

# TWA-E Series



## CECC Wet Electrolytic Tantalum Capacitor

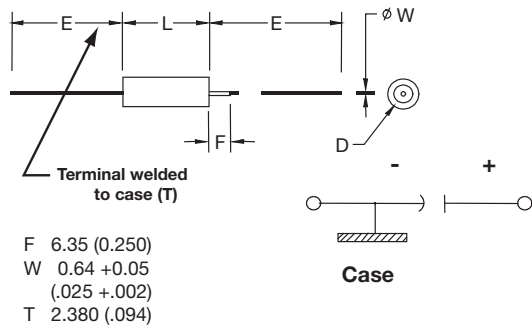


The TWA-E series is an axial leaded wet electrolytic tantalum capacitor manufactured in EU in accordance with CECC 30 202-001. High capacitance cathode system allows high level of CV (Capacitance/Voltage) in DSCC compatible case sizes.

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh shock and vibration requirements of MIL-PRF-39006.

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: ( $V_R$ )   | 85°C  | 25   | 30   | 50   | 60 | 75   | 100 | 125 |
| Derated Voltage: ( $V_C$ ) | 125°C | 15   | 20   | 30   | 40 | 50   | 65  | 85  |
| Surge Voltage: ( $V_S$ )   | 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         | 337                                                                                                               | *                     | 050          | □                                     | B             | E                                   | Z           | 0                   | ^                                | 00                  |
|------|-----------|-------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|---------------------------------------|---------------|-------------------------------------|-------------|---------------------|----------------------------------|---------------------|
| Type | Case Size | Capacitance Code                                                                                                  | Capacitance Tolerance | Voltage Code | Insulation Sleeve                     | Packaging     | Inspection Level                    | Reliability | Qualification Level | Termination Finish               | Custom Test Options |
|      |           | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | K = ±10%<br>M = ±20%  |              | C = Without Sleeve<br>S = With Sleeve | B = Tray Pack | E = In accordance with CECC testing | Z = Non-ER  | 0 = N/A             | 0 = Sn/Pb 60/40<br>7 = Matte tin | 00 = Standard       |



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

| Frequency of Applied Ripple Current |      | 120Hz |      |      |      | 800Hz |      |      |      | 1kHz |      |      |      |
|-------------------------------------|------|-------|------|------|------|-------|------|------|------|------|------|------|------|
| Ambient Still Air Temperature (°C)  |      | ≤55   | 85   | 105  | 125  | ≤55   | 85   | 105  | 125  | ≤55  | 85   | 105  | 125  |
| % of Rated Peak Voltage             | 100% | 0.60  | 0.39 | —    | —    | 0.71  | 0.43 | —    | —    | 0.72 | 0.45 | —    | —    |
|                                     | 90%  | 0.60  | 0.46 | —    | —    | 0.71  | 0.55 | —    | —    | 0.72 | 0.55 | —    | —    |
|                                     | 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 | —    |
| 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 (°C)  |      | ≤55   | 85   | 105  | 125  | ≤55   | 85   | 105  | 125  | ≤55    | 85   | 105  | 125  |
| % of Rated Peak Voltage             | 100% | 0.88  | 0.55 | —    | —    | 1.00  | 0.63 | —    | —    | 1.10   | 0.69 | —    | —    |
|                                     | 90%  | 0.88  | 0.67 | —    | —    | 1.00  | 0.77 | —    | —    | 1.10   | 0.85 | —    | —    |
|                                     | 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 | —    |
| 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.

## CECC Wet Electrolytic Tantalum Capacitor

### CAPACITANCE AND RATED VOLTAGE, $V_R$ (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance |      | Rated Voltage DC ( $V_R$ ) to 85°C |     |      |     |      |      |      |
|-------------|------|------------------------------------|-----|------|-----|------|------|------|
| $\mu F$     | Code | 25V                                | 30V | 50V  | 60V | 75V  | 100V | 125V |
| 15          | 156  |                                    |     |      |     |      |      | A*   |
| 22          | 226  |                                    |     |      |     |      | A*   |      |
| 33          | 336  |                                    |     |      |     | A*   |      |      |
| 47          | 476  |                                    |     | A*   |     |      |      | B*   |
| 68          | 686  | A                                  |     |      |     |      | B    |      |
| 100         | 107  |                                    |     |      | B   | B    |      | D    |
| 120         | 127  |                                    |     | B    |     |      |      | D*   |
| 150         | 157  |                                    |     | B    |     |      | D    | E    |
| 220         | 227  |                                    | B   |      |     | D*,E | E    | E    |
| 330         | 337  | B                                  |     | D*,E |     | E    | E    |      |
| 470         | 477  |                                    |     | D,E  |     | E    |      |      |
| 560         | 567  | D*                                 |     |      | E   |      |      |      |
| 680         | 687  | E                                  | D,E | E    |     | E    |      |      |
| 750         | 757  | D,E                                | D,E |      |     | E    | E*   |      |
| 1000        | 108  | D,E                                | E   | D*,E |     |      |      |      |
| 1500        | 158  | E                                  |     |      |     |      |      |      |
| 2200        | 228  |                                    |     |      | E   |      |      |      |
| 3000        | 308  |                                    |     | E    |     |      |      |      |
| 4700        | 478  | E                                  |     |      |     |      |      |      |

Released codes

Engineering samples - please contact manufacturer

\*Codes under development

## CECC Wet Electrolytic Tantalum Capacitor

### RATINGS & PART NUMBER REFERENCE

| AVX Part Number                    | Cap (μF)<br>25°C<br>at 120Hz | DC Rated<br>Votage (V)<br>at 85°C | ESR Max<br>(ohms)<br>at 120Hz | DC Leakage max (μA) |                 | TANG δ Max<br>+25°C (%) | Impedance<br>max (Ohms)<br>-55°C at 120Hz | Maximum Capacitance Change<br>(%) |       |        | AC Ripple<br>(mA rms)<br>85°C at 40kHz | Case Size |      |
|------------------------------------|------------------------------|-----------------------------------|-------------------------------|---------------------|-----------------|-------------------------|-------------------------------------------|-----------------------------------|-------|--------|----------------------------------------|-----------|------|
|                                    |                              |                                   |                               | +25°C               | +85 &<br>+125°C |                         |                                           | -55°C                             | +85°C | +125°C |                                        | AVX       | DSCC |
| 25 VDC at 85°C    15 VDC at 125°C  |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAA686*025□BEZ0^00                | 68                           | 25                                | 2.5                           | 0.6                 | 3               | 12                      | 45                                        | -40                               | 12    | 15     | 850                                    | A         | T1   |
| TWAB337*025□BEZ0^00                | 330                          | 25                                | 1.3                           | 2                   | 20              | 30                      | 25                                        | -60                               | 10    | 15     | 1550                                   | B         | T2   |
| TWAE687*025□BEZ0^00                | 680                          | 25                                | 0.75                          | 3                   | 12              | 45                      | 12                                        | -50                               | 8     | 15     | 2100                                   | E         | T4   |
| TWAD757*025□BEZ0^00                | 750                          | 25                                | 1                             | 3                   | 25              | 45                      | 15                                        | -50                               | 8     | 15     | 2000                                   | D         | T3   |
| TWAE757*025□BEZ0^00                | 750                          | 25                                | 0.75                          | 3.5                 | 16              | 50                      | 9                                         | -55                               | 10    | 18     | 2200                                   | E         | T4   |
| TWAD108*025□BEZ0^00                | 1000                         | 25                                | 1                             | 4                   | 30              | 45                      | 15                                        | -50                               | 8     | 15     | 2300                                   | D         | T3   |
| TWAE108*025□BEZ0^00                | 1000                         | 25                                | 0.7                           | 4                   | 20              | 60                      | 9                                         | -55                               | 10    | 18     | 2400                                   | E         | T4   |
| TWAE158*025□BEZ0^00                | 1500                         | 25                                | 0.5                           | 6                   | 24              | 65                      | 7                                         | -65                               | 15    | 20     | 2850                                   | E         | T4   |
| TWAE478*025□BEZ0^00                | 4700                         | 25                                | 0.25                          | 18                  | 92              | 90                      | 1.8                                       | -74                               | 32    | 34     | 5700                                   | E         | T4   |
| 30 VDC at 85°C    20 VDC at 125°C  |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAB227*030□BEZ0^00                | 220                          | 30                                | 2                             | 1.9                 | 10              | 15                      | 30                                        | -40                               | 8     | 15     | 1200                                   | B         | T2   |
| TWAD687*030□BEZ0^00                | 680                          | 30                                | 1                             | 3.3                 | 25              | 45                      | 15                                        | -50                               | 8     | 15     | 1900                                   | D         | T3   |
| TWAE687*030□BEZ0^00                | 680                          | 30                                | 0.8                           | 4.5                 | 18              | 45                      | 10                                        | -60                               | 8     | 15     | 2100                                   | E         | T4   |
| TWAD757*030□BEZ0^00                | 750                          | 30                                | 1                             | 3.6                 | 30              | 45                      | 15                                        | -50                               | 8     | 15     | 2000                                   | D         | T3   |
| TWAE757*030□BEZ0^00                | 750                          | 30                                | 0.8                           | 5                   | 20              | 45                      | 10                                        | -65                               | 10    | 18     | 2200                                   | E         | T4   |
| TWAE108*030□BEZ0^00                | 1000                         | 30                                | 0.7                           | 5                   | 20              | 55                      | 7                                         | -70                               | 10    | 18     | 2500                                   | E         | T4   |
| 50 VDC at 85°C    30 VDC at 125°C  |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAA476*050□BEZ0^00                | 47                           | 50                                | 2                             | 1                   | 5               | 9                       | 35                                        | -25                               | 8     | 15     | 850                                    | A         | T1   |
| TWAB127*050□BEZ0^00                | 120                          | 50                                | 2                             | 2                   | 10              | 14                      | 30                                        | -45                               | 8     | 15     | 1200                                   | B         | T2   |
| TWAB157*050□BEZ0^00                | 150                          | 50                                | 2                             | 2                   | 10              | 16                      | 25                                        | -50                               | 8     | 15     | 1400                                   | B         | T2   |
| TWAD337*050□BEZ0^00                | 330                          | 50                                | 0.85                          | 3                   | 25              | 25                      | 15                                        | -50                               | 8     | 15     | 1650                                   | D         | T3   |
| TWAE337*050□BEZ0^00                | 330                          | 50                                | 0.8                           | 2.5                 | 25              | 24                      | 15                                        | -50                               | 8     | 15     | 1900                                   | E         | T4   |
| TWAD477*050□BEZ0^00                | 470                          | 50                                | 1                             | 3                   | 25              | 35                      | 11                                        | -50                               | 8     | 15     | 2100                                   | D         | T3   |
| TWAE477*050□BEZ0^00                | 470                          | 50                                | 0.75                          | 3                   | 30              | 32                      | 10                                        | -50                               | 8     | 15     | 2200                                   | E         | T4   |
| TWAE687*050□BEZ0^00                | 680                          | 50                                | 0.7                           | 5                   | 40              | 42                      | 8                                         | -58                               | 10    | 20     | 2750                                   | E         | T4   |
| TWAD108*050□BEZ0^00                | 1000                         | 50                                | 1.2                           | 15                  | 125             | 100                     | 15                                        | -90                               | 100   | 140    | 3800                                   | D         | T3   |
| TWAE108*050□BEZ0^00                | 1000                         | 50                                | 0.7                           | 11                  | 110             | 45                      | 20                                        | -70                               | 30    | 40     | 3200                                   | E         | T4   |
| TWAE308*050□BEZ0^00                | 3000                         | 50                                | 0.3                           | 30                  | 150             | 80                      | 3.5                                       | -80                               | 60    | 85     | 3100                                   | E         | T4   |
| 60 VDC at 85°C    40 VDC at 125°C  |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAB107*060□BEZ0^00                | 100                          | 60                                | 2.5                           | 1.7                 | 10              | 12                      | 30                                        | -40                               | 8     | 15     | 1100                                   | B         | T2   |
| TWAE567*060□BEZ0^00                | 560                          | 60                                | 0.8                           | 5                   | 40              | 45                      | 10                                        | -58                               | 8     | 15     | 2750                                   | E         | T4   |
| TWAE228*060□BEZ0^00                | 2200                         | 60                                | 0.5                           | 30                  | 150             | 80                      | 3.5                                       | -80                               | 60    | 85     | 3000                                   | E         | T4   |
| 75 VDC at 85°C    50 VDC at 125°C  |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAA336*075□BEZ0^00                | 33                           | 75                                | 2.5                           | 1                   | 5               | 8                       | 66                                        | -25                               | 5     | 9      | 1050                                   | A         | T1   |
| TWAB107*075□BEZ0^00                | 100                          | 75                                | 2.5                           | 2                   | 10              | 12                      | 24                                        | -35                               | 6     | 10     | 1400                                   | B         | T2   |
| TWAD227*075□BEZ0^00                | 220                          | 75                                | 1.2                           | 3                   | 30              | 24                      | 20                                        | -45                               | 6     | 10     | 1500                                   | D         | T3   |
| TWAE227*075□BEZ0^00                | 220                          | 75                                | 1.1                           | 2.5                 | 30              | 22                      | 20                                        | -50                               | 6     | 10     | 1800                                   | E         | T4   |
| TWAE337*075□BEZ0^00                | 330                          | 75                                | 1                             | 3                   | 40              | 30                      | 12                                        | -50                               | 6     | 10     | 2200                                   | E         | T4   |
| TWAE477*075□BEZ0^00                | 470                          | 75                                | 0.9                           | 5                   | 50              | 38                      | 12                                        | -55                               | 6     | 10     | 2750                                   | E         | T4   |
| TWAE687*075□BEZ0^00                | 680                          | 75                                | 0.9                           | 11                  | 110             | 45                      | 10                                        | -70                               | 30    | 40     | 2750                                   | E         | T4   |
| TWAE757*075□BEZ0^00                | 750                          | 75                                | 0.7                           | 12                  | 120             | 60                      | 10                                        | -70                               | 30    | 40     | 3800                                   | E         | T4   |
| 100 VDC at 85°C    65 VDC at 125°C |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAA226*100□BEZ0^00                | 22                           | 100                               | 3.5                           | 1                   | 5               | 7                       | 125                                       | -18                               | 3     | 10     | 1400                                   | A         | T1   |
| TWAB686*100□BEZ0^00                | 68                           | 100                               | 2.5                           | 2                   | 10              | 13                      | 37                                        | -30                               | 4     | 12     | 1650                                   | B         | T2   |
| TWAD157*100□BEZ0^00                | 150                          | 100                               | 1.6                           | 3                   | 25              | 22                      | 22                                        | -35                               | 6     | 12     | 2100                                   | D         | T3   |
| TWAE227*100□BEZ0^00                | 220                          | 100                               | 1.2                           | 5                   | 50              | 24                      | 15                                        | -40                               | 6     | 12     | 2750                                   | E         | T4   |
| TWAE337*100□BEZ0^00                | 330                          | 100                               | 0.8                           | 6                   | 60              | 30                      | 10                                        | -45                               | 7     | 20     | 3600                                   | E         | T4   |
| TWAE757*100□BEZ0^00                | 750                          | 100                               | 0.7                           | 20                  | 200             | 45                      | 10                                        | -40                               | 20    | 50     | 6700                                   | E         | T4   |
| 125 VDC at 85°C    85 VDC at 125°C |                              |                                   |                               |                     |                 |                         |                                           |                                   |       |        |                                        |           |      |
| TWAD107*125□BEZ0^00                | 100                          | 125                               | 1.8                           | 3                   | 25              | 18                      | 35                                        | -35                               | 5     | 12     | 2100                                   | D         | T3   |
| TWAE157*125□BEZ0^00                | 150                          | 125                               | 1.6                           | 5                   | 50              | 35                      | 20                                        | -35                               | 6     | 16     | 2750                                   | E         | T4   |
| TWAE227*125□BEZ0^00                | 220                          | 125                               | 1.4                           | 10                  | 50              | 25                      | 12                                        | -40                               | 8     | 15     | 3600                                   | 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.

## Данный компонент на территории Российской Федерации

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В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

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