

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

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

| | | | | | | |
|---|---------------------|--------|----------------------------|----------------------------|----------------------------|--|
| F | Figure 4 | A - R | 3.90±0.75 (0.155±0.030) | 5.00±0.50 (0.200±0.020) | 0.50±0.05 (0.020±0.002) | FCS Bulk |
| D | Figure 5 | A - H* | 16.0±4.00 (0.630±0.160) | 2.50±0.75 (0.100±0.020) | 0.50±0.05 (0.020±0.002) | DCS Bulk DTW Tape/Reel DTS Tape/Ammo |
| G | Figure 6 | A - J | 16.0±4.00 (0.630±0.160) | 3.18±0.50 (0.125±0.020) | 0.50±0.05 (0.020±0.002) | GSB Bulk |
| H | Similar to Figure 1 | A - R | 16.0±4.00 (0.630±0.160) | 6.35±1.00 (0.250±0.040) | 0.50±0.05 (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 H₁ dimensions, refer to individual product on following pages.

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



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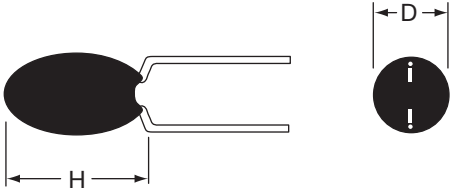
TEP Series Tin-Lead (Sn/Pb) Finish Product



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 H | B, S, D *H ₁ | 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 μF to 330 μF | | | | | | | |
| Capacitance Tolerance: | $\pm 10\%$; $\pm 20\%$ ($\pm 5\%$ consult your AVX representative for details) | | | | | | | |
| Rated Voltage DC (V_R) | $\leq +85^\circ\text{C}$: | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| Category Voltage (V_C) | $\leq +125^\circ\text{C}$: | 4 | 6.3 | 10 | 13 | 16 | 23 | 33 |
| Surge Voltage (V_S) | $\leq +85^\circ\text{C}$: | 8 | 13 | 20 | 26 | 33 | 46 | 65 |
| Surge Voltage (V_S) | $\leq +125^\circ\text{C}$: | 5 | 9 | 12 | 16 | 21 | 28 | 40 |
| Temperature Range: | -55°C to +125°C | | | | | | | |
| Dissipation Factor: | ≤ 0.04 for C_R 0.1-1.5 μF | | | | | | | |
| | ≤ 0.06 for C_R 2.2-6.8 μF | | | | | | | |
| | ≤ 0.08 for C_R 10-68 μF | | | | | | | |
| | ≤ 0.10 for C_R 100-330 μF | | | | | | | |
| Reliability: | 1% per 1000 hrs. at 85°C, V_R with 0.1 Ω/V series impedance, 60% confidence level. | | | | | | | |

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated voltage DC (V_R) | | | | | | |
|---------------|------|----------------------------|-----|-----|-----|-----|-----|-----|
| μF | 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 | | | | | |

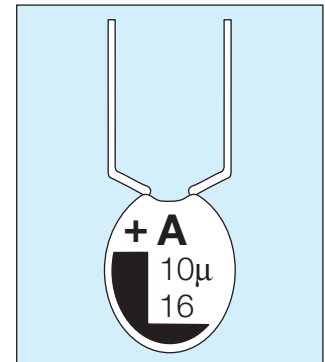
Values outside this standard range may be available on request.

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 |