

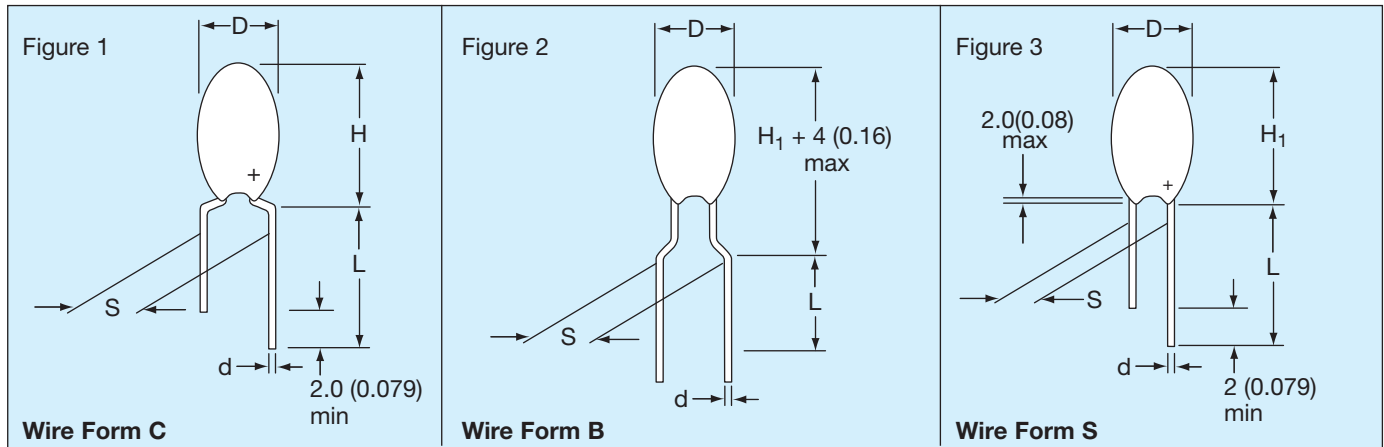
# Dipped Radial Capacitors



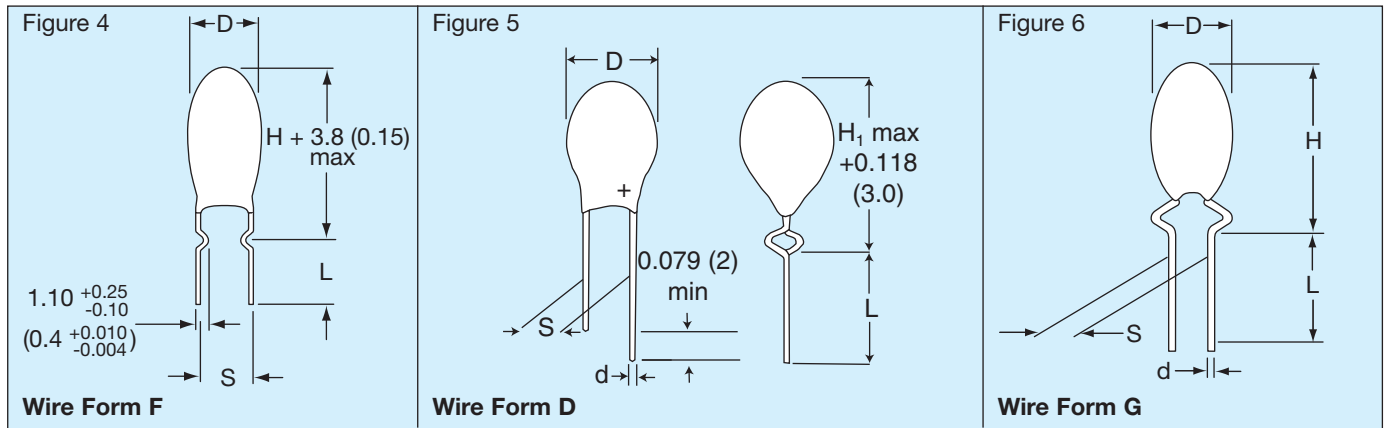
## Wire Form Outline

### SOLID TANTALUM RESIN DIPPED TAP/TEP

#### Preferred Wire Forms



#### Non-Preferred Wire Forms (Not recommended for new designs)



### DIMENSIONS

millimeters (inches)

| Wire Form | Figure | Case Size | L (see note 1) | S | d | Packaging Suffixes Available* |
|-----------|--------|-----------|----------------|---|---|-------------------------------|
|-----------|--------|-----------|----------------|---|---|-------------------------------|

#### Preferred Wire Forms

|   |          |        |                            |                            |                            |  |
|---|----------|--------|----------------------------|----------------------------|----------------------------|--|
| C | Figure 1 | A - R* | 16.0±4.00<br>(0.630±0.160) | 5.00±1.00<br>(0.200±0.040) | 0.50±0.05<br>(0.020±0.002) | CCS Bulk<br>CRW Tape/Reel<br>CRS Tape/Ammo |
| B | Figure 2 | A - J* | 16.0±4.00<br>(0.630±0.160) | 5.00±1.00<br>(0.200±0.040) | 0.50±0.05<br>(0.020±0.002) | BRW Tape/Reel<br>BRS Tape/Ammo             |
| S | Figure 3 | A - J* | 16.0±4.00<br>(0.630±0.160) | 2.50±0.50<br>(0.100±0.020) | 0.50±0.05<br>(0.020±0.002) | SCS Bulk<br>SRW Tape/Reel<br>SRS Tape/Ammo |

#### Non-Preferred Wire Forms (Not recommended for new designs)

|   |                     |        |                            |                            |                            |  |
|---|---------------------|--------|----------------------------|----------------------------|----------------------------|--|
| F | Figure 4            | A - R  | 3.90±0.75<br>(0.155±0.030) | 5.00±0.50<br>(0.200±0.020) | 0.50±0.05<br>(0.020±0.002) | FCS Bulk                                   |
| D | Figure 5            | A - H* | 16.0±4.00<br>(0.630±0.160) | 2.50±0.75<br>(0.100±0.020) | 0.50±0.05<br>(0.020±0.002) | DCS Bulk<br>DTW Tape/Reel<br>DTS Tape/Ammo |
| G | Figure 6            | A - J  | 16.0±4.00<br>(0.630±0.160) | 3.18±0.50<br>(0.125±0.020) | 0.50±0.05<br>(0.020±0.002) | GSB Bulk                                   |
| H | Similar to Figure 1 | A - R  | 16.0±4.00<br>(0.630±0.160) | 6.35±1.00<br>(0.250±0.040) | 0.50±0.05<br>(0.020±0.002) | HSB Bulk                                   |

Notes: (1) Lead lengths can be supplied to tolerances other than those above and should be specified in the ordering information.

(2) For D, H, and H<sub>1</sub> dimensions, refer to individual product on following pages.

\* For case size availability in tape and reel, please refer to pages 195-196.



# Dipped Radial Capacitors



## TEP Series Tin-Lead (Sn/Pb) Finish Product



TEP is a Tin-Lead finish version of the conformally coated tantalum radial leaded capacitor (TAP). It is a professional grade device manufactured with a flame retardant coating and featuring low leakage current and impedance, very small physical sizes and exceptional temperature stability, available in bulk and T&R packaging for auto insertion. The wide range of Capacitance, working voltages and case sizes enables TEP to accommodate to almost any application.

**Not RoHS Compliant**

### CASE DIMENSIONS: millimeters (inches)

| Wire Case | C, F, G, H<br>H | B, S, D<br>*H <sub>1</sub> | D            |
|-----------|-----------------|----------------------------|--------------|
| A         | 8.50 (0.335)    | 7.00 (0.276)               | 4.50 (0.177) |
| B         | 9.00 (0.354)    | 7.50 (0.295)               | 4.50 (0.177) |
| C         | 10.0 (0.394)    | 8.50 (0.335)               | 5.00 (0.197) |
| D         | 10.5 (0.413)    | 9.00 (0.354)               | 5.00 (0.197) |
| E         | 10.5 (0.413)    | 9.00 (0.354)               | 5.50 (0.217) |
| F         | 11.5 (0.453)    | 10.0 (0.394)               | 6.00 (0.236) |
| G         | 11.5 (0.453)    | 10.0 (0.394)               | 6.50 (0.256) |
| H         | 12.0 (0.472)    | 10.5 (0.413)               | 7.00 (0.276) |
| J         | 13.0 (0.512)    | 11.5 (0.453)               | 8.00 (0.315) |
| K         | 14.0 (0.551)    |                            | 8.50 (0.335) |
| L         | 14.0 (0.551)    |                            | 9.00 (0.354) |
| M         | 14.5 (0.571)    |                            | 9.00 (0.354) |
| N         | 16.0 (0.630)    |                            | 9.00 (0.354) |
| P         | 17.0 (0.669)    |                            | 10.0 (0.394) |
| R         | 18.5 (0.728)    |                            | 10.0 (0.394) |

### HOW TO ORDER

**TEP**

Type

**106**

Capacitance Code  
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

**M**

Capacitance Tolerance  
K = ±10%  
M = ±20%  
(For J = ±5% tolerance, please consult factory)

**016**

Rated DC Voltage

**SCS**

Suffix indicating wire form and packaging  
(see page 188)

# Dipped Radial Capacitors



## TEP Series

### TECHNICAL SPECIFICATIONS

|                            |  |     |     |    |    |    |    |    |
|----------------------------|--|-----|-----|----|----|----|----|----|
| Technical Data:            | All technical data relate to an ambient temperature of +25°C                                 |     |     |    |    |    |    |    |
| Capacitance Range:         | 0.10 $\mu$ F to 330 $\mu$ F  |     |     |    |    |    |    |    |
| Capacitance Tolerance:     | $\pm$ 10%; $\pm$ 20% ( $\pm$ 5% consult your AVX representative for details)                 |     |     |    |    |    |    |    |
| Rated Voltage DC ( $V_R$ ) | $\leq$ +85°C:  | 6.3 | 10  | 16 | 20 | 25 | 35 | 50 |
| Category Voltage ( $V_C$ ) | $\leq$ +125°C:   | 4   | 6.3 | 10 | 13 | 16 | 23 | 33 |
| Surge Voltage ( $V_S$ )    | $\leq$ +85°C:  | 8   | 13  | 20 | 26 | 33 | 46 | 65 |
| Surge Voltage ( $V_S$ )    | $\leq$ +125°C:   | 5   | 9   | 12 | 16 | 21 | 28 | 40 |
| Temperature Range:         | -55°C to +125°C  |     |     |    |    |    |    |    |
| Dissipation Factor:        | $\leq$ 0.04 for $C_R$ 0.1-1.5 $\mu$ F  |     |     |    |    |    |    |    |
|                            | $\leq$ 0.06 for $C_R$ 2.2-6.8 $\mu$ F  |     |     |    |    |    |    |    |
|                            | $\leq$ 0.08 for $C_R$ 10-68 $\mu$ F  |     |     |    |    |    |    |    |
|                            | $\leq$ 0.10 for $C_R$ 100-330 $\mu$ F  |     |     |    |    |    |    |    |
| Reliability:               | 1% per 1000 hrs. at 85°C, $V_R$ with 0.1 $\Omega$ /V series impedance, 60% confidence level. |     |     |    |    |    |    |    |

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

| Capacitance |      | Rated voltage DC ( $V_R$ ) |     |     |     |     |     |     |
|-------------|------|----------------------------|-----|-----|-----|-----|-----|-----|
| $\mu$ F     | Code | 6.3V                       | 10V | 16V | 20V | 25V | 35V | 50V |
| 0.10        | 104  |                            |     |     |     |     | A   | A   |
| 0.15        | 154  |                            |     |     |     |     | A   | A   |
| 0.22        | 224  |                            |     |     |     |     | A   | A   |
| 0.33        | 334  |                            |     |     |     |     | A   | A   |
| 0.47        | 474  |                            |     |     |     |     | A   | A   |
| 0.68        | 684  |                            |     |     |     |     | A   | B   |
| 1.0         | 105  |                            |     |     | A   | A   | A   | C   |
| 1.5         | 155  |                            |     | A   | A   | A   | A   | D   |
| 2.2         | 225  |                            | A   | A   | A   | A   | B   | E   |
| 3.3         | 335  | A                          | A   | A   | B   | B   | C   | F   |
| 4.7         | 475  | A                          | A   | B   | C   | C   | E   | G   |
| 6.8         | 685  | A                          | B   | C   | D   | D   | F   | H   |
| 10          | 106  | B                          | C   | D   | E   | E   | F   | J   |
| 15          | 156  | C                          | D   | E   | F   | F   | H   | K   |
| 22          | 226  | D                          | E   | F   | H   | H   | K   | L   |
| 33          | 336  | E                          | F   | F   | J   | J   | M   |     |
| 47          | 476  | F                          | G   | J   | K   | M   | N   |     |
| 68          | 686  | G                          | H   | L   | N   | N   |     |     |
| 100         | 107  | H                          | K   | N   | N   |     |     |     |
| 150         | 157  | K                          | N   | N   |     |     |     |     |
| 220         | 227  | M                          | P   | R   |     |     |     |     |
| 330         | 337  | P                          | R   |     |     |     |     |     |

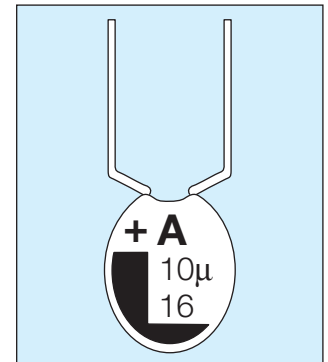
Values outside this standard range may be available on request.

AVX reserves the right to supply capacitors to a higher voltage rating, in the same case size, than that ordered.

### MARKING

Polarity, capacitance, rated DC voltage, and an "A" (AVX logo) are laser marked on the capacitor body which is made of flame retardant gold epoxy resin with a limiting oxygen index in excess of 30 (ASTM-D-2863).

- Polarity
- Capacitance
- Voltage
- AVX logo
- Tolerance code:
  - $\pm$ 20% = Standard (no marking)
  - $\pm$ 10% = "K" on reverse side of unit
  - $\pm$ 5% = "J" on reverse side of unit



# Dipped Radial Capacitors



## TEP Series

### RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Cap (µF) | DCL (µA) Max. | DF % Max. | ESR Max. (Ω) @100kHz |
|--------------|-----------|----------|---------------|-----------|----------------------|
| TEP335(*)006 | A         | 3.3      | 0.5           | 6         | 13                   |
| TEP475(*)006 | A         | 4.7      | 0.5           | 6         | 10                   |
| TEP685(*)006 | A         | 6.8      | 0.5           | 6         | 8                    |
| TEP106(*)006 | B         | 10       | 0.5           | 8         | 6                    |
| TEP156(*)006 | C         | 15       | 0.8           | 8         | 5                    |
| TEP226(*)006 | D         | 22       | 1.1           | 8         | 3.7                  |
| TEP336(*)006 | E         | 33       | 1.7           | 8         | 3                    |
| TEP476(*)006 | F         | 47       | 2.4           | 8         | 2                    |
| TEP686(*)006 | G         | 68       | 3.4           | 8         | 1.8                  |
| TEP107(*)006 | H         | 100      | 5             | 10        | 1.6                  |
| TEP157(*)006 | K         | 150      | 7.6           | 10        | 0.9                  |
| TEP227(*)006 | M         | 220      | 11            | 10        | 0.9                  |
| TEP337(*)006 | P         | 330      | 16.6          | 10        | 0.7                  |
| TEP335(*)006 | A         | 3.3      | 0.5           | 6         | 13                   |
| TEP225(*)010 | A         | 2.2      | 0.5           | 6         | 13                   |
| TEP335(*)010 | A         | 3.3      | 0.5           | 6         | 10                   |
| TEP475(*)010 | A         | 4.7      | 0.5           | 6         | 8                    |
| TEP685(*)010 | B         | 6.8      | 0.5           | 6         | 6                    |
| TEP106(*)010 | C         | 10       | 0.8           | 8         | 5                    |
| TEP156(*)010 | D         | 15       | 1.2           | 8         | 3.7                  |
| TEP226(*)010 | E         | 22       | 1.7           | 8         | 2.7                  |
| TEP336(*)010 | F         | 33       | 2.6           | 8         | 2.1                  |
| TEP476(*)010 | G         | 47       | 3.7           | 8         | 1.7                  |
| TEP686(*)010 | H         | 68       | 5.4           | 8         | 1.3                  |
| TEP107(*)010 | K         | 100      | 8             | 10        | 1                    |
| TEP157(*)010 | N         | 150      | 12            | 10        | 0.8                  |
| TEP227(*)010 | P         | 220      | 17.6          | 10        | 0.6                  |
| TEP337(*)010 | R         | 330      | 20            | 10        | 0.5                  |
| TEP155(*)016 | A         | 1.5      | 0.5           | 4         | 10                   |
| TEP225(*)016 | A         | 2.2      | 0.5           | 6         | 8                    |
| TEP335(*)016 | A         | 3.3      | 0.5           | 6         | 6                    |
| TEP475(*)016 | B         | 4.7      | 0.6           | 6         | 5                    |
| TEP685(*)016 | C         | 6.8      | 0.8           | 6         | 4                    |
| TEP106(*)016 | D         | 10       | 1.2           | 8         | 3.2                  |
| TEP156(*)016 | E         | 15       | 1.9           | 8         | 2.5                  |
| TEP226(*)016 | F         | 22       | 2.8           | 8         | 2                    |
| TEP336(*)016 | F         | 33       | 4.2           | 8         | 1.6                  |
| TEP476(*)016 | J         | 47       | 6             | 8         | 1.3                  |
| TEP686(*)016 | L         | 68       | 8.7           | 8         | 1                    |
| TEP107(*)016 | N         | 100      | 12.8          | 10        | 0.8                  |
| TEP157(*)016 | N         | 150      | 19.2          | 10        | 0.6                  |
| TEP227(*)016 | R         | 220      | 20            | 10        | 0.5                  |
| TEP105(*)020 | A         | 1        | 0.5           | 4         | 10                   |
| TEP155(*)020 | A         | 1.5      | 0.5           | 4         | 9                    |
| TEP225(*)020 | A         | 2.2      | 0.5           | 6         | 7                    |
| TEP335(*)020 | B         | 3.3      | 0.5           | 6         | 5.5                  |
| TEP475(*)020 | C         | 4.7      | 0.7           | 6         | 4.5                  |
| TEP685(*)020 | D         | 6.8      | 1             | 6         | 3.6                  |
| TEP106(*)020 | E         | 10       | 1.6           | 8         | 2.9                  |
| TEP156(*)020 | F         | 15       | 2.4           | 8         | 2.3                  |

| AVX Part No. | Case Size | Cap (µF) | DCL (µA) Max. | DF % Max. | ESR Max. (Ω) @100kHz |
|--------------|-----------|----------|---------------|-----------|----------------------|
| TEP226(*)020 | H         | 22       | 3.5           | 8         | 1.8                  |
| TEP336(*)020 | J         | 33       | 5.2           | 8         | 1.4                  |
| TEP476(*)020 | K         | 47       | 7.5           | 8         | 1.2                  |
| TEP686(*)020 | N         | 68       | 10.8          | 8         | 0.9                  |
| TEP107(*)020 | N         | 100      | 16            | 10        | 0.6                  |
| TEP105(*)025 | A         | 1        | 0.5           | 4         | 10                   |
| TEP155(*)025 | A         | 1.5      | 0.5           | 4         | 8                    |
| TEP225(*)025 | A         | 2.2      | 0.5           | 6         | 6                    |
| TEP335(*)025 | B         | 3.3      | 0.6           | 6         | 5                    |
| TEP475(*)025 | C         | 4.7      | 0.9           | 6         | 4                    |
| TEP685(*)025 | D         | 6.8      | 1.3           | 6         | 3.1                  |
| TEP106(*)025 | E         | 10       | 2             | 8         | 2.5                  |
| TEP156(*)025 | F         | 15       | 3             | 8         | 2                    |
| TEP226(*)025 | H         | 22       | 4.4           | 8         | 1.5                  |
| TEP336(*)025 | J         | 33       | 6.6           | 8         | 1.2                  |
| TEP476(*)025 | M         | 47       | 9.4           | 8         | 1                    |
| TEP686(*)025 | N         | 68       | 13.6          | 8         | 0.8                  |
| TEP104(*)035 | A         | 0.1      | 0.5           | 4         | 26                   |
| TEP154(*)035 | A         | 0.15     | 0.5           | 4         | 21                   |
| TEP224(*)035 | A         | 0.22     | 0.5           | 4         | 17                   |
| TEP334(*)035 | A         | 0.33     | 0.5           | 4         | 15                   |
| TEP474(*)035 | A         | 0.47     | 0.5           | 4         | 13                   |
| TEP684(*)035 | A         | 0.68     | 0.5           | 4         | 10                   |
| TEP105(*)035 | A         | 1        | 0.5           | 4         | 8                    |
| TEP155(*)035 | A         | 1.5      | 0.5           | 4         | 6                    |
| TEP225(*)035 | B         | 2.2      | 0.6           | 6         | 5                    |
| TEP335(*)035 | C         | 3.3      | 0.9           | 6         | 4                    |
| TEP475(*)035 | E         | 4.7      | 1.3           | 6         | 3                    |
| TEP685(*)035 | F         | 6.8      | 1.9           | 6         | 2.5                  |
| TEP106(*)035 | F         | 10       | 2.8           | 8         | 2                    |
| TEP156(*)035 | H         | 15       | 4.2           | 8         | 1.6                  |
| TEP226(*)035 | K         | 22       | 6.1           | 8         | 1.3                  |
| TEP336(*)035 | M         | 33       | 9.2           | 8         | 1                    |
| TEP476(*)035 | N         | 47       | 10            | 8         | 0.8                  |
| TEP104(*)050 | A         | 0.1      | 0.5           | 4         | 26                   |
| TEP154(*)050 | A         | 0.15     | 0.5           | 4         | 21                   |
| TEP224(*)050 | A         | 0.22     | 0.5           | 4         | 17                   |
| TEP334(*)050 | A         | 0.33     | 0.5           | 4         | 15                   |
| TEP474(*)050 | A         | 0.47     | 0.5           | 4         | 13                   |
| TEP684(*)050 | B         | 0.68     | 0.5           | 4         | 10                   |
| TEP105(*)050 | C         | 1        | 0.5           | 4         | 8                    |
| TEP155(*)050 | D         | 1.5      | 0.6           | 4         | 6                    |
| TEP225(*)050 | E         | 2.2      | 0.8           | 6         | 3.5                  |
| TEP335(*)050 | F         | 3.3      | 1.3           | 6         | 3                    |
| TEP475(*)050 | G         | 4.7      | 1.8           | 6         | 2.5                  |
| TEP685(*)050 | H         | 6.8      | 2.7           | 6         | 2                    |
| TEP106(*)050 | J         | 10       | 4             | 8         | 1.6                  |
| TEP156(*)050 | K         | 15       | 6             | 8         | 1.2                  |
| TEP226(*)050 | L         | 22       | 8.8           | 8         | 1                    |