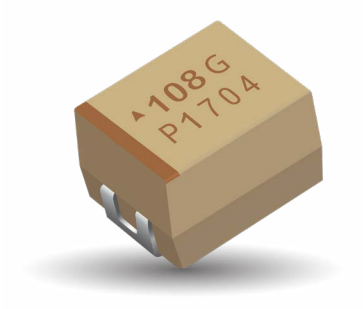
TBM MULTIANODE

Tantalum Ultra Low ESR Space Level



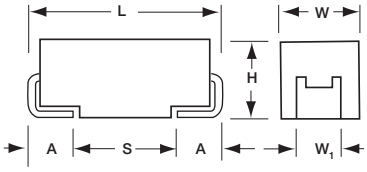
TBM Space Level series is screened to SRC9000 and utilizes an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power application.

TBM Space Level is available with Weibull Grade "C" reliability and MIL-PRF-55365 surge test option "C".

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these correspond to "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



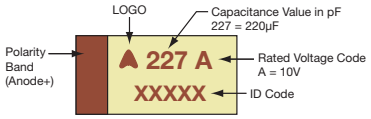
CASE DIMENSIONS: millimeters (inches)

Code	L±0.20 (0.008)	W+0.20 (0.008) −0.10 (0.004)	H+0.20 (0.008) −0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) −0.20 (0.008)	S Min.
D	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

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

MARKING

D, E CASE



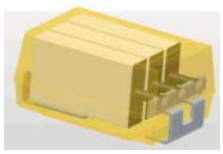
CAPACITANCE AND RATED VOLTAGE RANGE
LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

Capacitance		Rated Voltage DC (V_R) to 85°C								
µF	Code	2.5V (e)	4V (G)	6V (J)	10V (A)	12V (B)	16V (C)	20V (D)	25V (E)	35V (V)
22	226									D(70) E(60,100)
33	336								D(65)	E(50,65)
47	476								E(65)	
68	686									
100	107							E(35,45)		
150	157						E(30,40)			
220	227				D(35)	E(35)				
330	337		D(35)	D(35)	E(35)					
470	477		D(35)	E(30)						
680	687		E(23)							
1000	108	D(25)	E(23)							
1500	158	E(18)								

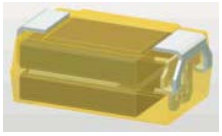
Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. KYOCERA AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards. EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.

MULTIANODE CONSTRUCTION



MULTIANODE TBM D LOW SELF INDUCTANCE CONSTRUCTION "MIRROR" DESIGN



HOW TO ORDER

SPACE LEVEL OPTIONS TO SRC9000:

TBM	E	477	*	006	L	□	L	@	9	^	++
Type	**Case Size**	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Capacitance Tolerance** M = ±20% K = ±10%	**Voltage Code** 002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	**Standard or Low ESR Range** C = Std ESR L = Low ESR	**Packaging** B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options.	**Inspection Level** L = Group A	**Reliability Grade** Weibull: C = 0.01%/1000 hrs. 90% conf.	**Qualification Level** 9 = SRC9000	**Termination Finish** H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	**Surge Test Option** 45 = 10 cycles, -55ºC & +85ºC before Weibull GC = Group C Testing and Data OR = TOR compliant testing and data

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data:		Unless otherwise specified, all technical data relate to an ambient temperature of +25°C									
Capacitance Range:		22 µF to 1500 µF									
Capacitance Tolerance:		±10%; ±20%									
Rated Voltage DC (V_R)	≤ +85°C:	2.5	4	6	10	12	16	20	25	35	
Category Voltage (V_C)	≤+125°C:	1.7	2.7	4	7	8.4	10	13	17	23	
Surge Voltage (V_S)	≤ +85°C:	3.3	5.2	8	13	15.6	20	26	32	46	
Surge Voltage (V_S)	≤+125°C:	2.2	3.4	5	8	9.6	12	16	20	28	
Temperature Range:		-55°C to +125°C									

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RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating										Typical RMS Ripple D		
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF Max			Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple
					+25°C	+85°C	+125°C	+25°C	+(85/125) °C	-55°C				
P/N	Case	µF @ 25°C	V @ +85°C	mOhms @ +25°C	(µA)	(µA)	(µA)	(%)	(%)	(%)	W	A (100kHz)	A (100kHz)	A (100kHz)
2.5 Volt @ 85°C (1.7 Volt @ 125°C)														
TBMD108*002L□LC9^45	D	1000	2.5	25	18.8	188	376	8	11	12	0.255	3.194	2.874	1.277
TBME158*002C□LC9^45	E	1500	2.5	18	28.1	281	562	6	9	10	0.270	3.873	3.486	1.549
4 Volt @ 85°C (2.7 Volt @ 125°C)														
TBMD337*004L□LC9^45	D	330	4	35	9.9	99	198	8	11	12	0.255	2.699	2.429	1.080
TBMD477*004L□LC9^45	D	470	4	35	14.1	141	282	8	11	12	0.255	2.699	2.429	1.080
TBME687*004C□LC9^45	E	680	4	23	20.4	204	408	6	9	10	0.270	3.426	3.084	1.370
TBME108*004C□LC9^45	E	1000	4	23	30	300	600	6	9	10	0.270	3.426	3.084	1.370
6 Volt @ 85°C (4 Volt @ 125°C)														
TBMD337*006L□LC9^45	D	330	6	35	14.9	149	298	8	11	12	0.255	2.699	2.429	1.080
TBME477*006C□LC9^45	E	470	6	30	21.2	212	424	6	9	10	0.270	3.000	2.700	1.200
10 Volt @ 85°C (7 Volt @ 125°C)														
TBMD227*010L□LC9^45	D	220	10	35	16.5	165	330	8	11	12	0.255	2.699	2.429	1.080
TBME337*010C□LC9^45	E	330	10	35	24.8	248	496	6	9	10	0.270	2.777	2.500	1.111
12 Volt @ 85°C (8.4 Volt @ 125°C)														
TBME227*012C□LC9^45	E	220	12	35	19.8	198	396	6	9	10	0.270	2.777	2.500	1.111
16 Volt @ 85°C (10 Volt @ 125°C)														
TBME157*016L□LC9^45	E	150	16	30	18	180	360	6	9	10	0.270	3.000	2.700	1.200
TBME157*016C□LC9^45	E	150	16	40	18	180	360	6	9	10	0.270	2.598	2.338	1.039
20 Volt @ 85°C (13 Volt @ 125°C)														
TBME107*020L□LC9^45	E	100	20	35	15	150	300	6	9	10	0.270	2.777	2.500	1.111
TBME107*020C□LC9^45	E	100	20	45	15	150	300	6	9	10	0.270	2.449	2.205	0.980
25 Volt @ 85°C (17 Volt @ 125°C)														
TBMD336*025L□LC9^45	D	33	25	65	6.2	62	124	8	11	12	0.255	1.981	1.783	0.792
TBME476*025L□LC9^45	E	47	25	65	8.8	88	176	6	9	10	0.270	2.038	1.834	0.815
35 Volt @ 85°C (23 Volt @ 125°C)														
TBMD226*035L□LC9^45	D	22	35	70	5.8	58	116	8	11	12	0.255	1.909	1.718	0.763
TBME226*035L□LC9^45	E	22	35	60	5.8	58	116	6	9	10	0.270	2.121	1.909	0.849
TBME226*035C□LC9^45	E	22	35	100	5.8	58	116	6	9	10	0.270	1.643	1.479	0.657
TBME336*035L□LC9^45	E	33	35	50	8.7	87	174	6	9	10	0.270	2.324	2.091	0.930
TBME336*035C□LC9^45	E	33	35	65	8.7	87	174	6	9	10	0.270	2.038	1.834	0.815

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage a

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