

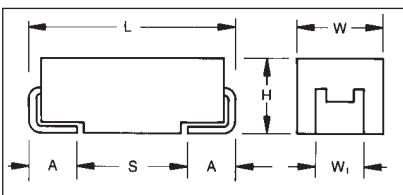
# THJ Series

## High Temperature Tantalum Chip Capacitor



The THJ surface mount series combines high temperature operation and higher basic reliability for optimal performance in high temperature automotive and industry applications. The operational temperature is up to +175°C with 50% voltage derating. The level of reliability of this tantalum product is 0.5% / 1000 hours at rated voltage,

rated temperature and 0.1Ω/volt circuit impedance. The capacitors are produced in black encapsulation with white polarity marking. The THJ series encompasses the 4 case sizes with dimensions identical to TAJ standard series. The voltage range available today is 6.3V to 50V.



For part marking see page 175

### CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | L±0.20 (0.008) | W+0.20 (0.008)<br>-0.10 (0.004) | H±0.20 (0.008)<br>-0.10 (0.004) | W <sub>1</sub><br>±0.20 (0.008) | A+0.30 (0.012)<br>-0.20 (0.008) | S Min.       |
|------|----------|----------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| A    | 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    | 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    | 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    | 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    | 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>Type</b> | <b>Case Size</b><br>See table above | <b>Capacitance Code</b><br>pF code: 1st two digits represent significant figures<br>3rd digit represents multiplier (number of zeros to follow) | <b>Tolerance</b><br>K=±10%<br>M=±20% | <b>Rated DC Voltage</b><br>006=6.3Vdc<br>010=10Vdc<br>016=16Vdc<br>020=20Vdc<br>025=25Vdc<br>035=35Vdc<br>050=50Vdc | <b>Packaging</b><br>R = 7" T/R Lead Free<br>S = 13" T/R Lead Free<br>A = Gold Plating 7" Reel<br>B = Gold Plating 13" Reel<br>H = Tin Lead 7" Reel<br>K = Tin Lead 13" Reel | <b>Additional characters may be added for special requirements</b><br><br><b>0100</b><br><b>Maximum ESR in milliohms</b> |

### TECHNICAL SPECIFICATIONS

|                                    |          |                                                                                                                                     |    |    |    |    |    |    |
|------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|
| Technical Data:                    |          | All technical data relate to an ambient temperature of +25°C                                                                        |    |    |    |    |    |    |
| Capacitance Range:                 |          | 0.1 μF to 150 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 |
|                                    | ≤ +175°C | 3                                                                                                                                   | 5  | 8  | 10 | 12 | 17 | 25 |
| Surge Voltage (V <sub>S</sub> )    | ≤ +85°C  | 8                                                                                                                                   | 13 | 20 | 26 | 32 | 46 | 65 |
|                                    | ≤ +125°C | 5                                                                                                                                   | 8  | 13 | 16 | 20 | 28 | 40 |
|                                    | ≤ +175°C | 4                                                                                                                                   | 6  | 10 | 12 | 15 | 21 | 30 |
| Temperature Range:                 |          | Up to 175°C with 50% 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                                                                                                      |    |    |    |    |    |    |

### CAPACITANCE AND VOLTAGE 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<br>0.15<br>0.22 | 104<br>154<br>224 |                                                        |             |                 |         |         | A<br>A<br>A          |         |
| 0.33<br>0.47<br>0.68 | 334<br>474<br>684 |                                                        |             |                 |         | A<br>A  | A<br>B<br>B          |         |
| 1.0<br>1.5<br>2.2    | 105<br>155<br>225 |                                                        |             | A               | A       | A<br>B  | A/B<br>C<br>C        |         |
| 3.3<br>4.7<br>6.8    | 335<br>475<br>685 | A<br>A<br>A                                            | A<br>A<br>A | A<br>A/B<br>A/B | B       | C       | C<br>C<br>D          | D       |
| 10<br>15<br>22       | 106<br>156<br>226 | A<br>B<br>B                                            | B<br>B<br>B | B<br>B<br>C     | C       | C<br>D  | D<br>D<br>D, D(3000) |         |
| 33<br>47<br>68       | 336<br>476<br>686 | B<br>C<br>C                                            | C<br>C<br>D | C<br>D<br>D     | D       | D       | E                    |         |
| 100<br>150<br>220    | 107<br>157<br>227 | D<br>D                                                 | D<br>E*     | E*              |         |         |                      |         |

Available Ratings, (ESR ratings in mOhms in brackets)

\*Please Contact Manufacturer

**NOTE:** The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalog limit post mounting.

### RATINGS & PART NUMBER REFERENCE

| AVX Part No.                                         | Case Size | Capacitance (μF) | Rated Voltage (V) | DCL (μA) Max. | DF % Max. | ESR Max. (Ω) @ 100 kHz |
|------------------------------------------------------|-----------|------------------|-------------------|---------------|-----------|------------------------|
| <b>Voltage Rating 6.3 v @ 85°C (3 v @ 175°C) / J</b> |           |                  |                   |               |           |                        |
| THJA475*006#JN                                       | A         | 4.7              | 6.3               | 0.5           | 6         | 6                      |
| THJA685*006#JN                                       | A         | 6.8              | 6.3               | 0.5           | 4.5       | 2.6                    |
| THJA106*006#JN                                       | A         | 10               | 6.3               | 0.6           | 4.5       | 2.2                    |
| THJB156*006#JN                                       | B         | 15               | 6.3               | 0.9           | 6         | 2.5                    |
| THJB226*006#JN                                       | B         | 22               | 6.3               | 1.4           | 6         | 2.5                    |
| THJB336*006#JN                                       | B         | 33               | 6.3               | 1.9           | 6         | 2.2                    |
| THJC476*006#JN                                       | C         | 47               | 6.3               | 3.0           | 6         | 1.6                    |
| THJC686*006#JN                                       | C         | 68               | 6.3               | 4.3           | 6         | 1.5                    |
| THJD107*006#JN                                       | D         | 100              | 6.3               | 6             | 4.5       | 0.4                    |
| THJD157*006#JN                                       | D         | 150              | 6.3               | 9.5           | 6         | 0.9                    |
| <b>Voltage Rating 10 v @ 85°C (5 v @ 175°C) / A</b>  |           |                  |                   |               |           |                        |
| THJA335*010#JN                                       | A         | 3.3              | 10                | 0.5           | 6         | 5.5                    |
| THJA475*010#JN                                       | A         | 4.7              | 10                | 0.5           | 4.5       | 2.9                    |
| THJA685*010#JN                                       | A         | 6.8              | 10                | 0.7           | 4.5       | 2.6                    |
| THJB106*010#JN                                       | B         | 10               | 10                | 1             | 4.5       | 1.8                    |
| THJB156*010#JN                                       | B         | 15               | 10                | 1.5           | 4.5       | 1.5                    |
| THJB226*010#JN                                       | B         | 22               | 10                | 2.2           | 6         | 2.4                    |
| THJC336*010#JN                                       | C         | 33               | 10                | 3.3           | 6         | 1.6                    |
| THJC476*010#JN                                       | C         | 47               | 10                | 4.7           | 4.5       | 0.5                    |
| THJD686*010#JN                                       | D         | 68               | 10                | 6.8           | 4.5       | 0.4                    |
| THJD107*010#JN                                       | D         | 100              | 10                | 10            | 6         | 0.9                    |
| <b>Voltage Rating 16 v @ 85°C (8 v @ 175°C) / C</b>  |           |                  |                   |               |           |                        |
| THJA225*016#JN                                       | A         | 2.2              | 16                | 0.5           | 6         | 6.5                    |
| THJA335*016#JN                                       | A         | 3.3              | 16                | 0.5           | 6         | 5.0                    |
| THJA475*016#JN                                       | A         | 4.7              | 16                | 0.8           | 4.5       | 2.9                    |
| THJB475*016#JN                                       | B         | 4.7              | 16                | 0.8           | 6         | 3.5                    |
| THJA685*016#JN                                       | A         | 6.8              | 16                | 1.1           | 6         | 3.5                    |
| THJB685*016#JN                                       | B         | 6.8              | 16                | 1.1           | 6         | 2.5                    |
| THJB106*016#JN                                       | B         | 10               | 16                | 1.6           | 6         | 2.8                    |
| THJB156*016#JN                                       | B         | 15               | 16                | 2.4           | 6         | 2.0                    |
| THJC226*016#JN                                       | C         | 22               | 16                | 3.5           | 6         | 1.6                    |
| THJC336*016#JN                                       | C         | 33               | 16                | 5.3           | 6         | 1.5                    |
| THJD476*016#JN                                       | D         | 47               | 16                | 7.5           | 6         | 0.9                    |
| THJD686*016#JN                                       | D         | 68               | 16                | 10.9          | 4.5       | 0.9                    |

| AVX Part No.                                         | Case Size | Capacitance (μF) | Rated Voltage (V) | DCL (μA) Max. | DF % Max. | ESR Max. (Ω) @ 100 kHz |
|------------------------------------------------------|-----------|------------------|-------------------|---------------|-----------|------------------------|
| <b>Voltage Rating 20 v @ 85°C (10 v @ 175°C) / D</b> |           |                  |                   |               |           |                        |
| THJA155*020#JN                                       | A         | 1.5              | 20                | 0.5           | 6         | 6.5                    |
| THJB335*020#JN                                       | B         | 3.3              | 20                | 0.7           | 6         | 3                      |
| THJC156*020#JN                                       | C         | 15               | 20                | 3.0           | 6         | 1.7                    |
| THJD336*020#JN                                       | D         | 33               | 20                | 6.6           | 6         | 0.9                    |
| <b>Voltage Rating 25 v @ 85°C (12 v @ 175°C) / E</b> |           |                  |                   |               |           |                        |
| THJA474*025#R                                        | A         | 0.47             | 25                | 0.5           | 4         | 14                     |
| THJA684*025#JN                                       | A         | 0.68             | 25                | 0.5           | 4         | 10                     |
| THJA105*025#JN                                       | A         | 1.0              | 25                | 0.5           | 3         | 5.2                    |
| THJB225*025#JN                                       | B         | 2.2              | 25                | 0.6           | 6         | 4.5                    |
| THJC685*025#JN                                       | C         | 6.8              | 25                | 1.7           | 6         | 2                      |
| THJC106*025#JN                                       | C         | 10               | 25                | 2.5           | 6         | 1.8                    |
| THJD226*025#JN                                       | D         | 22               | 25                | 5.5           | 6         | 0.9                    |
| THJD336*025#JN                                       | D         | 33               | 25                | 8.3           | 6         | 0.9                    |
| <b>Voltage Rating 35 v @ 85°C (17 v @ 175°C) / V</b> |           |                  |                   |               |           |                        |
| THJA104*035#JN                                       | A         | 0.1              | 35                | 0.5           | 4         | 24                     |
| THJA154*035#JN                                       | A         | 0.15             | 35                | 0.5           | 4         | 21                     |
| THJA224*035#JN                                       | A         | 0.22             | 35                | 0.5           | 4         | 18                     |
| THJA334*035#JN                                       | A         | 0.33             | 35                | 0.5           | 4         | 15                     |
| THJB474*035#JN                                       | B         | 0.47             | 35                | 0.5           | 4         | 10                     |
| THJB684*035#JN                                       | B         | 0.68             | 35                | 0.5           | 4         | 8                      |
| THJA105*035#JN                                       | A         | 1.0              | 35                | 0.5           | 4         | 7.5                    |
| THJB105*035#JN                                       | B         | 1.0              | 35                | 0.5           | 4         | 6.5                    |
| THJC155*035#JN                                       | C         | 1.5              | 35                | 0.5           | 6         | 4.5                    |
| THJC225*035#JN                                       | C         | 2.2              | 35                | 0.8           | 6         | 3.5                    |
| THJC335*035#JN                                       | C         | 3.3              | 35                | 1.2           | 6         | 2.5                    |
| THJC475*035#JN                                       | C         | 4.7              | 35                | 1.6           | 6         | 2.2                    |
| THJD685*035#JN                                       | D         | 6.8              | 35                | 2.4           | 6         | 1.3                    |
| THJD106*035#JN                                       | D         | 10               | 35                | 3.5           | 6         | 1                      |
| THJD156*035#JN                                       | D         | 15               | 35                | 5.3           | 6         | 0.9                    |
| THJD226*035#0300                                     | D         | 22               | 35                | 7.7           | 6         | 0.3                    |
| THJD226*035#JN                                       | D         | 22               | 35                | 7.7           | 6         | 0.6                    |
| THJE336*035#JN                                       | E         | 33               | 35                | 11.6          | 6         | 0.5                    |
| <b>Voltage Rating 50 v @ 85°C (25 v @ 150°C) / T</b> |           |                  |                   |               |           |                        |
| THJD475*050#JN                                       | D         | 4.7              | 50                | 2.4           | 6         | 0.9                    |

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.

\* Insert K for ±10% and M for ±20%

**NOTE: AVX reserves the right to supply higher specification parts in the same case size, to the same reliability standards.**

# **Standard Plating** – Insert R for 7" reel and S for 13" reel  
# **Gold Plating** – Insert A for 7" reel and B for 13" reel  
# **Tin Lead** – Insert H for 7" reel and K for 13" reel

**For parametric information on development codes, please contact your local AVX sales office.**