

Stacked TCH Low ESR Hermetic Series

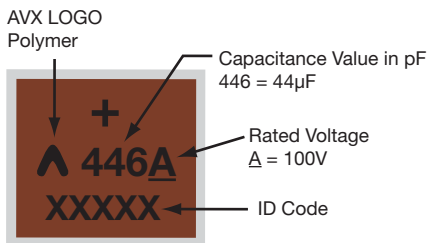


SMD Low ESR Tantalum Capacitors with Conductive Polymer Electrode in Hermetic package



FEATURES

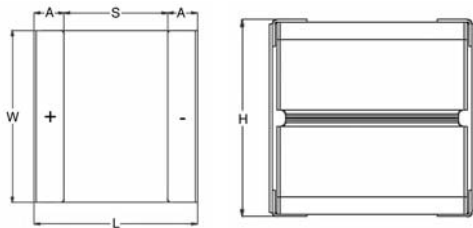
- Aerospace & Hi-Rel applications
- Low ESR conductive polymer electrode
- Endurance up to 10 000 hrs. on selected codes
- Ceramic case hermetic packaging
- Stability under humidity and ambient atmosphere exposure
- Large case sizes including CTC-21D provide high capacitance values
- Extremely low ESR and high footprint efficiency
- Based on hermetically sealed design developed with ESA to suit aerospace applications
- Manufacturing and screening utilizing AVX patented Q-Process to effectively remove components that may experience excessive parametric shifts or instability in operation life



APPLICATIONS

- Aerospace
- Defence
- Power supplies
- Pulse power

For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)



CASE DIMENSIONS: millimeters (inches)

Code	Type	L	W	H Max.	A	S Min.
S	J-lead (L-shape)	11.80 ± 0.50 (0.465 ± 0.020)	12.50 ± 0.50 (0.492 ± 0.020)	12.4 (0.488)	2.05 ± 0.50 (0.081 ± 0.020)	7.00 (0.276)

HOW TO ORDER

TCH

Type

S

Case Size
See table above

446

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

M

Tolerance
M = ±20%

100

Rated DC Voltage
100 = 100Vdc

W

Packaging
W = Waffle

0100

ESR in mΩ

L

Termination
L = 'J' lead L-shape (Sn/Pb)

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C		
Capacitance Range:	44 µF		
Capacitance Tolerance:	20%		
Leakage Current DCL:	0.1CV		
Rated Voltage (V _R)	≤ +85°C:	100	
Category Voltage (V _C)	≤ +125°C:	66	
Temperature Range:	-55°C to +125°C		
Reliability:	1% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level		
Termination Finished:	Sn/Pb Plating (J-lead)		
Typical Weight:	5.3g		

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RATINGS & PART NUMBER REFERENCE

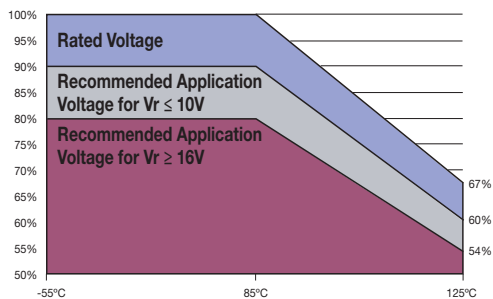
AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz.C	MSL	100kHz RMS Current (A)		
											25°C	85°C	125°C
100 Volt @ 85°C													
TCHS446M100W0100L	S	44	100	85	66	125	440	8	100	1	2.0	1.8	0.8

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.

RECOMMENDED DERATING FACTOR

Voltage and temperature derating as percentage of Vr



QUALIFICATION TABLE

TEST	TCH low ESR hermetic series (Temperature range -55°C to +125°C)									
	Condition			Characteristics						
Endurance	Determine after application of rated voltage for 2000 (10 000) +48/0 hours at 85±2°C and then leaving min. 2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving min. 2 hours at room temperature. Power supply impedance to be < 3Ω.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				ΔC/C	within ±20% of initial value					
				DF	1.5 x initial limit					
				ESR	2 x initial limit					
Storage Life	125°C, 0V, 2000h			Visual examination	no visible damage					
				DCL	2 x initial limit					
				ΔC/C	within ±20% of initial value					
				DF	1.5 x initial limit					
				ESR	2 x initial limit					
Humidity	Determine after storage without applied voltage at 40±2°C and 90±2% relative humidity for 56 days and then recovery min. 2 hours at room temperature.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				ΔC/C	within ±10% of initial value					
				DF	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	+22	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55	15	ΔC/C	IL*	+0/-20%	±5%	+20/-0%	+30/-0%	±5%
	3	+22	15	DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*
	4	+85	15	ESR	1.25 x IL* 1.25 x IL* 1.25 x IL* 1.5 x IL* 1.5 x IL* 1.25 x IL*					
	5	+125	15							
6	+22	15								
Surge Voltage	Test temperature: 85°C+3/0°C Surge voltage: 1.15 x rated voltage Series protection resistance: 1000Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±20% of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					

*Initial Limit