

# TPM Multianode

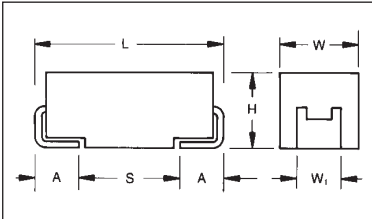
## Tantalum Ultra Low ESR Capacitor



Low ESR, high capacitance and high ripple current are the key parameters for processor filtering. Multianode configuration within a standard E case package meets these requirements. Parameters such as ESR 15mΩ, capacitance 1500μF and ripple current above 4A rms makes TPM series ready to use with the latest processor families.

TPM D case capacitors in addition are using a “mirror” multianode construction that reduces self-inductance ESL from 2.4nH to 1.0nH and thus frequency range is extended to about 500 kHz.

### CASE DIMENSIONS: millimeters (inches)



For part marking see page 163

Code	EIA 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 <sub>t</sub> ±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
D	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	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	7361-38	7.30 (0.287)	6.10 (0.240)	3.45 ±0.30 (0.136 ±0.012)	3.10 (0.120)	1.40 (0.055)	4.40 (0.173)

W<sub>t</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)

**\***  
Capacitance Tolerance  
K=±10%  
M=±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 = 7" T/R Lead Free  
S = 13" T/R Lead Free  
H = 7" Reel Tin Lead  
K = 13" Reel Tin Lead

**0018**  
Maximum ESR in Milliohms  
See note below

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

### TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C									
Capacitance Range:	10 μF to 2200 μF									
Capacitance Tolerance:	±10%, ±20%									
Rated Voltage (V <sub>R</sub> )	≤ +85°C:	2.5	4	6.3	10	16	20	25	35	50
Category Voltage (V <sub>C</sub> )	≤ +125°C:	1.7	2.7	4	7	10	13	17	23	33
Surge Voltage (V <sub>S</sub> )	≤ +85°C:	3.3	5.2	8	13	20	26	32	46	65
Surge Voltage (V <sub>S</sub> )	≤ +125°C:	2.2	3.4	5	8	13	16	20	28	40
Temperature Range:	-55°C to +125°C									
Reliability:	1% per 1000 hours at 85°C, V <sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level									

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### 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									D(200)*
10	106									D(140)* E(120)
15	156									E(75,100)
22	226								D(65)* E(60,100)	E(75,100)
33	336							D(60)*	D(75)* E(50,65)	
47	476							D(55)*	E(55,65)	
68	686						D(50)*	E(45,55)	V	
100	107						E(35,45)	E		
150	157					D(45)* E(30,40)	E			
220	227				D(35)	E(25,40)				
330	337		D(25,35)	D(25,35)	D(35) E(23,35)	E				
470	477		D(25,35)	D(30) E(18,23,30)	E(23,30) <sup>(M)</sup>					
680	687		D(25) E(18,23)	D(30)* E(18,23), V(23)	E					
1000	108	D(25)	D(25)* E(18,23), V(18)	E						
1500	158	E(12,15,18)	E(15,18)							
2200	228	E(18) <sup>(M)</sup>								

Developmental Ratings - subject to change, AVX reserve rights to change ESR specification prior to release.

\*Violet - Please Contact Manufacturer

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

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

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## 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	100kHz Ripple Current Ratings (A)			100kHz Ripple Voltage Ratings (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	3.194	2.874	1.277	0.080	0.072	0.032
TPME158*002#0012	E	1500	2.5	38	6	12	4.743	4.269	1.897	0.057	0.051	0.023
TPME158*002#0015	E	1500	2.5	38	6	15	4.243	3.818	1.697	0.064	0.057	0.025
TPME158*002#0018	E	1500	2.5	38	6	18	3.873	3.486	1.549	0.070	0.063	0.028
TPME228M002#0018	E	2200	2.5	44	10	18	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	3.194	2.874	1.277	0.080	0.072	0.032
TPMD337*004#0035	D	330	4	13.2	8	35	2.699	2.429	1.080	0.094	0.085	0.038
TPMD477*004#0025	D	470	4	18.8	8	25	3.194	2.874	1.277	0.080	0.072	0.032
TPMD477*004#0035	D	470	4	18.8	8	35	2.699	2.429	1.080	0.094	0.085	0.038
TPMD687*004#0025	D	680	4	27.2	8	25	3.194	2.874	1.277	0.080	0.072	0.032
TPME687*004#0018	E	680	4	27	6	18	3.873	3.486	1.549	0.070	0.063	0.028
TPME687*004#0023	E	680	4	27	6	23	3.426	3.084	1.370	0.079	0.071	0.032
TPME108*004#0018	E	1000	4	40	6	18	3.873	3.486	1.549	0.070	0.063	0.028
TPME108*004#0023	E	1000	4	40	6	23	3.426	3.084	1.370	0.079	0.071	0.032
TPMV108*004#0018	V	1000	4	40	6	18	3.979	3.581	1.592	0.072	0.064	0.029
TPME158*004#0015	E	1500	4	40	6	15	4.243	3.818	1.697	0.064	0.057	0.025
TPME158*004#0018	E	1500	4	40	6	18	3.873	3.486	1.549	0.070	0.063	0.028
<b>6.3 Volt @ 85°C (4 Volt @ 125°C)</b>												
TPM337*006#0025	D	330	6.3	19.8	8	25	3.194	2.874	1.277	0.080	0.072	0.032
TPM337*006#0035	D	330	6.3	19.8	8	35	2.699	2.429	1.080	0.094	0.085	0.038
TPM477*006#0030	D	470	6.3	28.2	8	30	2.915	2.624	1.166	0.087	0.079	0.035
TPME477*006#0018	E	470	6.3	28	6	18	3.873	3.486	1.549	0.070	0.063	0.028
TPME477*006#0023	E	470	6.3	28	6	23	3.426	3.084	1.370	0.079	0.071	0.032
TPME477*006#0030	E	470	6.3	28	6	30	3.000	2.700	1.200	0.090	0.081	0.036
TPME687*006#0018	E	680	6.3	41	6	18	3.873	3.486	1.549	0.070	0.063	0.028
TPME687*006#0023	E	680	6.3	41	6	23	3.426	3.084	1.370	0.079	0.071	0.032
TPMV687*006#0023	V	680	6.3	41	6	23	3.520	3.168	1.408	0.081	0.073	0.032
<b>10 Volt @ 85°C (7 Volt @ 125°C)</b>												
TPMD227*010#0035	D	220	10	22	8	35	2.699	2.429	1.080	0.094	0.085	0.038
TPMD337*010#0035	D	330	10	33	8	35	2.699	2.429	1.080	0.094	0.085	0.038
TPME337*010#0023	E	330	10	33	6	23	3.426	3.084	1.370	0.079	0.071	0.032
TPME337*010#0035	E	330	10	33	6	35	2.777	2.500	1.111	0.097	0.087	0.039
TPME477M010#0023	E	470	10	47	6	23	3.426	3.084	1.370	0.079	0.071	0.032
TPME477M010#0030	E	470	10	47	6	30	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	3.000	2.700	1.200	0.090	0.081	0.036
TPME157*016#0040	E	150	16	24	6	40	2.598	2.338	1.039	0.104	0.094	0.042
TPME227*016#0025	E	220	16	35	6	25	3.286	2.958	1.315	0.082	0.074	0.033
TPME227*016#0040	E	220	16	35	6	40	2.598	2.338	1.039	0.104	0.094	0.042
<b>20 Volt @ 85°C (13 Volt @ 125°C)</b>												
TPME107*020#0035	E	100	20	20	6	35	2.777	2.500	1.111	0.097	0.087	0.039
TPME107*020#0045	E	100	20	20	6	45	2.449	2.205	0.980	0.110	0.099	0.044
<b>25 Volt @ 85°C (17 Volt @ 125°C)</b>												
TPME686*025#0045	E	68	25	17	6	45	2.449	2.205	0.980	0.110	0.099	0.044
TPME686*025#0055	E	68	25	17	6	55	2.216	1.994	0.886	0.122	0.110	0.049
<b>35 Volt @ 85°C (23 Volt @ 125°C)</b>												
TPME226*335#0060	E	22	35	8	6	60	2.121	1.909	0.849	0.127	0.115	0.051
TPME226*035#0100	E	22	35	8	6	100	1.643	1.479	0.657	0.164	0.148	0.066
TPME336*035#0050	E	33	35	12	6	50	2.324	2.091	0.930	0.116	0.105	0.046
TPME336*035#0065	E	33	35	12	6	65	2.038	1.834	0.815	0.132	0.119	0.053
TPME476*035#0055	E	47	35	16	6	55	2.216	1.994	0.886	0.122	0.110	0.049
TPME476*035#0065	E	47	35	16	6	65	2.038	1.834	0.815	0.132	0.119	0.053
<b>50 Volt @ 85°C (33 Volt @ 125°C)</b>												
TPME106*050#0120	E	10	50	5	6	120	1.500	1.350	0.600	0.180	0.162	0.072
TPME156*050#0075	E	15	50	7.5	6	75	1.897	1.708	0.759	0.142	0.128	0.057
TPME156*050#0100	E	15	50	7.5	6	100	1.643	1.479	0.657	0.164	0.148	0.066
TPME226*050#0075	E	22	50	11	8	75	1.897	1.708	0.759	0.142	0.128	0.057
TPME226*050#0100	E	22	50	11	8	100	1.643	1.479	0.657	0.164	0.148	0.066

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

\* Insert K for ±10% and M for ±20% Capacitance Tolerance

- # **Standard Plating** – Insert R for 7" reel and S for 13" reel
- # **Gold Plating** – Insert A for 7" reel and B for 13" reel
- # **Tin Lead** – Insert H for 7" reel and K for 13" reel

**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.

### TPM MULTIANODE CONSTRUCTION

