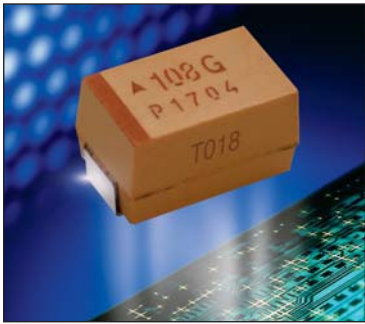


TPM Multianode



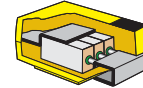
Tantalum Ultra Low ESR Capacitor



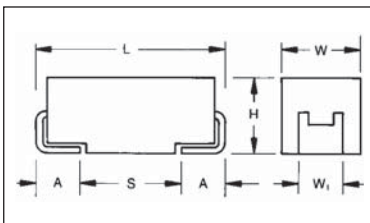
- Multi-anode construction
- Super low ESR
- CV range: 10-2200 μ F / 2.5-50V
- 4 case sizes available
- "Mirror" multi-anode construction used with D case capacitors reduces ESL to half



MULTIANODE CONSTRUCTION



CASE DIMENSIONS: millimeters (inches)



| 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) |

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

For part marking see page 132

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 = 7" T/R Lead Free
S = 13" T/R Lead Free
H = Tin Lead 7" reel (Contact Manufacturer)
K = Tin Lead 13" reel (Contact Manufacturer)
H, K = Non RoHS

0018

ESR in m Ω

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|-----|-----|----|----|----|----|----|----|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | | |
| Capacitance Range: | 10 μ F to 2200 μ 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 |
| Category Voltage (V _C) | \leq +125°C: | 1.7 | 2.7 | 4 | 7 | 10 | 13 | 17 | 23 | 33 |
| Surge Voltage (V _S) | \leq +85°C: | 3.3 | 5.2 | 8 | 13 | 20 | 26 | 32 | 46 | 65 |
| Surge Voltage (V _S) | \leq +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 _R with 0.1 Ω /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 _R) 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) ^(M) | | E(35,45) | | | |
| 150 | 157 | | | | Y(45) ^(M) | E(30,40) | E(35) | | | |
| 220 | 227 | | | Y(30) ^(M) | 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) ^(M) V(20) ^(M) | | | | | | |
| 1500 | 158 | E(12,15,18) | E(15,18) | | | | | | | |
| 2200 | 228 | E(18) ^(M) | | | | | | | | |

Released codes ^(M tolerance only)

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 | 100kHz Ripple Current Ratings (A) | | | 100kHz Ripple Voltage Ratings (V) | | |
|---|-----------|------------------|-------------------|---------------|-----------|-----------------------|-----------------------------------|-------|-------|-----------------------------------|-------|-------|
| | | | | | | | 25°C | 85°C | 125°C | 25°C | 85°C | 125°C |
| 2.5 Volt @ 85°C (1.7 Volt @ 125°C) | | | | | | | | | | | | |
| 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 |
| 4 Volt @ 85°C (2.7 Volt @ 125°C) | | | | | | | | | | | | |
| 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 |
| TPMD108*004#0025 | D | 1000 | 4 | 40 | 8 | 25 | 3.194 | 2.874 | 1.277 | 0.080 | 0.072 | 0.032 |
| TPMD108*004#0045 | D | 1000 | 4 | 40 | 8 | 45 | 2.380 | 2.142 | 0.952 | 0.107 | 0.096 | 0.043 |
| 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 |
| 6.3 Volt @ 85°C (4 Volt @ 125°C) | | | | | | | | | | | | |
| TPMY227M006#0030 | Y | 220 | 6.3 | 13.2 | 6 | 30 | 2.646 | 2.381 | 1.058 | 0.079 | 0.071 | 0.032 |
| TPMD337*006#0025 | D | 330 | 6.3 | 19.8 | 8 | 25 | 3.194 | 2.874 | 1.277 | 0.080 | 0.072 | 0.032 |
| TPMD337*006#0035 | D | 330 | 6.3 | 19.8 | 8 | 35 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TPMD477*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 |
| TPME108M006#0025 | E | 1000 | 6.3 | 63 | 8 | 25 | 3.286 | 2.958 | 1.315 | 0.082 | 0.074 | 0.033 |
| TPMV108M006#0020 | V | 1000 | 6.3 | 63 | 8 | 20 | 3.775 | 3.397 | 1.510 | 0.075 | 0.068 | 0.030 |
| 10 Volt @ 85°C (7 Volt @ 125°C) | | | | | | | | | | | | |
| TPMY107M010#0045 | Y | 100 | 10 | 10 | 8 | 45 | 2.160 | 1.944 | 0.864 | 0.097 | 0.087 | 0.039 |
| TPMY157M010#0045 | Y | 150 | 10 | 15 | 8 | 45 | 2.160 | 1.944 | 0.864 | 0.097 | 0.087 | 0.039 |
| 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 |
| TPME477*010#0023 | E | 470 | 10 | 47 | 6 | 23 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| TPME477*010#0030 | E | 470 | 10 | 47 | 6 | 30 | 3.000 | 2.700 | 1.200 | 0.090 | 0.081 | 0.036 |
| 16 Volt @ 85°C (10 Volt @ 125°C) | | | | | | | | | | | | |
| 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 |
| TPME337*016#0050 | E | 330 | 16 | 52.8 | 10 | 50 | 2.324 | 2.091 | 0.930 | 0.116 | 0.105 | 0.046 |
| 20 Volt @ 85°C (13 Volt @ 125°C) | | | | | | | | | | | | |
| 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 |
| TPME157*020#0035 | E | 150 | 20 | 30 | 10 | 35 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| 25 Volt @ 85°C (17 Volt @ 125°C) | | | | | | | | | | | | |
| TPMD336*025#0065 | D | 33 | 25 | 8.3 | 8 | 65 | 1.981 | 1.783 | 0.792 | 0.129 | 0.116 | 0.051 |
| TPMD476*025#0055 | D | 47 | 25 | 11.8 | 8 | 55 | 2.153 | 1.938 | 0.861 | 0.118 | 0.107 | 0.047 |
| 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 |
| 35 Volt @ 85°C (23 Volt @ 125°C) | | | | | | | | | | | | |
| TPMD226*035#0070 | D | 22 | 35 | 7.7 | 8 | 70 | 1.909 | 1.718 | 0.763 | 0.134 | 0.120 | 0.053 |
| TPME226*035#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 |
| 50 Volt @ 85°C (33 Volt @ 125°C) | | | | | | | | | | | | |
| TPMD106*050#0140 | D | 10 | 50 | 5 | 8 | 140 | 1.350 | 1.215 | 0.540 | 0.189 | 0.170 | 0.076 |
| 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 |

* Insert K for ±10% and M for ±20%

Standard Plating – Insert R for 7" reel and S for 13" reel
 # **Tin Lead Plating** – 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.

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. TPM series is MSL level 3 according to J-STD-020C.

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

