

# TWA Series – DSCC 93026



## TWA Wet Electrolytic Tantalum Capacitor

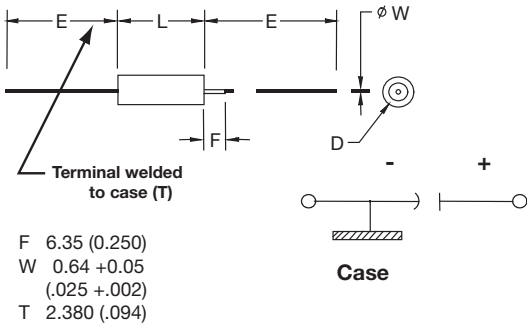


The TWA series is an axial leaded wet electrolytic tantalum capacitor and represents a new level of high CV (capacitance/voltage) previously unavailable in this technology. TWA incorporates a novel, very high capacitance cathode system that allows for higher CV designs, well beyond values specified in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



### CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L<br>+0.79 (0.031)<br>-0.41 (0.016) | D<br>Without Insulating Sleeve<br>±0.41 (0.016) | D<br>With Insulating Sleeve<br>Max | E<br>±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 -55°C to 125°C)

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



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### HOW TO ORDER

#### AVX PART NUMBER:

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

#### DSCC PART IDENTIFICATION NUMBER (PIN):

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

#### SPACE LEVEL OPTIONS TO SRC9000\*:

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

\* Check with factory for availability and testing details

### RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage<sup>1/2/</sup>

| Frequency of Applied Ripple Current |           | 120Hz |      |      |      | 800Hz |      |      |      | 1kHz |      |      |      |
|-------------------------------------|-----------|-------|------|------|------|-------|------|------|------|------|------|------|------|
|                                     |           | ≤55   | 85   | 105  | 125  | ≤55   | 85   | 105  | 125  | ≤55  | 85   | 105  | 125  |
| Ambient Still Air Temperature (°C)  | % of 100% | 0.60  | 0.39 | –    | –    | 0.71  | 0.43 | –    | –    | 0.72 | 0.45 | –    | –    |
|                                     | 85°C      | 0.60  | 0.46 | –    | –    | 0.71  | 0.55 | –    | –    | 0.72 | 0.55 | –    | –    |
| Rated Peak                          | 80%       | 0.60  | 0.52 | 0.35 | –    | 0.71  | 0.62 | 0.42 | –    | 0.72 | 0.62 | 0.42 | –    |
|                                     | 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 |      |      |      |
|-------------------------------------|---------|-------|------|------|------|-------|------|------|------|--------|------|------|------|
|                                     |         | ≤55   | 85   | 105  | 125  | ≤55   | 85   | 105  | 125  | ≤55    | 85   | 105  | 125  |
| % of 100%                           | 100%    | 0.88  | 0.55 | –    | –    | 1.00  | 0.63 | –    | –    | 1.10   | 0.69 | –    | –    |
|                                     | 85°C    | 0.88  | 0.67 | –    | –    | 1.00  | 0.77 | –    | –    | 1.10   | 0.85 | –    | –    |
| Rated Peak                          | 80%     | 0.88  | 0.76 | 0.52 | –    | 1.00  | 0.87 | 0.59 | –    | 1.10   | 0.96 | 0.65 | –    |
|                                     | 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 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C 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)<br>25°C<br>at 120Hz | DC Rated Voltage (V)<br>at 85°C | ESR max (ohms)<br>at 120Hz | DC Leakage max (µA) |               | Impedance max (Ohms)<br>-55°C at 120Hz | Maximum Capacitance Change (%) |       |        | AC Ripple (mA rms)<br>85°C at 40kHz | Case Size |      |
|---------------------------------|------------------|------------------------------|---------------------------------|----------------------------|---------------------|---------------|----------------------------------------|--------------------------------|-------|--------|-------------------------------------|-----------|------|
|                                 |                  |                              |                                 |                            | +25°C               | +85°C & 125°C |                                        | -55°C                          | +85°C | +125°C |                                     | AVX       | DSCC |
| 25 VDC at 85°C 15 VDC at 125°C  |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 85°C 20 VDC at 125°C  |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 85°C 30 VDC at 125°C  |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 85°C 40 VDC at 125°C  |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 85°C 50 VDC at 125°C  |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 85°C 65 VDC at 125°C |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 85°C 85 VDC at 125°C |                  |                              |                                 |                            |                     |               |                                        |                                |       |        |                                     |           |      |
| 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 +25°C. 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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