

# SOLID TANTALUM CHIP CAPACITORS

## T491 SERIES - Precision Molded Chip



Solid Tantalum Surface Mount

### FEATURES

- Meets or Exceeds EIA Standard 535BAAC
- Taped and Reeled per EIA 481-1
- Symmetrical, Compliant Terminations
- Optional Gold-plated Terminations
- Laser-marked Case
- 100% Surge current test on C, D, E, U, V, X sizes
- Halogen Free Epoxy
- Capacitance: 0.1  $\mu$ F to 1000  $\mu$ F
- Tolerance:  $\pm 10\%$ ,  $\pm 20\%$
- Voltage: 2.5-50 VDC
- Extended Range Values
- Low Profile Case Sizes
- RoHS Compliance & Lead Free Terminations (See www.kemet.com for transition information)
- Operating Temperature:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

### CAPACITOR OUTLINE DRAWING



### STANDARD T491 DIMENSIONS

Millimeters (inches)

| Case Size |         | Component                        |                                  |                                  |                         |                         |                               |                                    |            |            |             |            |            |            |
|-----------|---------|----------------------------------|----------------------------------|----------------------------------|-------------------------|-------------------------|-------------------------------|------------------------------------|------------|------------|-------------|------------|------------|------------|
| KEMET     | EIA     | L*                               | W*                               | H*                               | F* $\pm 0.1 \pm (.004)$ | S* $\pm 0.3 \pm (.012)$ | B $\pm 0.15$ (Ref) $\pm .006$ | X (Ref)                            | P (Ref)    | R (Ref)    | T (Ref)     | A (Min)    | G (Ref)    | E (Ref)    |
| A         | 3216-18 | 3.2 $\pm 0.2$ (.126 $\pm .008$ ) | 1.6 $\pm 0.2$ (.063 $\pm .008$ ) | 1.6 $\pm 0.2$ (.063 $\pm .008$ ) | 1.2 (.047)              | 0.8 (.031)              | 0.4 (.016)                    | 0.10 $\pm 0.10$ (.004 $\pm .004$ ) | 0.4 (.016) | 0.4 (.016) | 0.13 (.005) | 1.4 (.055) | 1.1 (.043) | 1.3 (.051) |
| B         | 3528-21 | 3.5 $\pm 0.2$ (.138 $\pm .008$ ) | 2.8 $\pm 0.2$ (.110 $\pm .008$ ) | 1.9 $\pm 0.2$ (.075 $\pm .008$ ) | 2.2 (.087)              | 0.8 (.031)              | 0.4 (.016)                    | 0.10 $\pm 0.10$ (.004 $\pm .004$ ) | 0.5 (.020) | 1.0 (.039) | 0.13 (.005) | 1.1 (.043) | 1.8 (.071) | 2.2 (.087) |
| C         | 6032-28 | 6.0 $\pm 0.3$ (.236 $\pm .012$ ) | 3.2 $\pm 0.3$ (.126 $\pm .012$ ) | 2.5 $\pm 0.3$ (.098 $\pm .012$ ) | 2.2 (.087)              | 1.3 (.051)              | 0.5 (.020)                    | 0.10 $\pm 0.10$ (.004 $\pm .004$ ) | 0.9 (.035) | 1.0 (.039) | 0.13 (.005) | 3.1 (.122) | 2.8 (.110) | 2.4 (.094) |
| D         | 7343-31 | 7.3 $\pm 0.3$ (.287 $\pm .012$ ) | 4.3 $\pm 0.3$ (.169 $\pm .012$ ) | 2.8 $\pm 0.3$ (.110 $\pm .012$ ) | 2.4 (.094)              | 1.3 (.051)              | 0.5 (.020)                    | 0.10 $\pm 0.10$ (.004 $\pm .004$ ) | 0.9 (.035) | 1.0 (.039) | 0.13 (.005) | 3.8 (.150) | 3.5 (.138) | 3.5 (.138) |
| X         | 7343-43 | 7.3 $\pm 0.3$ (.287 $\pm .012$ ) | 4.3 $\pm 0.3$ (.169 $\pm .012$ ) | 4.0 $\pm 0.3$ (.157 $\pm .012$ ) | 2.4 (.094)              | 1.3 (.051)              | 0.5 (.020)                    | 0.10 $\pm 0.10$ (.004 $\pm .004$ ) | 1.7 (.067) | 1.0 (.039) | 0.13 (.005) | 3.8 (.150) | 3.5 (.138) | 3.5 (.138) |
| E         | 7260-38 | 7.3 $\pm 0.3$ (.287 $\pm .012$ ) | 6.0 $\pm 0.3$ (.236 $\pm .012$ ) | 3.6 $\pm 0.2$ (.142 $\pm .008$ ) | 4.1 (.161)              | 1.3 (.051)              | 0.5 (.020)                    | 0.10 $\pm 0.10$ (.004 $\pm .004$ ) | 0.9 (.035) | 1.0 (.039) | 0.13 (.005) | 3.8 (.150) | 3.5 (.138) | 3.5 (.138) |

Notes: 1. Metric dimensions govern  
 2. (Ref) Dimensions provided for reference only  
 \* Mil-PRF-55365/8 Specified Dimensions

### LOW PROFILE T491 DIMENSIONS

Millimeters (inches)

| Case Size |         | Component                        |                                  |            |                         |                         |             |             |            |            |            |  |
|-----------|---------|----------------------------------|----------------------------------|------------|-------------------------|-------------------------|-------------|-------------|------------|------------|------------|--|
| KEMET     | EIA     | L*                               | W*                               | H max      | F* $\pm 0.1 \pm (.004)$ | S* $\pm 0.3 \pm (.012)$ | X (Ref)     | T (Ref)     | A (Min)    | G (Ref)    | E (Ref)    |  |
| R         | 2012-12 | 2.0 $\pm 0.2$ (.079 $\pm .008$ ) | 1.3 $\pm 0.2$ (.051 $\pm .008$ ) | 1.2 (.047) | 0.9 (.035)              | 0.5 (.020)              | 0.05 (.002) | 0.13 (.005) | 0.8 (.031) | 0.5 (.020) | 0.8 (.031) |  |
| S         | 3216-12 | 3.2 $\pm 0.2$ (.126 $\pm .008$ ) | 1.6 $\pm 0.2$ (.063 $\pm .008$ ) | 1.2 (.047) | 1.2 (.047)              | 0.8 (.031)              | 0.05 (.002) | 0.13 (.005) | 1.4 (.055) | 1.1 (.043) | 1.3 (.051) |  |
| T         | 3528-12 | 3.5 $\pm 0.2$ (.138 $\pm .008$ ) | 2.8 $\pm 0.2$ (.110 $\pm .008$ ) | 1.2 (.047) | 2.2 (.087)              | 0.8 (.031)              | 0.05 (.002) | 0.13 (.005) | 1.1 (.043) | 1.8 (.071) | 2.2 (.087) |  |
| U         | 6032-15 | 6.0 $\pm 0.3$ (.236 $\pm .012$ ) | 3.2 $\pm 0.3$ (.126 $\pm .012$ ) | 1.5 (.059) | 2.2 (.087)              | 1.3 (.051)              | 0.05 (.002) | 0.13 (.005) | 3.1 (.122) | 2.8 (.110) | 2.4 (.094) |  |
| V         | 7343-20 | 7.3 $\pm 0.3$ (.287 $\pm .012$ ) | 4.3 $\pm 0.3$ (.169 $\pm .012$ ) | 2.0 (.079) | 2.4 (.094)              | 1.3 (.051)              | 0.05 (.002) | 0.13 (.005) | 3.8 (.150) | 3.5 (.138) | 3.5 (.138) |  |

Notes: 1. Metric dimensions govern  
 2. (Ref) Dimensions provided for reference only  
 3. No dimensions provided for B,P or R because low profile cases do not have a bevel or a notch.

### T491 ORDERING INFORMATION

**T 491 S 685 K 004 A T**

Tantalum \_\_\_\_\_  
 Series \_\_\_\_\_  
 491 - Industrial

Case Size \_\_\_\_\_  
 A,B,C,D,E,R,S,T,U,V,X

Capacitance Picofarad Code \_\_\_\_\_  
 First two digits represent significant figures. Third digit specifies number of zeros.

Lead Material  
 T = 100% Matte Tin (Sn) Plated\*  
 H = Standard Solder Coated (SnPb 5% Pb minimum)  
 G = Gold Plated (A,B,C,D,X) only

Failure Rate  
 A = Not Applicable

Voltage  
 As Shown

Capacitance Tolerance  
 M =  $\pm 20\%$   
 K =  $\pm 10\%$

\*Part number example: T491B105M035AT (14 digits - no spaces). See www.kemet.com for Pb Free transition.  
 \*\* "S" Termination codes are converting from 90Sn/10 Pb to 100% tin finishes. Orders including "S" suffix termination codes do not guarantee Pb-free product.

### T491 TANTALUM CHIP CAPACITANCE VALUES

#### Case Size by Capacitance and Voltage

| Capacitance |      | Rated Voltage @ +85°C |   |                |                |                  |              |         |       |       |       |
|-------------|------|-----------------------|---|----------------|----------------|------------------|--------------|---------|-------|-------|-------|
| μF          | Code | 2.5                   | 3 | 4              | 6              | 10               | 16           | 20      | 25    | 35    | 50    |
| 0.10        | 104  |                       |   |                |                |                  |              |         |       | A     | A     |
| 0.15        | 154  |                       |   |                |                |                  |              |         |       | A     | A/B   |
| 0.22        | 224  |                       |   |                |                |                  |              |         |       | A     | B     |
| 0.33        | 334  |                       |   |                |                |                  |              |         | A     | A     | B     |
| 0.47        | 474  |                       |   |                |                |                  |              |         | A     | A/B   | B/C   |
| 0.68        | 684  |                       |   |                |                |                  |              | A       | A     | A/B   | B/C   |
| 1.0         | 105  |                       |   |                |                |                  | A            | R/S/A   | A/B   | A/B   | V/B/C |
| 1.5         | 155  |                       |   |                |                | A                | A            | S/A     | R/A/B | B/C   | C/D   |
| 2.2         | 225  |                       |   |                | R/A            | A/B              | R/S/A        | R/A/B   | B/C   | B/C   | C/D   |
| 3.3         | 335  |                       |   | A              | A              | R/S/A            | A/B          | T/A/B   | B/C   | B/C   | D     |
| 4.7         | 475  |                       |   | A              | S/A            | A/B<br>R/S       | A/B/T        | A/B/C   | A/B/C | B/C/D | D     |
| 6.8         | 685  |                       |   | S/A            | R/S<br>A/B     | S/T<br>A/B       | A/B/C        | U/A/B/C | B/C   | C/D   | D/X   |
| 10.0        | 106  |                       |   | R/S<br>A/B     | R/S/T<br>A/B   | S/T/A<br>B/C     | B/C/U<br>T/A | U/B/C   | B/C/D | V/C/D | D/X   |
| 15.0        | 156  |                       |   | S/T<br>A/B     | S/T<br>A/B/C   | T/U<br>A/B/C     | U/A/B/C      | C/D     | C/D   | C/D/X | X     |
| 22.0        | 226  |                       |   | S/T<br>A/B/C   | U/T<br>A/B/C   | T/U<br>A/B/C     | U/B<br>C/D   | V/C/D   | V/C/D | D/X   |       |
| 33.0        | 336  |                       | A | T/U<br>A/B/C   | T/U<br>A/B/C   | U/V/A<br>T/B/C/D | U/C/D        | V/C/D   | D/X   | X     |       |
| 47.0        | 476  |                       |   | T/U<br>A/B/C   | T/U/A<br>B/C/D | U/V<br>B/C/D     | V/C/D        | D       | D/X   | X/E   |       |
| 68.0        | 686  |                       |   | U/A<br>B/C/D   | U/B<br>C/D     | U/V<br>B/C/D     | V/C/D        | D/X     | D/X   |       |       |
| 100.0       | 107  | T                     |   | T/U/A<br>B/C/D | U/V<br>B/C/D   | V/C/D            | V/D/X        | D/X/E   |       |       |       |
| 150.0       | 157  |                       |   | V/B<br>C/D     | V/C/D          | V/C<br>D/X       | D/X          |         |       |       |       |
| 220.0       | 227  |                       |   | V/B            | V/C<br>D/X     | V/D/X            | X            |         |       |       |       |
| 330.0       | 337  |                       |   | V/C/D          | D/X            | D/X/E            |              |         |       |       |       |
| 470.0       | 477  |                       |   | D/X            | D/X/E          | X/E              |              |         |       |       |       |
| 680.0       | 687  |                       |   | D/X            | E              |                  |              |         |       |       |       |
| 1000.0      | 108  |                       |   | X/E            |                |                  |              |         |       |       |       |

### T491 RATINGS & PART NUMBER REFERENCE

Solid Tantalum Surface Mount

| Capacitance<br>µF   | Case<br>Size | KEMET<br>Part Number | DC<br>Leakage<br>µA @ 25°C<br>Max | DF %<br>@ +25°C<br>120 Hz<br>Max | ESR Ω<br>@ +25°C<br>100 kHz<br>Max |
|---|--------------|----------------------|-----------------------------------|----------------------------------|------------------------------------|
| <b>2.5 Volt Rating at +85°C (1.7 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 100.0   | T            | T491T107(1)2R5A(2)   | 2.5                               | 24.0                             | 3.9                                |
| 220.0   | D            | T491D227(1)2R5A(2)   | 5.5                               | 8.0                              | 0.3                                |
| <b>3 Volt Rating at +85°C (2 Volt Rating at +125°C)</b>     |              |                      |                                   |                                  |                                    |
| #33.0   | A            | T491A336(1)003A(2)   | 1.0                               | 6.0                              | 4.0                                |
| <b>4 Volt Rating at +85°C (2.7 Volt Rating at +125°C)</b>   |              |                      |                                   |                                  |                                    |
| 3.3   | A            | T491A335(1)004A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 4.7   | A            | T491A475(1)004A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 6.8   | A            | T491A685(1)004A(2)   | 0.5                               | 6.0                              | 6.0                                |
| 6.8   | S            | T491S685(1)004A(2)   | 0.5                               | 6.0                              | 15.0                               |
| 10.0  | B            | T491B106(1)004A(2)   | 0.5                               | 6.0                              | 3.5                                |
| 10.0  | A            | T491A106(1)004A(2)   | 0.5                               | 6.0                              | 6.0                                |
| #10.0   | S            | T491S106(1)004A(2)   | 0.5                               | 6.0                              | 15.0                               |
| #10.0   | R            | T491R106(1)004A(2)   | 0.5                               | 8.0                              | 10.0                               |
| 15.0  | B            | T491B156(1)004A(2)   | 0.6                               | 6.0                              | 3.5                                |
| 15.0  | A            | T491A156(1)004A(2)   | 0.6                               | 6.0                              | 4.0                                |
| 15.0  | T            | T491T156(1)004A(2)   | 0.6                               | 6.0                              | 5.0                                |
| #15.0   | S            | T491S156(1)004A(2)   | 0.6                               | 10.0                             | 15.0                               |
| 22.0  | C            | T491C226(1)004A(2)   | 0.9                               | 6.0                              | 1.8                                |
| 22.0  | B            | T491B226(1)004A(2)   | 0.9                               | 6.0                              | 3.5                                |
| #22.0   | A            | T491A226(1)004A(2)   | 0.9                               | 6.0                              | 4.0                                |
| #22.0   | T            | T491T226(1)004A(2)   | 0.9                               | 6.0                              | 5.0                                |
| 22.0  | S            | T491S226(1)004A(2)   | 0.9                               | 10.0                             | 10.0                               |
| 33.0  | C            | T491C336(1)004A(2)   | 1.3                               | 6.0                              | 1.8                                |
| 33.0  | U            | T491U336(1)004A(2)   | 1.3                               | 6.0                              | 1.8                                |
| 33.0  | B            | T491B336(1)004A(2)   | 1.3                               | 6.0                              | 3.5                                |
| #33.0   | A            | T491A336(1)004A(2)   | 1.3                               | 6.0                              | 4.0                                |
| #33.0   | T            | T491T336(1)004A(2)   | 1.3                               | 8.0                              | 5.0                                |
| 47.0  | C            | T491C476(1)004A(2)   | 1.9                               | 6.0                              | 1.8                                |
| 47.0  | U            | T491U476(1)004A(2)   | 1.9                               | 6.0                              | 1.8                                |
| #47.0   | B            | T491B476(1)004A(2)   | 1.9                               | 6.0                              | 3.0                                |
| #47.0   | A            | T491A476M004A(2)     | 1.9                               | 12.0                             | 2.5                                |
| #47.0   | T            | T491T476M004A(2)     | 1.9                               | 12.0                             | 6.0                                |
| 68.0  | D            | T491D686(1)004A(2)   | 2.7                               | 6.0                              | 0.8                                |
| 68.0  | C            | T491C686(1)004A(2)   | 2.7                               | 6.0                              | 1.6                                |
| #68.0   | U            | T491U686(1)004A(2)   | 2.7                               | 6.0                              | 1.8                                |
| #68.0   | B            | T491B686(1)004A(2)   | 2.7                               | 6.0                              | 3.5                                |
| #68.0   | A            | T491A686(1)004A(2)   | 2.8                               | 30.0                             | 4.0                                |
| 100.0   | D            | T491D107(1)004A(2)   | 4.0                               | 8.0                              | 0.8                                |
| #100.0  | C            | T491C107(1)004A(2)   | 4.0                               | 8.0                              | 1.2                                |
| #100.0  | U            | T491U107(1)004A(2)   | 4.0                               | 10.0                             | 1.8                                |
| #100.0  | B            | T491B107M004A(2)     | 4.0                               | 8.0                              | 0.9                                |
| †100.0  | A            | T491A107M004A(2)     | 4.0                               | 30.0                             | 4.0                                |
| †100.0  | T            | T491T107M004A(2)     | 4.0                               | 30.0                             | 5.0                                |
| 150.0   | D            | T491D157(1)004A(2)   | 6.0                               | 8.0                              | 0.8                                |
| 150.0   | V            | T491V157(1)004A(2)   | 6.0                               | 8.0                              | 0.7                                |
| #150.0  | C            | T491C157(1)004A(2)   | 6.0                               | 8.0                              | 1.2                                |
| †150.0  | B            | T491B157M004A(2)     | 6.0                               | 12.0                             | 2.0                                |
| #220.0  | V            | T491V227(1)004A(2)   | 8.8                               | 8.0                              | 0.7                                |
| #220.0  | B            | T491B227M004A(2)     | 8.8                               | 18.0                             | 0.5                                |
| 330.0   | D            | T491D337(1)004A(2)   | 13.2                              | 8.0                              | 0.7                                |
| †330.0  | V            | T491V337(1)004A(2)   | 13.2                              | 12.0                             | 0.7                                |
| #330.0  | C            | T491C337(1)004A(2)   | 13.2                              | 10.0                             | 0.9                                |
| #470.0  | X            | T491X477(1)004A(2)   | 18.8                              | 8.0                              | 0.5                                |
| #470.0  | D            | T491D477(1)004A(2)   | 18.8                              | 8.0                              | 0.8                                |
| #680.0  | X            | T491X687(1)004A(2)   | 27.2                              | 12.0                             | 0.5                                |
| #680.0  | D            | T491D687(1)004A(2)   | 27.2                              | 12.0                             | 0.5                                |
| #1000.0   | X            | T491X108(1)004A(2)   | 40.0                              | 12.0                             | 0.5                                |
| #1000.0   | E            | T491E108M004A(2)     | 40.0                              | 15.0                             | 0.2                                |
| <b>**6.3 Volt Rating at +85°C (4 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 2.2   | R            | T491R225(1)006A(2)   | 0.5                               | 6.0                              | 25.0                               |
| 2.2   | A            | T491A225(1)006A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 3.3   | A            | T491A335(1)006A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 4.7   | A            | T491A475(1)006A(2)   | 0.5                               | 6.0                              | 6.0                                |
| 4.7   | S            | T491S475(1)006A(2)   | 0.5                               | 6.0                              | 15.0                               |
| 6.8   | B            | T491B685(1)006A(2)   | 0.5                               | 6.0                              | 3.5                                |
| 6.8   | A            | T491A685(1)006A(2)   | 0.5                               | 6.0                              | 6.0                                |
| #6.8  | S            | T491S685(1)006A(2)   | 0.5                               | 6.0                              | 15.0                               |
| #6.8  | R            | T491R685(1)006A(2)   | 0.5                               | 8.0                              | 15.0                               |
| 10.0  | B            | T491B106(1)006A(2)   | 0.6                               | 6.0                              | 3.5                                |
| 10.0  | A            | T491A106(1)006A(2)   | 0.6                               | 6.0                              | 4.0                                |
| 10.0  | T            | T491T106(1)006A(2)   | 0.6                               | 6.0                              | 5.0                                |
| #10.0   | S            | T491S106(1)006A(2)   | 0.6                               | 10.0                             | 15.0                               |
| #10.0   | R            | T491R106(1)006A(2)   | 0.6                               | 8.0                              | 10.0                               |

| Capacitance<br>µF   | Case<br>Size | KEMET<br>Part Number | DC<br>Leakage<br>µA @ 25°C<br>Max | DF %<br>@ +25°C<br>120 Hz<br>Max | ESR Ω<br>@ +25°C<br>100 kHz<br>Max |
|---|--------------|----------------------|-----------------------------------|----------------------------------|------------------------------------|
| <b>**6 Volt Rating at +85°C (4 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 15.0  | C            | T491C156(1)006A(2)   | 0.9                               | 6.0                              | 1.8                                |
| 15.0  | B            | T491B156(1)006A(2)   | 0.9                               | 6.0                              | 3.5                                |
| #15.0   | A            | T491A156(1)006A(2)   | 0.9                               | 6.0                              | 3.5                                |
| #15.0   | T            | T491T156(1)006A(2)   | 0.9                               | 6.0                              | 5.0                                |
| #15.0   | S            | T491S156(1)006A(2)   | 0.9                               | 15.0                             | 10.0                               |
| 22.0  | C            | T491C226(1)006A(2)   | 1.4                               | 6.0                              | 1.8                                |
| 22.0  | U            | T491U226(1)006A(2)   | 1.4                               | 6.0                              | 1.8                                |
| 22.0  | B            | T491B226(1)006A(2)   | 1.4                               | 6.0                              | 3.5                                |
| #22.0   | A            | T491A226(1)006A(2)   | 1.4                               | 6.0                              | 4.0                                |
| #22.0   | T            | T491T226(1)006A(2)   | 1.4                               | 8.0                              | 5.0                                |
| 33.0  | C            | T491C336(1)006A(2)   | 2.0                               | 6.0                              | 1.8                                |
| 33.0  | U            | T491U336(1)006A(2)   | 2.0                               | 6.0                              | 1.8                                |
| #33.0   | B            | T491B336(1)006A(2)   | 2.0                               | 6.0                              | 3.0                                |
| #33.0   | A            | T491A336(1)006A(2)   | 2.0                               | 12.0                             | 2.5                                |
| #33.0   | T            | T491T336(1)006A(2)   | 2.0                               | 12.0                             | 6.0                                |
| 47.0  | D            | T491D476(1)006A(2)   | 2.9                               | 6.0                              | 0.8                                |
| 47.0  | C            | T491C476(1)006A(2)   | 2.9                               | 6.0                              | 1.6                                |
| #47.0   | U            | T491U476(1)006A(2)   | 2.9                               | 6.0                              | 1.8                                |
| #47.0   | B            | T491B476(1)006A(2)   | 2.9                               | 6.0                              | 2.0                                |
| †47.0   | A            | T491A476M006A(2)     | 3.0                               | 12.0                             | 3.5                                |
| *47.0   | T            | T491T476(1)006A(2)   | 3.0                               | 24.0                             | 4.4                                |
| 68.0  | D            | T491D686(1)006A(2)   | 4.1                               | 6.0                              | 0.8                                |
| #68.0   | C            | T491C686(1)006A(2)   | 4.1                               | 6.0                              | 1.2                                |
| #68.0   | U            | T491U686(1)006A(2)   | 4.1                               | 10.0                             | 1.8                                |
| #68.0   | B            | T491B686(1)006A(2)   | 4.1                               | 8.0                              | 0.9                                |
| #68.0   | A            | T491A686(1)006A(2)   | 5.0                               | 30.0                             | 4.0                                |
| 100.0   | D            | T491D107(1)006A(2)   | 6.0                               | 8.0                              | 0.8                                |
| 100.0   | V            | T491V107(1)006A(2)   | 6.0                               | 8.0                              | 0.7                                |
| #100.0  | C            | T491C107(1)006A(2)   | 6.0                               | 8.0                              | 0.9                                |
| #100.0  | U            | T491U107(1)006A(2)   | 6.0                               | 10.0                             | 1.8                                |
| #100.0  | B            | T491B107(1)006A(2)   | 6.3                               | 15.0                             | 3.0                                |
| 150.0   | D            | T491D157(1)006A(2)   | 9.0                               | 8.0                              | 0.7                                |
| #150.0  | C            | T491C157(1)006A(2)   | 9.0                               | 8.0                              | 1.2                                |
| #150.0  | V            | T491V157(1)006A(2)   | 9.0                               | 8.0                              | 0.7                                |
| 220.0   | X            | T491X227(1)006A(2)   | 13.2                              | 8.0                              | 0.7                                |
| #220.0  | D            | T491D227(1)006A(2)   | 13.2                              | 8.0                              | 0.7                                |
| #220.0  | C            | T491C227M006A(2)     | 13.2                              | 10.0                             | 1.2                                |
| #220.0  | V            | T491V227(1)006A(2)   | 13.2                              | 12.0                             | 0.7                                |
| 330.0   | X            | T491X337(1)006A(2)   | 19.8                              | 8.0                              | 0.4                                |
| 330.0   | D            | T491D337(1)006A(2)   | 19.8                              | 8.0                              | 0.4                                |
| 330.0   | E            | T491E337(1)006A(2)   | 20.8                              | 8.0                              | 0.5                                |
| 470.0   | X            | T491X477(1)006A(2)   | 28.2                              | 10.0                             | 0.4                                |
| 470.0   | D            | T491D477M006A(2)     | 28.2                              | 12.0                             | 0.4                                |
| 470.0   | E            | T491E477(1)006A(2)   | 29.6                              | 10.0                             | 0.4                                |
| 680.0   | E            | T491E687M006A(2)     | 40.8                              | 12.0                             | 0.5                                |
| <b>10 Volt Rating at +85°C (7 Volt Rating at +125°C)</b>  |              |                      |                                   |                                  |                                    |
| 1.5   | A            | T491A155(1)010A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 2.2   | B            | T491B225(1)010A(2)   | 0.5                               | 6.0                              | 3.5                                |
| 2.2   | A            | T491A225(1)010A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 3.3   | A            | T491A335(1)010A(2)   | 0.5                               | 6.0                              | 6.0                                |
| 3.3   | S            | T491S335(1)010A(2)   | 0.5                               | 6.0                              | 15.0                               |
| #3.3  | R            | T491R335(1)010A(2)   | 0.3                               | 8.0                              | 15.0                               |
| 4.7   | B            | T491B475(1)010A(2)   | 0.5                               | 6.0                              | 3.5                                |
| 4.7   | A            | T491A475(1)010A(2)   | 0.5                               | 6.0                              | 5.0                                |
| #4.7  | S            | T491S475(1)010A(2)   | 0.5                               | 6.0                              | 15.0                               |
| #4.7  | R            | T491R475(1)010A(2)   | 0.5                               | 8.0                              | 10.0                               |
| 6.8   | B            | T491B685(1)010A(2)   | 0.7                               | 6.0                              | 3.5                                |
| 6.8   | A            | T491A685(1)010A(2)   | 0.7                               | 6.0                              | 4.0                                |
| 6.8   | T            | T491T685(1)010A(2)   | 0.7                               | 6.0                              | 5.0                                |
| #6.8  | S            | T491S685(1)010A(2)   | 0.7                               | 10.0                             | 15.0                               |
| 10.0  | C            | T491C106(1)010A(2)   | 1.0                               | 6.0                              | 1.8                                |
| 10.0  | B            | T491B106(1)010A(2)   | 1.0                               | 6.0                              | 3.5                                |
| #10.0   | A            | T491A106(1)010A(2)   | 1.0                               | 6.0                              | 4.0                                |
| #10.0   | T            | T491T106(1)010A(2)   | 1.0                               | 6.0                              | 5.0                                |
| #10.0   | S            | T491S106(1)010A(2)   | 1.0                               | 10.0                             | 15.0                               |
| #10.0   | R            | T491R106(1)010A(2)   | 1.0                               | 24.0                             | 30.0                               |
| 15.0  | C            | T491C156(1)010A(2)   | 1.5                               | 6.0                              | 1.8                                |
| 15.0  | U            | T491U156(1)010A(2)   | 1.5                               | 6.0                              | 1.8                                |
| 15.0  | B            | T491B156(1)010A(2)   | 1.5                               | 6.0                              | 2.8                                |
| #15.0   | A            | T491A156(1)010A(2)   | 1.5                               | 8.0                              | 6.0                                |
| #15.0   | T            | T491T156(1)010A(2)   | 1.5                               | 8.0                              | 5.0                                |

- (1) To complete KEMET Part Number, insert M for ±20% tolerance or K for ±10% tolerance.  
 (2) To complete KEMET Part Number, insert T, H, G lead material designation as shown on page 15.

\*Extended Values

\*\*6 Volt product equivalent to 6.3 volt product.

#Maximum Capacitance Change @ 125°C=±15%.

†Maximum Capacitance Change @ 125°C=±20%.

Higher voltage ratings and tighter tolerance product may be substituted within the same size at KEMET's option.

Voltage substitutions will be marked with the higher voltage rating.

# SOLID TANTALUM CHIP CAPACITORS

## T491 SERIES—Precision Molded Chip

### T491 RATINGS & PART NUMBER REFERENCE

| Capacitance<br>µF   | Case<br>Size | KEMET<br>Part Number | DC<br>Leakage<br>µA @ 25°C<br>Max | DF %<br>@ +25°C<br>120 Hz<br>Max | ESR Ω<br>@ +25°C<br>100 kHz<br>Max |
|---|--------------|----------------------|-----------------------------------|----------------------------------|------------------------------------|
| <b>10 Volt Rating at +85°C (7 Volt Rating at +125°C)</b>  |              |                      |                                   |                                  |                                    |
| 22.0  | C            | T491C226(1)010A(2)   | 2.2                               | 6.0                              | 1.8                                |
| 22.0  | U            | T491U226(1)010A(2)   | 2.2                               | 6.0                              | 1.8                                |
| #22.0   | B            | T491B226(1)010A(2)   | 2.2                               | 6.0                              | 2.4                                |
| #22.0   | A            | T491A226M010A(2)     | 2.2                               | 10.0                             | 6.0                                |
| #22.0   | T            | T491T226(1)010A(2)   | 2.2                               | 12.0                             | 8.0                                |
| 33.0  | D            | T491D336(1)010A(2)   | 3.3                               | 6.0                              | 0.8                                |
| 33.0  | V            | T491V336(1)010A(2)   | 3.3                               | 6.0                              | 0.7                                |
| 33.0  | C            | T491C336(1)010A(2)   | 3.3                               | 6.0                              | 1.6                                |
| #33.0   | U            | T491U336(1)010A(2)   | 3.3                               | 6.0                              | 1.8                                |
| #33.0   | B            | T491B336(1)010A(2)   | 3.3                               | 6.0                              | 1.8                                |
| #33.0   | T            | T491T336(1)010A(2)   | 3.3                               | 24.0                             | 5.0                                |
| #33.0   | A            | T491A336(1)010A(2)   | 3.3                               | 15.0                             | 6.0                                |
| 47.0  | D            | T491D476(1)010A(2)   | 4.7                               | 6.0                              | 0.8                                |
| 47.0  | V            | T491V476(1)010A(2)   | 4.7                               | 6.0                              | 0.7                                |
| #47.0   | C            | T491C476(1)010A(2)   | 4.7                               | 6.0                              | 1.2                                |
| #47.0   | U            | T491U476(1)010A(2)   | 4.7                               | 10.0                             | 2.2                                |
| #47.0   | B            | T491B476(1)010A(2)   | 4.7                               | 8.0                              | 1.0                                |
| 68.0  | D            | T491D686(1)010A(2)   | 6.8                               | 6.0                              | 0.8                                |
| 68.0  | V            | T491V686(1)010A(2)   | 6.8                               | 6.0                              | 0.7                                |
| #68.0   | C            | T491C686(1)010A(2)   | 6.8                               | 6.0                              | 1.2                                |
| #68.0   | U            | T491U686(1)010A(2)   | 6.8                               | 10.0                             | 1.8                                |
| #68.0   | B            | T491B686M010A(2)     | 6.8                               | 10.0                             | 3.0                                |
| 100.0   | D            | T491D107(1)010A(2)   | 10.0                              | 8.0                              | 0.7                                |
| #100.0  | C            | T491C107(1)010A(2)   | 10.0                              | 8.0                              | 1.2                                |
| #100.0  | V            | T491V107(1)010A(2)   | 10.0                              | 8.0                              | 0.7                                |
| 150.0   | X            | T491X157(1)010A(2)   | 15.0                              | 8.0                              | 0.7                                |
| #150.0  | D            | T491D157(1)010A(2)   | 15.0                              | 8.0                              | 0.7                                |
| #150.0  | C            | T491C157(1)010A(2)   | 15.0                              | 10.0                             | 0.9                                |
| #150.0  | V            | T491V157(1)010A(2)   | 15.0                              | 8.0                              | 0.7                                |
| #220.0  | X            | T491X227(1)010A(2)   | 22.0                              | 8.0                              | 0.5                                |
| #220.0  | D            | T491D227(1)010A(2)   | 22.0                              | 8.0                              | 0.5                                |
| #330.0  | D            | T491D337M010A(2)     | 33.0                              | 10.0                             | 0.5                                |
| #330.0  | X            | T491X337(1)010A(2)   | 33.0                              | 10.0                             | 0.5                                |
| #330.0  | E            | T491E337(1)010A(2)   | 33.0                              | 10.0                             | 0.5                                |
| #470.0  | X            | T491X477M010A(2)     | 47.0                              | 10.0                             | 0.2                                |
| #470.0  | E            | T491E477M010A(2)     | 47.0                              | 12.0                             | 0.5                                |
| <b>16 Volt Rating at +85°C (10 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 1.0   | A            | T491A105(1)016A(2)   | 0.5                               | 4.0                              | 10.0                               |
| 1.5   | A            | T491A155(1)016A(2)   | 0.5                               | 6.0                              | 8.0                                |
| 2.2   | A            | T491A225(1)016A(2)   | 0.5                               | 6.0                              | 6.0                                |
| 2.2   | S            | T491S225(1)016A(2)   | 0.5                               | 6.0                              | 15.0                               |
| #2.2  | R            | T491R225(1)016A(2)   | 0.5                               | 8.0                              | 25.0                               |
| 3.3   | B            | T491B335(1)016A(2)   | 0.5                               | 6.0                              | 3.5                                |
| 3.3   | A            | T491A335(1)016A(2)   | 0.5                               | 6.0                              | 5.0                                |
| 4.7   | C            | T491C475(1)016A(2)   | 0.75                              | 6.0                              | 2.4                                |
| 4.7   | B            | T491B475(1)016A(2)   | 0.8                               | 6.0                              | 3.5                                |
| 4.7   | A            | T491A475(1)016A(2)   | 0.8                               | 6.0                              | 4.0                                |
| 4.7   | T            | T491T475(1)016A(2)   | 0.8                               | 6.0                              | 5.0                                |
| 6.8   | C            | T491C685(1)016A(2)   | 1.1                               | 6.0                              | 1.9                                |
| 6.8   | B            | T491B685(1)016A(2)   | 1.1                               | 6.0                              | 2.5                                |
| #6.8  | A            | T491A685(1)016A(2)   | 1.1                               | 6.0                              | 3.5                                |
| 10.0  | C            | T491C106(1)016A(2)   | 1.6                               | 6.0                              | 1.8                                |
| 10.0  | U            | T491U106(1)016A(2)   | 1.6                               | 6.0                              | 1.8                                |
| 10.0  | B            | T491B106(1)016A(2)   | 1.6                               | 6.0                              | 2.8                                |
| #10.0   | A            | T491A106(1)016A(2)   | 1.6                               | 8.0                              | 7.0                                |
| #10.0   | T            | T491T106(1)016A(2)   | 1.6                               | 8.0                              | 8.0                                |
| 15.0  | C            | T491C156(1)016A(2)   | 2.4                               | 6.0                              | 1.8                                |
| 15.0  | U            | T491U156(1)016A(2)   | 2.4                               | 6.0                              | 1.8                                |
| 15.0  | B            | T491B156(1)016A(2)   | 2.4                               | 6.0                              | 2.5                                |
| #15.0   | A            | T491A156(1)016A(2)   | 2.4                               | 8.0                              | 3.5                                |
| 22.0  | D            | T491D226(1)016A(2)   | 3.6                               | 6.0                              | 0.8                                |
| 22.0  | C            | T491C226(1)016A(2)   | 3.6                               | 6.0                              | 1.6                                |
| #22.0   | U            | T491U226(1)016A(2)   | 3.6                               | 10.0                             | 3.0                                |
| #22.0   | B            | T491B226(1)016A(2)   | 3.6                               | 6.0                              | 2.2                                |
| 33.0  | D            | T491D336(1)016A(2)   | 5.3                               | 6.0                              | 0.8                                |
| #33.0   | C            | T491C336(1)016A(2)   | 5.3                               | 6.0                              | 1.2                                |
| #33.0   | U            | T491U336(1)016A(2)   | 5.3                               | 12.0                             | 3.0                                |
| 47.0  | D            | T491D476(1)016A(2)   | 7.5                               | 6.0                              | 0.8                                |
| 47.0  | V            | T491V476(1)016A(2)   | 7.5                               | 6.0                              | 0.7                                |
| #47.0   | C            | T491C476(1)016A(2)   | 7.5                               | 6.0                              | 1.2                                |
| 68.0  | V            | T491V686(1)016A(2)   | 10.9                              | 6.0                              | 0.7                                |
| 68.0  | D            | T491D686(1)016A(2)   | 10.9                              | 6.0                              | 0.7                                |
| 68.0  | C            | T491C686(1)016A(2)   | 10.9                              | 12.0                             | 1.2                                |

| Capacitance<br>µF   | Case<br>Size | KEMET<br>Part Number | DC<br>Leakage<br>µA @ 25°C<br>Max | DF %<br>@ +25°C<br>120 Hz<br>Max | ESR Ω<br>@ +25°C<br>100 kHz<br>Max |
|---|--------------|----------------------|-----------------------------------|----------------------------------|------------------------------------|
| <b>16 Volt Rating at +85°C (10 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 100.0   | X            | T491X107(1)016A(2)   | 16.0                              | 8.0                              | 0.7                                |
| †100.0  | V            | T491V107(1)016A(2)   | 16.0                              | 12.0                             | 0.7                                |
| #100.0  | D            | T491D107(1)016A(2)   | 16.0                              | 8.0                              | 0.7                                |
| #150.0  | X            | T491X157(1)016A(2)   | 24.0                              | 8.0                              | 0.5                                |
| #150.0  | D            | T491D157(1)016A(2)   | 24.0                              | 12.0                             | 0.7                                |
| #220.0  | X            | T491X227(1)016A(2)   | 35.2                              | 10.0                             | 0.5                                |
| #220.0  | E            | T491E227(1)016A(2)   | 35.2                              | 7.2                              | 0.9                                |
| <b>20 Volt Rating at +85°C (13 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 0.47  | R            | T491R474(1)020A(2)   | 0.1                               | 4.0                              | 35.0                               |
| 0.68  | A            | T491A684(1)020A(2)   | 0.5                               | 4.0                              | 12.0                               |
| 1.0   | A            | T491A105(1)020A(2)   | 0.5                               | 4.0                              | 9.0                                |
| 1.0   | S            | T491S105(1)020A(2)   | 0.5                               | 6.0                              | 18.0                               |
| #1.0  | R            | T491R105(1)020A(2)   | 0.5                               | 6.0                              | 20.0                               |
| 1.5   | A            | T491A155(1)020A(2)   | 0.5                               | 6.0                              | 6.5                                |
| 1.5   | S            | T491S155(1)020A(2)   | 0.5                               | 6.0                              | 15.0                               |
| 2.2   | B            | T491B225(1)020A(2)   | 0.5                               | 6.0                              | 3.5                                |
| 2.2   | A            | T491A225(1)020A(2)   | 0.5                               | 6.0                              | 7.0                                |
| 2.2   | R            | T491R225(1)020A(2)   | 0.4                               | 8.0                              | 8.0                                |
| 3.3   | B            | T491B335(1)020A(2)   | 0.7                               | 6.0                              | 3.0                                |
| #3.3  | A            | T491A335(1)020A(2)   | 0.7                               | 6.0                              | 4.5                                |
| 3.3   | T            | T491T335(1)020A(2)   | 0.7                               | 6.0                              | 5.0                                |
| 4.7   | C            | T491C475(1)020A(2)   | 1.0                               | 6.0                              | 2.4                                |
| 4.7   | B            | T491B475(1)020A(2)   | 1.0                               | 6.0                              | 3.0                                |
| #4.7  | A            | T491A475(1)020A(2)   | 1.0                               | 6.0                              | 4.0                                |
| 6.8   | C            | T491C685(1)020A(2)   | 1.4                               | 6.0                              | 1.9                                |
| 6.8   | U            | T491U685(1)020A(2)   | 1.4                               | 6.0                              | 1.9                                |
| #6.8  | B            | T491B685(1)020A(2)   | 1.4                               | 6.0                              | 2.5                                |
| #6.8  | A            | T491A685M020A(2)     | 1.4                               | 8.0                              | 6.0                                |
| 10.0  | C            | T491C106(1)020A(2)   | 2.0                               | 6.0                              | 1.8                                |
| 10.0  | U            | T491U106(1)020A(2)   | 2.0                               | 6.0                              | 1.8                                |
| #10.0   | B            | T491B106(1)020A(2)   | 2.0                               | 6.0                              | 2.1                                |
| #10.0   | A            | T491A106M020A(2)     | 2.0                               | 10.0                             | 5.0                                |
| 15.0  | D            | T491D156(1)020A(2)   | 3.0                               | 6.0                              | 1.0                                |
| 15.0  | C            | T491C156(1)020A(2)   | 3.0                               | 6.0                              | 1.7                                |
| 22.0  | D            | T491D226(1)020A(2)   | 4.4                               | 6.0                              | 0.8                                |
| 22.0  | V            | T491V226(1)020A(2)   | 4.4                               | 6.0                              | 0.7                                |
| #22.0   | C            | T491C226(1)020A(2)   | 4.4                               | 6.0                              | 1.2                                |
| #22.0   | B            | T491B226(1)020A(2)   | 4.4                               | 8.0                              | 4.0                                |
| 33.0  | D            | T491D336(1)020A(2)   | 6.6                               | 6.0                              | 0.8                                |
| #33.0   | C            | T491C336M020A(2)     | 6.6                               | 6.0                              | 1.2                                |
| †33.0   | V            | T491V336(1)020A(2)   | 6.6                               | 8.0                              | 0.7                                |
| 47.0  | C            | T491C476M020A(2)     | 9.4                               | 10.0                             | 0.9                                |
| 47.0  | D            | T491D476(1)020A(2)   | 9.4                               | 6.0                              | 0.7                                |
| 68.0  | X            | T491X686(1)020A(2)   | 13.6                              | 6.0                              | 0.7                                |
| #68.0   | D            | T491D686(1)020A(2)   | 13.6                              | 8.0                              | 0.7                                |
| #100.0  | X            | T491X107(1)020A(2)   | 20.0                              | 8.0                              | 0.5                                |
| #100.0  | E            | T491E107(1)020A(2)   | 20.0                              | 8.0                              | 0.5                                |
| #150.0  | X            | T491X157(1)020A(2)   | 30.0                              | 10.0                             | 0.5                                |
| <b>25 Volt Rating at +85°C (17 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 0.33  | A            | T491A334(1)025A(2)   | 0.5                               | 4.0                              | 15.0                               |
| 0.47  | A            | T491A474(1)025A(2)   | 0.5                               | 4.0                              | 14.0                               |
| 0.68  | A            | T491A684(1)025A(2)   | 0.5                               | 4.0                              | 10.0                               |
| 1.0   | B            | T491B105(1)025A(2)   | 0.5                               | 4.0                              | 5.0                                |
| 1.0   | A            | T491A105(1)025A(2)   | 0.5                               | 4.0                              | 8.0                                |
| 1.0   | S            | T491S105(1)025A(2)   | 0.25                              | 6.0                              | 18.0                               |
| 1.5   | B            | T491B155(1)025A(2)   | 0.5                               | 6.0                              | 5.0                                |
| 1.5   | A            | T491A155(1)025A(2)   | 0.5                               | 6.0                              | 7.5                                |
| 1.5   | R            | T491R155(1)025A(2)   | 0.4                               | 8.0                              | 8.0                                |
| 2.2   | C            | T491C225(1)025A(2)   | 0.6                               | 6.0                              | 3.5                                |
| 2.2   | B            | T491B225(1)025A(2)   | 0.6                               | 6.0                              | 4.5                                |
| 3.3   | C            | T491C335(1)025A(2)   | 0.9                               | 6.0                              | 2.5                                |
| 3.3   | B            | T491B335(1)025A(2)   | 0.9                               | 6.0                              | 3.5                                |
| 4.7   | C            | T491C475(1)025A(2)   | 1.2                               | 6.0                              | 2.4                                |
| #4.7  | B            | T491B475(1)025A(2)   | 1.2                               | 6.0                              | 1.5                                |
| #4.7  | A            | T491A475M025A(2)     | 1.2                               | 8.0                              | 6.0                                |
| 6.8   | C            | T491C685(1)025A(2)   | 1.7                               | 6.0                              | 1.9                                |
| 6.8   | B            | T491B685(1)025A(2)   | 1.7                               | 8.0                              | 2.8                                |
| 10.0  | D            | T491D106(1)025A(2)   | 2.5                               | 6.0                              | 1.0                                |
| 10.0  | C            | T491C106(1)025A(2)   | 2.5                               | 6.0                              | 1.5                                |
| 10.0  | B            | T491B106(1)025A(2)   | 2.5                               | 8.0                              | 3.0                                |
| 15.0  | D            | T491D156(1)025A(2)   | 3.8                               | 6.0                              | 1.0                                |
| #15.0   | C            | T491C156(1)025A(2)   | 3.8                               | 6.0                              | 1.5                                |
| #15.0   | B            | T491B156(1)025A(2)   | 3.8                               | 8.0                              | 4.0                                |
| 22.0  | D            | T491D226(1)025A(2)   | 5.5                               | 6.0                              | 0.8                                |
| 22.0  | C            | T491C226(1)025A(2)   | 5.5                               | 6.0                              | 1.4                                |
| 22.0  | V            | T491V226(1)025A(2)   | 5.5                               | 6.0                              | 0.7                                |
| 33.0  | X            | T491X336(1)025A(2)   | 8.3                               | 6.0                              | 0.7                                |
| #33.0   | D            | T491D336(1)025A(2)   | 8.3                               | 6.0                              | 0.7                                |
| #33.0   | C            | T491C336(1)025A(2)   | 8.3                               | 10.0                             | 1.2                                |
| #47.0   | X            | T491X476(1)025A(2)   | 11.8                              | 6.0                              | 0.7                                |
| †47.0   | D            | T491D476(1)025A(2)   | 11.8                              | 10.0                             | 0.7                                |
| †68.0   | X            | T491X686M025A(2)     | 17.0                              | 8.0                              | 0.7                                |
| †68.0   | D            | T491D686M025A(2)     | 17.0                              | 10.0                             | 0.7                                |
| 100.0   | X            | T491X107(1)025A(2)   | 25.0                              | 8.0                              | 0.3                                |

(1) To complete KEMET Part Number, insert M for ±20% tolerance or K for ±10% tolerance.

(2) To complete KEMET Part Number, insert T, H, G lead material designation as shown on page 15.

\*Extended Values

†6 Volt product equivalent to 6.3 volt product.

#Maximum Capacitance Change @ 125°C=+15%.

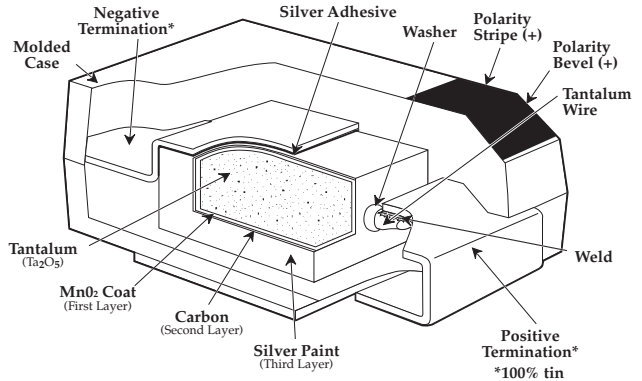
‡Maximum Capacitance Change @ 125°C=+20%.

Higher voltage ratings and tighter tolerance product may be substituted within the same size at KEMET's option. Voltage substitutions will be marked with the higher voltage rating.

### T491 RATINGS & PART NUMBER REFERENCE

| Capacitance<br>μF   | Case<br>Size | KEMET<br>Part Number | DC<br>Leakage<br>μA @ 25°C<br>Max | DF %<br>@ +25°C<br>120 Hz<br>Max | ESR Ω<br>@ +25°C<br>100 kHz<br>Max |
|---|--------------|----------------------|-----------------------------------|----------------------------------|------------------------------------|
| <b>35 Volt Rating at +85°C (23 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 0.10  | A            | T491A104(1)035A(2)   | 0.5                               | 4.0                              | 20.0                               |
| 0.15  | A            | T491A154(1)035A(2)   | 0.5                               | 4.0                              | 19.0                               |
| 0.22  | A            | T491A224(1)035A(2)   | 0.5                               | 4.0                              | 18.0                               |
| 0.33  | A            | T491A334(1)035A(2)   | 0.5                               | 4.0                              | 15.0                               |
| 0.47  | B            | T491B474(1)035A(2)   | 0.5                               | 4.0                              | 8.0                                |
| 0.47  | A            | T491A474(1)035A(2)   | 0.5                               | 4.0                              | 12.0                               |
| 0.68  | B            | T491B684(1)035A(2)   | 0.5                               | 4.0                              | 6.5                                |
| 0.68  | A            | T491A684(1)035A(2)   | 0.5                               | 4.0                              | 8.0                                |
| 1.0   | B            | T491B105(1)035A(2)   | 0.5                               | 4.0                              | 5.0                                |
| 1.0   | A            | T491A105(1)035A(2)   | 0.5                               | 4.0                              | 7.5                                |
| 1.5   | C            | T491C155(1)035A(2)   | 0.5                               | 6.0                              | 4.5                                |
| 1.5   | B            | T491B155(1)035A(2)   | 0.5                               | 6.0                              | 5.0                                |
| 2.2   | C            | T491C225(1)035A(2)   | 0.8                               | 6.0                              | 3.5                                |
| 2.2   | B            | T491B225(1)035A(2)   | 0.8                               | 6.0                              | 4.0                                |
| 3.3   | C            | T491C335(1)035A(2)   | 1.2                               | 6.0                              | 2.5                                |
| #3.3  | B            | T491B335(1)035A(2)   | 1.2                               | 6.0                              | 3.5                                |
| 4.7   | D            | T491D475(1)035A(2)   | 1.7                               | 6.0                              | 1.5                                |
| 4.7   | C            | T491C475(1)035A(2)   | 1.7                               | 6.0                              | 2.2                                |
| 6.8   | D            | T491D685(1)035A(2)   | 2.4                               | 6.0                              | 1.3                                |
| 6.8   | C            | T491C685(1)035A(2)   | 2.4                               | 6.0                              | 1.8                                |
| 10.0  | D            | T491D106(1)035A(2)   | 3.5                               | 6.0                              | 1.0                                |
| #10.0   | C            | T491C106M035A(2)     | 3.5                               | 6.0                              | 1.6                                |
| #10.0   | V            | T491V106(1)035A(2)   | 3.5                               | 6.0                              | 2.0                                |
| 15.0  | X            | T491X156(1)035A(2)   | 5.3                               | 6.0                              | 0.9                                |
| 15.0  | D            | T491D156(1)035A(2)   | 5.3                               | 6.0                              | 0.8                                |
| 22.0  | X            | T491X226(1)035A(2)   | 7.7                               | 6.0                              | 0.7                                |
| #22.0   | D            | T491D226(1)035A(2)   | 7.7                               | 6.0                              | 0.7                                |
| #33.0   | X            | T491X336(1)035A(2)   | 11.6                              | 6.0                              | 0.6                                |
| †47.0   | X            | T491X476(1)035A(2)   | 16.5                              | 8.0                              | 0.6                                |
| #47.0   | E            | T491E476(1)035A(2)   | 16.5                              | 10.0                             | 0.5                                |
| <b>50 Volt Rating at +85°C (33 Volt Rating at +125°C)</b> |              |                      |                                   |                                  |                                    |
| 0.10  | A            | T491A104(1)050A(2)   | 0.5                               | 4.0                              | 20.0                               |
| 0.15  | B            | T491B154(1)050A(2)   | 0.5                               | 4.0                              | 16.0                               |
| 0.15  | A            | T491A154(1)050A(2)   | 0.5                               | 4.0                              | 15.0                               |
| 0.22  | B            | T491B224(1)050A(2)   | 0.5                               | 4.0                              | 14.0                               |
| 0.33  | B            | T491B334(1)050A(2)   | 0.5                               | 4.0                              | 10.0                               |
| 0.47  | C            | T491C474(1)050A(2)   | 0.5                               | 4.0                              | 8.0                                |
| 0.47  | B            | T491B474(1)050A(2)   | 0.5                               | 4.0                              | 9.0                                |
| 0.68  | C            | T491C684(1)050A(2)   | 0.5                               | 4.0                              | 7.0                                |
| 0.68  | B            | T491B684(1)050A(2)   | 0.5                               | 4.0                              | 8.0                                |
| 1.0   | C            | T491C105(1)050A(2)   | 0.5                               | 4.0                              | 5.5                                |
| 1.0   | B            | T491B105(1)050A(2)   | 0.5                               | 6.0                              | 6.0                                |
| 1.0   | V            | T491V105(1)050A(2)   | 0.5                               | 4.0                              | 6.0                                |
| 1.5   | D            | T491D155(1)050A(2)   | 0.8                               | 6.0                              | 3.5                                |
| 1.5   | C            | T491C155(1)050A(2)   | 0.8                               | 6.0                              | 4.5                                |
| 2.2   | D            | T491D225(1)050A(2)   | 1.1                               | 6.0                              | 2.5                                |
| 2.2   | C            | T491C225(1)050A(2)   | 1.1                               | 6.0                              | 3.0                                |
| 3.3   | D            | T491D335(1)050A(2)   | 1.7                               | 6.0                              | 2.0                                |
| 4.7   | D            | T491D475(1)050A(2)   | 2.4                               | 6.0                              | 1.4                                |
| 6.8   | X            | T491X685(1)050A(2)   | 3.5                               | 6.0                              | 1.0                                |
| #6.8  | D            | T491D685(1)050A(2)   | 3.4                               | 6.0                              | 1.0                                |
| #10.0   | X            | T491X106M050A(2)     | 5.0                               | 6.0                              | 0.7                                |
| #10.0   | D            | T491D106(1)050A(2)   | 5.0                               | 6.0                              | 0.8                                |
| †15.0   | X            | T491X156(1)050A(2)   | 7.5                               | 8.0                              | 0.7                                |
| 22.0  | X            | T491X226(1)050A(2)   | 11.0                              | 10.0                             | 0.6                                |

### CONSTRUCTION



### CAPACITOR MARKINGS

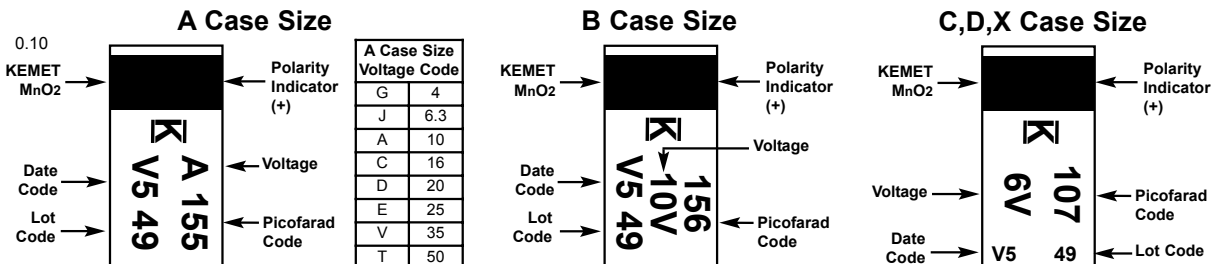


(1) To complete KEMET Part Number, insert M for ±20% tolerance or K for ±10% tolerance.  
 (2) To complete KEMET Part Number, insert T, H, G lead material designation as shown on page 15.  
 \*Extended Values

\*\*6 Volt product equivalent to 6.3 volt product.  
 #Maximum Capacitance Change @ 125°C=+15%.  
 †Maximum Capacitance Change @ 125°C=+20%.

Higher voltage ratings and tighter tolerance product may be substituted within the same size at KEMET's option.  
 Voltage substitutions will be marked with the higher voltage rating.

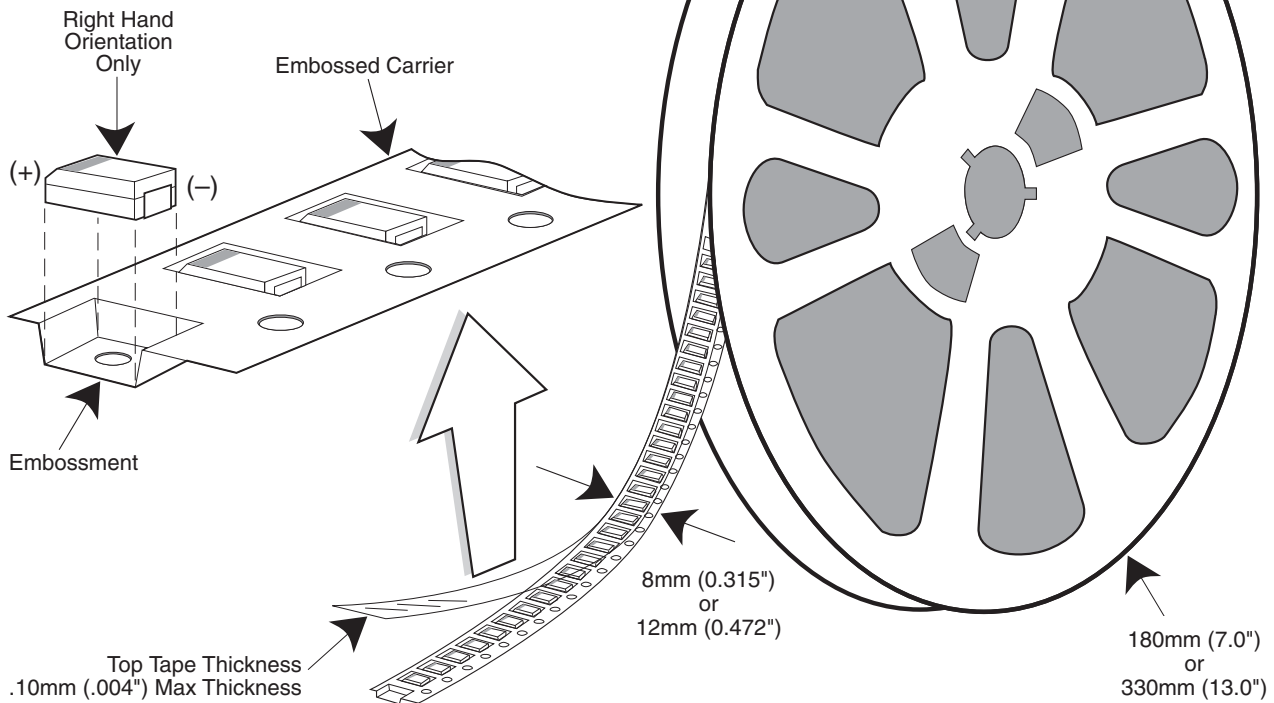
### CAPACITOR ALTERNATE MARKINGS



| Date Code - Year |          | Date Code - Month |           |               |               |
|------------------|----------|-------------------|-----------|---------------|---------------|
| S = 2004         | V = 2007 | 1 = January       | 4 = April | 7 = July      | 10 = October  |
| T = 2005         | W = 2008 | 2 = February      | 5 = May   | 8 = August    | 11 = November |
| U = 2006         | X = 2009 | 3 = March         | 6 = June  | 9 = September | 12 = December |

## Tape & Reel Packaging

KEMET's Molded Tantalum and Aluminum Chip Capacitor families are packaged in 8 mm and 12 mm plastic tape on 7" and 13" reels, in accordance with EIA Standard 481-1: Taping of Surface Mount Components for Automatic Handling. This packaging system is compatible with all tape fed automatic pick and place systems.



**Labeling:** Bar code labeling (standard or custom) shall be on the side of the reel opposite the sprocket holes. Refer to EIA-556.

### QUANTITIES PACKAGED PER REEL

| Case Code |         | Tape Width-mm | 7" Reel* | 13" Reel |
|-----------|---------|---------------|----------|----------|
| KEMET     | EIA     |               |          |          |
| R         | 2012-12 | 8             | 2,500    | 10,000   |
| I         | 3216-10 | 8             | 3,000    | 12,000   |
| S         | 3216-12 | 8             | 2,500    | 10,000   |
| T         | 3528-12 | 8             | 2,500    | 10,000   |
| M         | 3528-15 | 8             | 2,000    | 8,000    |
| U         | 6032-15 | 12            | 1,000    | 5,000    |
| L         | 6032-19 | 12            | 1,000    | 5,000    |
| W         | 7343-15 | 12            | 1,000    | 3,000    |
| Z         | 7343-17 | 12            | 1,000    | 3,000    |
| V         | 7343-20 | 12            | 1,000    | 3,000    |
| A         | 3216-18 | 8             | 2,000    | 9,000    |
| B         | 3528-21 | 8             | 2,000    | 8,000    |
| C         | 6032-28 | 12            | 500      | 3,000    |
| D         | 7343-31 | 12            | 500      | 2,500    |
| Y         | 7343-40 | 12            | 500      | 2,000    |
| X         | 7343-43 | 12            | 500      | 2,000    |
| E         | 7260-38 | 12            | 500      | 2,000    |

\* No c-spec required for 7" reel packaging. C-7280 required for 13" reel packaging.

# TANTALUM, CERAMIC AND ALUMINUM CHIP CAPACITORS

## Packaging Information

### Performance Notes

- Cover Tape Break Force:** 1.0 Kg Minimum.
- Cover Tape Peel Strength:** The total peel strength of the cover tape from the carrier tape shall be:

| Tape Width | Peel Strength                          |
|------------|--|
| 8 mm       | 0.1 Newton to 1.0 Newton (10g to 100g) |
| 12 mm      | 0.1 Newton to 1.3 Newton (10g to 130g) |

The direction of the pull shall be opposite the direction of the carrier tape travel. The pull angle of the carrier tape shall be 165° to 180° from the plane of the carrier tape. During peeling, the carrier and/or cover tape shall be pulled at a velocity of 300 ±10 mm/minute.

- Reel Sizes:** Molded tantalum capacitors are available on either 180 mm (7") reels (standard) or 330 mm (13") reels (with C-7280). Note that 13" reels are preferred.
- Labeling:** Bar code labeling (standard or custom) shall be on the side of the reel opposite the sprocket holes. Refer to EIA-556.

### Embossed Carrier Tape Configuration: Figure 1



**Table 1 — EMBOSSED TAPE DIMENSIONS (Metric will govern)**

| Constant Dimensions — Millimeters (Inches) |  |                               |                               |                             |                             |                    |                    |                              |  |
|--|--|-------------------------------|-------------------------------|-----------------------------|-----------------------------|--------------------|--------------------|------------------------------|--|
| Tape Size                                  | D <sub>0</sub>                               | E                             | P <sub>0</sub>                | P <sub>2</sub>              | T Max                       | T <sub>1</sub> Max |                    |                              |  |
| 8 mm and 12 mm                             | 1.5<br>+0.10 -0.0<br>(0.059<br>+0.004, -0.0) | 1.75 ±0.10<br>(0.069 ±0.004)  | 4.0 ±0.10<br>(0.157 ±0.004)   | 2.0 ±0.05<br>(0.079 ±0.002) | 0.600<br>(0.024)            | 0.100<br>(0.004)   |                    |                              |  |
| Variable Dimensions — Millimeters (Inches) |  |                               |                               |                             |                             |                    |                    |                              |  |
| Tape Size                                  | Pitch  | B <sub>1</sub> Max.<br>Note 1 | D <sub>1</sub> Min.<br>Note 2 | F                           | P <sub>1</sub>              | R Min.<br>Note 3   | T <sub>2</sub> Max | W                            | A <sub>0</sub> B <sub>0</sub> K <sub>0</sub><br>Note 4 |
| 8 mm                                       | Single<br>(4 mm)                             | 4.4<br>(0.173)                | 1.0<br>(0.039)                | 3.5 ±0.05<br>(0.138 ±0.002) | 4.0 ±0.10<br>(0.157 ±0.004) | 25.0<br>(0.984)    | 2.5<br>(0.098)     | 8.0 ±0.30<br>(.315 ±0.012)   |  |
| 12 mm                                      | Double<br>(8 mm)                             | 8.2<br>(0.323)                | 1.5<br>(0.059)                | 5.5 ±0.05<br>(0.217 ±0.002) | 8.0 ±0.10<br>(0.315 ±0.004) | 30.0<br>(1.181)    | 4.6<br>(0.181)     | 12.0 ±0.30<br>(0.472 ±0.012) |  |

### NOTES

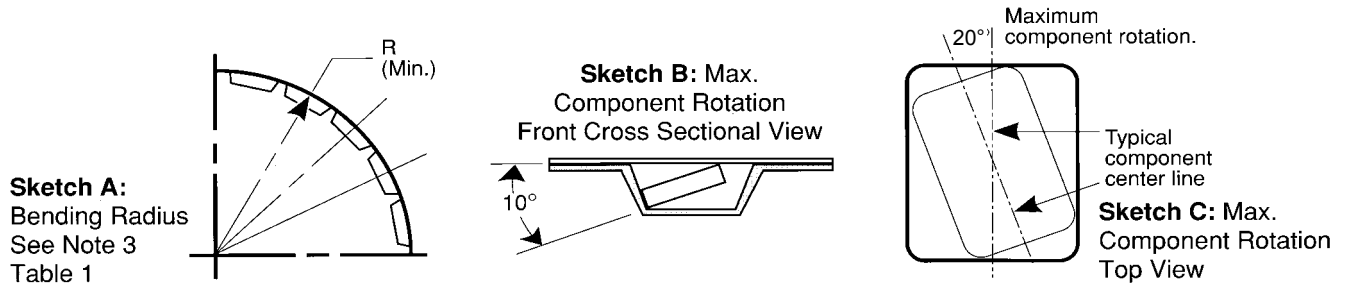
- B<sub>1</sub> dimension is a reference dimension for tape feeder clearance only.
- The embossment hole location shall be measured from the sprocket hole controlling the location of the embossment. Dimensions of embossment location and hole location shall be applied independent of each other.
- Tape with components shall pass around radius "R" without damage (see sketch A). The minimum trailer length (Fig. 2) may require additional length to provide R min. for 12 mm embossed tape for reels with hub diameters approaching N min. (Table 2)
- The cavity defined by A<sub>0</sub>, B<sub>0</sub>, and K<sub>0</sub> shall be configured to surround the part with sufficient clearance such that the chip does not protrude beyond the sealing plane of the cover tape, the chip can be removed from the cavity in a vertical direction without mechanical restriction, rotation of the chip is limited to 20 degrees maximum in all 3 planes, and lateral movement of the chip is restricted to 0.5 mm maximum in the pocket (not applicable to vertical clearance.)

# TANTALUM, CERAMIC AND ALUMINUM CHIP CAPACITORS

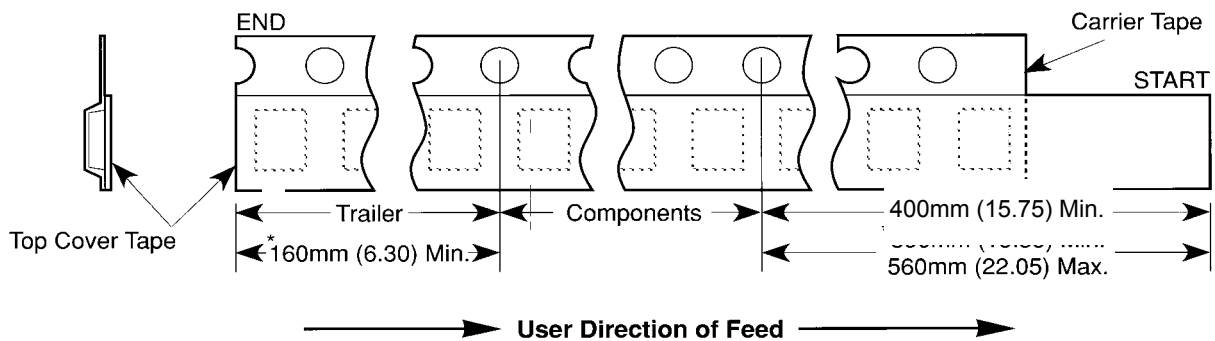
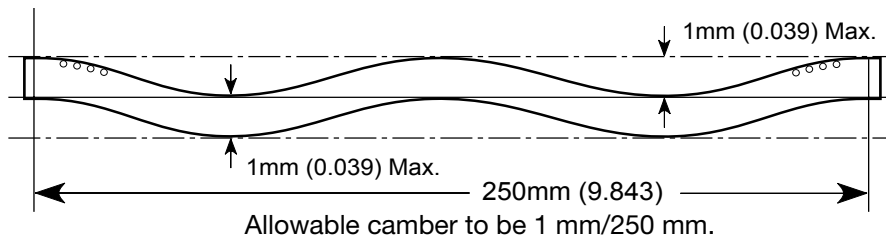


## Packaging Information

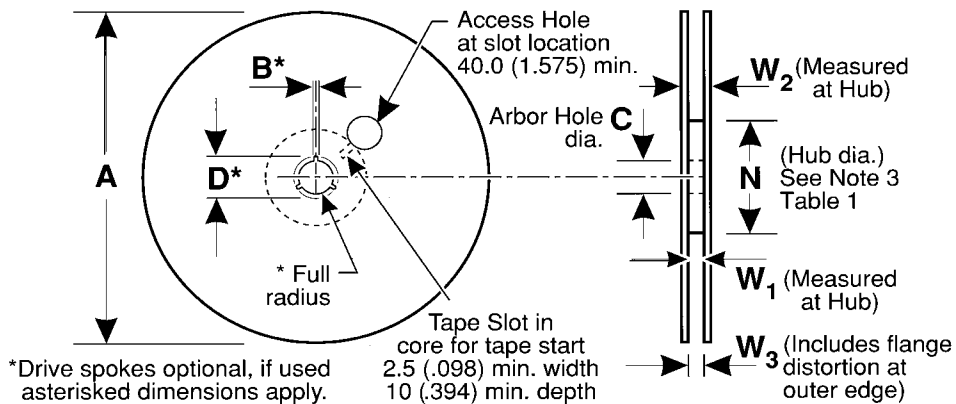
### Embossed Carrier Tape Configuration (cont.)



### Sketch D: Tape Camber (Top View)



**Figure 2:** Tape Leader & Trailer Dimensions (Metric Dimensions Will Govern)



**Figure 3:** Reel Dimensions (Metric Dimensions will govern)

**Table 2 – REEL DIMENSIONS (Metric will govern)**

| Tape Size | A Max             | $B^*$ Min      | C                              | $D^*$ Min       | N Min                                    | $W_1$   | $W_2$ Max       | $W_3$                                      |
|-----------|-------------------|----------------|--------------------------------|-----------------|--|---|-----------------|--|
| 8 mm      | 330.0<br>(12.992) | 1.5<br>(0.059) | 13.0 ± 0.20<br>(0.512 ± 0.008) | 20.2<br>(0.795) | 50.0<br>(1.969)<br>See Note 3<br>Table 1 | 8.4<br>+1.5, -0.0<br>(0.331)<br>+0.059, -0.0  | 14.4<br>(0.567) | 7.9 Min<br>(0.311)<br>10.9 Max<br>(0.429)  |
| 12 mm     | 330.0<br>(12.992) | 1.5<br>(0.059) | 13.0 ± 0.20<br>(0.512 ± 0.008) | 20.2<br>(0.795) | Table 1                                  | 12.4<br>+2.0, -0.0<br>(0.488)<br>+0.078, -0.0 | 18.4<br>(0.724) | 11.9 Min<br>(0.469)<br>15.4 Max<br>(0.606) |