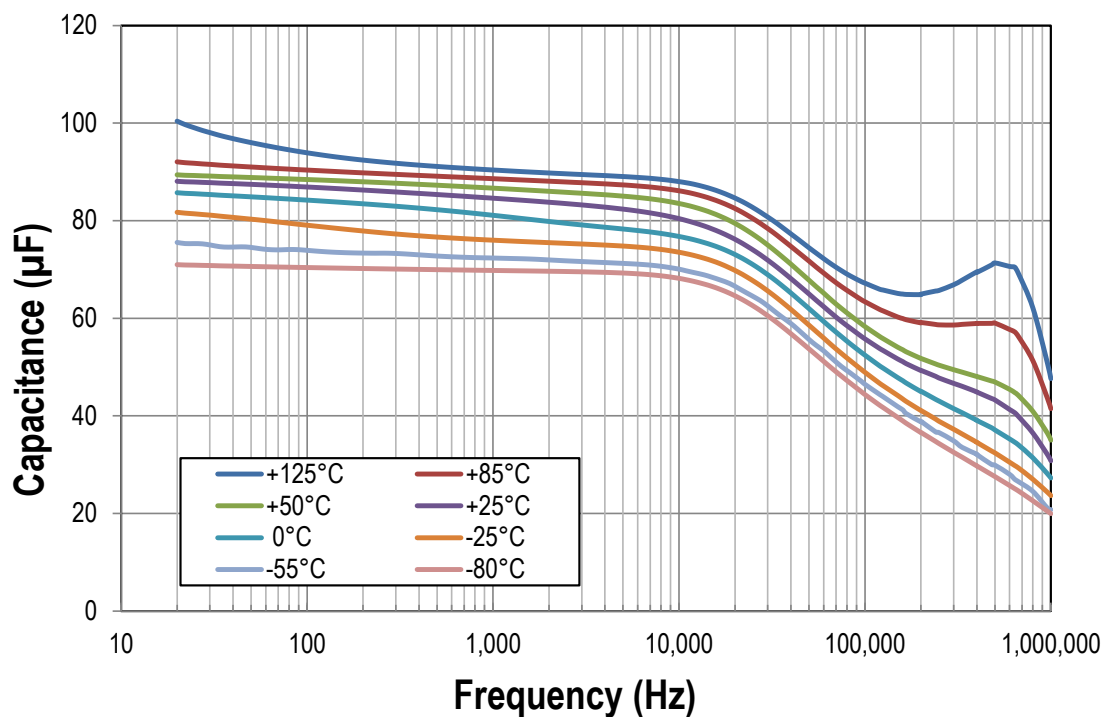
B level	Group A inspection specified in drawing 13030
T level	Group A and group B inspections specified in drawing 13030

Electrical Characteristics

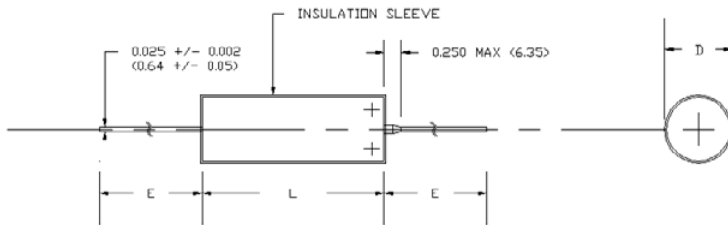
ESR vs. Frequency



Capacitance vs. Frequency



Dimensions – Inches (Millimeters)



Case Code	Case Size	Uninsulated Case		Insulated Case	
	MIL-PRF-39006/22/25/30/31	L +0.031(0.79) -0.016(0.41)	D ±0.016(0.41)	D Maximum	E ±0.25(6.35)
B	T2	0.641(16.28)	0.281(7.14)	0.312(7.92)	*1.50(38.10)

* Lead length of 2.25" available upon request

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size	KEMET Part Number	DLA (DSCC) Drawing Number	DC Leakage	DF	Maximum ESR	Ripple Current
(V) 85°C	μF	KEMET/EIA	(See below for part options)	(See below for part options)	μA @ 25°C Maximum/5 Minutes	% @ 25°C 120 Hz Max	mΩ @ 25°C 100 kHz	mArms @ 85°C/40 kHz
6	140	B	T550B147(1)006A(3)	N/A	6.3	5.0	120	1510
6	820	B	T550B827(1)006A(3)	N/A	36.9	5.0	90	1750
8	220	B	T550B227(1)008A(3)	N/A	13.2	5.0	120	1510
8	680	B	T550B687(1)008A(3)	N/A	40.8	5.0	90	1750
10	100	B	T550B107(1)010A(3)	N/A	7.5	5.0	140	1400
10	180	B	T550B187(1)010A(3)	N/A	13.5	5.0	110	1580
10	560	B	T550B567(1)010A(3)	N/A	42.0	5.0	90	1750
15	70	B	T550B706(1)015A(3)	N/A	7.9	5.0	140	1400
15	120	B	T550B127(1)015A(3)	N/A	13.5	5.0	110	1580
15	390	B	T550B397(1)015A(3)	N/A	43.9	5.0	90	1750
25	50	B	T550B506(1)025A(3)	N/A	9.4	5.0	170	1275
25	100	B	T550B107(1)025(2)(3)	13030-01(1)A(4)(5)(6)	18.8	5.0	190	1200
30	40	B	T550B406(1)030A(3)	N/A	9.0	5.0	170	1275
30	68	B	T550B686(1)030A(3)	N/A	15.3	5.0	140	1400
40	100	B	T550B107(1)040(2)(3)	13030-02(1)A(4)(5)(6)	30.0	5.0	150	1350
40	120	B	T550B127(1)040(2)(3)	13030-03(1)A(4)(5)(6)	36.0	5.0	120	1510
50	25	B	T550B256(1)050A(3)	N/A	9.4	5.0	170	1275
50	47	B	T550B476(1)050A(3)	N/A	17.6	5.0	150	1350
50	100	B	T550B107(1)050(2)(3)	13030-04(1)A(4)(5)(6)	37.5	5.0	130	1450
50	120	B	T550B127(1)050(2)(3)	13030-05(1)A(4)(5)(6)	45.0	5.0	90	1750
60	20	B	T550B206(1)060A(3)	N/A	9.0	5.0	200	1175
60	39	B	T550B396(1)060A(3)	N/A	17.6	5.0	160	1310
60	100	B	T550B107(1)060A(3)	N/A	45.0	5.0	100	1660
75	75	B	T550B756(1)075A(3)	N/A	42.2	5.0	110	1580

(1) To complete KEMET part number, insert M for ±20% or K for ±10%. Designates capacitance tolerance.

(2) To complete KEMET part number, insert A = N/A, B = standard reliability, or T = high reliability.

(3) To complete KEMET part number, insert T = 100% Matte Tin (Sn) Plated, H = Standard Solder coated (SnPb 5% Pb minimum). Designates termination finish.

(4) To complete the DLA PIN number, insert the insulation option. S = Sleeved, U = Unseleeved.

(5) To complete the DLA PIN number, insert the lead length option. L = 1.50 in, T = 2.25 in.

(6) To complete the DLA PIN number, insert the product level option. B = standard reliability or T = high reliability.

Refer to Ordering Information for additional detail.

Higher voltage ratings and tighter tolerance product including ESR may be substituted within the same size at KEMET's option. Voltage substitution will be marked with the higher voltage rating.

Ripple Current/Ripple Voltage

Permissible AC ripple voltage and current are related to equivalent series resistance (ESR) and the power dissipation capabilities of the device. Permissible AC ripple voltage that may be applied is limited by two criteria:

1. The positive peak AC voltage plus the DC bias voltage, if any, must not exceed the DC voltage rating of the capacitor.
2. The negative peak AC voltage in combination with bias voltage, if any, must not exceed the allowable limits specified for reverse voltage.

The maximum power dissipation by case size can be determined using the below left table. The maximum power dissipation rating stated in the table must be reduced with increasing environmental operating temperatures. Refer to the below right table for temperature compensation requirements.

Temperature Compensation Multipliers for Maximum Ripple Current (P max)		
$T \leq 45^{\circ}\text{C}$	$45^{\circ}\text{C} < T \leq 85^{\circ}\text{C}$	$85^{\circ}\text{C} < T \leq 105^{\circ}\text{C}$
1.00	0.50	0.10

T = Environmental Temperature

Using the P max of the device, the maximum allowable rms ripple current or voltage may be determined.

$$I(\text{max}) = \sqrt{P \text{ max} / R}$$

$$E(\text{max}) = Z \sqrt{P \text{ max} / R}$$

I = rms ripple current (amperes)

E = rms ripple voltage (volts)

$P \text{ max}$ = maximum power dissipation (watts)

R = ESR at specified frequency (ohms)

Z = Impedance at specified frequency (ohms)

Case Code		Maximum Power Dissipation (P max) mWatts @ 25°C with +60°C Rise
KEMET	MIL-PRF-39006/22/ 25/30/31 Case Size	
B	T2	715

The maximum power dissipation rating must be reduced with increasing environmental operating temperatures. Refer to the Temperature Compensation Multiplier table for details.

Reverse Voltage

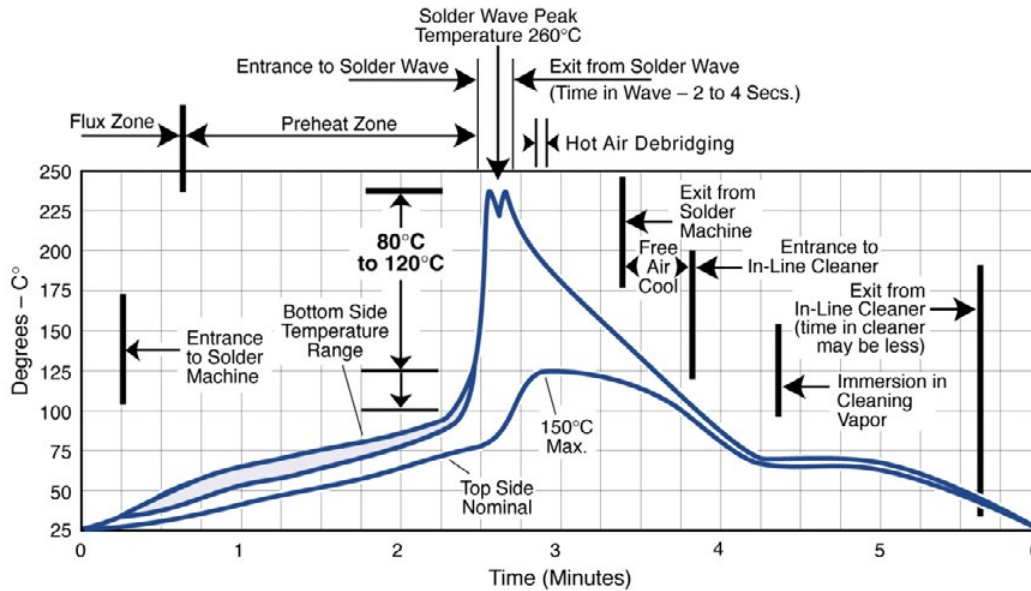
Solid tantalum polymer capacitors are polar devices and may be permanently damaged or destroyed if connected with the wrong polarity. A small reverse voltage is permissible for time periods per the below table.

KEMET can offer lower capacitance in this voltage with higher reverse voltage capability.

In addition, we continue to improve our capability for this characteristic.

Temperature	Permissible Reverse Voltage
25°C	1 V for 8 hours Maximum
70°C	1 V for 2 hours Maximum

Optimum Solder Wave Profile



Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

KT550	+	Manufacturer's Identification, Series, Polarity
100µf	←	Nominal Capacitance in Microfarads (µf) ("R"=Decimal)
10% 60V	+	Capacitance Tolerance, Voltage
1202AAAA	←	Date*/Lot Code (Year, Week, Lot Code)

* 1st & 2nd digit = Year
3rd & 4th digit = Week

Overview

The solid tantalum capacitor is an essential device in circuits requiring high capacitance voltage product and extended environmental capability. The KEMET GR500 Graded Reliability concept produces state-of-the-art devices, providing maximum assurance of meeting system reliability goals. All Graded Reliability capacitors receive meticulous attention from raw material selection through manufacture, final inspection and shipping. Having survived a very stringent quality control program, the resulting capacitors meet or exceed the most critical requirements of space, satellite, missile and medical applications where failure is, at best, expensive, and at worst,

fatal. KEMET is, therefore, committed to the principle of the highest possible reliability in the manufacture and grading of its GR500 Series capacitors. The KEMET GR500 High Reliability concept disallows grouping of diverse ratings and production batches to determine average failure rates. Instead, data from each and every capacitor batch are statistically fitted to determine failure rate on the basis of 100% life testing. Each homogeneous production batch is “graded” as a single inspection lot, and documented evidence of failure rate achieved is supplied with the parts, providing assurance of the most sophisticated and accurate reliability measurement of method in the industry.

Benefits

- 100% Thermal Shock (-65°C to +125°C) prior to electrical testing
- 100% Surge Current testing.
- 100% Weibull Grading
- 100% X-ray examined
- Hermeticity testing per MIL-STD-202
- Optional Special testing
- Packaged in individual container compartments
- Marking per MIL-STD-1285
- Capacitance values of 0.0047 μ F to 330 μ F
- Tolerances of $\pm 5\%$, $\pm 10\%$ and $\pm 20\%$
- Voltage rating of 6– 100 VDC
- Case sizes: A,B,C,D

Applications

Typical applications include coupling, bypass, filtering, and RC timing circuits in miniaturized circuitry.



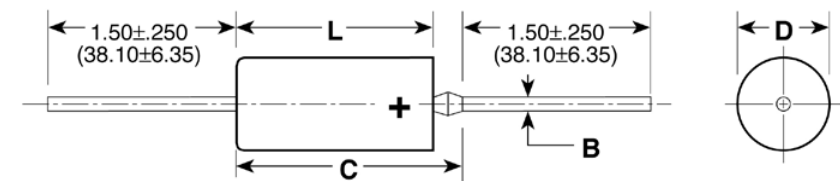
Ordering Information

T	210	A	105	K	050	R	S
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Voltage	Failure Rate	Lead Material
T = Tantalum	210 = GR500/J (KEMET) High Reliability, Solid Electrolyte, Graded, Hermetic Seal, Axial Lead, Polar	A, B, C, D	First two digits represent significant figures. Third digit specifies number of zeros to follow.	J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	006 = 6.3V 010 = 10V 015 = 15V 020 = 20V 025 = 25V 035 = 35V 050 = 50V 075 = 75V 100 = 100V	M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard (Solder-coated nickel)

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.0047 – 330 μF @ 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 100 V
DF (120 Hz @ 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz @ 25°C)	Refer to Part Number Electrical Specification Table
Leakage Current	Refer to Part Number Electrical Specification Table (@ rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate	M - 1%/k hours, P - 0.1%/k hours, R - 0.01%/k hours, S - 0.001%/k hours

Dimensions – Millimeters (Inches)
Metric will govern



Case Size	Uninsulated		Insulated			
	D ± 0.005 $\pm (.13)$	L ± 0.031 $\pm (.79)$	D ± 0.010 $\pm (.25)$	L ± 0.031 $\pm (.79)$	B ± 0.002 $\pm (.05)$	C Maximum
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (0.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (0.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (0.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (0.64)	0.922 (23.42)

Table 1 – Ratings & Part Number Reference

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
6	3.9	A	T210A395(1)006(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.00
6	4.7	A	T210A475(1)006(2)S	R,S	0.1	1.0	1.25	4.0	4.0	0.90
6	5.6	A	T210A565(1)006(2)S	R,S	0.1	1.0	1.25	4.0	4.0	0.90
6	6.8	A	T210A685(1)006(2)S	R,S	0.1	1.0	1.25	4.0	6.0	0.80
6	27.0	B	T210B276(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.25
6	33.0	B	T210B336(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	39.0	B	T210B396(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	47.0	B	T210B476(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	56.0	B	T210B566(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	82.0	C	T210C826(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.12
6	100	C	T210C107(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.11
6	120	C	T210C127(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.10
6	150	C	T210C157(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.09
6	180	C	T210C187(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.08
6	220	D	T210D227(1)006(2)S	R,S	2.0	20.0	25.00	6.0	8.0	0.07
6	270	D	T210D277(1)006(2)S	R,S	2.0	20.0	25.00	6.0	8.0	0.07
6	330	D	T210D337(1)006(2)S	R,S	3.0	30.0	39.50	6.0	8.0	0.06
10	2.7	A	T210A275(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.20
10	3.3	A	T210A335(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.00
10	3.9	A	T210A395(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.00
10	4.7	A	T210A475(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	0.90
10	12.0	B	T210B126(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.32
10	15.0	B	T210B156(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.29
10	18.0	B	T210B186(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.27
10	22.0	B	T210B226(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.26
10	27.0	B	T210B276(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.25
10	33.0	B	T210B336(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
10	39.0	B	T210B396(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
10	47.0	C	T210C476(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.16
10	56.0	C	T210C566(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.15
10	68.0	C	T210C686(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.13
10	82.0	C	T210C826(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.12
10	100.0	C	T210C107(1)010(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.11
10	120.0	C	T210C127(1)010(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.10
10	150.0	D	T210D157(1)010(2)S	R,S	2.0	20.0	25.00	5.0	8.0	0.09
10	180.0	D	T210D187(1)010(2)S	R,S	2.0	20.0	25.00	5.0	8.0	0.08
10	220.0	D	T210D227(1)010(2)S	R,S	3.0	30.0	37.50	5.0	8.0	0.07
15	1.2	A	T210A125(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.40
15	1.5	A	T210A155(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.30
15	1.8	A	T210A185(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.25
15	2.2	A	T210A225(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.20
15	2.7	A	T210A275(1)015(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.20
15	3.3	A	T210A335(1)015(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.00
15	5.6	B	T210B565(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.47
15	6.8	B	T210B685(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.43
15	8.2	B	T210B825(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.39
15	10.0	B	T210B106(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.35
15	12.0	B	T210B126(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.32
15	15.0	B	T210B156(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.29
15	18.0	B	T210B186(1)015(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.27
15	22.0	B	T210B226(1)015(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.26
15	27.0	C	T210C276(1)015(2)S	R,S	1.5	15.0	18.75	4.0	6.0	0.21
15	33.0	C	T210C336(1)015(2)S	R,S	1.5	15.0	18.75	4.0	6.0	0.19
15	39.0	C	T210C396(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.17
15	47.0	C	T210C476(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.16
15	56.0	C	T210C566(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.15
15	68.0	C	T210C686(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.13
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
15	82.0	D	T210D826(1)015(2)S	P,R	2.0	20.0	25.00	5.0	8.0	0.11
15	100.0	D	T210D107(1)015(2)S	P,R	2.0	20.0	25.00	5.0	8.0	0.10
15	120.0	D	T210D127(1)015(2)S	P,R	2.0	20.0	25.00	5.0	8.0	0.09
15	150.0	D	T210D157(1)015(2)S	P,R	3.0	30.0	37.50	5.0	8.0	0.09
20	1.2	A	T210A125(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.40
20	1.5	A	T210A155(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.30
20	1.8	A	T210A185(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.25
20	2.2	A	T210A225(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.20
20	4.7	B	T210B475(1)020(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.51
20	5.6	B	T210B565(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.47
20	6.8	B	T210B685(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.43
20	8.2	B	T210B825(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.39
20	10.0	B	T210B106(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.35
20	12.0	B	T210B126(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.32
20	15.0	B	T210B156(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.29
20	18.0	C	T210C186(1)020(2)S	R,S	1.0	10.0	12.50	4.0	6.0	0.25
20	22.0	C	T210C226(1)020(2)S	R,S	1.0	10.0	12.50	4.0	6.0	0.25
20	27.0	C	T210C276(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.21
20	33.0	C	T210C336(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.19
20	39.0	C	T210C396(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.17
20	47.0	C	T210C476(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.16
20	56.0	D	T210D566(1)020(2)S	M,P	2.0	20.0	25.00	4.0	6.0	0.13
20	68.0	D	T210D686(1)020(2)S	M,P	2.0	20.0	25.00	4.0	6.0	0.12
20	82.0	D	T210D826(1)020(2)S	M,P	3.0	30.0	37.50	4.0	6.0	0.11
20	100	D	T210D107(1)020(2)S	M,P	3.0	30.0	37.50	4.0	6.0	0.10
35	0.82	A	T210A824(1)035(2)S	R,S	0.1	1.0	1.25	2.0	4.0	1.60
35	1.00	A	T210A105(1)035(2)S	R,S	0.1	1.0	1.25	2.0	4.0	1.40
35	2.70	B	T210B275(1)035(2)S	R,S	0.25	2.5	3.13	3.0	4.0	0.68
35	3.30	B	T210B335(1)035(2)S	R,S	0.5	5.0	6.25	3.0	4.0	0.62
35	3.90	B	T210B395(1)035(2)S	R,S	0.5	5.0	6.25	3.0	4.0	0.56
35	4.70	B	T210B475(1)035(2)S	R,S	0.5	5.0	6.25	3.0	4.0	0.51
35	5.60	B	T210B565(1)035(2)S	M,P	0.5	5.0	6.25	3.0	4.0	0.47
35	6.80	B	T210B685(1)035(2)S	M,P	0.5	5.0	6.25	3.0	4.0	0.43
35	8.20	C	T210C825(1)035(2)S	R,S	1.0	10.0	12.50	3.0	5.0	0.36
35	10.0	C	T210C106(1)035(2)S	R,S	1.0	10.0	12.50	3.0	5.0	0.33
35	12.0	C	T210C126(1)035(2)S	P,R	1.0	10.0	12.50	3.0	5.0	0.30
35	15.0	C	T210C156(1)035(2)S	P,R	1.0	10.0	12.50	3.0	5.0	0.27
35	18.0	C	T210C186(1)035(2)S	P,R	1.0	10.0	12.50	3.0	5.0	0.25
35	22.0	C	T210C226(1)035(2)S	M,P	1.0	10.0	12.50	3.0	5.0	0.25
35	27.0	D	T210D276(1)035(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.18
35	33.0	D	T210D336(1)035(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.17
35	39.0	D	T210D396(1)035(2)S	M,P	2.0	20.0	25.00	4.0	6.0	0.15
35	47.0	D	T210D476(1)035(2)S	M,P	3.0	30.0	37.50	4.0	6.0	0.14
50	0.0047	A	T210A472(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	30.00
50	0.0056	A	T210A562(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	28.00
50	0.0068	A	T210A682(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	26.00
50	0.0082	A	T210A822(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	24.00
50	0.01	A	T210A103(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	22.00
50	0.012	A	T210A123(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	20.00
50	0.015	A	T210A153(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	18.00
50	0.018	A	T210A183(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	16.00
50	0.022	A	T210A223(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	14.00
50	0.027	A	T210A273(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	13.00
50	0.033	A	T210A333(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	12.00
50	0.039	A	T210A393(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	11.00
50	0.047	A	T210A473(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	10.00
50	0.056	A	T210A563(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	9.00
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
50	0.068	A	T210A683(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	8.00
50	0.082	A	T210A823(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	7.50
50	0.1	A	T210A104(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	7.00
50	0.12	A	T210A124(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	6.50
50	0.15	A	T210A154(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	5.50
50	0.18	A	T210A184(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	5.00
50	0.22	A	T210A224(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	4.00
50	0.27	A	T210A274(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.50
50	0.33	A	T210A334(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.30
50	0.39	A	T210A394(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.30
50	0.47	A	T210A474(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.00
50	0.56	A	T210A564(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	2.50
50	0.68	A	T210A684(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	1.80
50	0.82	A	T210A824(1)050(2)S	P,R	0.1	1.0	1.25	2.0	4.0	1.60
50	1.00	A	T210A105(1)050(2)S	P,R	0.1	1.0	1.25	2.0	4.0	1.40
50	1.20	B	T210B125(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	1.20
50	1.50	B	T210B155(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	1.10
50	1.80	B	T210B185(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	0.92
50	2.20	B	T210B225(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	0.80
50	2.70	B	T210B275(1)050(2)S	P,R	0.25	2.5	3.13	2.0	4.0	0.68
50	3.30	B	T210B335(1)050(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.62
50	3.90	B	T210B395(1)050(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.56
50	4.70	B	T210B475(1)050(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.51
50	5.60	C	T210C565(1)050(2)S	P,R	1.5	15.0	18.75	3.0	4.0	0.44
50	6.80	C	T210C685(1)050(2)S	P,R	1.5	15.0	18.75	3.0	5.0	0.40
50	8.20	C	T210C825(1)050(2)S	P,R	1.5	15.0	18.75	3.0	5.0	0.36
50	10.0	C	T210C106(1)050(2)S	P,R	1.5	15.0	18.75	3.0	5.0	0.33
50	12.0	C	T210C126(1)050(2)S	M,P	1.5	15.0	18.75	3.0	5.0	0.30
50	15.0	C	T210C156(1)050(2)S	M,P	1.5	15.0	18.75	3.0	5.0	0.27
50	18.0	C	T210C186(1)050(2)S	M,P	1.5	15.0	18.75	3.0	5.0	0.25
50	22.0	D	T210D226(1)050(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.20
75	0.0047	A	T210A472(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	30.00
75	0.0056	A	T210A562(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	28.00
75	0.0068	A	T210A682(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	26.00
75	0.0082	A	T210A822(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	24.00
75	0.01	A	T210A103(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	22.00
75	0.012	A	T210A123(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	20.00
75	0.015	A	T210A153(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	18.00
75	0.018	A	T210A183(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	16.00
75	0.022	A	T210A223(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	14.00
75	0.027	A	T210A273(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	13.00
75	0.033	A	T210A333(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	12.00
75	0.039	A	T210A393(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	11.00
75	0.047	A	T210A473(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	10.00
75	0.056	A	T210A563(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	9.00
75	0.068	A	T210A683(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	8.00
75	0.082	A	T210A823(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	7.50
75	0.1	A	T210A104(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	7.00
75	0.12	A	T210A124(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	6.50
75	0.15	A	T210A154(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	4.40
75	0.18	A	T210A184(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	4.00
75	0.22	A	T210A224(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	3.50
75	0.27	A	T210A274(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	3.10
75	0.33	A	T310A334(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.80
75	0.39	A	T310A394(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.60
75	0.47	A	T210A474(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.40
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

Table 1 – Ratings & Part Number Reference cont'd

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
75	0.56	A	T210A564(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.25
75	0.68	A	T210A684(1)075(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.10
75	1.8	B	T210B185(1)075(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.92
75	2.2	B	T210B225(1)075(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.80
75	2.7	B	T210B275(1)075(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.68
75	3.3	B	T210B335(1)075(2)S	M,P	0.75	7.5	9.40	2.0	4.0	0.62
75	3.9	B	T210B395(1)075(2)S	M,P	0.75	7.5	9.40	2.0	4.0	0.56
75	4.7	C	T210C475(1)075(2)S	P,R	1.5	15.0	18.75	3.0	4.0	0.47
75	5.6	C	T210C565(1)075(2)S	P,R	1.5	15.0	18.75	3.0	4.0	0.44
75	6.8	C	T210C685(1)075(2)S	M,P	2.0	20.0	25.00	3.0	4.0	0.44
75	8.2	C	T210C825(1)075(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.36
75	10.0	C	T210C106(1)075(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.33
75	12.0	D	T210D126(1)075(2)S	M,P	2.5	25.0	31.25	3.0	5.0	0.26
75	15.0	D	T210D156(1)075(2)S	M,P	2.5	25.0	31.25	3.0	5.0	0.23
100	0.0047	A	T210A472(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	30.00
100	0.0056	A	T210A562(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	28.00
100	0.0068	A	T210A682(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	26.00
100	0.0082	A	T210A822(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	24.00
100	0.01	A	T210A103(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	22.00
100	0.012	A	T210A123(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	20.00
100	0.015	A	T210A153(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	18.00
100	0.018	A	T210A183(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	16.00
100	0.022	A	T210A223(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	14.00
100	0.027	A	T210A273(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	13.00
100	0.033	A	T210A333(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	12.00
100	0.039	A	T210A393(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	11.00
100	0.047	A	T210A473(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	10.00
100	0.056	A	T210A563(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	9.00
100	0.068	A	T210A683(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	8.00
100	0.082	A	T210A823(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	7.50
100	0.1	A	T210A104(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	7.00
100	0.12	A	T210A124(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	6.50
100	0.15	A	T210A154(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	4.40
100	0.18	A	T210A184(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	4.00
100	0.22	A	T210A224(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	3.50
100	0.27	A	T210A274(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	3.10
100	0.33	A	T210A334(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.80
100	0.39	A	T210A394(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.60
100	0.47	A	T210A474(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.40
100	0.56	A	T210A564(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.25
100	0.68	B	T210B684(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.10
100	0.82	B	T210B824(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	1.47
100	1	B	T210B105(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	1.40
100	1.2	B	T210B125(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	1.33
100	1.5	B	T210B155(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	1.06
100	1.8	B	T210B185(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.92
100	2.2	B	T210B225(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.80
100	2.7	B	T210B275(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.68
100	3.3	C	T210C335(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.62
100	3.9	C	T210C395(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.56
100	4.7	C	T210C475(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.47
100	5.6	C	T210C565(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.44
100	6.8	C	T210C685(1)100(2)S	M	2.0	20.0	25.00	3.0	5.0	0.40
100	8.2	D	T210D825(1)100(2)S	M	2.5	25.0	31.25	3.0	5.0	0.36
100	10.0	D	T210D106(1)100(2)S	M	2.5	25.0	31.25	3.0	5.0	0.33
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
$T \leq 25^{\circ}\text{C}$	$T \leq 85^{\circ}\text{C}$	$T \leq 125^{\circ}\text{C}$
1.00	0.90	0.40

T = Environmental Temperature

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Maximum Power Dissipation: 25°C Ambient

Permissible AC ripple current can be determined by the following:

$$I(\text{max}) = Z \sqrt{P \text{ max}/R}$$

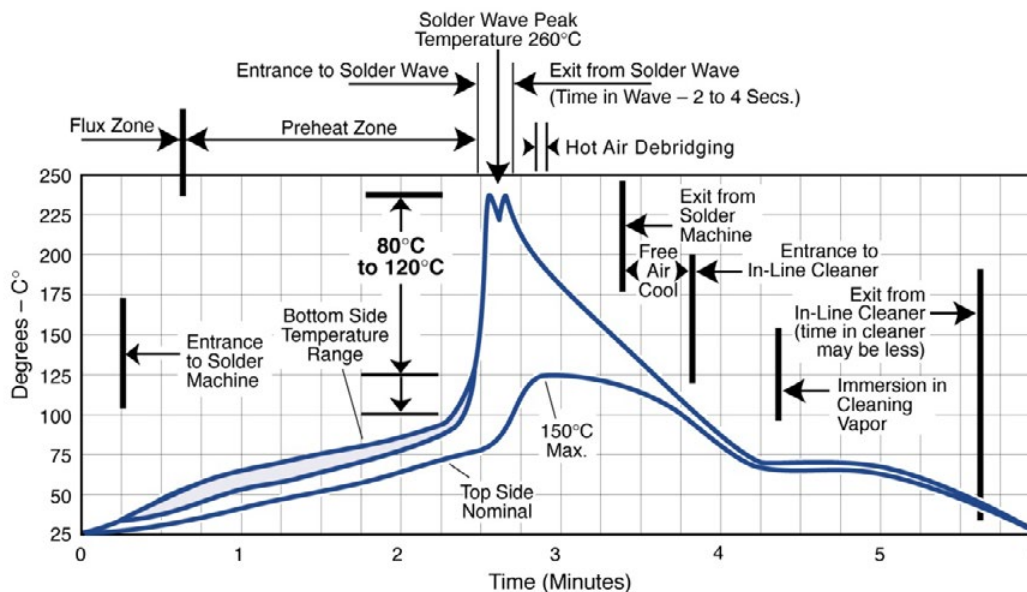
$P \text{ max}$ = maximum watts

R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

Z = capacitor impedance in ohms at the specified frequency

Optimum Solder Wave Profile



Mounting

All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

Capacitor Marking

GR500/T210

Case A

+T 210	← Polarity Symbol, Series designator
K 10% S	← K = KEMET, Tolerance & Failure rate
R68 μ F	← Capacitance
50V	← Voltage
330 AA	← Date Code & Batch designator

Case B

+K T210 B	← Polarity, KEMET, Series designator, case size
475K050	← KEMET Part Number
SS4R7 μ F	← KEMET Part Number (continued)
50V 10%	← Voltage, Tolerance
1330 AA	← Date Code & Lot Symbol

Case C & D

Date Code *	
1 st digit = Last number of Year	2 = 2012 3 = 2013 4 = 2014
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

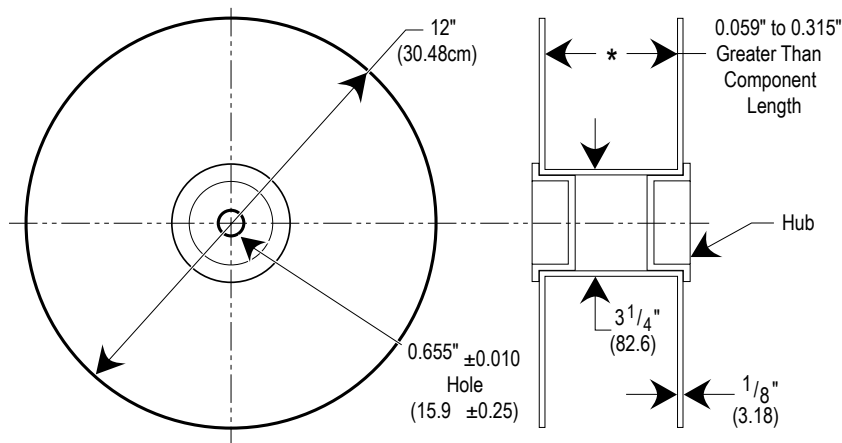
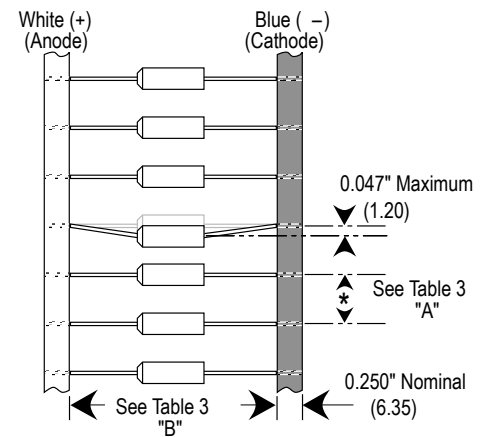
+ KEMET	← Polarity Symbol, KEMET
T210C106K	← KEMET Part Number
035SS 10%	← KEMET Part Number (continued)
10 μ F 35V	← Capacitance, Voltage
1330 AA	← Date Code & Lot Symbol

Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature—reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

Packaging

Capacitors shall be packaged in individual container compartments. Packaging methods and materials used shall prevent degradation of capacitor characteristics as determined by this specification.

Figure 2**Figure 3****Table 3 – Tape Dimensions**

Component Body Diameter	Component Pitch "A"	Inside Tape Spacing "B" ±1.5 mm (0.059")		
		I	II	III
0" (0 mm) to 0.197" (5 mm)	0.200" or (5 mm)	2.062"	2.500"	2.874"
0.197" (5.01 mm) to 0.394" (10 mm)	0.400 or (10 mm)	(52.4 mm)	(63.5 mm)	(73 mm)

Capacitors are reeled so that positive leads are oriented as shown in Figure 3. Kraft paper (50lb. test minimum) is inserted between the layers of capacitors wound on reels for component pitch ≤ 0.200 " sizes and corrugated paper (70 lb. test minimum), single faced is inserted for component pitch ≥ 0.400 " sizes. Capacitor lead length may extend only a maximum of .031" (0.8 mm) beyond the tape's edges. Capacitors are centered in a row between the two tapes and will deviate only ± 0.031 " (0.79 mm) from the row center. Figures 1 and 2 show the KEMET standard chipboard tape reel. A minimum of 36" (91.5 cm) leader tape is provided at each end of the reeled capacitors. Universal splicing clips are used to connect the tape.

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