

# TPM Multianode



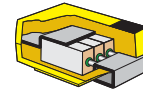
## Tantalum Ultra Low ESR Capacitor



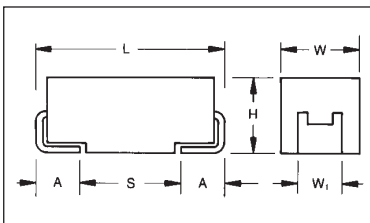
- Multi-anode construction
- Super low ESR
- CV range: 10-2200 $\mu$ F / 2.5-50V
- 4 case sizes available
- "Mirror" multi-anode construction used with D case capacitors reduces ESL to half



### MULTIANODE CONSTRUCTION



### CASE DIMENSIONS: millimeters (inches)



For part marking see page 134

Code	EIA Code	EIA Metric	L $\pm$ 0.20 (0.008)	W $\pm$ 0.20 (0.008) -0.10 (0.004)	H $\pm$ 0.20 (0.008) -0.10 (0.004)	W $\pm$ 0.20 (0.008)	A $\pm$ 0.30 (0.012) -0.20 (0.008)	S Min.
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
V	2924	7361-38	7.30 (0.287)	6.10 (0.240)	3.45 $\pm$ 0.30 (0.136 $\pm$ 0.012)	3.10 (0.120)	1.40 (0.055)	4.40 (0.173)
Y	2917	7343-20	7.30 (0.287)	4.30 (0.169)	2.00 (0.079) max	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

W<sub>1</sub> dimension applies to the termination width for A dimensional area only.

### HOW TO ORDER

**TPM**

Type

**E**

Case Size  
See table above

**108**

Capacitance Code  
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

**M**

Tolerance  
K= $\pm$ 10%  
M= $\pm$ 20%

**004**

Rated DC Voltage  
002=2.5Vdc  
004=4Vdc  
006=6.3Vdc  
010=10Vdc  
016=16Vdc  
020=20Vdc  
025=25Vdc  
035=35Vdc  
050=50Vdc

**R**

Packaging  
R = Lead Free 7" Reel  
S = Lead Free 13" Reel  
H = Tin Lead 7" Reel (Contact Manufacturer)  
K = Tin Lead 13" Reel (Contact Manufacturer)  
H, K = Non RoHS

**0018**

ESR in m $\Omega$

### TECHNICAL SPECIFICATIONS

Technical Data:

All technical data relate to an ambient temperature of +25°C

Capacitance Range: 10  $\mu$ F to 2200  $\mu$ F

Capacitance Tolerance:  $\pm$ 10%,  $\pm$ 20%

Rated Voltage ( $V_R$ )	$\leq$ +85°C:	2.5	4	6.3	10	16	20	25	35	50
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Category Voltage ( $V_C$ )	$\leq$ +125°C:	1.7	2.7	4	7	10	13	17	23	33
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Surge Voltage ( $V_S$ )	$\leq$ +85°C:	3.3	5.2	8	13	20	26	32	46	65
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Surge Voltage ( $V_S$ )	$\leq$ +125°C:	2.2	3.4	5	8	13	16	20	28	40
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Temperature Range: -55°C to +125°C

Reliability: 1% per 1000 hours at 85°C,  $V_R$  with 0.1 $\Omega$ /V series impedance, 60% confidence level

Meets requirements of AEC-Q200

# TPM Multianode



## Tantalum Ultra Low ESR Capacitor

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

Capacitance		Rated Voltage DC (V <sub>R</sub> ) to 85°C								
µF	Code	2.5V (e)	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
6.8	685									
10	106									D(140) E(120)
15	156									E(75,100)
22	226								D(70) E(60,100)	E(75,100)
33	336							D(65)	E(50,65)	
47	476							D(55)	E(55,65)	
68	686							E(45,55)		
100	107				Y(45) <sup>(M)</sup>		E(35,45)			
150	157				Y(45) <sup>(M)</sup>	E(30,40)	E(35)			
220	227			Y(30) <sup>(M)</sup>	D(35)	E(25,40)				
330	337		D(25,35)	D(25,35)	D(35) E(23,35)	E(50)*				
470	477		D(25,35)	D(30) E(18,23,30)	E(23,30)					
680	687		D(25) E(18,23)	E(18,23), V(23)						
1000	108	D(25)	D(25,45) E(18,23), V(18)	E(25) <sup>(M)</sup> V(20) <sup>(M)</sup>						
1500	158	E(12,15,18)	E(15,18)							
2200	228	E(18) <sup>(M)</sup>								

Released codes <sup>(M tolerance only)</sup>

Engineering samples - please contact manufacturer

\*Codes under development - subject to change

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

# TPM Multianode

## Tantalum Ultra Low ESR Capacitor



### RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	MSL	100kHz RMS Current (A)			100kHz RMS Voltage (V)		
								25°C	85°C	125°C	25°C	85°C	125°C
<b>2.5 Volt @ 85°C (1.7 Volt @ 125°C)</b>													
TPMD108*002#0025	D	1000	2.5	25	8	25	3	3.194	2.874	1.277	0.080	0.072	0.032
TPME158*002#0012	E	1500	2.5	38	6	12	3	4.743	4.269	1.897	0.057	0.051	0.023
TPME158*002#0015	E	1500	2.5	38	6	15	3	4.243	3.818	1.697	0.064	0.057	0.025
TPME158*002#0018	E	1500	2.5	38	6	18	3	3.873	3.486	1.549	0.070	0.063	0.028
TPME228M002#0018	E	2200	2.5	44	10	18	3	3.873	3.486	1.549	0.070	0.063	0.028
<b>4 Volt @ 85°C (2.7 Volt @ 125°C)</b>													
TPMD337*004#0025	D	330	4	13.2	8	25	3	3.194	2.874	1.277	0.080	0.072	0.032
TPMD337*004#0035	D	330	4	13.2	8	35	3	2.699	2.429	1.080	0.094	0.085	0.038
TPMD477*004#0025	D	470	4	18.8	8	25	3	3.194	2.874	1.277	0.080	0.072	0.032
TPMD477*004#0035	D	470	4	18.8	8	35	3	2.699	2.429	1.080	0.094	0.085	0.038
TPMD687*004#0025	D	680	4	27.2	8	25	3	3.194	2.874	1.277	0.080	0.072	0.032
TPME687*004#0018	E	680	4	27	6	18	3	3.873	3.486	1.549	0.070	0.063	0.028
TPME687*004#0023	E	680	4	27	6	23	3	3.426	3.084	1.370	0.079	0.071	0.032
TPMD108*004#0025	D	1000	4	40	8	25	3	3.194	2.874	1.277	0.080	0.072	0.032
TPMD108*004#0045	D	1000	4	40	8	45	3	2.380	2.142	0.952	0.107	0.096	0.043
TPME108*004#0018	E	1000	4	40	6	18	3	3.873	3.486	1.549	0.070	0.063	0.028
TPME108*004#0023	E	1000	4	40	6	23	3	3.426	3.084	1.370	0.079	0.071	0.032
TPMV108*004#0018	V	1000	4	40	6	18	3	3.979	3.581	1.592	0.072	0.064	0.029
TPME158*004#0015	E	1500	4	40	6	15	3	4.243	3.818	1.697	0.064	0.057	0.025
TPME158*004#0018	E	1500	4	40	6	18	3	3.873	3.486	1.549	0.070	0.063	0.028
<b>6.3 Volt @ 85°C (4 Volt @ 125°C)</b>													
TPMY227M006#0030	Y	220	6.3	13.2	6	30	3	2.646	2.381	1.058	0.079	0.071	0.032
TPMD337*006#0025	D	330	6.3	19.8	8	25	3	3.194	2.874	1.277	0.080	0.072	0.032
TPMD337*006#0035	D	330	6.3	19.8	8	35	3	2.699	2.429	1.080	0.094	0.085	0.038
TPMD477*006#0030	D	470	6.3	28.2	8	30	3	2.915	2.624	1.166	0.087	0.079	0.035
TPME477*006#0018	E	470	6.3	28	6	18	3	3.873	3.486	1.549	0.070	0.063	0.028
TPME477*006#0023	E	470	6.3	28	6	23	3	3.426	3.084	1.370	0.079	0.071	0.032
TPME477*006#0030	E	470	6.3	28	6	30	3	3.000	2.700	1.200	0.090	0.081	0.036
TPME687*006#0018	E	680	6.3	41	6	18	3	3.873	3.486	1.549	0.070	0.063	0.028
TPME687*006#0023	E	680	6.3	41	6	23	3	3.426	3.084	1.370	0.079	0.071	0.032
TPMV687*006#0023	V	680	6.3	41	6	23	3	3.520	3.168	1.408	0.081	0.073	0.032
TPME108M006#0025	E	1000	6.3	63	8	25	3	3.286	2.958	1.315	0.082	0.074	0.033
TPMV108M006#0020	V	1000	6.3	63	8	20	3	3.775	3.397	1.510	0.075	0.068	0.030
<b>10 Volt @ 85°C (7 Volt @ 125°C)</b>													
TPMY107M010#0045	Y	100	10	10	8	45	3	2.160	1.944	0.864	0.097	0.087	0.039
TPMY157M010#0045	Y	150	10	15	8	45	3	2.160	1.944	0.864	0.097	0.087	0.039
TPMD227*010#0035	D	220	10	22	8	35	3	2.699	2.429	1.080	0.094	0.085	0.038
TPMD337*010#0035	D	330	10	33	8	35	3	2.699	2.429	1.080	0.094	0.085	0.038
TPME337*010#0023	E	330	10	33	6	23	3	3.426	3.084	1.370	0.079	0.071	0.032
TPME337*010#0035	E	330	10	33	6	35	3	2.777	2.500	1.111	0.097	0.087	0.039
TPME477*010#0023	E	470	10	47	6	23	3	3.426	3.084	1.370	0.079	0.071	0.032
TPME477*010#0030	E	470	10	47	6	30	3	3.000	2.700	1.200	0.090	0.081	0.036
<b>16 Volt @ 85°C (10 Volt @ 125°C)</b>													
TPME157*016#0030	E	150	16	24	6	30	3	3.000	2.700	1.200	0.090	0.081	0.036
TPME157*016#0040	E	150	16	24	6	40	3	2.598	2.338	1.039	0.104	0.094	0.042
TPME227*016#0025	E	220	16	35	6	25	3	3.286	2.958	1.315	0.082	0.074	0.033
TPME227*016#0040	E	220	16	35	6	40	3	2.598	2.338	1.039	0.104	0.094	0.042
TPME337*016#0050	E	330	16	52.8	10	50	3	2.324	2.091	0.930	0.116	0.105	0.046
<b>20 Volt @ 85°C (13 Volt @ 125°C)</b>													
TPME107*020#0035	E	100	20	20	6	35	3	2.777	2.500	1.111	0.097	0.087	0.039
TPME107*020#0045	E	100	20	20	6	45	3	2.449	2.205	0.980	0.110	0.099	0.044
TPME157*020#0035	E	150	20	30	10	35	3	2.777	2.500	1.111	0.097	0.087	0.039
<b>25 Volt @ 85°C (17 Volt @ 125°C)</b>													
TPMD336*025#0065	D	33	25	8.3	8	65	3	1.981	1.783	0.792	0.129	0.116	0.051
TPMD476*025#0055	D	47	25	11.8	8	55	3	2.153	1.938	0.861	0.118	0.107	0.047
TPME686*025#0045	E	68	25	17	6	45	3	2.449	2.205	0.980	0.110	0.099	0.044
TPME686*025#0055	E	68	25	17	6	55	3	2.216	1.994	0.886	0.122	0.110	0.049
<b>35 Volt @ 85°C (23 Volt @ 125°C)</b>													
TPMD226*035#0070	D	22	35	7.7	8	70	3	1.909	1.718	0.763	0.134	0.120	0.053
TPME226*035#0060	E	22	35	8	6	60	3	2.121	1.909	0.849	0.127	0.115	0.051
TPME226*035#0100	E	22	35	8	6	100	3	1.643	1.479	0.657	0.164	0.148	0.066
TPME336*035#0050	E	33	35	12	6	50	3	2.324	2.091	0.930	0.116	0.105	0.046
TPME336*035#0065	E	33	35	12	6	65	3	2.038	1.834	0.815	0.132	0.119	0.053
TPME476*035#0055	E	47	35	16	6	55	3	2.216	1.994	0.886	0.122	0.110	0.049
TPME476*035#0065	E	47	35	16	6	65	3	2.038	1.834	0.815	0.132	0.119	0.053
<b>50 Volt @ 85°C (33 Volt @ 125°C)</b>													
TPMD106*050#0140	D	10	50	5	8	140	3	1.350	1.215	0.540	0.189	0.170	0.076
TPME106*050#0120	E	10	50	5	6	120	3	1.500	1.350	0.600	0.180	0.162	0.072
TPME156*050#0075	E	15	50	7.5	6	75	3	1.897	1.708	0.759	0.142	0.128	0.057
TPME156*050#0100	E	15	50	7.5	6	100	3	1.643	1.479	0.657	0.164	0.148	0.066
TPME226*050#0075	E	22	50	11	8	75	3	1.897	1.708	0.759	0.142	0.128	0.057
TPME226*050#0100	E	22	50	11	8	100	3	1.643	1.479	0.657	0.164	0.148	0.066

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

For typical weight and composition see page 127.

**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.

