For more information, please contact manufacturer

STACKED TCH LOW ESR HERMETIC SERIES

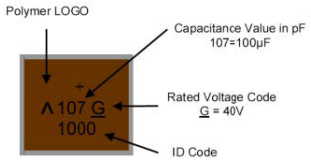
SMD Low ESR Tantalum Capacitors with Conductive Polymer Electrode in Hermetic Package

FEATURES

- Aerospace & Hi-Rel applications
- Low ESR conductive polymer electrode
- High endurance
- Ceramic case hermetic packaging
- Stability under humidity and ambient atmosphere exposure
- Extremely low ESR and high footprint efficiency
- Based on hermetically sealed design developed with ESA to suit aerospace applications

MARKING

S CASE

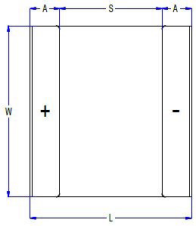


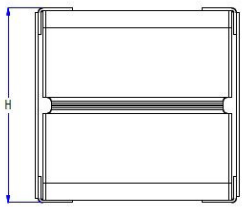
APPLICATIONS

- Aerospace
- Defence
- Power supplies
- Pulse power

CASE DIMENSIONS: millimeters (inches)

Code	Type	L	W	H Max.	W_1	S Min.
S	J-lead (L-shape)	11.80 ± 0.50 (0.465 ± 0.020)	12.50 ± 0.50 (0.492 ± 0.020)	12.40 (0.488)	2.05 ± 0.50 (0.081 ± 0.020)	7.00 (0.276)





HOW TO ORDER

KYOCERA AVX PART NUMBER

TCH	S	446	M	100	W	0	100	L
Type	See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** M = ±20%	100 = 100Vdc	**Packaging** W = Waffle	0 = Standard	**ESR in mΩ**	**Termination** L = 'J' lead L-shape (Sn/Pb)

Not RoHS Compliant

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C							
Capacitance Range:	4.4µF to 660µF							
Capacitance Tolerance:	±20%							
Leakage Current DCL:	0.1CV							
Rated Voltage (V_R)	≤ +85°C:	10	16	25	35	50	75	100
Category Voltage (V_C)	≤ +125°C:	7	11	17	23	33	50	66
Temperature Range:	-55°C to +125°C							
Reliability:	1% per 1000 hours at 85°C, Vr with 0.1Ω/V series impedance, 60% confidence level							
Termination Finish:	SnPb Plating							
Typical Weight:	5.7g							

STACKED TCH LOW ESR HERMETIC SERIES

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

CAPACITANCE AND VOLTAGE RANGE (CASE CODE BEFORE THE BRACKETS)

Capacitance		Rated Voltage DC (VR) at 85°C						
µF	Code	10V (A)	16V (C)	25V (E)	35V (V)	50V (T)	75V (P)	100V (A)
44	446							S(100)
66	666						S(80)	
88	886					S(50)		
200	207				S(40)			
300	307			S(40)	S(40)			
440	447		S(30)					
660	667	S(30)						

Stacked Capability - contact manufacturer

RATINGS & PART NUMBER REFERENCE

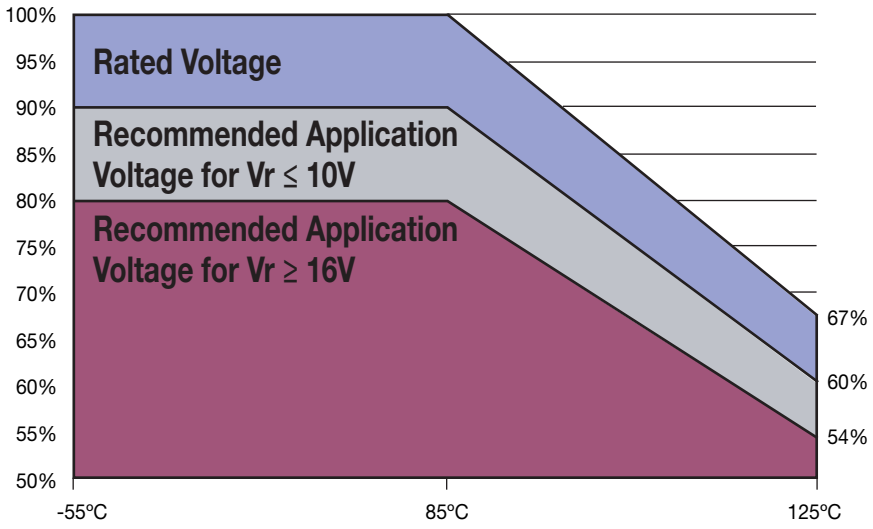
Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	100kHz RMS Current (A)			MSL
										25°C	85°C	125°C	
10 Volt @ 85°C													
TCHS667M010W0030L	S	660	10	85	7	125	660	8	30	3.65	3.29	1.46	1
16 Volt @ 85°C													
TCHS447M016W0030L	S	440	16	85	11	125	704	8	30	3.65	3.29	1.46	1
25 Volt @ 85°C													
TCHS307M025W0040L	S	300	25	85	17	125	750	8	40	3.16	2.84	1.26	1
35 Volt @ 85°C													
TCHS207M035W0040L	S	200	35	85	23	125	700	8	40	3.16	2.84	1.26	1
TCHS307M035W0040L	S	300	35	85	23	125	1050	8	40	3.16	2.84	1.26	1
50 Volt @ 85°C													
TCHS886M050W0050L	S	88	50	85	33	125	440	8	50	2.83	2.55	1.13	1
75 Volt @ 85°C													
TCHS666M075W0080L	S	66	75	85	50	125	495	8	80	2.24	2.02	0.90	1
100 Volt @ 85°C													
TCHS446M100W0100L	S	44	100	85	66	125	440	8	100	2.00	1.80	0.80	1

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

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

RECOMMENDED DERATING FACTOR

Voltage and temperature derating as percentage of Vr



STACKED TCH LOW ESR HERMETIC SERIES

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

QUALIFICATION TABLE

<table>
<tr><th rowspan="2">TEST</th><th colspan="9">Stacked TCH Low ESR Hermetic Series (Temperature Range -55°C to +125°C)</th></tr>
<tr><th colspan="3">Condition</th><th colspan="6">Characteristics</th></tr>
<tr><td rowspan="5">Endurance</td><td colspan="3" rowspan="5">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.</td><td>Visual examination</td><td colspan="6">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="6">1.25 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="6">within ±20% of initial value</td></tr>
<tr><td>DF</td><td colspan="6">1.5 x initial limit</td></tr>
<tr><td>ESR</td><td colspan="6">2 x initial limit</td></tr>
<tr><td rowspan="5">Storage Life</td><td colspan="3" rowspan="5">Store at 125°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="6">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="6">2 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="6">within ±20% of initial value</td></tr>
<tr><td>DF</td><td colspan="6">1.5 x initial limit</td></tr>
<tr><td>ESR</td><td colspan="6">2 x initial limit</td></tr>
<tr><td rowspan="5">Humidity</td><td colspan="3" rowspan="5">Store at 40°C and 90% relative humidity for 56 days, with no applied voltage. Stabilize at room temperature and humidity for min. 2 hours before measuring.</td><td>Visual examination</td><td colspan="6">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="6">1.25 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="6">within ±10% of initial value</td></tr>
<tr><td>DF</td><td colspan="6">initial limit</td></tr>
<tr><td>ESR</td><td colspan="6">1.25 x initial limit</td></tr>
<tr><td rowspan="7">Temperature Stability</td><td>Step</td><td>Temperature°C</td><td>Duration (min)</td><td></td><td>+20°C</td><td>-55°C</td><td>+20°C</td><td>+85°C</td><td>+125°C</td><td>+20°C</td></tr>
<tr><td>1</td><td>+20</td><td>15</td><td>DCL</td><td>IL*</td><td>n/a</td><td>IL*</td><td>10 x IL*</td><td>12.5 x IL*</td><td>IL*</td></tr>
<tr><td>2</td><td>-55</td><td>15</td><td>ΔC/C</td><td>IL*</td><td>+0/-20%</td><td>±5%</td><td>+20/-0%</td><td>+30/-0%</td><td>±5%</td></tr>
<tr><td>3</td><td>+20</td><td>15</td><td>DF</td><td>IL*</td><td>1.5 x IL*</td><td>IL*</td><td>1.5 x IL*</td><td>2 x IL*</td><td>IL*</td></tr>
<tr><td>4</td><td>+85</td><td>15</td><td>ESR</td><td>1.25 x IL*</td><td>1.25 x IL*</td><td>1.25 x IL*</td><td>1.5 x IL*</td><td>1.5 x IL*</td><td>1.25 x IL*</td></tr>
<tr><td>5</td><td>+125</td><td>15</td><td colspan="7"></td></tr>
<tr><td>6</td><td>+20</td><td>15</td><td colspan="7"></td></tr>
<tr><td rowspan="5">Surge Voltage</td><td colspan="3" rowspan="5">Test temperature: 85°C+3/0°C
Surge voltage: 1.15 x rated voltage
Series protection resistance: 1000 Ω
Discharge resistance: 1000 Ω
Number of cycles: 1000x
Cycle duration: 6 min; 30 sec charge,
5 min; 30 sec discharge</td><td>Visual examination</td><td colspan="6">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="6">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="6">within ±20% of initial value</td></tr>
<tr><td>DF</td><td colspan="6">initial limit</td></tr>
<tr><td>ESR</td><td colspan="6">1.25 x initial limit</td></tr>
</table>

*Initial Limit