

# THJ Series



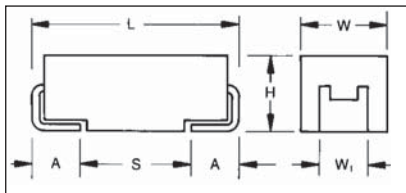
## High Temperature Tantalum Chip Capacitor



- Improved reliability – 2x standard
- 175°C @ 0.5V<sub>R</sub> continuous operation
- CV range: 0.10-220µF / 6.3-50V
- 5 case sizes available
- Low ESR options on approval
- High temperature automotive and industry applications



### CASE DIMENSIONS: millimeters (inches)



For part marking see page 131

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.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
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)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
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

<b>THJ</b>	<b>B</b>	<b>105</b>	<b>*</b>	<b>035</b>	<b>R</b>	<b>JN</b>	<b>-</b>
<b>Type</b>	<b>Case Size</b> See table above	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Tolerance</b> K=±10% M=±20%	<b>Rated DC Voltage</b> 006=6.3Vdc 010=10Vdc 016=16Vdc 020=20Vdc 025=25Vdc 035=35Vdc 050=50Vdc	<b>Packaging</b> R = Lead Free 7" Reel S = Lead Free 13" Reel A = Gold Plating 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	<b>Standard Suffix</b> OR <b>0100</b> <b>Low ESR in mΩ</b>	<b>Additional characters may be added for special requirements</b> V = Dry pack Option (selected codes only)

### TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C							
Capacitance Range:	0.10 µF to 220 µF							
Capacitance Tolerance:	±10%; ±20%							
Rated Voltage (V <sub>R</sub> )	≤ +85°C:	6.3	10	16	20	25	35	50
Category Voltage (V <sub>C</sub> )	≤ +125°C:	4	7	10	13	17	23	33
Category Voltage (V <sub>C</sub> )	≤ +175°C:	3	5	8	10	12	17	25
Surge Voltage (V <sub>S</sub> )	≤ +85°C:	8	13	20	26	32	46	65
Surge Voltage (V <sub>S</sub> )	≤ +125°C:	5	8	13	16	20	28	40
Surge Voltage (V <sub>S</sub> )	≤ +175°C:	4	6	10	12	15	21	30
Temperature Range:	-55°C to 175°C voltage derating.							
Reliability:	0.5% per 1000 hours at 85°C, V <sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level, 3.5 Fits at 40°C, 0.5V <sub>R</sub>							
Termination Finish:	Sn Plating (standard), Gold Plating available on request							
	Meets requirements of AEC-Q200							

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

Capacitance		Rated voltage (V <sub>R</sub> ) to 85°C (Voltage Code)						
µF	Code	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10	104						A	
0.15	154						A	
0.22	224						A	
0.33	334						A	
0.47	474					A	B	
0.68	684					A	B	
1.0	105						A/B	
1.5	155				A		C	
2.2	225			A		B	C	
3.3	335		A	A	B		C	D
4.7	475	A	A	A/B			C	D
6.8	685	A	A	A/B		C	D	D
10	106	A	B	B		C	D	D/E
15	156	B	B	B	C		D	
22	226	B	B	C		D	D, D(300)	
33	336	B	C	C	D	D	E	
47	476	C	C	C/D				
68	686	C	D	D				
100	107	D	D	E				
150	157	D						
220	227		E					

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.

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### RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Cap (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (Ω) @100kHz	MSL
<b>6.3 Volt @ 85°C (3 Volt @ 175°C) / J</b>							
THJA475*006#JN	A	4.7	6.3	0.5	6	6	1
THJA685*006#JN	A	6.8	6.3	0.5	4.5	2.6	1
THJA106*006#JN	A	10	6.3	0.6	4.5	2.2	1
THJB156*006#JN	B	15	6.3	0.9	6	2.5	1
THJB226*006#JN	B	22	6.3	1.4	6	2.5	1
THJB336*006#JN	B	33	6.3	1.9	6	2.2	1
THJC476*006#JN	C	47	6.3	3.0	6	1.6	1
THJC686*006#JN	C	68	6.3	4.3	6	1.5	1
THJD107*006#JN	D	100	6.3	6	4.5	0.4	1
THJD157*006#JN	D	150	6.3	9.5	6	0.9	1
<b>10 Volt @ 85°C (5 Volt @ 175°C) / A</b>							
THJA335*010#JN	A	3.3	10	0.5	6	5.5	1
THJA475*010#JN	A	4.7	10	0.5	4.5	2.9	1
THJA685*010#JN	A	6.8	10	0.7	4.5	2.6	1
THJB106*010#JN	B	10	10	1	4.5	1.8	1
THJB156*010#JN	B	15	10	1.5	4.5	1.5	1
THJB226*010#JN	B	22	10	2.2	6	2.4	1
THJC336*010#JN	C	33	10	3.3	6	1.6	1
THJC476*010#JN	C	47	10	4.7	4.5	0.5	1
THJD686*010#JN	D	68	10	6.8	4.5	0.4	1
THJD107*010#JN	D	100	10	10	6	0.9	1
THJE227*010#JN	E	220	10	22	10	0.5	1 <sup>1)</sup>
<b>16 Volt @ 85°C (8 Volt @ 175°C) / C</b>							
THJA225*016#JN	A	2.2	16	0.5	6	6.5	1
THJA335*016#JN	A	3.3	16	0.5	6	5	1
THJA475*016#JN	A	4.7	16	0.8	4.5	2.9	1
THJB475*016#JN	B	4.7	16	0.8	6	3.5	1
THJA685*016#JN	A	6.8	16	1.1	6	3.5	1
THJB685*016#JN	B	6.8	16	1.1	6	2.5	1
THJB106*016#JN	B	10	16	1.6	6	2.8	1
THJB156*016#JN	B	15	16	2.4	6	2	1
THJC226*016#JN	C	22	16	3.5	6	1.6	1
THJC336*016#JN	C	33	16	5.3	6	1.5	1
THJC476*016#JN	C	47	16	7.5	6	0.9	1
THJD476*016#JN	D	47	16	7.5	6	0.9	1
THJD686*016#JN	D	68	16	10.9	4.5	0.9	1
THJE107*016#JN	E	100	16	16	8	0.4	1 <sup>1)</sup>

AVX Part No.	Case Size	Cap (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (Ω) @100kHz	MSL
<b>20 Volt @ 85°C (10 Volt @ 175°C) / D</b>							
THJA155*020#JN	A	1.5	20	0.5	6	6.5	1
THJB335*020#JN	B	3.3	20	0.7	6	3	1
THJC156*020#JN	C	15	20	3.0	6	1.7	1
THJD336*020#JN	D	33	20	6.6	6	0.9	1
<b>25 Volt @ 85°C (12 Volt @ 175°C) / E</b>							
THJA474*025#JN	A	0.47	25	0.5	4	14	1
THJA684*025#JN	A	0.68	25	0.5	4	10	1
THJA105*025#JN	A	1.0	25	0.5	3	5.2	1
THJB225*025#JN	B	2.2	25	0.6	6	4.5	1
THJC685*025#JN	C	6.8	25	1.7	6	2	1
THJC106*025#JN	C	10	25	2.5	6	1.8	1
THJD226*025#JN	D	22	25	5.5	6	0.9	1
THJD336*025#JN	D	33	25	8.3	6	0.9	1
<b>35 Volt @ 85°C (17 Volt @ 175°C) / V</b>							
THJA104*035#JN	A	0.1	35	0.5	4	24	1
THJA154*035#JN	A	0.15	35	0.5	4	21	1
THJA224*035#JN	A	0.22	35	0.5	4	18	1
THJA334*035#JN	A	0.33	35	0.5	4	15	1
THJB474*035#JN	B	0.47	35	0.5	4	10	1
THJB684*035#JN	B	0.68	35	0.5	4	8	1
THJA105*035#JN	A	1.0	35	0.5	4	7.5	1
THJB105*035#JN	B	1.0	35	0.5	4	6.5	1
THJC155*035#JN	C	1.5	35	0.5	6	4.5	1
THJC225*035#JN	C	2.2	35	0.8	6	3.5	1
THJC335*035#JN	C	3.3	35	1.2	6	2.5	1
THJC475*035#JN	C	4.7	35	1.6	6	2.2	1
THJD685*035#JN	D	6.8	35	2.4	6	1.3	1
THJD106*035#JN	D	10	35	3.5	6	1	1
THJD156*035#JN	D	15	35	5.3	6	0.9	1
THJD226*035#0300	D	22	35	7.7	6	0.3	1
THJD226*035#JN	D	22	35	7.7	6	0.6	1
THJE336*035#JN	E	33	35	11.6	6	0.5	1 <sup>1)</sup>
<b>50 Volt @ 85°C (25 Volt @ 175°C) / T</b>							
THJD335*050#JN	D	3.3	50	1.7	6	1.1	1
THJD475*050#JN	D	4.7	50	2.4	6	0.9	1
THJD685*050#JN	D	6.8	50	3.4	6	0.7	1
THJD106*050#JN	D	10	50	5	6	0.7	1
THJE106*050#JN	E	10	50	5	6	0.7	1 <sup>1)</sup>

<sup>1)</sup> Dry pack option (see How to order) recommended for reduction of stress during soldering. Dry pack parts should be treated as MSL 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 124.

**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.**

THJ 175°C Voltage vs Temperature Rating

