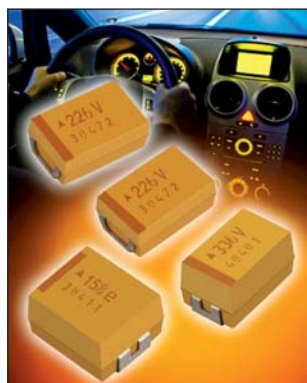


TRM Professional Multianode



Tantalum Ultra Low ESR Capacitor



FEATURES

- 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 4.7-1500µF / 2.5-50V
- “Mirror” construction used with D case capacitors reduces ESL to half
- Automotive, industrial and other higher end applications



LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT

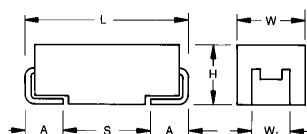


RoHS
COMPLIANT

SnPb termination option is not
RoHS compliant.

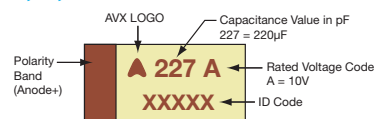
APPLICATIONS

- Automotive, Avionics and Industrial high power DC/DC convertors

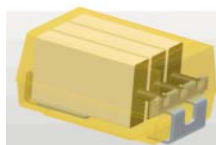


MARKING

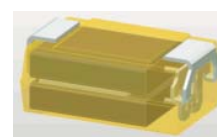
D, E, U CASE



MULTIANODE CONSTRUCTION



MULTIANODE TRM D LOW SELF INDUCTANCE CONSTRUCTION “MIRROR” DESIGN



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 ₁ ±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)
U	2924	7361-43	7.30 (0.287)	6.10 (0.240)	4.10 (0.162)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)

W₁ 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
012 = 12Vdc
016 = 16Vdc
020 = 20Vdc
025 = 25Vdc
035 = 35Vdc
050 = 50Vdc

R



Packaging
R = Pure Tin 7" Reel
S = Pure Tin 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:

4.7 µF to 1500 µF

Capacitance Tolerance:

±10%; ±20%

Rated Voltage (V _R)	≤ +85°C:	2.5	4	6.3	10	12	16	20	25	35	50
Category Voltage (V _C)	≤ +125°C:	1.7	2.7	4	7	8	10	13	17	23	33
Surge Voltage (V _S)	≤ +85°C:	3.3	5.2	8	13	16	20	26	32	46	65
Surge Voltage (V _S)	≤ +125°C:	2.2	3.4	5	8	10	13	16	20	28	40

Temperature Range:

-55°C to +125°C

Reliability:

0.5% per 1000 hours at 85°C, V_R with 0.1Ω/V series impedance, 60% confidence level

Meets requirements of AEC-Q200

Tantalum Ultra Low ESR Capacitor

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V _R) to 85°C									
μF	Code	2.5V (e)	4V (G)	6.3V (J)	10V (A)	12V (B)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
4.7	475										D(200)
6.8	685										
10	106									D(120)	
15	156										
22	226									D(70)/E(60,100)	
33	336								D(65)	E(50,65)	
47	476						D(100)	D(55)	E(65)		
68	686										
100	107							E(35,45)			
150	157				D(45)		E(30,40)				
220	227				D(35)	E(35)	U(30,40)				
330	337		D(35)	D(35)	E(35)						
470	477		D(35)	E(30)	U(23,30)						
680	687		E(23)	U(18,23)							
1000	108	D(25)	E(23) U(18,23)								
1500	158	E(18) U(18,23)									

Released ratings, (ESR ratings in mOhms in parentheses)

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

TRM Professional Multianode



Tantalum Ultra Low ESR Capacitor

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (μA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	100kHz RMS Current (A)			MSL
										25°C	85°C	125°C	
2.5 Volt @ 85°C													
TRMD108*002#0025	D	1000	2.5	85	1.7	125	18.8	8	25	3.194	2.874	1.277	3
TRME158*002#0018	E	1500	2.5	85	1.7	125	28.1	6	18	3.873	3.486	1.549	3
TRMU158*002#0018	U	1500	2.5	85	1.7	125	22.5	6	18	4.048	3.643	1.619	3
TRMU158*002#0023	U	1500	2.5	85	1.7	125	22.5	6	23	3.581	3.223	1.433	3
4 Volt @ 85°C													
TRMD337*004#0035	D	330	4	85	2.7	125	9.9	8	35	2.699	2.429	1.080	3
TRMD477*004#0035	D	470	4	85	2.7	125	14.1	8	35	2.699	2.429	1.080	3
TRME687*004#0023	E	680	4	85	2.7	125	20.4	6	23	3.426	3.084	1.370	3
TRME108*004#0023	E	1000	4	85	2.7	125	30	6	23	3.426	3.084	1.370	3
TRMU108*004#0018	U	1000	4	85	2.7	125	30	6	18	4.048	3.643	1.619	3
TRMU108*004#0023	U	1000	4	85	2.7	125	30	6	23	3.581	3.223	1.433	3
6.3 Volt @ 85°C													
TRMD337*006#0035	D	330	6.3	85	4	125	14.9	8	35	2.699	2.429	1.080	3
TRME477*006#0030	E	470	6.3	85	4	125	21.2	6	30	3.000	2.700	1.200	3
TRMU687*006#0018	U	680	6.3	85	4	125	30.6	6	18	4.048	3.643	1.619	3
TRMU687*006#0023	U	680	6.3	85	4	125	30.6	6	23	3.581	3.223	1.433	3
10 Volt @ 85°C													
TRMD157*010#0045	D	150	10	85	7	125	11.3	8	45	2.380	2.142	0.952	3
TRMD227*010#0035	D	220	10	85	7	125	16.5	8	35	2.699	2.429	1.080	3
TRME337*010#0035	E	330	10	85	7	125	24.8	6	35	2.777	2.500	1.111	3
TRMU477*010#0023	U	470	10	85	7	125	35.3	8	23	3.581	3.223	1.433	3
TRMU477*010#0030	U	470	10	85	7	125	35.3	8	30	3.136	2.822	1.254	3
12 Volt @ 85°C													
TRME227*012#0035	E	220	12	85	8.4	125	19.8	6	35	2.777	2.500	1.111	3
16 Volt @ 85°C													
TRMD476*016#0100	D	47	16	85	10	125	5.6	8	100	1.597	1.437	0.639	3
TRME157*016#0030	E	150	16	85	10	125	18	6	30	3.000	2.700	1.200	3
TRME157*016#0040	E	150	16	85	10	125	18	6	40	2.598	2.338	1.039	3
TRMU227*016#0030	U	220	16	85	10	125	26.4	8	30	3.136	2.822	1.254	3
TRMU227*016#0040	U	220	16	85	10	125	26.4	8	40	2.716	2.444	1.086	3
20 Volt @ 85°C													
TRMD476*020#0055	D	47	20	85	13	125	7.1	8	55	2.153	1.938	0.861	3
TRME107*020#0035	E	100	20	85	13	125	15	6	35	2.777	2.500	1.111	3
TRME107*020#0045	E	100	20	85	13	125	15	6	45	2.449	2.205	0.980	3
25 Volt @ 85°C													
TRMD336*025#0065	D	33	25	85	17	125	6.2	8	65	1.981	1.783	0.792	3
TRME476*025#0065	E	47	25	85	17	125	8.8	6	65	2.038	1.834	0.815	3
35 Volt @ 85°C													
TRMD106*035#0120	D	10	35	85	23	125	2.6	8	120	1.458	1.312	0.583	3
TRMD226*035#0070	D	22	35	85	23	125	5.8	8	70	1.909	1.718	0.763	3
TRME226*035#0060	E	22	35	85	23	125	5.8	6	60	2.121	1.909	0.849	3
TRME226*035#0100	E	22	35	85	23	125	5.8	6	100	1.643	1.479	0.657	3
TRME336*035#0050	E	33	35	85	23	125	8.7	6	50	2.324	2.091	0.930	3
TRME336*035#0065	E	33	35	85	23	125	8.7	6	65	2.038	1.834	0.815	3
50 Volt @ 85°C													
TRMD475*050#0200	D	4.7	50	85	33	125	1.8	8	200	1.129	1.016	0.452	3

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 273.

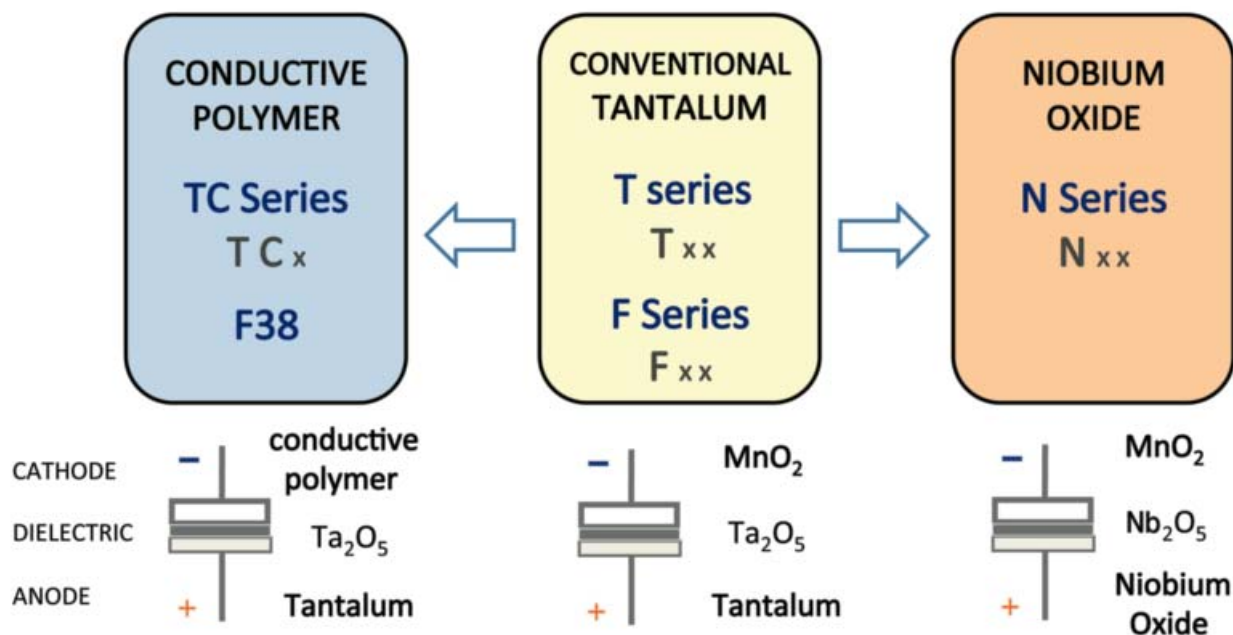
NOTE: AVX reserves the right to supply higher voltage ratings or tighter tolerance part in the same case size, to the same reliability standards.

QUALIFICATION TABLE

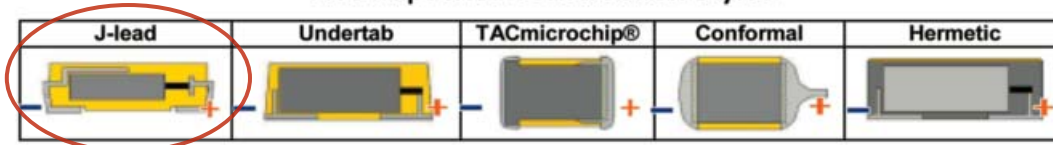
TEST	TRM professional multianode series (Temperature range -55°C to +125°C)									
	Condition			Characteristics						
Endurance	Apply rated voltage (Ur) at 85°C and / or category voltage (Uc) at 125°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$. Stabilize at room temperature for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Storage Life	Store at 125°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Humidity	Store at 65°C and 95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	1.5 x initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	1.2 x initial limit					
				ESR	1.25 x initial limit					
Biased Humidity	Apply rated voltage (Ur) at 85°C, 85% relative humidity for 1000 hours. Stabilize at room temperature and humidity for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	2 x initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	1.2 x initial limit					
				ESR	1.25 x initial limit					
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
	1	+20	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55	15	$\Delta C/C$	n/a	+0/-10%	$\pm 5\%$	+10/-0%	+12/-0%	$\pm 5\%$
	3	+20	15	DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*
	4	+85	15	ESR	1.25 x IL*	2.5 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*
	5	+125	15							
	6	+20	15							
Surge Voltage	Apply 1.3x category voltage (Uc) at 125°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 Ω			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 5\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Mechanical Shock	MIL-STD-202, Method 213, Condition F			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 5\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Vibration	MIL-STD-202, Method 204, Condition D			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 5\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					

*Initial Limit

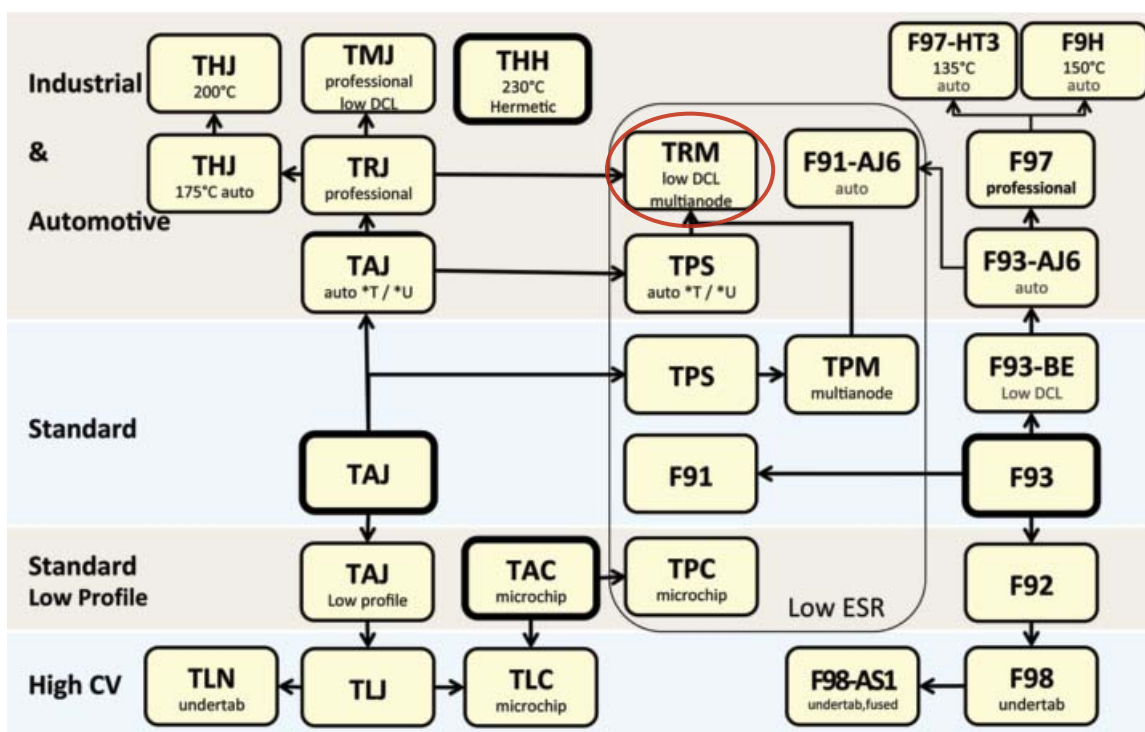
AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP



Five Capacitor Construction Styles



SERIES LINE UP: CONVENTIONAL SMD MnO₂



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

AVX:

TRMD108K002R0025	TRMD108M002R0025	TRMD226K035R0070	TRMD226M035R0070	TRMD227K010R0035
TRMD227M010R0035	TRMD336K025R0065	TRMD336M025R0065	TRMD337K004R0035	TRMD337K006R0035
TRMD337M004R0035	TRMD337M006R0035	TRMD477K004R0035	TRMD477M004R0035	TRME107K020R0035
TRME107K020R0045	TRME107M020R0035	TRME107M020R0045	TRME108K004R0018	TRME108K004R0023
TRME108M004R0018	TRME108M004R0023	TRME157K016R0030	TRME157K016R0040	TRME157M016R0030
TRME157M016R0040	TRME158K002R0015	TRME158K002R0018	TRME158M002R0015	TRME158M002R0018
TRME226K035R0060	TRME226K035R0100	TRME226M035R0060	TRME226M035R0100	TRME336K035R0050
TRME336K035R0065	TRME336M035R0050	TRME336M035R0065	TRME337K010R0035	TRME337M010R0035
TRME476K025R0065	TRME476M025R0065	TRME477K006R0030	TRME477M006R0030	TRME687K004R0023
TRME687M004R0023	TRMD476K020R0055	TRMD226K035H0070	TRME227K012R0035	TRMD476K016R0100
TRMD475K050R0200	TRMD106K035R0120	TRMD157K010R0045	TRMU687K006R0023?	TRMU158K002R0023
TRMU158K002R0018	TRMU227K016R0030	TRMU108K004R0023	TRMU108K004R0018	TRMU227K016R0040
TRMU477K010R0023	TRMU687K006R0018	TRMU477K010R0030	TRMU687K006R0023	TRMU687K006R0023_
TRMD476M020K0055	TRME157M016H0030	TRME477K006H0030	TRME337K010H0035	TRME107K020H0045
TRMD227M010H0035	TRMD476K020S0055	TRMD476M020S0055	TRME108K004H0023	TRMD476K020K0055
TRME336K035H0065	TRMD476M020H0055	TRMD476M020R0055	TRMD476K020H0055	TRMD226M035H0070