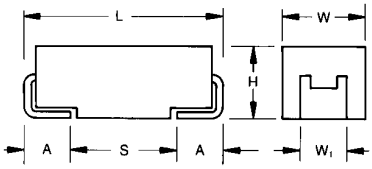
THJ Series with Extension to 200ºC

High Temperature Tantalum Chip Capacitor



FEATURES

- SMD 200ºC tantalum capacitor
- 200°C @ 0.33VR 1000hrs continuous operation
- Leakage current after 200ºC 1000hrs less than 1mA
- 3x reflow 260°C
- Gold plated termination for hybrid assembly
- Oil drilling, aerospace, automotive applications
- CV range: 10-220µF / 10-50V
- 3 case sizes available

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

APPLICATIONS

- Downhole drilling

CASE DIMENSIONS: millimeters (inches)

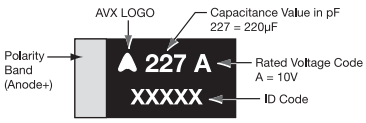
Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) –0.10 (0.004)	H+0.20 (0.008) –0.10 (0.004)	W_1±0.20 (0.008)	A+0.30 (0.012) –0.20 (0.008)	S Min.
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (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_1 dimension applies to the termination width for A dimensional area only.

Engineering samples

MARKING

B, D, E CASE



HOW TO ORDER

THJ	E	107	*	016	#	JH	–
Type	**Case Size** See table above	**Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	**Tolerance** K = ±10% M = ±20%	**Rated DC Voltage** 010 = 10Vdc 016 = 16Vdc 035 = 35Vdc 050 = 50Vdc	**Packaging** A = Gold Plating 7" Reel B = Gold Plating 13" Reel	**Standard Suffix**	**Additional characters may be added for special requirements** V = Dry pack Option

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C					
Capacitance Range:	10 µF to 220 µF					
Capacitance Tolerance:	±10%; ±20%					
Leakage Current DCL @ V_R 25ºC	0.01CV					
Leakage Current DCL @ V_C 200ºC, 1000 hrs	1mA					
Rated Voltage (V_R)	≤ +85°C:	10	16	35	50	
Category Voltage (V_C)	≤ +200°C:	3.3	5.3	12	17	
Surge Voltage (V_S)	≤ +85°C:	13	20	44	63	
Surge Voltage (V_S)	≤ +200°C:	4.3	6.5	14	21	
Temperature Range:	-55ºC up 200ºC with voltage derating					
Reliability:	0.5% per 1000 hours at 85ºC, V_R with 0.1Ω/V series impedance, 1000 hrs at 200ºC, 0.33V_R					
Termination Finished:	Gold Plating					

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CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage (V_R) to 85°C (Voltage Code)				
µF	Code	10V (A)	16V (C)	25V (E)	35V (V)	50V (T)
6.8	685					
10	106		B			E
15	156					
22	226				D	
33	336				E	
47	476					
68	686					
100	107		E			
150	157					
220	227	E				

Released ratings

Engineering samples - please contact AVX

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.

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (ºC)	Category Voltage (V)	Category Temperature (ºC)	DCL Max. @ V_R 25ºC (µA)	DCL Max. @ V_C 200ºC 1000 hrs (mA)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	100kHz RMS Current (mA)				MSL
											25ºC	85ºC	175ºC	200ºC	
10 Volt @ 85°C															
THJE227*010#JH	E	220	10	85	3.3	200	22	1.0	10	0.25	812	731	162	81	1[1)]
16 Volt @ 85°C															
THJB106*016#JH	B	10	16	85	5.3	200	1.6	1.0	6	2.8	174	157	35	17	1
THJE107*016#JH	E	100	16	85	5.3	200	16	1.0	8	0.25	812	731	162	81	1[1)]
35 Volt @ 85°C															
THJD226*035#JH	D	22	35	85	12	200	7.7	1.0	6	0.6	500	450	100	50	1[1)]
THJE336*035#JH	E	33	35	85	12	200	11.6	1.0	6	0.5	574	517	115	57	1[1)]
50 Volt @ 85°C															
THJE106*050#JH	E	10	50	85	17	200	5	1.0	6	0.7	486	437	97	49	1[1)]

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

All PNs also available with Dry pack option - MSL 3 (see How to order).

[1)] –Dry pack option (see How to order) recommended for reduction of stress during soldering.

Base terminations material is copper for E case size and Nilo42 for B case size.

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.

For typical weight and composition see page 274.

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

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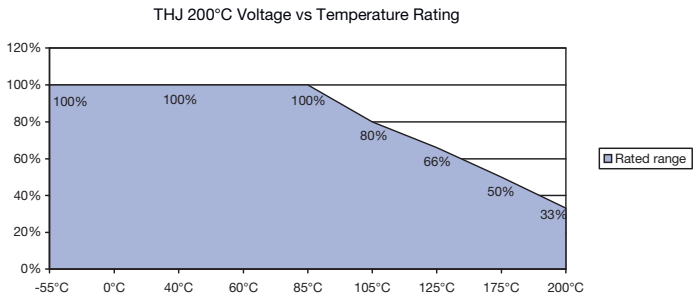
QUALIFICATION TABLE

TEST	THJ 200ºC series (Temperature range -55ºC to +200ºC)									
	Condition			Characteristics						
Endurance	Apply rated voltage (Ur) at 85ºC and / or category voltage (Uc) at 200ºC for 2000 hours through a circuit impedance of ≤0.1Ω/V. Stabilize at room temperature for 1-2 hours before measuring.			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					
Storage Life	Store at 200ºC, 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					
				ΔC/C	within ±10% of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Biased Humidity	Apply rated voltage (Ur) at 85ºC, 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					
				ΔC/C	within ±10% of initial value					
				DF	1.2 x initial limit					
				ESR	1.25 x initial limit					
Temperature Stability	Step	Temperature°C	Duration(min)		+20ºC	-55ºC	+20ºC	+125ºC	+200ºC	+20ºC
	1	+20	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55	15	ΔC/C	n/a	+0/-10%	±5%	+10/-0%	+18/-0%	±5%
	3	+20	15	DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*
	4	+125	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	+200	15							
	6	+20	15							
Surge Voltage	Apply 1.3x category voltage (Uc) at 200ºC for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000Ω			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Mechanical Shock	MIL-STD-202, Method 213, Condition C			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	initial limit					
				ESR	initial limit					
Vibration	MIL-STD-202, Method 204, Condition D			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	initial limit					
				ESR	initial limit					

*Initial Limit



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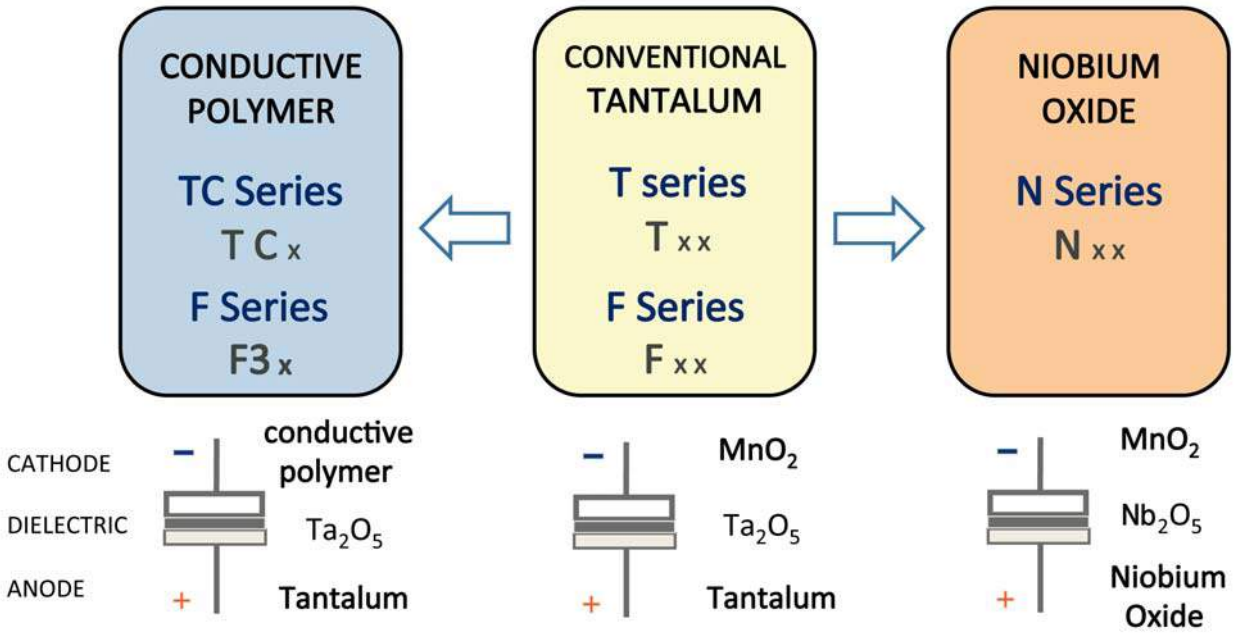
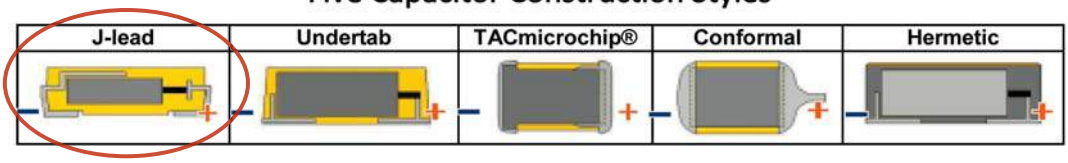
AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP



Five Capacitor Construction Styles



SERIES LINE UP: CONVENTIONAL SMD MnO_2