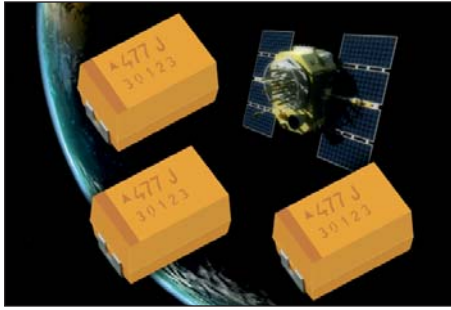


TBM Multianode

Tantalum Ultra Low ESR COTS-Plus



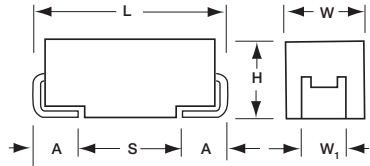
TBM COTS-Plus series uses an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power applications.

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.



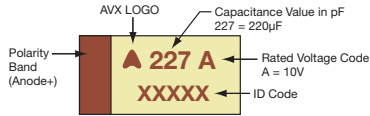
CASE DIMENSIONS: millimeters (inches)

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



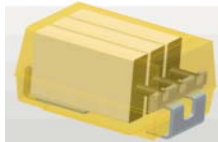
CAPACITANCE AND RATED VOLTAGE RANGE LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

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									

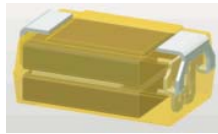
Available Ratings: ESR limits quoted in brackets (mOhms)

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 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 S = Std. Conformance L = Group A	Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. Z = Non-ER	Qualification Level 0 = N/A	Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn	Surge Test Option 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										

TBM Multianode

Tantalum Ultra Low ESR COTS-Plus

RATING & PART NUMBER REFERENCE		Parametric Specifications by Rating									Typical RMS Rip			
		Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DCL max			DF max			Power Dissipation	25°C Ripple Current	85°C Ripple Current	100°C Ripple Current
					+25°C	+85°C	+125°C	+25°C	+85/125°C	-55°C				
AVX 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□SB0^++	D	1000	2.5	25	18.8	188	376	8	11	12	0.255	3.194	2.874	1.874
TBME158*002C□SB0^++	E	1500	2.5	18	28.1	281	562	6	9	10	0.270	3.873	3.486	2.186
TBME158*002L□SB0^++	E	1500	2.5	12	38	380	760	6	9	10	0.270	4.743	4.269	2.569
4 Volt @ 85°C (2.7 Volt @ 125°C)														
TBMD337*004L□SB0^++	D	330	4	35	9.9	99	198	8	11	12	0.255	2.699	2.429	1.529
TBMD477*004L□SB0^++	D	470	4	35	14.1	141	282	8	11	12	0.255	2.699	2.429	1.529
TBME687*004C□SB0^++	E	680	4	23	20.4	204	408	6	9	10	0.270	3.426	3.084	1.884
TBME687*004L□SB0^++	E	680	4	18	27	270	540	6	9	10	0.270	3.873	3.486	2.186
TBME108*004C□SB0^++	E	1000	4	23	30	300	600	6	9	10	0.270	3.426	3.084	1.884
TBME108*004L□SB0^++	E	1000	4	18	40	400	800	6	9	10	0.270	3.873	3.486	2.186
TBMV108*004L□SB0^++	V	1000	4	18	40	400	800	6	9	10	0.285	3.979	3.581	2.281
TBME158*004L□SB0^++	E	1500	4	15	40	400	800	6	9	10	0.270	4.243	3.818	2.518
6 Volt @ 85°C (4 Volt @ 125°C)														
TBMD337*006L□SB0^++	D	330	6	35	14.9	149	298	8	11	12	0.255	2.699	2.429	1.529
TBME477*006C□SB0^++	E	470	6	30	21.2	212	424	6	9	10	0.270	3.000	2.700	1.600
TBME477*006L□SB0^++	E	470	6	18	28	280	560	6	9	10	0.270	3.873	3.486	2.186
TBME687*006L□SB0^++	E	680	6	18	41	410	820	6	9	10	0.270	3.873	3.486	2.186
TBMV687*006L□SB0^++	V	680	6	23	41	410	820	6	9	10	0.285	3.520	3.168	1.868
10 Volt @ 85°C (7 Volt @ 125°C)														
TBMD227*010L□SB0^++	D	220	10	35	16.5	165	330	8	11	12	0.255	2.699	2.429	1.529
TBME337*010C□SB0^++	E	330	10	35	24.8	248	496	6	9	10	0.270	2.777	2.500	1.500
TBME337*010L□SB0^++	E	330	10	23	33	330	660	6	9	10	0.270	3.426	3.084	1.884
TBME477*010L□SB0^++	E	470	10	23	47	470	940	6	9	10	0.270	3.426	3.084	1.884
12 Volt @ 85°C (8.4 Volt @ 125°C)														
TBME227*012C□SB0^++	E	220	12	35	19.8	198	396	6	9	10	0.270	2.777	2.500	1.500
16 Volt @ 85°C (10 Volt @ 125°C)														
TBME157*016C□SB0^++	E	150	16	40	18	180	360	6	9	10	0.270	2.598	2.338	1.438
TBME157*016L□SB0^++	E	150	16	30	18	180	360	6	9	10	0.270	3.000	2.700	1.600
TBME227*016L□SB0^++	E	220	16	25	35	350	700	6	9	10	0.270	3.286	2.958	1.758
20 Volt @ 85°C (13 Volt @ 125°C)														
TBME107*020C□SB0^++	E	100	20	45	15	150	300	6	9	10	0.270	2.449	2.205	1.305
TBME107*020L□SB0^++	E	100	20	35	15	150	300	6	9	10	0.270	2.777	2.500	1.500
25 Volt @ 85°C (17 Volt @ 125°C)														
TBMD336*025L□SB0^++	D	33	25	65	6.2	62	124	8	11	12	0.255	1.981	1.783	1.083
TBME476*025L□SB0^++	E	47	25	65	8.8	88	176	6	9	10	0.270	2.038	1.834	1.134
TBME686*025L□SB0^++	E	68	25	45	17	170	340	6	9	10	0.270	2.449	2.205	1.305
35 Volt @ 85°C (23 Volt @ 125°C)														
TBMD226*035L□SB0^++	D	22	35	70	5.8	58	116	8	11	12	0.255	1.909	1.718	1.018
TBME226*035C□SB0^++	E	22	35	100	5.8	58	116	6	9	10	0.270	1.643	1.479	0.879
TBME226*035L□SB0^++	E	22	35	60	5.8	58	116	6	9	10	0.270	2.121	1.909	1.109
TBME336*035C□SB0^++	E	33	35	65	8.7	87	174	6	9	10	0.270	2.038	1.834	1.134
TBME336*035L□SB0^++	E	33	35	50	8.7	87	174	6	9	10	0.270	2.324	2.091	1.291
TBME476*035L□SB0^++	E	47	35	55	16	160	320	6	9	10	0.270	2.216	1.994	1.194

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.

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.

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