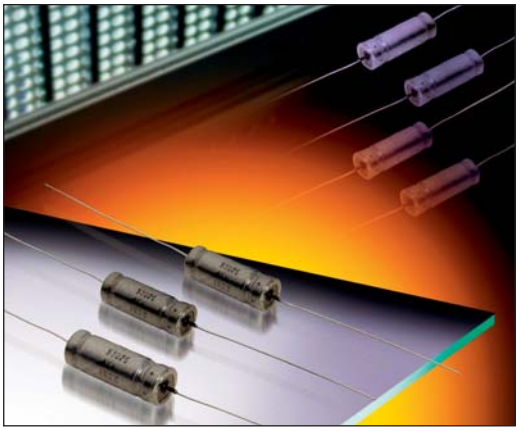
# TWA Series – DSCC 93026

## TWA Wet Electrolytic Tantalum Capacitor

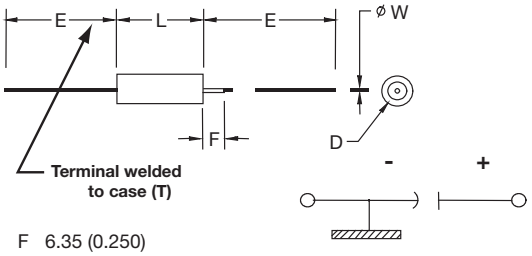


The TWA series is an axial leaded wet electrolytic tantalum capacitor and represents a new level of high CV (capacitance/voltage) previously unavailable in this technology. TWA incorporates a novel, very high capacitance cathode system that allows for higher CV designs, well beyond values specified in the Mil-PRF-39006 drawing.

TWA products are listed in DSCC 93026, which includes new high capacitance/voltage ratings. This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh shock and vibration requirements of 39006. Wet tantalums do not require the same derating as solid tantalums. AVX recommends derating components by only 20% in order to enhance reliability.

Customized capacitance and voltage packages are possible and welcomed. Contact the factory about design possibilities beyond those contained in this datasheet.

## OUTLINE DIMENSIONS




F 6.35 (0.250)
W 0.64 +0.05
(.025 +.002)
T 2.380 (.094)

## CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L +0.79 (0.031) -0.41 (0.016) | D Without Insulating Sleeve ±0.41 (0.016) | D With Insulatiing Sleeve Max | E ±6.35 (0.250) |
|---|---|---|---|---|---|
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

## VOLTAGE RATINGS (Operating Temperature -55ºC to 125ºC)

| Voltage (DC) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Rated Voltage: (Ur) | 85ºC | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (Uc) | 125ºC | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| Surge Voltage: (Us) | 85ºC | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

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## TWA Wet Electrolytic Tantalum Capacitor

## HOW TO ORDER

### AVX PART NUMBER:

| TWA | D | 227 | * | 035 | □ | B | S | Z | 0 | 0 | 00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type** | **Case Size** | **Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | **Capacitance Tolerance** K = ±10% M = ±20% | **Voltage Code** | **Insulation Sleeve** C = Without Sleeve S = With Sleeve | **Packaging** B = Tray Pack | **Inspecition Level** S = Std. Conformance D = DSCC L = Group A | **Reliability** Z = Non-ER | **Qualification Level** 0 = COTS-Plus 9 = SRC9000 | **Termination Finish** 0 = Sn/Pb 60/40 | **Custom Test Options** 00 = Standard |

Not RoHS Compliant

### DSCC PART IDENTIFICATION NUMBER (PIN):

| 93026 | -XX | * | □ |
|---|---|---|---|
| **Drawing Number** | **Dash Number** See Rating Tables | **Capacitance Tolerance** K = ±10% M = ±20% | **Insulation Sleeve** U = Without Sleeve S = With Sleeve |

Not RoHS Compliant

### SPACE LEVEL OPTIONS TO SRC9000*:

| TWA | D | 227 | * | 035 | □ | B | L | Z | 9 | 0 | 00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type** | **Case Size** | **Capacitance Code** pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | **Capacitance Tolerance** M = ±20% K = ±10% | **Voltage Code** | **Insulation Sleeve** C = Without Sleeve S = With Sleeve | **Packaging** B = Tray Pack | **Inspecition Level** L ≠ Group A | **Reliability** Z = Non-ER | **Qualification Level** 9 - SRW9000 | **Termination Finish** 0 = Sn/Pb 60/40 | **Custom Test Options** 00 = Standard |

Not RoHS Compliant

* Check with factory for availability and testing details

## RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

| Frequency of Applied Ripple Current | | 120Hz | | | | 800Hz | | | | 1kHz | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ambient Still Air Temperature (ºC) | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of | 100% | 0.60 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| 85ºC | 90% | 0.60 | 0.46 | – | – | 0.71 | 0.55 | – | _ | 0.72 | 0.55 | – | – |
| Rated | 80% | 0.60 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – |
| Peak | 70% | 0.60 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.70 | 0.52 | – |
| Voltage | 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | | 10kHz | | | | 40kHz | | | | 100kHz | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ambient Still Air Temperature (ºC) | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of | 100% | 0.88 | 0.55 | – | – | 1.00 | 0.63 | – | – | 1.10 | 0.69 | – | – |
| 85ºC | 90% | 0.88 | 0.67 | – | – | 1.00 | 0.77 | – | _ | 1.10 | 0.85 | – | – |
| Rated | 80% | 0.88 | 0.76 | 0.52 | – | 1.00 | 0.87 | 0.59 | – | 1.10 | 0.96 | 0.65 | – |
| Peak | 70% | 0.88 | 0.85 | 0.64 | – | 1.00 | 0.97 | 0.73 | – | 1.10 | 1.07 | 0.80 | – |
| Voltage | 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125ºC the rated voltage of the capacitors decreases to 66 2/3 of the 85ºC rated voltage.
2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

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## RATINGS & PART NUMBER REFERENCE

| AVX Part Number | DSCC Part Number | Cap (µF) 25ºC at 120Hz | DC Rated Voltage (V) at 85ºC | ESR max (ohms) at 120Hz | DC Leakage max (µA) | | Impedance max (Ohms) -55ºC at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85ºC at 40kHz | Case Size | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | +25ºC | +85ºC & 125ºC | | -55ºC | +85ºC | +125ºC | | AVX | DSCC |
| **25 VDC at 85ºC 15 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA127*025□BSZ0000 | 93026- 29*□ | 120 | 25 | 1.3 | 1 | 5 | 25 | -42 | 8 | 12 | 1250 | A | T1 |
| TWAB567*025□BSZ0000 | 93026- 30*□ | 560 | 25 | 0.83 | 2 | 10 | 12 | -65 | 10 | 15 | 2100 | B | T2 |
| TWAD128*025□BSZ0000 | 93026- 31*□ | 1200 | 25 | 0.65 | 5 | 20 | 7 | -70 | 12 | 18 | 2600 | D | T3 |
| TWAE188*025□BSZ0000 | 93026- 32*□ | 1800 | 25 | 0.5 | 6 | 25 | 7 | -75 | 12 | 20 | 3100 | E | T4 |
| TWAE228*025□BSZ0000 | 93026- 64*□ | 2200 | 25 | 0.5 | 10 | 80 | 10 | -90 | 30 | 50 | 3200 | E | T4 |
| **30 VDC at 85ºC 20 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA107*030□BSZ0000 | 93026- 33*□ | 100 | 30 | 1.3 | 1 | 5 | 25 | -38 | 8 | 12 | 1200 | A | T1 |
| TWAB477*030□BSZ0000 | 93026- 34*□ | 470 | 30 | 0.85 | 2 | 10 | 15 | -65 | 10 | 18 | 1800 | B | T2 |
| TWAD108*030□BSZ0000 | 93026- 35*□ | 1000 | 30 | 0.7 | 7 | 25 | 7 | -70 | 10 | 18 | 2500 | D | T3 |
| TWAE158*030□BSZ0000 | 93026- 36*□ | 1500 | 30 | 0.6 | 12 | 35 | 6 | -72 | 10 | 20 | 3000 | E | T4 |
| **50 VDC at 85ºC 30 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA686*050□BSZ0000 | 93026- 37*□ | 68 | 50 | 1.5 | 1 | 5 | 35 | -25 | 8 | 15 | 1050 | A | T1 |
| TWAB227*050□BSZ0000 | 93026- 38*□ | 220 | 50 | 0.9 | 2 | 10 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 |
| TWAD477*050□BSZ0000 | 93026- 39*□ | 470 | 50 | 0.75 | 3 | 25 | 10 | -50 | 8 | 15 | 2100 | D | T3 |
| TWAE687*050□BSZ0000 | 93026- 40*□ | 680 | 50 | 0.7 | 5 | 40 | 8 | -58 | 10 | 20 | 2750 | E | T4 |
| **60 VDC at 85ºC 40 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA476*060□BSZ0000 | 93026- 41*□ | 47 | 60 | 2 | 1 | 5 | 44 | -25 | 8 | 12 | 1050 | A | T1 |
| TWAB157*060□BSZ0000 | 93026- 42*□ | 150 | 60 | 1.1 | 2 | 10 | 20 | -40 | 8 | 15 | 1650 | B | T2 |
| TWAD397*060□BSZ0000 | 93026- 43*□ | 390 | 60 | 0.9 | 3 | 25 | 15 | -60 | 8 | 15 | 2100 | D | T3 |
| TWAE567*060□BSZ0000 | 93026- 44*□ | 560 | 60 | 0.8 | 5 | 40 | 10 | -58 | 8 | 15 | 2750 | E | T4 |
| TWAE108*060□BSZ0000 | 93026- 65*□ | 1000 | 60 | 1 | 12 | 90 | 20 | -90 | 30 | 50 | 3200 | E | T4 |
| **75 VDC at 85ºC 50 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA336*075□BSZ0000 | 93026- 45*□ | 33 | 75 | 2.5 | 1 | 5 | 66 | -25 | 5 | 9 | 1050 | A | T1 |
| TWAB117*075□BSZ0000 | 93026- 46*□ | 110 | 75 | 1.3 | 2 | 10 | 24 | -35 | 6 | 10 | 1650 | B | T2 |
| TWAD337*075□BSZ0000 | 93026- 47*□ | 330 | 75 | 1 | 3 | 30 | 12 | -45 | 6 | 10 | 2100 | D | T3 |
| TWAE477*075□BSZ0000 | 93026- 48*□ | 470 | 75 | 0.9 | 5 | 50 | 12 | -55 | 6 | 10 | 2750 | E | T4 |
| **100 VDC at 85ºC 65 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA156*100□BSZ0000 | 93026- 49*□ | 15 | 100 | 3.5 | 1 | 5 | 125 | -18 | 3 | 10 | 1050 | A | T1 |
| TWAB686*100□BSZ0000 | 93026- 50*□ | 68 | 100 | 2.1 | 2 | 10 | 37 | -30 | 4 | 12 | 1650 | B | T2 |
| TWAD157*100□BSZ0000 | 93026- 51*□ | 150 | 100 | 1.6 | 3 | 25 | 22 | -35 | 6 | 12 | 2100 | D | T3 |
| TWAE227*100□BSZ0000 | 93026- 52*□ | 220 | 100 | 1.2 | 5 | 50 | 15 | -40 | 6 | 12 | 2750 | E | T4 |
| **125 VDC at 85ºC 85 VDC at 125ºC** | | | | | | | | | | | | | |
| TWAA106*125□BSZ0000 | 93026- 53*□ | 10 | 125 | 5.5 | 1 | 5 | 175 | -15 | 3 | 10 | 1050 | A | T1 |
| TWAB476*125□BSZ0000 | 93026- 54*□ | 47 | 125 | 2.3 | 2 | 10 | 47 | -25 | 5 | 12 | 1650 | B | T2 |
| TWAD107*125□BSZ0000 | 93026- 55*□ | 100 | 125 | 1.8 | 3 | 25 | 35 | -35 | 5 | 12 | 2100 | D | T3 |
| TWAE157*125□BSZ0000 | 93026- 56*□ | 150 | 125 | 1.6 | 5 | 50 | 20 | -35 | 6 | 12 | 2750 | E | T4 |

All technical data relates to an ambient temperature of +25ºC. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V.
DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

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