

# TRM Professional Multianode



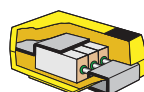
## Tantalum Ultra Low ESR Capacitor



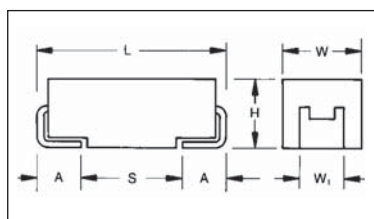
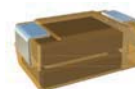
- Improved reliability – 0.5%/1khrs (twice better than standard)
- DCL reduced by 25% to 0.0075 CV
- Robust against higher thermo-mechanical stresses during assembly process
- Multi-anode construction
- Super low ESR
- CV range 22-1500μF / 2.5-35V
- “Mirror” construction used with D case capacitors reduces ESL to half
- Automotive, medical, aerospace, military and other hi-end application



### MULTIANODE CONSTRUCTION



### MULTIANODE TRMD LOW SELF INDUCTANCE CONSTRUCTION “MIRROR” DESIGN



For part marking see page 136

### CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | 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>1</sub> ±0.20 (0.008) | A+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) |

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

### HOW TO ORDER

**TRM**

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)

**\***

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

**R**

Packaging

R = Lead Free 7" Reel  
B = Gold Plating 13" Reel  
H = Tin Lead 7" Reel  
(Contact Manufacturer)  
K = Tin Lead 13" Reel  
(Contact Manufacturer)  
H, K = Non RoHS

**0023**

ESR in mΩ

### TECHNICAL SPECIFICATIONS

Technical Data:

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

Capacitance Range: 22 μF to 1500 μF

Capacitance Tolerance: ±10%; ±20%

| Rated Voltage (V <sub>R</sub> )    | ≤ +85°C:  | 2.5 | 4   | 6.3 | 10 | 16 | 20 | 25 | 35 |
|------------------------------------|-----------|-----|-----|-----|----|----|----|----|----|
| Category Voltage (V <sub>C</sub> ) | ≤ +125°C: | 1.7 | 2.7 | 4   | 7  | 10 | 13 | 17 | 23 |
| Surge Voltage (V <sub>S</sub> )    | ≤ +85°C:  | 3.3 | 5.2 | 8   | 13 | 20 | 26 | 32 | 46 |
| Surge Voltage (V <sub>S</sub> )    | ≤ +125°C: | 2.2 | 3.4 | 5   | 8  | 13 | 16 | 20 | 28 |

Temperature Range: -55°C to +125°C

Reliability: 0.5% per 1000 hours at 85°C, V<sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level

Meets requirements of AEC-Q200



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## Tantalum Ultra Low ESR Capacitor

### CAPACITANCE AND RATED VOLTAGE, VR (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| 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)         |
| 6.8         | 685  |                                            |           |          |         |          |          |         |                 |
| 10          | 106  |                                            |           |          |         |          |          |         |                 |
| 15          | 156  |                                            |           |          |         |          |          |         |                 |
| 22          | 226  |                                            |           |          |         |          |          |         | D(70)/E(60,100) |
| 33          | 336  |                                            |           |          |         |          |          | D(65)   | E(50,65)        |
| 47          | 476  |                                            |           |          |         |          |          | E(65)   |                 |
| 68          | 686  |                                            |           |          |         |          |          |         |                 |
| 100         | 107  |                                            |           |          |         |          | E(35,45) |         |                 |
| 150         | 157  |                                            |           |          |         | E(30,40) |          |         |                 |
| 220         | 227  |                                            |           |          | D(35)   |          |          |         |                 |
| 330         | 337  |                                            | D(35)     | D(35)    | E(35)   |          |          |         |                 |
| 470         | 477  |                                            | D(35)     | E(30)    |         |          |          |         |                 |
| 680         | 687  |                                            | E(23)     |          |         |          |          |         |                 |
| 1000        | 108  | D(25)                                      | E(18*,23) |          |         |          |          |         |                 |
| 1500        | 158  | E(15*,18)                                  |           |          |         |          |          |         |                 |
| 2200        | 228  |                                            |           |          |         |          |          |         |                 |

Available Ratings, (ESR ratings in mOhms in brackets)

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.

# TRM Professional Multianode



## Tantalum Ultra Low ESR Capacitor

### RATINGS & PART NUMBER REFERENCE

| AVX<br>Part No.                    | Case<br>Size | Capacitance<br>(µF) | Rated<br>Voltage<br>(V) | DCL<br>(µA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (mΩ)<br>@100kHz | MSL | 100kHz RMS Current (mA) |       |       | 100kHz RMS Voltage (mV) |       |       |
|------------------------------------|--------------|---------------------|-------------------------|---------------------|-----------------|-----------------------------|-----|-------------------------|-------|-------|-------------------------|-------|-------|
|                                    |              |                     |                         |                     |                 |                             |     | 25°C                    | 85°C  | 125°C | 25°C                    | 85°C  | 125°C |
| 2.5 Volt @ 85°C (1.7 Volt @ 125°C) |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRMD108*002#0025                   | D            | 1000                | 2.5                     | 18.8                | 8               | 25                          | 3   | 3.194                   | 2.874 | 1.277 | 0.080                   | 0.072 | 0.032 |
| TRME158*002#0015                   | E            | 1500                | 2.5                     | 28.1                | 6               | 15                          | 3   | 4.243                   | 3.818 | 1.697 | 0.064                   | 0.057 | 0.025 |
| TRME158*002#0018                   | E            | 1500                | 2.5                     | 28.1                | 6               | 18                          | 3   | 3.873                   | 3.486 | 1.549 | 0.070                   | 0.063 | 0.028 |
| 4 Volt @ 85°C (2.7 Volt @ 125°C)   |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRMD337*004#0035                   | D            | 330                 | 4                       | 9.9                 | 8               | 35                          | 3   | 2.699                   | 2.429 | 1.080 | 0.094                   | 0.085 | 0.038 |
| TRMD477*004#0035                   | D            | 470                 | 4                       | 14.1                | 8               | 35                          | 3   | 2.699                   | 2.429 | 1.080 | 0.094                   | 0.085 | 0.038 |
| TRME687*004#0023                   | E            | 680                 | 4                       | 20.4                | 6               | 23                          | 3   | 3.426                   | 3.084 | 1.370 | 0.079                   | 0.071 | 0.032 |
| TRME108*004#0018                   | E            | 1000                | 4                       | 30                  | 6               | 18                          | 3   | 3.873                   | 3.486 | 1.549 | 0.070                   | 0.063 | 0.028 |
| TRME108*004#0023                   | E            | 1000                | 4                       | 30                  | 6               | 23                          | 3   | 3.426                   | 3.084 | 1.370 | 0.079                   | 0.071 | 0.032 |
| 6.3 Volt @ 85°C (4 Volt @ 125°C)   |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRMD337*006#0035                   | D            | 330                 | 6.3                     | 14.9                | 8               | 35                          | 3   | 2.699                   | 2.429 | 1.080 | 0.094                   | 0.085 | 0.038 |
| TRME477*006#0030                   | E            | 470                 | 6.3                     | 21.2                | 6               | 30                          | 3   | 3.000                   | 2.700 | 2.100 | 0.090                   | 0.081 | 0.036 |
| 10 Volt @ 85°C (7 Volt @ 125°C)    |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRMD227*010#0035                   | D            | 220                 | 10                      | 16.5                | 8               | 35                          | 3   | 2.699                   | 2.429 | 1.080 | 0.094                   | 0.085 | 0.038 |
| TRME337*010#0035                   | E            | 330                 | 10                      | 24.8                | 6               | 35                          | 3   | 2.777                   | 2.500 | 1.111 | 0.097                   | 0.087 | 0.039 |
| 16 Volt @ 85°C (10 Volt @ 125°C)   |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRME157*016#0030                   | E            | 150                 | 16                      | 18                  | 6               | 30                          | 3   | 3.000                   | 2.700 | 1.200 | 0.090                   | 0.081 | 0.036 |
| TRME157*016#0040                   | E            | 150                 | 16                      | 18                  | 6               | 40                          | 3   | 2.598                   | 2.338 | 1.039 | 0.104                   | 0.094 | 0.042 |
| 20 Volt @ 85°C (13 Volt @ 125°C)   |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRME107*020#0035                   | E            | 100                 | 20                      | 15                  | 6               | 35                          | 3   | 2.777                   | 2.500 | 1.111 | 0.097                   | 0.087 | 0.039 |
| TRME107*020#0045                   | E            | 100                 | 20                      | 15                  | 6               | 45                          | 3   | 2.449                   | 2.205 | 0.980 | 0.110                   | 0.099 | 0.044 |
| 25 Volt @ 85°C (17 Volt @ 125°C)   |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRMD336*025#0065                   | D            | 33                  | 25                      | 6.2                 | 8               | 65                          | 3   | 1.981                   | 1.783 | 0.792 | 0.129                   | 0.116 | 0.051 |
| TRME476*025#0065                   | E            | 47                  | 25                      | 8.8                 | 6               | 65                          | 3   | 2.038                   | 1.834 | 0.815 | 0.132                   | 0.119 | 0.053 |
| 35 Volt @ 85°C (23 Volt @ 125°C)   |              |                     |                         |                     |                 |                             |     |                         |       |       |                         |       |       |
| TRMD226*035#0070                   | D            | 22                  | 35                      | 5.8                 | 8               | 70                          | 3   | 1.909                   | 1.718 | 0.763 | 0.134                   | 0.120 | 0.053 |
| TRME226*035#0060                   | E            | 22                  | 35                      | 5.8                 | 6               | 60                          | 3   | 2.121                   | 1.909 | 0.849 | 0.127                   | 0.115 | 0.051 |
| TRME226*035#0100                   | E            | 22                  | 35                      | 5.8                 | 6               | 100                         | 3   | 1.643                   | 1.479 | 0.657 | 0.164                   | 0.148 | 0.066 |
| TRME336*035#0050                   | E            | 33                  | 35                      | 8.7                 | 6               | 50                          | 3   | 2.324                   | 2.091 | 0.930 | 0.116                   | 0.105 | 0.046 |
| TRME336*035#0065                   | E            | 33                  | 35                      | 8.7                 | 6               | 65                          | 3   | 2.038                   | 1.834 | 0.815 | 0.132                   | 0.119 | 0.053 |

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 129.

**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.