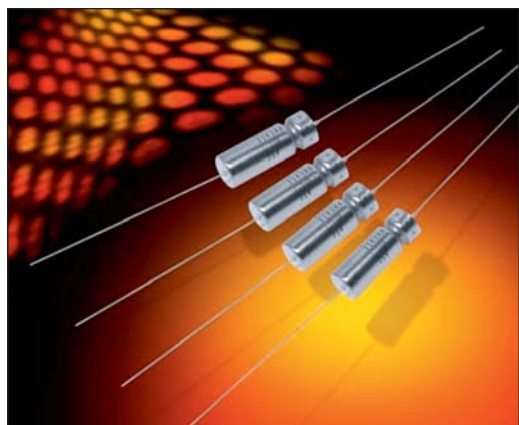


# MIL-PRF-39006 Series



## Military Conventional Wet Tantalum



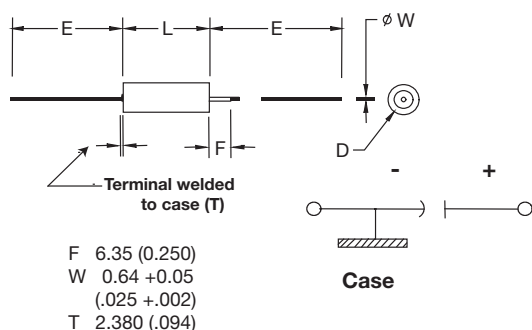
This data sheet contains the MIL-PRF-39006 ratings for which AVX is a qualified approved supplier. This will be continually updated as the qualification expands. For COTS-Plus equivalent ratings please refer to the TWC data sheet located on the website.

This design is an axial leaded tubular case. It includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments. The 1000 hour failure rates of 1%, 0.1% and 0.01% correspond to "M", "P", and "R" respectively. For details on testing conditions please refer to MIL-PRF-39006.

**Currently qualified M39006 ratings include T2-T4 case sizes:**

|           | <b>M Level<br/>Reliability Dashes</b> | <b>P Level<br/>Reliability Dashes</b> | <b>R Level<br/>Reliability Dashes</b> |
|-----------|---------------------------------------|---------------------------------------|---------------------------------------|
| M39006/22 | 6V-100V                               | 6V-100V                               | 6V-100V                               |
| M39006/25 | 6V-100V                               | 25V-100V                              | 25V-100V                              |
| M39006/30 | 6V-100V                               | 6V-100V                               | 6V-100V                               |
| M39006/31 | 6V-100V                               | 25V-100V                              | 25V-100V                              |

## OUTLINE DIMENSIONS



## CASE DIMENSIONS: millimeters (inches)

| DSCC<br>Case<br>Size | AVX<br>Case<br>Size | L<br>+0.79 (0.031)<br>-0.41 (0.016) | D<br>Basic Case<br>±0.41 (0.016) | D<br>Insulated Case<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  | 6   | 8   | 10   | 15   | 25   | 30   | 50   | 60 | 75   | 100 | 125 |
| Derated Voltage: ( $V_d$ ) | 125°C | 4   | 5   | 6    | 10   | 15   | 20   | 30   | 40 | 50   | 65  | 85  |
| Surge Voltage: ( $V_s$ )   | 85°C  | 6.9 | 9.2 | 11.5 | 17.3 | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

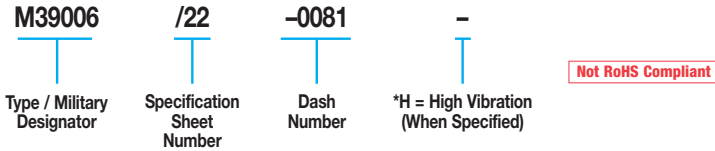


# MIL-PRF-39006 Series

## Military Conventional Wet Tantalum



### HOW TO ORDER MILITARY M39006 PART NUMBER:



\*High vibration qualified parts are currently under development. Please contact the factory for additional details and availability.

### RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage<sup>1/ 2/ 3/</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                                | 100%  | 0.60    | 0.39 | —    | —    | 0.71  | 0.43 | —    | —    | 0.72 | 0.45 | —    | —    |
|                                     | 85°C  | 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 |

| 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                                | 100%  | 0.88    | 0.55 | —    | —    | 1.00  | 0.63 | —    | —    | 1.10   | 0.69 | —    | —    |
|                                     | 85°C  | 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 |

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.  
 3/ The ripple current listed in the parametric tables represents a rating calculated by using a maximum internal temperature rise (ΔT) at 50°C at 40 kHz at 85°C ambient temperature, with a maximum peak rated voltage of 66.67 percent of the 85°C peak voltage rating.



# MIL-PRF-39006 Series



## Military Conventional Wet Tantalum

### M39006 /22 RATINGS AND DASH NUMBER REFERENCE

| M39006/22 Dashes |            |            | Tolerance ± (%) | Cap (µF)<br>25°C<br>at 120Hz | DC Rated<br>Voltage (V)<br>at 85°C | DC Leakage (µA) |                     | DF<br>max (%) | ESR<br>max (Ohms)<br>at 120Hz | Impedance<br>max (Ohms)<br>-55°C at 120Hz | Maximum Capacitance<br>Change (%) |       |        | AC Ripple<br>(mA rms)<br>85°C<br>at 40kHz | Case<br>Size |
|------------------|------------|------------|-----------------|------------------------------|------------------------------------|-----------------|---------------------|---------------|-------------------------------|-------------------------------------------|-----------------------------------|-------|--------|-------------------------------------------|--------------|
| M<br>Level       | P<br>Level | R<br>Level |                 |                              |                                    | +25°C           | +85°C<br>&<br>125°C |               |                               |                                           | -55°C                             | +85°C | +125°C |                                           |              |
| -0007            | -0227      | -0447      | 20              | 140                          | 6                                  | 1               | 3                   | 21            | 1.99                          | 40                                        | -40                               | 14    | 16     | 1200                                      | T2           |
| -0008            | -0228      | -0448      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0009            | -0229      | -0449      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0010            | -0230      | -0450      | 20              | 270                          | 6                                  | 1               | 6.5                 | 45            | 2.21                          | 25                                        | -44                               | 17.5  | 20     | 1375                                      | T2           |
| -0011            | -0231      | -0451      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0012            | -0232      | -0452      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0013            | -0233      | -0453      | 20              | 330                          | 6                                  | 2               | 7.9                 | 36            | 1.45                          | 20                                        | -44                               | 14    | 16     | 1800                                      | T3           |
| -0014            | -0234      | -0454      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0015            | -0235      | -0455      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0016            | -0236      | -0456      | 20              | 560                          | 6                                  | 2               | 13                  | 55            | 1.3                           | 25                                        | -64                               | 17.5  | 20     | 1900                                      | T3           |
| -0017            | -0237      | -0457      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0018            | -0238      | -0458      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0019            | -0239      | -0459      | 20              | 1200                         | 6                                  | 3               | 14                  | 90            | 1                             | 20                                        | -80                               | 25    | 25     | 2265                                      | T4           |
| -0020            | -0240      | -0460      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0027            | -0247      | -0467      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0028            | -0248      | -0468      | 10              | 120                          | 8                                  | 1               | 2                   | 20            | 2.21                          | 50                                        | -44                               | 17.5  | 20     | 1220                                      | T2           |
| -0029            | -0249      | -0469      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0030            | -0250      | -0470      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0031            | -0251      | -0471      | 10              | 220                          | 8                                  | 1               | 7                   | 37            | 2.23                          | 30                                        | -44                               | 17.5  | 20     | 1370                                      | T2           |
| -0032            | -0252      | -0472      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0033            | -0253      | -0473      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0034            | -0254      | -0474      | 10              | 290                          | 8                                  | 2               | 6                   | 34            | 1.56                          | 25                                        | -64                               | 17.5  | 20     | 1770                                      | T3           |
| -0035            | -0255      | -0475      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0036            | -0256      | -0476      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0037            | -0257      | -0477      | 10              | 430                          | 8                                  | 2               | 14                  | 46            | 1.42                          | 25                                        | -64                               | 17.5  | 20     | 1825                                      | T3           |
| -0038            | -0258      | -0478      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0039            | -0259      | -0479      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0040            | -0260      | -0480      | 10              | 850                          | 8                                  | 4               | 16                  | 60            | 0.94                          | 22                                        | -80                               | 25    | 25     | 2330                                      | T4           |
| -0047            | -0267      | -0487      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0048            | -0268      | -0488      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0049            | -0269      | -0489      | 5               | 100                          | 10                                 | 1               | 4                   | 15            | 1.99                          | 60                                        | -36                               | 14    | 16     | 1200                                      | T2           |
| -0050            | -0270      | -0490      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0051            | -0271      | -0491      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0052            | -0272      | -0492      | 5               | 180                          | 10                                 | 1               | 7                   | 30            | 2.21                          | 40                                        | -36                               | 14    | 16     | 1.365                                     | T2           |
| -0053            | -0273      | -0493      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0054            | -0274      | -0494      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0055            | -0275      | -0495      | 5               | 250                          | 10                                 | 2               | 10                  | 30            | 1.59                          | 30                                        | -40                               | 14    | 16     | 1720                                      | T3           |
| -0056            | -0276      | -0496      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0057            | -0277      | -0497      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0058            | -0278      | -0498      | 5               | 390                          | 10                                 | 2               | 16                  | 44            | 1.5                           | 25                                        | -64                               | 17.5  | 20     | 1800                                      | T3           |
| -0059            | -0279      | -0499      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0060            | -0280      | -0500      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0067            | -0287      | -0507      | 20              | 70                           | 15                                 | 1               | 4                   | 13            | 2.46                          | 75                                        | -28                               | 14    | 16     | 1150                                      | T2           |
| -0068            | -0288      | -0508      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0069            | -0289      | -0509      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0070            | -0290      | -0510      | 20              | 120                          | 15                                 | 1               | 7                   | 18            | 1.99                          | 50                                        | -28                               | 17.5  | 20     | 1450                                      | T2           |
| -0071            | -0291      | -0511      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0072            | -0292      | -0512      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0073            | -0293      | -0513      | 20              | 170                          | 15                                 | 2               | 10                  | 25            | 1.95                          | 35                                        | -32                               | 14    | 16     | 1480                                      | T3           |
| -0074            | -0294      | -0514      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0075            | -0295      | -0515      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0076            | -0296      | -0516      | 20              | 270                          | 15                                 | 2               | 16                  | 32            | 1.57                          | 30                                        | -56                               | 17.5  | 20     | 1740                                      | T3           |
| -0077            | -0297      | -0517      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0078            | -0298      | -0518      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0079            | -0299      | -0519      | 20              | 540                          | 15                                 | 6               | 24                  | 40            | 0.98                          | 23                                        | -80                               | 25    | 25     | 2330                                      | T4           |
| -0080            | -0300      | -0520      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0087            | -0307      | -0527      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0088            | -0308      | -0528      | 10              | 50                           | 25                                 | 1               | 2                   | 11            | 2.92                          | 70                                        | -28                               | 13    | 15     | 1130                                      | T2           |
| -0089            | -0309      | -0529      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0090            | -0310      | -0530      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0091            | -0311      | -0531      | 10              | 100                          | 25                                 | 1               | 10                  | 15            | 1.99                          | 50                                        | -28                               | 13    | 15     | 1435                                      | T2           |
| -0092            | -0312      | -0532      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0093            | -0313      | -0533      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0094            | -0314      | -0534      | 10              | 120                          | 25                                 | 2               | 6                   | 21            | 2.32                          | 38                                        | -32                               | 13    | 15     | 1450                                      | T3           |
| -0095            | -0315      | -0535      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0096            | -0316      | -0536      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0097            | -0317      | -0537      | 10              | 180                          | 25                                 | 2               | 18                  | 26            | 1.92                          | 32                                        | -48                               | 13    | 15     | 1525                                      | T3           |
| -0098            | -0318      | -0538      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |



| M39006/22 Dashes |         |         | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) |               | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) |       |        | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|---------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level          | P Level | R Level |                 |                        |                              | +25°C           | +85°C & 125°C |            |                         |                                     | -55°C                          | +85°C | +125°C |                                  |           |
|                  |         |         |                 |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0099            | -0319   | -0539   | 20              | 350                    | 25                           | 7               | 28            | 35         | 1.33                    | 24                                  | -70                            | 25    | 25     | 1970                             | T4        |
| -0100            | -0320   | -0540   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0107            | -0327   | -0547   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0108            | -0328   | -0548   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0109            | -0329   | -0549   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0110            | -0330   | -0550   | 20              | 40                     | 30                           | 1               | 5             | 10         | 3.32                    | 65                                  | -24                            | 10.5  | 12     | 1120                             | T2        |
| -0111            | -0331   | -0551   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0112            | -0332   | -0552   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0113            | -0333   | -0553   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0114            | -0334   | -0554   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0115            | -0335   | -0555   | 5               | 68                     | 30                           | 1               | 8             | 13         | 2.54                    | 60                                  | -24                            | 13    | 15     | 1285                             | T2        |
| -0116            | -0336   | -0556   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0117            | -0337   | -0557   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0118            | -0338   | -0558   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0119            | -0339   | -0559   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0120            | -0340   | -0560   | 10              | 100                    | 30                           | 2               | 12            | 17         | 2.26                    | 40                                  | -28                            | 10.5  | 12     | 1450                             | T3        |
| -0127            | -0347   | -0567   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0128            | -0348   | -0568   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0129            | -0349   | -0569   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0130            | -0350   | -0570   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0131            | -0351   | -0571   | 10              | 150                    | 30                           | 2               | 18            | 23         | 2.03                    | 35                                  | -48                            | 13    | 15     | 1525                             | T3        |
| -0132            | -0352   | -0572   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0133            | -0353   | -0573   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0134            | -0354   | -0574   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0135            | -0355   | -0575   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0136            | -0356   | -0576   | 20              | 300                    | 30                           | 8               | 32            | 31         | 1.37                    | 25                                  | -60                            | 25    | 25     | 1950                             | T4        |
| -0137            | -0357   | -0577   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0138            | -0358   | -0578   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0139            | -0359   | -0579   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0140            | -0360   | -0580   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0141            | -0361   | -0581   | 5               | 25                     | 50                           | 1               | 5             | 8          | 4.25                    | 95                                  | -20                            | 10.5  | 12     | 1005                             | T2        |
| -0142            | -0362   | -0582   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0143            | -0363   | -0583   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0144            | -0364   | -0584   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0145            | -0365   | -0585   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0146            | -0366   | -0586   | 10              | 47                     | 50                           | 1               | 9             | 11         | 3.11                    | 70                                  | -28                            | 13    | 15     | 1155                             | T2        |
| -0147            | -0367   | -0587   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0148            | -0368   | -0588   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0149            | -0369   | -0589   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0150            | -0370   | -0590   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0151            | -0371   | -0591   | 10              | 60                     | 50                           | 2               | 12            | 12         | 2.65                    | 45                                  | -16                            | 10.5  | 12     | 1335                             | T3        |
| -0152            | -0372   | -0592   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0153            | -0373   | -0593   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0154            | -0374   | -0594   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0155            | -0375   | -0595   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0156            | -0376   | -0596   | 20              | 82                     | 50                           | 2               | 16            | 15         | 2.43                    | 45                                  | -32                            | 13    | 15     | 1400                             | T3        |
| -0157            | -0377   | -0597   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0158            | -0378   | -0598   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0159            | -0379   | -0599   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0160            | -0380   | -0600   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0161            | -0381   | -0601   | 5               | 160                    | 50                           | 8               | 32            | 17         | 1.41                    | 27                                  | -50                            | 25    | 25     | 1900                             | T4        |
| -0162            | -0382   | -0602   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0163            | -0383   | -0603   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0164            | -0384   | -0604   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0165            | -0385   | -0605   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0166            | -0386   | -0606   | 10              | 20                     | 60                           | 1               | 5             | 7          | 4.64                    | 105                                 | -16                            | 10.5  | 12     | 930                              | T2        |
| -0167            | -0387   | -0607   | 5               |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0168            | -0388   | -0608   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0169            | -0389   | -0609   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0170            | -0390   | -0610   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0171            | -0391   | -0611   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |



# MIL-PRF-39006 Series



## Military Conventional Wet Tantalum

### M39006/25 RATINGS AND DASH NUMBER REFERENCE

| M39006/25 Dashes |            |            | Tolerance ± (%) | Cap (µF)<br>25°C<br>at<br>120Hz | DC Rated<br>Voltage<br>(V)<br>at<br>85°C | DC Leakage (µA) |                     | DF<br>max<br>(%) | ESR<br>max<br>(Ohms)<br>at<br>120Hz | Impedance<br>max<br>(Ohms)<br>-55°C at<br>120Hz | Maximum Capacitance<br>Change (%) |       |        | AC Ripple<br>(mA rms)<br>85°C<br>at<br>40kHz | Case<br>Size |
|------------------|------------|------------|-----------------|---------------------------------|------------------------------------------|-----------------|---------------------|------------------|-------------------------------------|-------------------------------------------------|-----------------------------------|-------|--------|----------------------------------------------|--------------|
| M<br>Level       | P<br>Level | R<br>Level |                 |                                 |                                          | +25°C           | +85°C<br>&<br>125°C |                  |                                     |                                                 | -55°C                             | +85°C | +125°C |                                              |              |
| -0003            | -          | -          | 20              | 820                             | 6                                        | 3               | 14                  | 155              | 2.51                                | 18                                              | -88                               | 16    | 20     | 1500                                         | T2           |
| -0004            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0005            | -          | -          | 20              | 1500                            | 6                                        | 5               | 20                  | 172              | 1.52                                | 18                                              | -90                               | 20    | 25     | 1900                                         | T3           |
| -0006            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0007            | -          | -          | 20              | 2200                            | 6                                        | 6               | 24                  | 170              | 1.03                                | 13                                              | -90                               | 25    | 30     | 2300                                         | T4           |
| -0008            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0011            | -          | -          | 20              | 680                             | 8                                        | 3               | 14                  | 130              | 2.54                                | 22                                              | -83                               | 16    | 20     | 1500                                         | T2           |
| -0012            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0013            | -          | -          | 20              | 1500                            | 8                                        | 5               | 20                  | 170              | 1.5                                 | 18                                              | -90                               | 20    | 25     | 1900                                         | T3           |
| -0014            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0015            | -          | -          | 20              | 1800                            | 8                                        | 7               | 25                  | 138              | 1.02                                | 14                                              | -90                               | 25    | 30     | 2300                                         | T4           |
| -0016            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0019            | -          | -          | 20              | 560                             | 10                                       | 3               | 16                  | 106              | 2.51                                | 27                                              | -77                               | 16    | 20     | 1450                                         | T2           |
| -0020            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0021            | -          | -          | 20              | 1200                            | 10                                       | 5               | 20                  | 137              | 1.51                                | 18                                              | -88                               | 20    | 25     | 1850                                         | T3           |
| -0022            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0023            | -          | -          | 20              | 1500                            | 10                                       | 7               | 25                  | 114              | 1.01                                | 15                                              | -88                               | 25    | 30     | 2300                                         | T4           |
| -0024            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0027            | -          | -          | 20              | 390                             | 15                                       | 3               | 16                  | 74               | 2.52                                | 31                                              | -66                               | 16    | 20     | 1450                                         | T2           |
| -0028            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0029            | -          | -          | 20              | 820                             | 15                                       | 6               | 24                  | 111              | 1.8                                 | 22                                              | -77                               | 20    | 25     | 1800                                         | T3           |
| -0030            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0031            | -          | -          | 20              | 1000                            | 15                                       | 8               | 32                  | 92               | 1.22                                | 17                                              | -77                               | 25    | 30     | 2300                                         | T4           |
| -0032            | -          | -          | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0035            | -0123      | -0211      | 20              | 270                             | 25                                       | 3               | 16                  | 55               | 2.7                                 | 33                                              | -62                               | 13    | 16     | 1400                                         | T2           |
| -0036            | -0124      | -0212      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0037            | -0125      | -0213      | 20              | 560                             | 25                                       | 7               | 28                  | 76               | 1.8                                 | 24                                              | -72                               | 20    | 25     | 1750                                         | T3           |
| -0038            | -0126      | -0214      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0039            | -0127      | -0215      | 20              | 680                             | 25                                       | 8               | 32                  | 63               | 1.23                                | 19                                              | -72                               | 25    | 30     | 2100                                         | T4           |
| -0040            | -0128      | -0216      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0043            | -0131      | -0219      | 20              | 220                             | 30                                       | 3               | 16                  | 42               | 2.53                                | 36                                              | -60                               | 13    | 16     | 1200                                         | T2           |
| -0044            | -0132      | -0220      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0045            | -0133      | -0221      | 20              | 470                             | 30                                       | 8               | 32                  | 64               | 1.81                                | 25                                              | -65                               | 20    | 25     | 1500                                         | T3           |
| -0046            | -0134      | -0222      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0047            | -0135      | -0223      | 20              | 560                             | 30                                       | 9               | 36                  | 55               | 1.3                                 | 20                                              | -65                               | 25    | 30     | 2000                                         | T4           |
| -0048            | -0136      | -0224      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0051            | -0139      | -0227      | 20              | 120                             | 50                                       | 4               | 24                  | 22.5             | 2.49                                | 49                                              | -42                               | 12    | 15     | 1200                                         | T2           |
| -0052            | -0140      | -0228      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0053            | -0141      | -0229      | 20              | 270                             | 50                                       | 8               | 32                  | 37               | 1.82                                | 29                                              | -46                               | 20    | 25     | 1450                                         | T3           |
| -0054            | -0142      | -0230      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0055            | -0143      | -0231      | 20              | 330                             | 50                                       | 9               | 36                  | 38               | 1.53                                | 22                                              | -46                               | 25    | 30     | 1900                                         | T4           |
| -0056            | -0144      | -0232      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0059            | -0147      | -0235      | 20              | 100                             | 60                                       | 4               | 20                  | 19               | 2.52                                | 54                                              | -36                               | 12    | 15     | 1100                                         | T2           |
| -0060            | -0148      | -0236      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0061            | -0149      | -0237      | 20              | 220                             | 60                                       | 8               | 32                  | 30               | 1.81                                | 29                                              | -40                               | 16    | 20     | 1400                                         | T3           |
| -0062            | -0150      | -0238      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0063            | -0151      | -0239      | 20              | 270                             | 60                                       | 9               | 36                  | 27               | 1.33                                | 23                                              | -45                               | 20    | 25     | 1850                                         | T4           |
| -0064            | -0152      | -0240      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0067            | -0155      | -0243      | 20              | 82                              | 75                                       | 4               | 24                  | 15.2             | 2.46                                | 63                                              | -30                               | 12    | 15     | 1000                                         | T2           |
| -0068            | -0156      | -0244      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0069            | -0157      | -0245      | 20              | 180                             | 75                                       | 9               | 36                  | 24.4             | 2.23                                | 30                                              | -35                               | 16    | 20     | 1300                                         | T3           |
| -0070            | -0158      | -0246      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0071            | -0159      | -0247      | 20              | 220                             | 75                                       | 10              | 40                  | 37               | 1.8                                 | 24                                              | -40                               | 20    | 25     | 1800                                         | T4           |
| -0072            | -0160      | -0248      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0075            | -0163      | -0251      | 20              | 39                              | 100                                      | 5               | 24                  | 10.4             | 3.54                                | 80                                              | -20                               | 12    | 15     | 1300                                         | T2           |
| -0076            | -0164      | -0252      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0077            | -0165      | -0253      | 20              | 68                              | 100                                      | 10              | 40                  | 11.3             | 2.21                                | 40                                              | -30                               | 14    | 16     | 1600                                         | T3           |
| -0078            | -0166      | -0254      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |
| -0079            | -0167      | -0255      | 20              | 120                             | 100                                      | 12              | 48                  | 25               | 2.76                                | 30                                              | -35                               | 15    | 17     | 2000                                         | T4           |
| -0080            | -0168      | -0256      | 10              |                                 |                                          |                 |                     |                  |                                     |                                                 |                                   |       |        |                                              |              |

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.

# MIL-PRF-39006 Series



## Military Conventional Wet Tantalum

### M39006 /30 RATINGS AND DASH NUMBER REFERENCE

| M39006/30 Dashes |            |            | Tolerance ± (%) | Cap (µF)<br>25°C<br>at 120Hz | DC Rated<br>Voltage (V)<br>at 85°C | DC Leakage (µA) |                     | DF<br>max (%) | ESR<br>max (Ohms)<br>at 120Hz | Impedance<br>max (Ohms)<br>-55°C at 120Hz | Maximum Capacitance<br>Change (%) |       |        | AC Ripple<br>(mA rms)<br>85°C<br>at 40kHz | Case<br>Size |
|------------------|------------|------------|-----------------|------------------------------|------------------------------------|-----------------|---------------------|---------------|-------------------------------|-------------------------------------------|-----------------------------------|-------|--------|-------------------------------------------|--------------|
| M<br>Level       | P<br>Level | R<br>Level |                 |                              |                                    | +25°C           | +85°C<br>&<br>125°C |               |                               |                                           | -55°C                             | +85°C | +125°C |                                           |              |
|                  |            |            |                 |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0007            | -0227      | -0447      | 20              | 140                          | 6                                  | 1               | 3                   | 10.5          | 0.99                          | 40                                        | -40                               | 14    | 16     | 1200                                      | T2           |
| -0008            | -0228      | -0448      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0009            | -0229      | -0449      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0010            | -0230      | -0450      | 20              | 270                          | 6                                  | 1               | 6.5                 | 22.5          | 1.11                          | 25                                        | -44                               | 17.5  | 20     | 1375                                      | T2           |
| -0011            | -0231      | -0451      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0012            | -0232      | -0452      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0013            | -0233      | -0453      | 20              | 330                          | 6                                  | 2               | 7.9                 | 18            | 0.73                          | 20                                        | -44                               | 14    | 16     | 1800                                      | T3           |
| -0014            | -0234      | -0454      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0015            | -0235      | -0455      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0016            | -0236      | -0456      | 20              | 560                          | 6                                  | 2               | 13                  | 27.5          | 0.65                          | 25                                        | -64                               | 17.5  | 20     | 1900                                      | T3           |
| -0017            | -0237      | -0457      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0018            | -0238      | -0458      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0019            | -0239      | -0459      | 20              | 1200                         | 6                                  | 3               | 14                  | 45            | 0.5                           | 20                                        | -80                               | 25    | 25     | 2265                                      | T4           |
| -0020            | -0240      | -0460      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0027            | -0247      | -0467      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0028            | -0248      | -0468      | 10              | 120                          | 8                                  | 1               | 2                   | 10            | 1.11                          | 50                                        | -44                               | 17.5  | 20     | 1220                                      | T2           |
| -0029            | -0249      | -0469      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0030            | -0250      | -0470      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0031            | -0251      | -0471      | 10              | 220                          | 8                                  | 1               | 7                   | 18.5          | 1.12                          | 30                                        | -44                               | 17.5  | 20     | 1370                                      | T2           |
| -0032            | -0252      | -0472      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0033            | -0253      | -0473      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0034            | -0254      | -0474      | 10              | 290                          | 8                                  | 2               | 6                   | 17            | 0.78                          | 25                                        | -64                               | 17.5  | 20     | 1770                                      | T3           |
| -0035            | -0255      | -0475      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0036            | -0256      | -0476      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0037            | -0257      | -0477      | 10              | 430                          | 8                                  | 2               | 14                  | 23            | 0.71                          | 25                                        | -64                               | 17.5  | 20     | 1825                                      | T3           |
| -0038            | -0258      | -0478      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0039            | -0259      | -0479      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0040            | -0260      | -0480      | 10              | 850                          | 8                                  | 4               | 16                  | 30            | 0.47                          | 22                                        | -80                               | 25    | 25     | 2330                                      | T4           |
| -0047            | -0267      | -0487      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0048            | -0268      | -0488      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0049            | -0269      | -0489      | 5               | 100                          | 10                                 | 1               | 4                   | 7.5           | 0.99                          | 60                                        | -36                               | 14    | 16     | 1200                                      | T2           |
| -0050            | -0270      | -0490      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0051            | -0271      | -0491      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0052            | -0272      | -0492      | 5               | 180                          | 10                                 | 1               | 7                   | 15            | 1.11                          | 40                                        | -36                               | 14    | 16     | 1.365                                     | T2           |
| -0053            | -0273      | -0493      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0054            | -0274      | -0494      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0055            | -0275      | -0495      | 5               | 250                          | 10                                 | 2               | 10                  | 15            | 0.8                           | 30                                        | -40                               | 14    | 16     | 1720                                      | T3           |
| -0056            | -0276      | -0496      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0057            | -0277      | -0497      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0058            | -0278      | -0498      | 5               | 390                          | 10                                 | 2               | 16                  | 22            | 0.75                          | 25                                        | -64                               | 17.5  | 20     | 1800                                      | T3           |
| -0059            | -0279      | -0499      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0060            | -0280      | -0500      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0067            | -0287      | -0507      | 20              | 750                          | 10                                 | 4               | 16                  | 25            | 0.44                          | 23                                        | -80                               | 25    | 25     | 2360                                      | T4           |
| -0068            | -0288      | -0508      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0069            | -0289      | -0509      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0070            | -0290      | -0510      | 20              | 70                           | 15                                 | 1               | 4                   | 6.5           | 1.23                          | 75                                        | -28                               | 14    | 16     | 1150                                      | T2           |
| -0071            | -0291      | -0511      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0072            | -0292      | -0512      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0073            | -0293      | -0513      | 20              | 120                          | 15                                 | 1               | 7                   | 9             | 0.99                          | 50                                        | -28                               | 17.5  | 20     | 1450                                      | T2           |
| -0074            | -0294      | -0514      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0075            | -0295      | -0515      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0076            | -0296      | -0516      | 20              | 170                          | 15                                 | 2               | 10                  | 12.5          | 0.98                          | 35                                        | -32                               | 14    | 16     | 1480                                      | T3           |
| -0077            | -0297      | -0517      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0078            | -0298      | -0518      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0079            | -0299      | -0519      | 20              | 270                          | 15                                 | 2               | 16                  | 16            | 0.79                          | 30                                        | -56                               | 17.5  | 20     | 1740                                      | T3           |
| -0080            | -0300      | -0520      | 10              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0087            | -0307      | -0527      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0088            | -0308      | -0528      | 10              | 540                          | 15                                 | 6               | 24                  | 20            | 0.49                          | 23                                        | -80                               | 25    | 25     | 2330                                      | T4           |
| -0089            | -0309      | -0529      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0090            | -0310      | -0530      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0091            | -0311      | -0531      | 10              | 50                           | 25                                 | 1               | 2                   | 5.5           | 1.46                          | 70                                        | -28                               | 13    | 15     | 1130                                      | T2           |
| -0092            | -0312      | -0532      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0093            | -0313      | -0533      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0094            | -0314      | -0534      | 10              | 120                          | 25                                 | 2               | 6                   | 10.5          | 1.16                          | 38                                        | -32                               | 13    | 15     | 1450                                      | T3           |
| -0095            | -0315      | -0535      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0096            | -0316      | -0536      | 20              |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |
| -0097            | -0317      | -0537      | 10              | 180                          | 25                                 | 2               | 18                  | 13            | 0.96                          | 32                                        | -48                               | 13    | 15     | 1525                                      | T3           |
| -0098            | -0318      | -0538      | 5               |                              |                                    |                 |                     |               |                               |                                           |                                   |       |        |                                           |              |



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.

# MIL-PRF-39006 Series



## Military Conventional Wet Tantalum

### M39006 /31 RATINGS AND DASH NUMBER REFERENCE

| M39006/31 Dashes |         |         | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) |               | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) |       |        | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|---------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level          | P Level | R Level |                 |                        |                              | +25°C           | +85°C & 125°C |            |                         |                                     | -55°C                          | +85°C | +125°C |                                  |           |
| -0003            | -       | -       | 20              | 820                    | 6                            | 3               | 14            | 77.5       | 1.26                    | 18                                  | -88                            | 16    | 20     | 1500                             | T2        |
| -0004            | -       | -       | 10              | 1500                   | 6                            | 5               | 20            | 86         | 0.76                    | 18                                  | -90                            | 20    | 25     | 1900                             | T3        |
| -0005            | -       | -       | 20              | 2200                   | 6                            | 6               | 24            | 85         | 0.52                    | 13                                  | -90                            | 25    | 30     | 2300                             | T4        |
| -0006            | -       | -       | 10              | 680                    | 8                            | 3               | 14            | 65         | 1.27                    | 22                                  | -83                            | 16    | 20     | 1500                             | T2        |
| -0007            | -       | -       | 20              | 1500                   | 8                            | 5               | 20            | 85         | 0.75                    | 18                                  | -90                            | 20    | 25     | 1900                             | T3        |
| -0008            | -       | -       | 10              | 1800                   | 8                            | 7               | 25            | 69         | 0.51                    | 14                                  | -90                            | 25    | 30     | 2300                             | T4        |
| -0011            | -       | -       | 20              | 560                    | 10                           | 3               | 16            | 53         | 1.26                    | 27                                  | -77                            | 16    | 20     | 1450                             | T2        |
| -0012            | -       | -       | 10              | 1200                   | 10                           | 5               | 20            | 68.5       | 0.76                    | 18                                  | -88                            | 20    | 25     | 1850                             | T3        |
| -0013            | -       | -       | 20              | 1500                   | 10                           | 7               | 25            | 57         | 0.51                    | 15                                  | -88                            | 25    | 30     | 2300                             | T4        |
| -0014            | -       | -       | 10              | 390                    | 15                           | 3               | 16            | 37         | 1.26                    | 31                                  | -66                            | 16    | 20     | 1450                             | T2        |
| -0015            | -       | -       | 20              | 820                    | 15                           | 6               | 24            | 55.5       | 0.9                     | 22                                  | -77                            | 20    | 25     | 1800                             | T3        |
| -0016            | -       | -       | 10              | 1000                   | 15                           | 8               | 32            | 46         | 0.61                    | 17                                  | -77                            | 25    | 30     | 2300                             | T4        |
| -0019            | -0123   | -0211   | 20              | 270                    | 25                           | 3               | 16            | 27.5       | 1.35                    | 33                                  | -62                            | 13    | 16     | 1400                             | T2        |
| -0020            | -0124   | -0212   | 10              | 560                    | 25                           | 7               | 28            | 38         | 0.9                     | 24                                  | -72                            | 20    | 25     | 1750                             | T3        |
| -0021            | -0125   | -0213   | 20              | 680                    | 25                           | 8               | 32            | 31.5       | 0.62                    | 19                                  | -72                            | 25    | 30     | 2100                             | T4        |
| -0022            | -0126   | -0214   | 10              | 220                    | 30                           | 3               | 16            | 21         | 1.27                    | 36                                  | -60                            | 13    | 16     | 1200                             | T2        |
| -0023            | -0127   | -0215   | 20              | 470                    | 30                           | 8               | 32            | 32         | 0.91                    | 25                                  | -65                            | 20    | 25     | 1500                             | T3        |
| -0024            | -0128   | -0216   | 10              | 560                    | 30                           | 9               | 36            | 27.5       | 0.65                    | 20                                  | -65                            | 25    | 30     | 2000                             | T4        |
| -0027            | -0131   | -0219   | 20              | 120                    | 50                           | 4               | 24            | 11.3       | 1.25                    | 49                                  | -42                            | 12    | 15     | 1200                             | T2        |
| -0028            | -0132   | -0220   | 10              | 270                    | 50                           | 8               | 32            | 18.5       | 0.91                    | 29                                  | -46                            | 20    | 25     | 1450                             | T3        |
| -0029            | -0133   | -0221   | 20              | 330                    | 50                           | 9               | 36            | 19         | 0.77                    | 22                                  | -46                            | 25    | 30     | 1900                             | T4        |
| -0030            | -0134   | -0222   | 10              | 100                    | 60                           | 4               | 20            | 9.5        | 1.26                    | 54                                  | -36                            | 12    | 15     | 1100                             | T2        |
| -0031            | -0135   | -0223   | 20              | 220                    | 60                           | 8               | 32            | 15         | 0.91                    | 29                                  | -40                            | 16    | 20     | 1400                             | T3        |
| -0032            | -0136   | -0224   | 10              | 270                    | 60                           | 9               | 36            | 13.5       | 0.67                    | 23                                  | -45                            | 20    | 25     | 1850                             | T4        |
| -0033            | -0139   | -0227   | 20              | 82                     | 75                           | 4               | 24            | 7.6        | 1.23                    | 63                                  | -30                            | 12    | 15     | 1000                             | T2        |
| -0035            | -0140   | -0228   | 10              | 180                    | 75                           | 9               | 36            | 12.2       | 0.9                     | 30                                  | -35                            | 16    | 20     | 1300                             | T3        |
| -0036            | -0141   | -0229   | 20              | 220                    | 75                           | 10              | 40            | 18.5       | 1.12                    | 24                                  | -40                            | 20    | 25     | 1800                             | T4        |
| -0037            | -0142   | -0230   | 10              | 39                     | 100                          | 5               | 24            | 5.2        | 1.77                    | 80                                  | -20                            | 12    | 15     | 1300                             | T2        |
| -0038            | -0143   | -0231   | 20              | 68                     | 100                          | 10              | 40            | 5.65       | 1.11                    | 40                                  | -30                            | 14    | 16     | 1600                             | T3        |
| -0039            | -0144   | -0232   | 10              | 120                    | 100                          | 12              | 48            | 12.5       | 1.38                    | 30                                  | -35                            | 15    | 17     | 2000                             | T4        |
| -0040            | -0147   | -0235   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0043            | -0148   | -0236   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0044            | -0149   | -0237   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0045            | -0150   | -0238   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0046            | -0151   | -0239   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0047            | -0152   | -0240   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0048            | -0155   | -0243   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0049            | -0156   | -0244   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0051            | -0157   | -0245   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0052            | -0158   | -0246   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0053            | -0159   | -0247   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0054            | -0160   | -0248   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0055            | -0163   | -0251   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0056            | -0164   | -0252   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0057            | -0165   | -0253   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0058            | -0166   | -0254   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0059            | -0167   | -0255   | 20              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |
| -0060            | -0168   | -0256   | 10              |                        |                              |                 |               |            |                         |                                     |                                |       |        |                                  |           |

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.