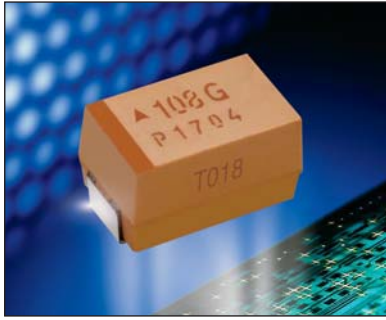


TBM Multianode

Tantalum Ultra Low ESR COTS-Plus



TBM COTS-Plus series uses an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power applications.

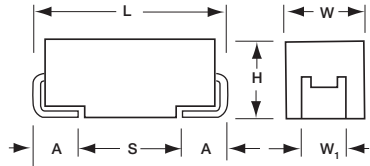
TBM is available with Weibull Grade “B” reliability and all MIL-PRF-55365 Rev. G surge test options (“A”, “B” & “C”).

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.



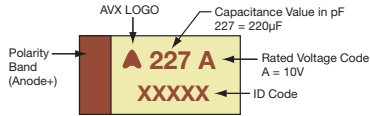
CASE DIMENSIONS: millimeters (inches)

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)
V	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)

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

MARKING

D, E, V CASE



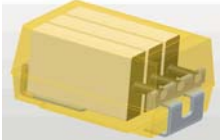
CAPACITANCE AND RATED VOLTAGE RANGE LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

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)	E(55)
68	686								E(45)	
100	107							E(35,45)		
150	157						E(30,40)			
220	227				D(35)	E(35)	E(25)			
330	337		D(35)	D(35)	E(23,35)					
470	477		D(35)	E(18,30)	E(23)					
680	687		E(18,23)	E(18), V(23)						
1000	108	D(25)	E(18,23) V(18)							
1500	158	E(12,18)	E(15)							
2000	208									

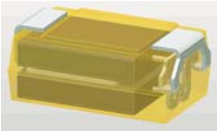
Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. 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



TBM Multianode



Tantalum Ultra Low ESR COTS-Plus

HOW TO ORDER

COTS-PLUS:

TBM	E	477	*	006	L	□	#	@	0	^	++
Type	Case Size	Capacitance Code	Capacitance Tolerance	Voltage Code	Standard or Low ESR Range	Packaging	Inspection Level	Reliability Grade	Qualification Level	Termination Finish	Surge Test Option
		pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	M = ±20% K = ±10%	002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	C = Std ESR L = Low ESR	B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options.	S = Std. Conformance L = Group A	Weibull: B = 0.1%/1000 hrs. 90% conf. Z = Non-ER	0 = N/A	H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn	00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull



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										

Tantalum Ultra Low ESR COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating						Typical RMS Ripple Data by Rating										
		Capacitance			ESR			DC Rated Voltage		DF max		Power Dissipation		Ripple Current		Ripple Voltage		
		Cap @ 120Hz	µF @ 25°C	V @ +85°C	DC Rated Voltage @ 100kHz	ESR @ +25°C	mOhms @ +25°C	+25°C	+85°C	+125°C	+25°C	+85°C	W	100kHz	100kHz	100kHz	100kHz	
AVX P/N	Case												A	A	V	V		
													(100kHz)	(100kHz)	(100kHz)	(100kHz)		
2.5 Volt @ 85°C (1.7 Volt @ 125°C)																		
TBMD108*002□□SB0^++	D	1000	18.8	2.5	25	188	376	8	11	12	0.255	2.699	3.194	2.874	1.277	0.080	0.072	0.032
TBME158*002□□SB0^++	E	1500	28.1	2.5	18	281	562	6	9	10	0.270	2.699	3.486	3.486	1.549	0.070	0.063	0.028
TBME158*002□□SB0^++	E	1500	38	2.5	12	380	760	6	9	10	0.270	4.743	4.269	1.897	0.057	0.051	0.051	0.023
4 Volt @ 85°C (2.7 Volt @ 125°C)																		
TBMD337*004□□SB0^++	D	330	9.9	4	35	99	198	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.085	0.038
TBMD477*004□□SB0^++	D	470	14.1	4	35	141	282	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.085	0.038
TBME687*004□□SB0^++	E	680	20.4	4	23	204	408	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.071	0.032
TBME687*004□□SB0^++	E	680	27	4	18	270	540	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.063	0.028
TBME108*004□□SB0^++	E	1000	30	4	23	300	600	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.071	0.032
TBME108*004□□SB0^++	E	1000	40	4	18	400	800	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.063	0.028
TBMM108*004□□SB0^++	V	1000	40	4	18	400	800	6	9	10	0.285	3.979	3.581	1.592	0.072	0.064	0.064	0.029
TBME158*004□□SB0^++	E	1500	40	4	15	400	800	6	9	10	0.270	4.243	3.818	1.697	0.064	0.057	0.057	0.025
6 Volt @ 85°C (4 Volt @ 125°C)																		
TBMD337*006□□SB0^++	D	330	14.9	6	35	149	298	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.085	0.038
TBME477*006□□SB0^++	E	470	21.2	6	30	212	424	6	9	10	0.270	3.000	2.700	1.200	0.090	0.081	0.081	0.036
TBME477*006□□SB0^++	E	470	28	6	18	280	560	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.063	0.028
TBME687*006□□SB0^++	E	680	41	6	18	410	820	6	9	10	0.270	3.873	3.486	1.549	0.070	0.063	0.063	0.028
TBMM687*006□□SB0^++	V	680	41	6	23	410	820	6	9	10	0.285	3.520	3.168	1.408	0.081	0.073	0.073	0.032
10 Volt @ 85°C (7 Volt @ 125°C)																		
TBMD227*010□□SB0^++	D	220	16.5	10	35	165	330	8	11	12	0.255	2.699	2.429	1.080	0.094	0.085	0.085	0.038
TBME337*010□□SB0^++	E	330	24.8	10	35	248	496	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.087	0.039
TBME337*010□□SB0^++	E	330	33	10	23	330	660	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.071	0.032
TBME477*010□□SB0^++	E	470	47	10	23	470	940	6	9	10	0.270	3.426	3.084	1.370	0.079	0.071	0.071	0.032
12 Volt @ 85°C (8.4 Volt @ 125°C)																		
TBME227*012□□SB0^++	E	220	19.8	12	35	198	396	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.087	0.039
16 Volt @ 85°C (10 Volt @ 125°C)																		
TBME157*016□□SB0^++	E	150	18	16	40	180	360	6	9	10	0.270	2.598	2.338	1.039	0.104	0.094	0.094	0.042
TBME157*016□□SB0^++	E	150	18	16	30	180	360	6	9	10	0.270	3.000	2.700	1.200	0.090	0.081	0.081	0.036
TBME227*016□□SB0^++	E	220	35	16	25	350	700	6	9	10	0.270	3.286	2.968	1.315	0.082	0.074	0.074	0.033
20 Volt @ 85°C (13 Volt @ 125°C)																		
TBME107*020□□SB0^++	E	100	15	20	45	150	300	6	9	10	0.270	2.449	2.205	0.980	0.110	0.099	0.099	0.044
TBME107*020□□SB0^++	E	100	15	20	35	150	300	6	9	10	0.270	2.777	2.500	1.111	0.097	0.087	0.087	0.039
25 Volt @ 85°C (17 Volt @ 125°C)																		
TBMD336*025□□SB0^++	D	33	6.2	25	65	62	124	8	11	12	0.255	1.981	1.783	0.792	0.129	0.116	0.116	0.051
TBME476*025□□SB0^++	E	47	8.8	25	65	88	176	6	9	10	0.270	2.038	1.834	0.815	0.132	0.119	0.119	0.053
TBME686*025□□SB0^++	E	68	17	25	45	170	340	6	9	10	0.270	2.449	2.205	0.980	0.110	0.099	0.099	0.044
35 Volt @ 85°C (23 Volt @ 125°C)																		
TBMD226*035□□SB0^++	D	22	5.8	35	70	58	116	8	11	12	0.255	1.909	1.718	0.763	0.134	0.120	0.120	0.053
TBME226*035□□SB0^++	E	22	5.8	35	100	58	116	6	9	10	0.270	1.643	1.479	0.657	0.164	0.148	0.148	0.066
TBME226*035□□SB0^++	E	22	35	35	60	58	116	6	9	10	0.270	2.121	1.909	0.849	0.127	0.115	0.115	0.051
TBME336*035□□SB0^++	E	33	8.7	35	65	87	174	6	9	10	0.270	2.038	1.834	0.815	0.132	0.119	0.119	0.053
TBME336*035□□SB0^++	E	33	8.7	35	50	87	174	6	9	10	0.270	2.324	2.091	0.930	0.116	0.105	0.105	0.046
TBME476*035□□SB0^++	E	47	16	35	55	160	320	6	9	10	0.270	2.216	1.994	0.886	0.122	0.110	0.110	0.049

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

AVX:

[TBME336K035LR SB0824](#) [TBME687K006LR SB0824](#) [TBME107K020LBSB0823](#) [TBME107M020LBSB0824](#)
[TBME158K004LBSB0824](#) [TBME336K035LBSB0824](#) [TBME477K010LBSB0823](#) [TBME477K010LBSB0824](#)
[TBME477K010LR SB0823](#) [TBME686K025LBSB0823](#) [TBME337K010LBSB0823](#) [TBME687M006LR SB0824](#)
[TBME686K025LR SB0824](#) [TBME107K020LBSB0824](#) [TBME476K035LBSB0824](#) [TBMD227K010LBSZ0000](#)
[TBME106K050LBSZ0000](#) [TBME106M050LBSB0H00](#) [TBME107K020LBLC0H24](#) [TBME107K020LBLC9812](#)
[TBME107K020LBSZ0000](#) [TBME108K004LBLC9845](#) [TBME108K004LBSB0924](#) [TBME108K004LBSZ0000](#)
[TBME157J016LBSZ0H00](#) [TBME157K016LBSZ0000](#) [TBME158K004LBSZ0000](#) [TBME226K035LBLC0024](#)
[TBME226K035LBSB0024](#) [TBME226K035LBSZ0000](#) [TBME226K050LBSZ0000](#) [TBME226M050LBSZ0000](#)
[TBME227K016LBSZ0000](#) [TBME227K016LBSZ0H00](#) [TBME227M016LBSC0845](#) [TBME336K035LBSB0045](#)
[TBME336K035LBSZ0000](#) [TBME337K010LBLB9812](#) [TBME337K010LBSB0700](#) [TBME337K010LBSZ0000](#)
[TBME476K035LBSB0H00](#) [TBME477K006LBSB0700](#) [TBME477K006LBSZ0000](#) [TBME477K006LWSZ0800](#)
[TBME477K010LBSZ0000](#) [TBME686K025LBSZ0000](#) [TBME686M025LBSC0H23](#) [TBME686M025LR SB0824](#)
[TBME226K050LBSB0823](#) [TBME106K050LBSB0823](#) [TBME477M010LBSB0823](#) [TBME337K010LBSB0923](#)
[TBME227K016LBSB0823](#)