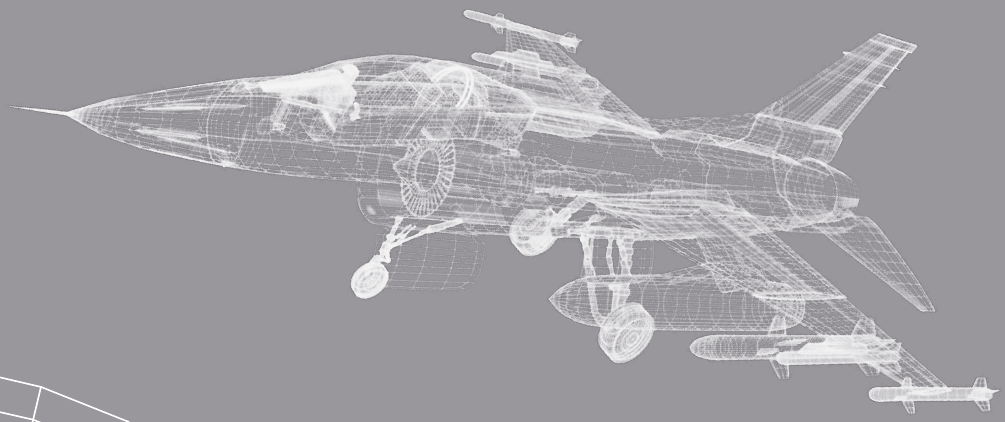
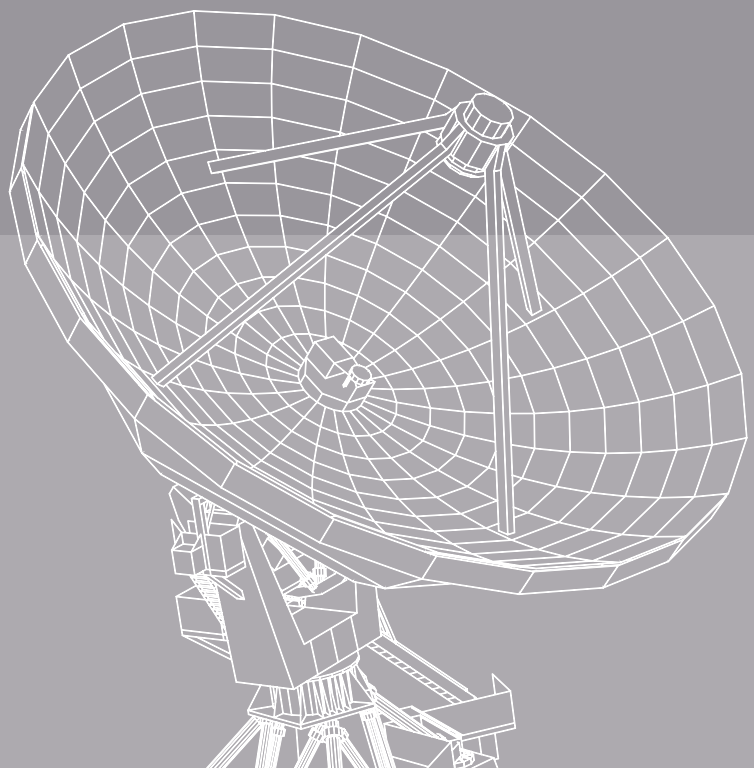
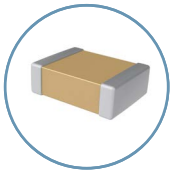
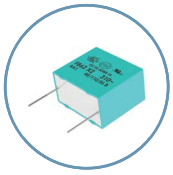
Capacitor Selection Guide

# Space, Avionics & Defense









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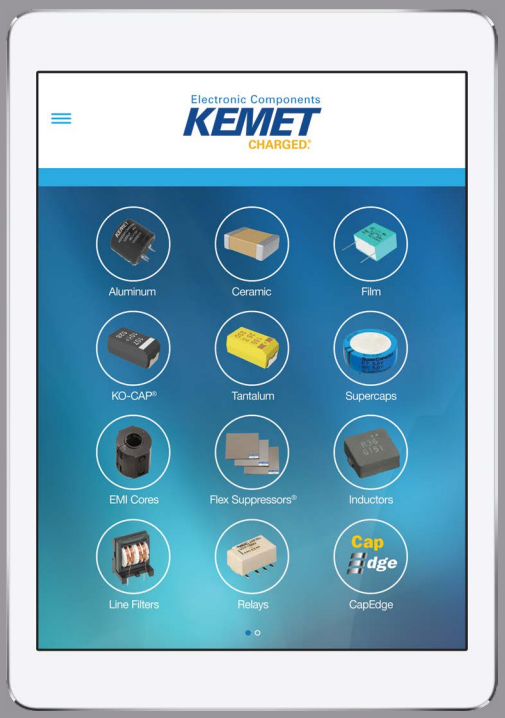


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## Ceramic Capacitors



## Tantalum Capacitors

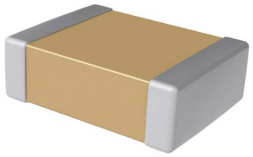
# Ceramic Capacitors

## Commercial

### Commercial "L" SnPb End Metallization,C0G Dielectric, 10 – 250 VDC

**Capacitance Range:** 0.5 pF to 0.47 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SnPb-C0G**



| C | 1206 | C | 104 | J | 3 | G | A | L | TU |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Case Size (L" x W") | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance[1] | Rated Voltage (VDC) | Dielectric | Failure Rate/ Design | Termination Finish[2] | Packaging/Grade (C-Spec) |
| | 0402<br>0603<br>0805<br>1206<br>1210<br>1808<br>1812<br>1825<br>2220<br>2225 | C = Standard | Two significant digits + number of zeros.<br>Use 9 for 1.0 – 9.9 pF<br>Use 8 for 0.5 – .99 pF<br>ex. 2.2 pF = 229<br>ex. 0.5 pF = 508 | B = ±0.10 pF<br>C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5%<br>K = ±10%<br>M = ±20% | 8 = 10<br>4 = 16<br>3 = 25<br>5 = 50<br>1 = 100<br>2 = 200<br>A = 250 | G = C0G | A = N/A | L = SnPb (5% Pb minimum) | See "Packaging C-Spec Ordering Options Table" below |

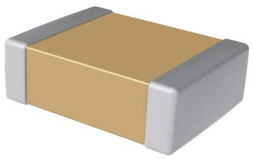
| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 10 | 16 | 25 | 50 | 100 | 200 | 250 |
| 0402 | 0.5 pF – 2.2 nF | 0.5 pF – 2.2 nF | 0.5 pF – 2.2 nF | 0.5 pF – 1.5 nF | 100 pF – 1 nF | 100 pF – 330 pF | 100 pF – 330 pF |
| 0603 | 0.5 pF – 0.015 µF | 0.5 pF – 0.015 µF | 0.5 pF – 0.015 µF | 0.5 pF – 6.8 nF | 0.5 pF – 4.7 nF | 0.5 pF – 2.2 nF | 0.75 pF – 2.2 nF |
| 0805 | 0.5 pF – 0.047 µF | 0.5 pF – 0.047 µF | 0.5 pF – 0.047 µF | 0.5 pF – 0.022 µF | 0.5 pF – 0.015 µF | 0.5 pF – 8.2 nF | 0.75 pF – 8.2 nF |
| 1206 | 1 pF – 0.1 µF | 1 pF – 0.1 µF | 1 pF – 0.1 µF | 1 pF – 0.082 µF | 1 pF – 0.047 µF | 1 pF – 0.022 µF | 1 pF – 0.022 µF |
| 1210 | 1 pF – 0.22 µF | 1 pF – 0.22 µF | 1 pF – 0.22 µF | 1 pF – 0.15 µF | 1 pF – 0.1 µF | 1 pF – 0.047 µF | 1 pF – 0.047 µF |
| 1808 | | | | 330 pF – 4.7 nF | 330 pF – 4.7 nF | 330 pF – 2.7 nF | 330 pF – 2.7 nF |
| 1812 | | | | 470 pF – 0.22 µF | 470 pF – 0.15 µF | 470 pF – 0.1 µF | 470 pF – 0.1 µF |
| 1825 | | | | 3.9 nF – 0.027 µF | 3.9 nF – 0.027 µF | 3.9 nF – 0.012 µF | 3.9 nF – 0.012 µF |
| 2220 | | | | 6.8 nF – 0.47 µF | 6.8 nF – 0.33 µF | 6.8 nF – 0.22 µF | |
| 2225 | | | | 4.7 nF – 0.033 µF | 4.7 nF – 0.027 µF | 4.7 nF – 0.015 µF | 4.7 nF – 0.015 µF |

## Commercial (cont.)

### Commercial "L" SnPb End Metallization, X7R Dielectric, 6.3 – 250 VDC

**Capacitance Range:** 10 pF to 22 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SnPb-X7R**



| C | 1210 | C | 226 | K | 8 | R | A | L | TU |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Case Size (L" x W") | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Failure Rate/ Design | Termination Finish[1] | Packaging/Grade (C-Spec) |
| | 0402<br>0603<br>0805<br>1206<br>1210<br>1808<br>1812<br>1825<br>2220<br>2225 | C = Standard | Two Significant Digits + Number of Zeros | J = ±5%<br>K = ±10%<br>M = ±20% | 9 = 6.3<br>8 = 10<br>4 = 16<br>3 = 25<br>6 = 35<br>5 = 50<br>1 = 100<br>2 = 200<br>A = 250 | R = X7R | A = N/A | L = SnPb (5% Pb minimum) | See "Packaging C-Spec Ordering Options Table" below |

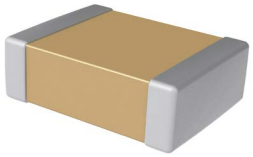
| Case Size | Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 35 | 50 | 100 | 200 | 250 |
| 0402 | 10 pF – 0.1 µF | 10 pF – 0.1 µF | 10 pF – 0.1 µF | 10 pF – 0.047 µF | | 10 pF – 0.022 µF | | | |
| 0603 | 10 pF – 0.47 µF | 10 pF – 0.47 µF | 10 pF – 0.47 µF | 10 pF – 0.22 µF | | 10 pF – 0.15 µF | 10 pF – 0.047 µF | 10 pF – 0.01 µF | |
| 0805 | 10 pF – 2.2 µF | 10 pF – 2.2 µF | 10 pF – 2.2 µF | 10 pF – 1 µF | 10 pF – 0.68 µF | 10 pF – 0.68 µF | 10 pF – 0.22 µF | 10 pF – 0.056 µF | 180 pF – 0.022 µF |
| 1206 | 10 pF – 10 µF | 10 pF – 10 µF | 10 pF – 10 µF | 10 pF – 4.7 µF | 10 pF – 2.2 µF | 10 pF – 2.2 µF | 10 pF – 1 µF | 10 pF – 0.15 µF | 1 nF – 0.1 µF |
| 1210 | 10 pF – 22 µF | 10 pF – 22 µF | 10 pF – 10 µF | 10 pF – 10 µF | | 10 pF – 4.7 µF | 10 pF – 2.2 µF | 10 pF – 0.22 µF | 2.2 nF – 0.22 µF |
| 1808 | | | | | | 330 pF – 0.18 µF | 330 pF – 0.056 µF | 330 pF – 0.018 µF | |
| 1812 | | | | 470 pF – 10 µF | | 470 pF – 4.7 µF | 470 pF – 3.3 µF | 470 pF – 0.47 µF | 6.8 nF – 0.47 µF |
| 1825 | | | | | | 3.9 nF – 2.2 µF | 3.9 nF – 1 µF | 3.9 nF – 1 µF | 0.022 µF – 1 µF |
| 2220 | | | | 6.8 nF – 22 µF | | 6.8 nF – 15 µF | 6.8 nF – 1 µF | 0.082 µF – 1 µF | 0.082 µF – 1 µF |
| 2225 | | | | | | 4.7 nF – 2.2 µF | 4.7 nF – 1.2 µF | 4.7 nF – 1.2 µF | 0.1 µF – 1.2 µF |

## Commercial (cont.)

### Commercial "L" Series SnPb End Metallization, X5R Dielectric 4 – 50 VDC

**Capacitance Range:** 0.5 pF to 0.47 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SnPb-X5R**



| C | 1210 | C | 106 | K | 4 | P | A | L | TU |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Case Size (L" x W") | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Failure Rate/ Design | Termination Finish[1] | Packaging/Grade (C–Spec) |
| | 0402<br>0603<br>0805<br>1206<br>1210 | C = Standard | Two significant digits + number of zeros. | K = ±10%<br>M = ±20% | 7 = 4<br>9 = 6.3<br>8 = 10<br>4 = 16<br>3 = 25<br>6 = 35<br>5 = 50 | P = X5R | A = N/A | L = SnPb (5% Pb minimum) | See "Packaging C-Spec Ordering Options Table" below |

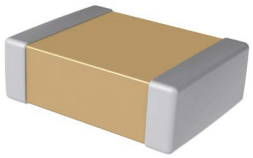
| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 0402 | 0.012 µF – 0.1 µF | 0.012 µF – 0.1 µF | 0.012 µF – 0.1 µF | 0.012 µF – 0.1 µF | | | |
| 0603 | 0.27 µF – 1 µF | 0.27 µF – 1 µF | 0.27 µF – 1 µF | 0.27 µF – 1 µF | | | |
| 0805 | 0.47 µF – 6.8 µF | 0.47 µF – 6.8 µF | 0.47 µF – 6.8 µF | 0.47 µF – 4.7 µF | 0.47 µF – 1 µF | | |
| 1206 | | 0.27 µF – 10 µF | 0.27 µF – 10 µF | 0.27 µF – 10 µF | 0.27 µF – 4.7 µF | | |
| 1210 | | 0.39 µF – 22 µF | 0.39 µF – 22 µF | 0.39 µF – 22 µF | 0.39 µF – 10 µF | 0.39 µF – 4.7 µF | 0.39 µF – 4.7 µF |

## High Reliability Commercial Off-the-Shelf (COTS)

### C0G Dielectric, 10 – 250 VDC for Higher Reliability Applications

**Capacitance Range:** 0.5 pF to 0.47 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/COTS-C0G**



| C | 1206 | T | 104 | K | 5 | G | A | C | TU |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Case Size (L" x W") | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance[1] | Rated Voltage (VDC) | Dielectric | Failure Rate/Design | Termination Finish[2] | Packaging/Grade (C-Spec) |
| | 0402<br>0603<br>0805<br>1206<br>1210<br>1812<br>2220 | T = COTS | Two significant digits + number of zeros Use 9 for 1.0 – 9.9 pF Use 8 for 0.5 – .99 pF ex. 2.2 pF = 229 ex. 0.5 pF = 508 | B = ±0.10 pF<br>C = ±0.25 pF<br>D = ±0.5 pF<br>F = ± 1%<br>G = ±2%<br>J = ±5%<br>K = ±10%<br>M = ±20% | 8 = 10<br>4 = 16<br>3 = 25<br>6 = 35<br>5 = 50<br>1 = 100<br>2 = 200<br>A = 250 | G = C0G | A = Testing per MIL–PRF–55681 PDA 8%<br>B= Testing per MIL–PRF–55681 PDA 8%, DPA per EIA–469<br>C = Testing per MIL–PRF–55681 PDA 8%, DPA per EIA–469, Humidity per MIL–STD–202, Method 103, Condition A | C = 100% Matte Sn<br>L = SnPb (5% Pb minimum) | See "Packaging C-Spec Ordering Options Table" below |

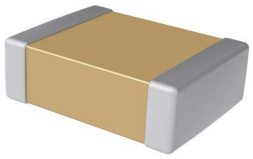
| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 10 | 16 | 25 | 50 | 100 | 200 | 250 |
| 0402 | 0.5 pF – 2.2 nF | 0.5 pF – 2.2 nF | 0.5 pF – 2.2 nF | 0.5 pF – 1.5 nF | 100 pF – 1 nF | 100 pF – 330 pF | 100 pF – 330 pF |
| 0603 | 0.5 pF – 0.015 µF | 0.5 pF – 0.015 µF | 0.5 pF – 0.015 µF | 0.5 pF – 6.8 nF | 0.5 pF – 4.7 nF | 0.5 pF – 2.2 nF | 0.75 pF – 2.2 nF |
| 0805 | 0.5 pF – 0.047 µF | 0.5 pF – 0.047 µF | 0.5 pF – 0.047 µF | 0.5 pF – 0.022 µF | 0.5 pF – 0.015 µF | 0.5 pF – 8.2 nF | 0.75 pF – 8.2 nF |
| 1206 | 1 pF – 0.1 µF | 1 pF – 0.1 µF | 1 pF – 0.1 µF | 1 pF – 0.082 µF | 1 pF – 0.047 µF | 1 pF – 0.022 µF | 1 pF – 0.022 µF |
| 1210 | 1 pF – 0.22 µF | 1 pF – 0.22 µF | 1 pF – 0.22 µF | 1 pF – 0.15 µF | 1 pF – 0.1 µF | 1 pF – 0.047 µF | 1 pF – 0.047 µF |
| 1812 | | | | 470 pF – 0.22 µF | 470 pF – 0.15 µF | 470 pF – 0.1 µF | 470 pF – 0.1 µF |
| 2220 | | | | 6.8 nF – 0.47 µF | 6.8 nF – 0.33 µF | 6.8 nF – 0.22 µF | |

## High Reliability Commercial Off-The-Shelf (COTS) (cont.)

### X7R Dielectric, 6.3 – 250 VDC for Higher Reliability Applications

**Capacitance Range:** 10 pF to 22 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/COTS-X7R**



| C | 1210 | T | 104 | K | 5 | R | A | C | TU |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Case Size (L" x W") | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Failure Rate/Design | Termination Finish[1] | Packaging/Grade (C-Spec) |
| | 0402<br>0603<br>0805<br>1206<br>1210<br>1812<br>2220 | T = COTS | Two significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | 9 = 6.3<br>8 = 10<br>4 = 16<br>3 = 25<br>5 = 50<br>1 = 100<br>2 = 200<br>A = 250 | R = X7R | A = Testing per MIL–PRF–55681 PDA 8%<br>B= Testing per MIL–PRF–55681 PDA 8%, DPA per EIA–469<br>C = Testing per MIL–PRF–55681 PDA 8%, DPA per EIA–469, Humidity per MIL–STD–202, Method 103, Condition A | C = 100% Matte Sn<br>L = SnPb (5% Pb minimum) | See "Packaging C-Spec Ordering Options Table" below |

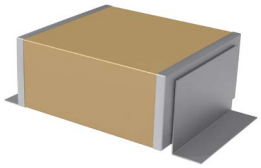
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 50 | 100 | 200 | 250 |
| 0402 | 10 pF – 0.1 µF | 10 pF – 0.1 µF | 10 pF – 0.1 µF | 10 pF – 0.047 µF | 10 pF – 0.022 µF | | | |
| 0603 | 10 pF – 0.47 µF | 10 pF – 0.47 µF | 10 pF – 0.47 µF | 10 pF – 0.22 µF | 10 pF – 0.15 µF | 10 pF – 0.047 µF | 10 pF – 0.01 µF | |
| 0805 | 10 pF – 2.2 µF | 10 pF – 2.2 µF | 10 pF – 2.2 µF | 10 pF – 1 µF | 10 pF – 0.68 µF | 10 pF – 0.22 µF | 10 pF – 0.056 µF | 180 pF – 0.022 µF |
| 1206 | 10 pF – 10 µF | 10 pF – 10 µF | 10 pF – 10 µF | 10 pF – 4.7 µF | 10 pF – 2.2 µF | 10 pF – 1 µF | 10 pF – 0.15 µF | 1 nF – 0.1 µF |
| 1210 | 10 pF – 22 µF | 10 pF – 22 µF | 10 pF – 10 µF | 10 pF – 10 µF | 10 pF – 4.7 µF | 10 pF – 2.2 µF | 10 pF – 0.22 µF | 2.2 nF – 0.22 µF |
| 1808 | | | | | 330 pF – 0.18 µF | 330 pF – 0.056 µF | 330 pF – 2.7 nF | |
| 1812 | | | | 470 pF – 10 µF | 470 pF – 4.7 µF | 470 pF – 3.3 µF | 470 pF – 0.47 µF | 6.8 nF – 0.47 µF |
| 1825 | | | | | 0.022 µF – 1 µF | 0.022 µF – 1 µF | 0.022 µF – 1 µF | 0.022 µF – 1 µF |
| 2220 | | | | 6.8 nF – 22 µF | 6.8 nF – 10 µF | 6.8 nF – 1 µF | 0.082 µF – 1 µF | 0.082 µF – 1 µF |

## High Reliability Commercial Off-The-Shelf (COTS) (cont.)

### KPS HV, Large Case, SM Series, C0G Dielectric, 500 – 10,000 VDC

**Capacitance Range:** 10 pF to 0.39 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SM-HV-C0G**



| SM20 | | N | 472 | J | 501 | B | M |
|---|---|---|---|---|---|---|---|
| Style/Size | | Dielectric | Capacitance Code (pF) | *Capacitance Tolerance* | Rated Voltage (VDC) | Lead Configuration[1] | Testing/ Inspection Option[2] |
| SM20<br>SM21<br>SM22<br>SM23<br>SM24<br>SM25<br>SM26 | SM30<br>SM31<br>SM33<br>SM34<br>SM35<br>SM36 | N = C0G | 2 significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | 501 = 500<br>102 = 1,000<br>202 = 2,000<br>302 = 3,000<br>402 = 4,000<br>502 = 5,000<br>752 = 7,500<br>103 = 10,000 | A = Formed "L"<br>B = Formed "J" | Blank = None<br>M = Group A per MIL–PRF–49467 |

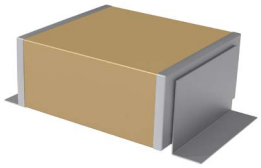
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 500 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 | 7,500 | 10,000 |
| SM20 | 39 pF – 2.7 nF | 39 pF – 2.7 nF | 39 pF – 820 pF | 39 pF – 270 pF | | | | |
| SM21 | 39 pF – 4.7 nF | 39 pF – 4.7 nF | 22 pF – 1.8 nF | 22 pF – 560 pF | | | | |
| SM22 | 33 pF – 0.018 µF | 33 pF – 6.8 nF | 33 pF – 3.3 nF | 33 pF – 1.2 nF | | | | |
| SM23 | 82 pF – 0.033 µF | 82 pF – 0.015 µF | 82 pF – 5.6 nF | 82 pF – 2.2 nF | 82 pF – 680 pF | | | |
| SM24 | 56 pF – 0.068 µF | 56 pF – 0.047 µF | 56 pF – 0.01 µF | 56 pF – 4.7 nF | 27 pF – 1.5 nF | 27 pF – 1.5 nF | | |
| SM25 | 270 pF – 0.047 µF | 270 pF – 0.047 µF | 180 pF – 0.012 µF | 180 pF – 5.6 nF | 180 pF – 1.8 nF | 180 pF – 1.8 nF | | |
| SM26 | 180 pF – 0.068 µF | 180 pF – 0.068 µF | 180 pF – 0.022 µF | 180 pF – 8.2 nF | 100 pF – 3.9 nF | 100 pF – 3.9 nF | | |
| SM30 | 22 pF – 5.6 nF | 22 pF – 5.6 nF | 22 pF – 1.8 nF | 22 pF – 680 pF | 22 pF – 120 pF | | | |
| SM31 | 27 pF – 0.033 µF | 27 pF – 0.012 µF | 27 pF – 5.6 nF | 27 pF – 1.5 nF | 22 pF – 180 pF | 22 pF – 180 pF | | |
| SM33 | 82 pF – 0.1 µF | 82 pF – 0.047 µF | 82 pF – 0.018 µF | 82 pF – 6.8 nF | 82 pF – 2.7 nF | 27 pF – 2.7 nF | 27 pF – 1 nF | |
| SM34 | 68 pF – 0.15 µF | 68 pF – 0.056 µF | 56 pF – 0.022 µF | 56 pF – 0.015 µF | 47 pF – 2.7 nF | 47 pF – 2.7 nF | 39 pF – 1 nF | 39 pF – 560 pF |
| SM35 | 150 pF – 0.27 µF | 150 pF – 0.15 µF | 150 pF – 0.047 µF | 150 pF – 0.022 µF | 150 pF – 3.9 nF | 150 pF – 3.9 nF | 150 pF – 1.8 nF | 47 pF – 1 nF |
| SM36 | 150 pF – 0.39 µF | 150 pF – 0.15 µF | 150 pF – 0.056 µF | 150 pF – 0.033 µF | 120 pF – 0.01 µF | 120 pF – 6.8 nF | 120 pF – 3.3 nF | 1 nF – 1.5 nF |

## High Reliability Commercial Off-The-Shelf (COTS) (cont.)

### KPS HV, Large Case, SM Series, X7R Dielectric, 500 – 10,000 VDC

**Capacitance Range:** 150 pF to 5.6 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SM-HV-X7R**



| SM20 | | B | 153 | K | 501 | B | M |
|---|---|---|---|---|---|---|---|
| Style/Size | | Dielectric | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Lead Configuration[1] | Testing/ Inspection Option[2] |
| SM20<br>SM21<br>SM22<br>SM23<br>SM24<br>SM25<br>SM26 | SM30<br>SM31<br>SM33<br>SM34<br>SM35<br>SM36 | B = X7R | Two significant digits + number of zeros | K = ±10%<br>M = ±20% | 501 = 500<br>102 = 1,000<br>202 = 2,000<br>302 = 3,000<br>402 = 4,000<br>502 = 5,000<br>752 = 7,500<br>103 = 10,000 | A = Formed "L"<br>B = Formed "J" | Blank = None<br>M = Group A per MIL–PRF–49467 |

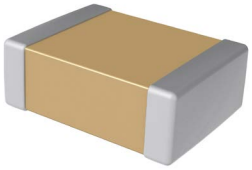
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 500 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 | 7,500 | 10,000 |
| SM20 | 330 pF – 0.1 µF | 330 pF – 0.022 µF | 330 pF – 3.9 nF | | | | | |
| SM21 | 820 pF – 0.18 µF | 820 pF – 0.068 µF | 820 pF – 0.012 µF | 820 pF – 4.7 nF | | | | |
| SM22 | 680 pF – 0.27 µF | 680 pF – 0.1 µF | 680 pF – 0.015 µF | 680 pF – 5.6 nF | | | | |
| SM23 | 1 nF – 0.56 µF | 1 nF – 0.27 µF | 1 nF – 0.033 µF | 1 nF – 0.015 µF | 1 nF – 6.8 nF | | | |
| SM24 | 1 nF – 1.2 µF | 1 nF – 0.47 µF | 1 nF – 0.1 µF | 1 nF – 0.033 µF | 1 nF – 0.012 µF | 1 nF – 6.8 nF | | |
| SM25 | 2.2 nF – 1.8 µF | 2.2 nF – 0.47 µF | 2.2 nF – 0.12 µF | 2.2 nF – 0.047 µF | 2.2 nF – 0.015 µF | 2.2 nF – 0.01 µF | | |
| SM26 | 2.2 nF – 2.9 µF | 2.2 nF – 1 µF | 2.2 nF – 0.18 µF | 2.2 nF – 0.1 µF | 3.9 nF – 0.033 µF | 3.9 nF – 0.015 µF | | |
| SM30 | 150 pF – 0.18 µF | 150 pF – 0.056 µF | 150 pF – 0.01 µF | 150 pF – 3.3 nF | 150 pF – 1.5 nF | | | |
| SM31 | 680 pF – 0.39 µF | 680 pF – 0.1 µF | 680 pF – 0.022 µF | 680 pF – 8.2 nF | 680 pF – 3.9 nF | 680 pF – 1.5 nF | | |
| SM33 | 820 pF – 1.5 µF | 820 pF – 0.68 µF | 820 pF – 0.082 µF | 820 pF – 0.039 µF | 820 pF – 0.012 µF | 820 pF – 6.8 nF | 820 pF – 4.7 nF | |
| SM34 | 1 nF – 2.2 µF | 1 nF – 1 µF | 1 nF – 0.27 µF | 1 nF – 0.082 µF | 1 nF – 0.033 µF | 1 nF – 0.022 µF | 1 nF – 6.8 nF | 1 nF – 5.6 nF |
| SM35 | 3.3 nF – 3.9 µF | 3.3 nF – 1.2 µF | 3.3 nF – 0.27 µF | 3.3 nF – 0.1 µF | 3.3 nF – 0.047 µF | 3.3 nF – 0.027 µF | 3.3 nF – 0.01 µF | 1 nF – 6.8 nF |
| SM36 | 4.7 nF – 5.6 µF | 4.7 nF – 2.2 µF | 4.7 nF – 0.33 µF | 4.7 nF – 0.15 µF | 4.7 nF – 0.068 µF | 4.7 nF – 0.033 µF | 4.7 nF – 0.022 µF | 1.5 nF – 0.01 µF |

## High Reliability Commercial Off-The-Shelf (COTS) (cont.)

### Large Chip High Voltage C0G (NP0) Dielectric Military Equivalent, 500 – 5,000 VDC

**Capacitance Range:** 10 pF to 0.10 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/LG-HV-C0G**



| 4540 | B | 472 | M | 202 | P | M |
|---|---|---|---|---|---|---|
| Style | Dielectric | Capacitance Code (pF) | Capacitance Tolerance | Voltage (VDC) | Terminal Material | Group A Screening |
| 1515<br>1812<br>1825<br>2020<br>2225<br>2520<br>3333<br>3530<br>4040<br>4540<br>5440<br>5550<br>6560 | B/R = X7R<br>N = C0G | First two digits are significant, last digit is number of zeros. i.e., 472 = 4,700 pF | J = ±5% C0G (NP0)<br>K= ±10%<br>M = ±20%<br>P = 0/+100%<br>Z = -20%/+80% | First two digits are significant, last digit is number of zeros. i.e., 202 = 2,000 V | P = PdAg<br>S = Ag<br>E = Ag/Ni/SnPb plate<br>C = Ag/Ni/Sn plate | MIL-PRF-49467 (subgroup 1) except Corona |

### BP

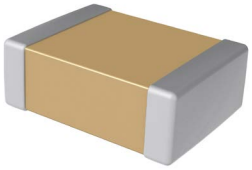
| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 500 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 |
| 1515 | 27 pF – 4.7 nF | 27 pF – 1.5 nF | 12 pF – 680 pF | 12 pF – 150 pF | | |
| 1812 | 27 pF – 2.7 nF | 27 pF – 1.2 nF | 12 pF – 470 pF | 12 pF – 120 pF | | |
| 1825 | 39 pF – 8.2 nF | 39 pF – 3.9 nF | 22 pF – 820 pF | 22 pF – 560 pF | | |
| 2020 | 39 pF – 8.2 nF | 39 pF – 0.033 µF | 22 pF – 820 pF | 22 pF – 560 pF | | |
| 2225 | 47 pF – 0.012 µF | 47 pF – 8.2 nF | 27 pF – 1.2 nF | 27 pF – 0.012 µF | | |
| 2520 | 47 pF – 0.01 µF | 47 pF – 6.8 nF | 27 pF – 1.2 nF | 27 pF – 680 pF | | |
| 3333 | 100 pF – 0.015 µF | 100 pF – 0.012 µF | 47 pF – 2.7 nF | 47 pF – 1.5 nF | 27 pF – 680 pF | |
| 3530 | 100 pF – 0.022 µF | 100 pF – 0.018 µF | 47 pF – 3.3 nF | 47 pF – 1.5 nF | 27 pF – 680 pF | |
| 4040 | 220 pF – 0.039 µF | 220 pF – 0.022 µF | 100 pF – 5.6 nF | 100 pF – 2.2 nF | 18 pF – 1.2 nF | |
| 4540 | 220 pF – 0.056 µF | 220 pF – 0.033 µF | 100 pF – 6.8 nF | 100 pF – 3.9 nF | 18 pF – 1.5 nF | 18 pF – 1 nF |
| 5440 | 390 pF – 0.082 µF | 390 pF – 0.033 µF | 150 pF – 8.2 nF | 150 pF – 3.3 nF | 27 pF – 2.2 nF | |
| 5550 | 390 pF – 0.1 µF | 390 pF – 0.047 µF | 150 pF – 0.01 µF | 150 pF – 6.8 nF | 27 pF – 2.2 nF | 27 pF – 2.2 nF |
| 6560 | 470 pF – 0.1 µF | 470 pF – 0.068 µF | 270 pF – 0.018 µF | 270 pF – 8.2 nF | 47 pF – 3.9 nF | 47 pF – 2.7 nF |

## High Reliability Commercial Off-The-Shelf (COTS) (cont.)

### Large Chip High Voltage X7R Dielectric Military Equivalent, 500 – 5,000 VDC

**Capacitance Range:** 220 pF to 2.2 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/LG-HV-X7R**



| 4540 | B | 472 | M | 202 | P | M |
|---|---|---|---|---|---|---|
| Style | Dielectric | Capacitance Code (pF) | Capacitance Tolerance | Voltage (VDC) | Terminal Material | Group A Screening |
| 1515<br>1812<br>1825<br>2020<br>2225<br>2520<br>3333<br>3530<br>4040<br>4540<br>5440<br>5550<br>6560 | B/R = X7R<br>N = C0G | First two digits are significant, last digit is number of zeros. i.e., 472 = 4,700 pF | J = ±5% C0G (NP0)<br>K= ±10%<br>M = ±20%<br>P = 0/+100%<br>Z = -20%/+80% | First two digits are significant, last digit is number of zeros. i.e., 202 = 2,000 V | P = PdAg<br>S = Ag<br>E = Ag/Ni/SnPb plate<br>C = Ag/Ni/Sn plate | MIL-PRF-49467 (subgroup 1) except Corona |

### B and R

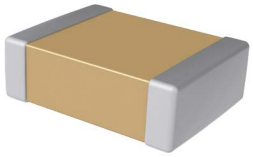
| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 500 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 |
| 1515 | 680 pF – 0.1 µF | 680 pF – 0.022 µF | 270 pF – 3.9 nF | | | |
| 1812 | 680 pF – 0.056 µF | 680 pF – 0.018 µF | 270 pF – 2.7 nF | | | |
| 1825 | 1.2 nF – 0.15 µF | 1.2 nF – 0.068 µF | 560 pF – 8.2 nF | 560 pF – 2.7 nF | | |
| 2020 | 1.2 nF – 0.18 µF | 1.2 nF – 0.068 µF | 560 pF – 8.2 nF | 560 pF – 3.9 nF | | |
| 2225 | 1.2 nF – 0.22 µF | 1.2 nF – 0.068 µF | 680 pF – 0.015 µF | 680 pF – 4.7 nF | | |
| 2520 | 1.2 nF – 0.22 µF | 1.2 nF – 0.082 µF | 680 pF – 0.018 µF | 680 pF – 5.6 nF | | |
| 3333 | 3.3 nF – 0.82 µF | 3.3 nF – 0.47 µF | 1.2 nF – 0.027 µF | 1.2 nF – 0.022 µF | | |
| 3530 | 3.3 nF – 0.56 µF | 3.3 nF – 0.27 µF | 1.2 nF – 0.033 µF | 1.2 nF – 0.015 µF | 270 pF – 6.8 nF | |
| 4040 | 6.8 nF – 0.82 µF | 6.8 nF – 0.39 µF | 2.7 nF – 0.047 µF | 2.7 nF – 0.018 µF | 470 pF – 8.2 nF | |
| 4540 | 6.8 nF – 1.2 µF | 6.8 nF – 0.47 µF | 2.7 nF – 0.068 µF | 2.7 nF – 0.33 µF | 470 pF – 0.01 µF | 470 pF – 6.8 nF |
| 5440 | 0.01 µF – 1.5 µF | 0.01 µF – 0.68 µF | 3.9 nF – 0.056 µF | 3.9 nF – 0.012 µF | 680 pF – 0.01 µF | |
| 5550 | 0.01 µF – 1.8 µF | 0.01 µF – 0.82 µF | 3.9 nF – 0.12 µF | 3.9 nF – 0.039 µF | 680 pF – 0.015 µF | 680 pF – 0.01 µF |
| 6560 | 0.015 µF – 2.2 µF | 0.015 µF – 1 µF | 6.8 nF – 0.18 µF | 6.8 nF – 0.18 µF | 1.2 nF – 0.027 µF | 1.2 nF – 0.015 µF |

## MIL-PRF • Surface Mount

### MIL-PRF-123, BP and BX Dielectric, Molded Radial, 50 – 100 VDC

**Capacitance Range:** 1 pF to 1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-123-SMD**



| C | 0805 | Z | 101 | K | 5 | G | A | L | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/ Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Failure Rate/ Design | Termination Finish | Failure Rate |
| | 0805<br>1206<br>1210<br>1808<br>1812<br>1825<br>2225 | Z = MIL-PRF-123 | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10% | 5 = 50<br>1 = 100 | G = BP (Ultra-stable)<br>X = BX (Stable) | A = N/A | H = Nickel guarded, (solder coated)<br>L = 70/30 SnPb plated | A = N/A |

### MIL-PRF-123

| M123 | A | 10 | BX | B | 472 | K | Z |
|---|---|---|---|---|---|---|---|
| Series | Specification/ Series | Style/Size | Dielectric | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance | Termination Finish |
| M123 = MIL-PRF | A = Indicates the latest characteristics of the part in the specification sheet. | 10 = 0805<br>11 = 1210<br>12 = 1808<br>13 = 2225<br>21 = 1206<br>22 = 1812<br>23 = 1825 | BP = G (Ultra-stable)<br>BX = X (Stable) | B = 50<br>C= 100 | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10% | Z = 70/30 SnPb plated<br>S = Nickel guarded, (solder coated) |

### BP

| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| 0805 | 1 pF – 680 pF | 1 pF – 470 pF |
| 1206 | 1.1 nF – 2.7 nF | 1 pF – 1 nF |
| 1210 | 300 pF – 3.3 nF | 300 pF – 2.2 nF |
| 1808 | 300 pF – 1 nF | 300 pF – 1 nF |
| 1812 | 5.1 nF – 0.01 µF | 1.2 nF – 4.7 nF |
| 1825 | 0.011 µF – 0.022 µF | 3.9 nF – 0.01 µF |
| 2225 | 1.1 nF – 0.01 µF | |

### BX

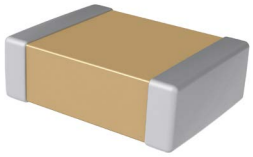
| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| 0805 | 330 pF – 0.018 µF | 330 pF – 4.7 nF |
| 1206 | 0.018 µF – 0.039 µF | 4.7 nF – 0.015 µF |
| 1210 | 5.6 nF – 0.1 µF | 5.6 nF – 0.027 µF |
| 1808 | 5.6 nF – 0.1 µF | 5.6 nF – 0.033 µF |
| 1812 | 0.1 µF – 0.18 µF | 0.027 µF – 0.056 µF |
| 1825 | 0.18 µF – 0.47 µF | 0.056 µF – 0.15 µF |
| 2225 | 0.12 µF – 1 µF | |

## MIL-PRF • Surface Mount (cont.)

### GR900 High Reliability, BP and BX Dielectric,16 – 200 VDC

**Capacitance Range:** 1 pF to 1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/GR900**



| C | 0805 | A | 103 | K | 5 | X | A | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Failure Rate/ Design | Termination Finish | Failure Rate |
| | 0504<br>0805<br>1005<br>1206<br>1210<br>1805<br>1808<br>1812<br>1825<br>2225 | A = GR900<br>Q = Q-Spec | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5%<br>K = ±10%<br>M = ±20% | 1 = 100<br>2 = 200<br>3 =25<br>4 = 16<br>5 = 50 | G = BP (Ultra-stable)<br>X = BX (Stable) | A = N/A | C = 100% Tin plated<br>H = 60/40 SnPb coated<br>L = 70/30 SnPb plated<br>G = Gold plated | A = N/A |

#### BP

| Case Size | Voltage | | | |
|---|---|---|---|---|
| | 16 | 50 | 100 | 200 |
| 0504 | | 150 pF – 180 pF | 91 pF – 130 pF | 1 pF – 82 pF |
| 0805 | | 510 pF – 560 pF | 240 pF – 470 pF | 1 pF – 220 pF |
| 1005 | | 910 pF – 1.2 nF | 510 pF – 820 pF | 1 pF – 470 pF |
| 1206 | 4.7 nF – 5.6 nF | 1.8 nF – 2 nF | 510 pF – 1.6 nF | 10 pF – 470 pF |
| 1210 | 0.01 µF | 3.6 nF | 1.1 nF – 3.3 nF | 10 pF – 1 nF |
| 1805 | | 1.6 nF – 2.2 nF | 510 pF – 1.5 nF | 220 pF – 470 pF |
| 1808 | | 5.1 nF – 5.6 nF | 1.6 nF – 4.7 nF | 330 pF – 1.5 nF |
| 1812 | | 7.5 nF – 0.01 µF | 3 nF – 6.8 nF | 330 pF – 2.7 nF |
| 1825 | | 0.02 µF – 0.022 µF | 6.2 nF – 0.018 µF | 2.7 nF – 5.6 nF |
| 2225 | | 0.024 µF – 0.033 µF | 9.1 nF – 0.022 µF | 2.7 nF – 8.2 nF |

#### BX

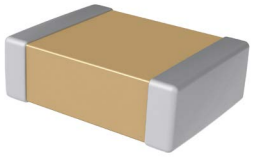
| Case Size | Voltage | | | | |
|---|---|---|---|---|---|
| | 16 | 25 | 50 | 100 | 200 |
| 0504 | | | 1.5 nF – 6.8 nF | 360 pF – 1.2 nF | 220 pF – 330 pF |
| 0805 | | 0.1 µF | 5.6 nF – 0.047 µF | 1 nF – 4.7 nF | 180 pF – 820 pF |
| 1005 | | | 0.012 µF – 0.022 µF | 2.2 nF – 0.01 µF | 330 pF – 1.8 nF |
| 1206 | | | 0.018 µF – 0.15 µF | 5.6 nF – 0.015 µF | 470 pF – 4.7 nF |
| 1210 | 0.47 µF | 0.33 µF | 0.039 µF – 0.1 µF | 0.012 µF – 0.1 µF | 470 pF – 0.01 µF |
| 1805 | | | 0.018 µF – 0.047 µF | 4.7 nF – 0.018 µF | 1.2 nF – 3.9 nF |
| 1808 | | | 0.039 µF – 0.1 µF | 0.012 µF – 0.047 µF | 2.2 nF – 0.01 µF |
| 1812 | | | 0.082 µF – 0.18 µF | 0.022 µF – 0.082 µF | 6.8 nF – 0.018 µF |
| 1825 | | | 0.18 µF – 0.47 µF | 0.056 µF – 0.18 µF | 0.01 µF – 0.047 µF |
| 2225 | | | 0.22 µF – 1 µF | 0.056 µF – 0.18 µF | 0.018 µF – 0.047 µF |

## MIL-PRF • Surface Mount (cont.)

### MIL-PRF-55681, BP and BX Dielectric, 50 – 100 VDC

**Capacitance Range:** 1 pF to 0.47 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-55681**



| C | 0805 | P | 101 | K | 1 | G | M | L | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Failure Rate/ Design | Termination Finish | Failure Rate |
| | 0805<br>1206<br>1210<br>1805<br>1808<br>1812<br>1825<br>2225 | P = MIL-PRF-55681 (CDR01 – CDR06)<br>N = MIL-PRF-55681 (CDR31 – CDR35) | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | B = ±0.1 pF<br>C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10%<br>M = ±20% | 5 = 50<br>1 = 100 | G = BP (C0G, NP0)<br>X = BX (X7R) | M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | C = 100% Tin plated<br>H = 60/40 SnPb plated<br>L = 70/30 SnPb plated | A = N/A |

### MIL-PRF-55681

| CDR | 01 | B | P | 101 | B | K | Z | M | A |
|---|---|---|---|---|---|---|---|---|---|
| Series | Style/Size | Temperature (°C ) | Dielectric | Capacitance Code (pF) | Rated Voltage (VDC) | Capacitance Tolerance | Termination Finish | Failure Rate/ Design | Failure Rate |
| C = Ceramic<br>D = Dielectric, Fixed Chip<br>R = Established Reliability | 01 = 0805<br>02 = 1805<br>03 = 1808<br>04 = 1812<br>05 = 1825<br>06 = 2225<br>31 = 0805<br>32 = 1206<br>33 = 1210<br>34 = 1812<br>35 = 1825 | B = -55 to +125 | P = G (BP, C0G)<br>X = BX (X7R) | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | A = 50<br>B = 100 | B = ±0.1 pF<br>C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10%<br>M = ±20% | S = Solder coated<br>U = Base metallization, (solder coated)<br>W = Base metaliation, (Tin/Lead alloy)<br>Y = Base metalization, (100% Tin)<br>Z = Base metalization, metal-tinned (Tin/Lead alloy) | M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | A = N/A |

### BP

| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| 0805 | 510 pF – 680 pF | 1 pF – 470 pF |
| 1206 | 1.1 nF – 2.2 nF | 1 pF – 1 nF |
| 1210 | 2.4 nF – 3.3 nF | 1 nF – 2.2 nF |
| 1805 | | 220 pF – 270 pF |
| 1808 | | 330 pF – 1 nF |
| 1812 | 5.1 nF – 0.01 µF | 1.2 nF – 4.7 nF |
| 1825 | 0.011 µF – 0.022 µF | 3.9 nF – 0.01 µF |
| 2225 | | 6.8 nF – 0.01 µF |

### BX

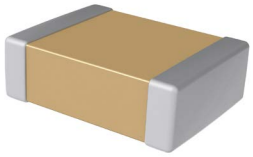
| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| 0805 | 3.9 nF – 0.018 µF | 120 pF – 4.7 nF |
| 1206 | 0.018 µF – 0.039 µF | 4.7 nF – 0.015 µF |
| 1210 | 0.039 µF – 0.1 µF | 0.015 µF – 0.027 µF |
| 1805 | 0.012 µF – 0.022 µF | 3.9 nF – 0.01 µF |
| 1808 | 0.039 µF – 0.068 µF | 0.012 µF – 0.033 µF |
| 1812 | 0.082 µF – 0.18 µF | 0.027 µF – 0.056 µF |
| 1825 | 0.18 µF – 0.47 µF | 0.056 µF – 0.15 µF |
| 2225 | 0.39 µF – 0.47 µF | |

## MIL-PRF • Surface Mount (cont.)

### DLA Drawing 03028 BR and BX Dielectric, 6.3 – 200 VDC, 0603 Case Size (1608 Metric)

**Capacitance Range:** 100 pF to 0.1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/DLA-03028**



| 03028 | BX | 104 | Y | J | Z | C | 7189 |
|---|---|---|---|---|---|---|---|
| Series | Dielectric | Capacitance Code (pF) | Rated Voltage (VDC) | Capacitance Tolerance | Termination Finish[1] | Screening Option | Packaging/Grade (C-Spec)[2] |
| 03028 = DSCC Drawing Number (0603 case size) | BR<br>BX | 2 significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | W = 6.3<br>X = 10<br>Y = 16<br>Z = 25<br>A = 50<br>B = 100<br>C = 200 | J = ±5%<br>K = ±10%<br>M = ±20% | U = SnPb (4% Pb minimum)<br>Z = SnPb (4% Pb minimum) | Blank = No group C testing<br>C = Full Group C<br>L = 2,000 hour life test only<br>M = 1,000 hour life test only<br>H = Low voltage humidity only | Blank = Bulk bag<br>7246 = Anti-static bulk bag<br>7292 = Waffle pack<br>7189 = 7" Reel marked |

**BR**

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 50 | 100 | 200 |
| 0603 | 100 pF – 0.1 µF | 100 pF – 0.1 µF | 100 pF – 0.1 µF | 100 pF – 0.047 µF | 100 pF – 0.022 µF | 100 pF – 4.7 nF | 100 pF – 1 nF |

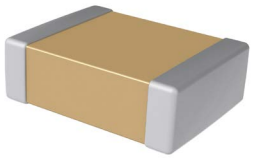
**BX**

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 50 | 100 |
| 0603 | 100 pF – 0.1 µF | 100 pF – 0.1 µF | 100 pF – 0.1 µF | 100 pF – 0.022 µF | 100 pF – 4.7 nF | 100 pF – 1 nF |

### DLA Drawing 03029 BR and BX Dielectric, 6.3 – 100 VDC, 0402 Case Size (1005 Metric)

**Capacitance Range:** 100 to 2,200 pF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/DLA-03029**



| 03029 | BX | 222 | Z | J | Z | C | 7189 |
|---|---|---|---|---|---|---|---|
| Series | Dielectric | Capacitance Code (pF) | Rated Voltage (VDC) | Capacitance Tolerance | Termination Finish[1] | Screening Option | Packaging/Grade (C-Spec)[2] |
| 03029 = DSCC Drawing Number (0402 case size) | BR<br>BX | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | W = 6.3<br>X = 10<br>Y = 16<br>Z = 25<br>A = 50<br>B = 100 | J = ±5%<br>K = ±10%<br>M = ±20% | U = SnPb (4% Pb minimum)<br>Z = SnPb (4% Pb minimum) | Blank = No group C testing<br>C = Full Group C<br>L = 2,000 hour life test only<br>M = 1,000 hour life test only<br>H = Low voltage humidity only | Blank = Bulk bag<br>7246 = Anti-static bulk bag<br>7292 = Waffle pack<br>7189 = 7" Reel marked |

**BR**

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 50 | 100 |
| 0402 | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 1 nF |

**BX**

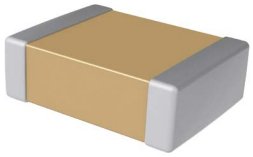
| Case Size | Voltage | | | | |
|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 50 |
| 0402 | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 2.2 nF | 100 pF – 2.2 nF |

## MIL-PRF • Surface Mount (cont.)

### DLA Drawing 05006 BP, BR and BX Dielectric, 10 – 200 VDC, 0805 Case Size (2012 Metric)

**Capacitance Range:** 0.5 to 1,800 pF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/DLA-05006**

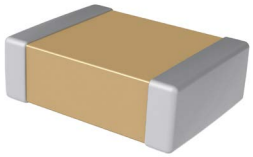


| 05006 | BP | 681 | Z | F | Z | C | 7189 |
|---|---|---|---|---|---|---|---|
| Series | Dielectric | Capacitance Code (pF) | Rated Voltage (VDC) | Capacitance Tolerance | Termination Finish[1] | Screening Option | Packaging/Grade (C-Spec)[2] |
| 05006 = DSCC Drawing Number (0805 case size) | BR<br>BX<br>BP | 2 significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | X = 10<br>Y = 16<br>Z = 25<br>A = 50<br>B = 100<br>C = 200 | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5% | U = SnPb (4% Pb minimum)<br>Z = SnPb (4% Pb minimum) | Blank = No group C testing<br>C = Full group C<br>L = 2,000 hour life test only<br>M = 1,000 hour life test only<br>H = Low voltage humidity only | Blank = Bulk bag<br>7246 = Anti-static bulk bag<br>7292 = Waffle pack<br>7189 = 7" Reel marked |

### DLA Drawing 05007 BP, BR and BX Dielectric, 10 – 200 VDC, 1206 Case Size (3216 Metric)

**Capacitance Range:** 1 to 4,700 pF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/DLA-05007**

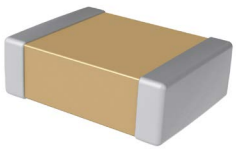


| 05007 | BP | 222 | Z | F | Z | C | 7189 |
|---|---|---|---|---|---|---|---|
| Series | Dielectric | Capacitance Code (pF) | Rated Voltage (VDC) | Capacitance Tolerance | Termination Finish[1] | Screening Option | Packaging/Grade (C-Spec)[2] |
| 05007 = DSCC Drawing Number (1206 case size) | BR<br>BX<br>BP | 2 significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | X = 10<br>Y = 16<br>Z = 25<br>A = 50<br>B = 100<br>C = 200 | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5% | U = SnPb (4% Pb minimum)<br>Z = SnPb (4% Pb minimum) | Blank = No group C testing<br>C = Full group C<br>L = 2,000 hour life test only<br>M = 1,000 hour life test only<br>H = Low voltage humidity only | Blank = Bulk bag<br>7246 = Anti-static bulk bag<br>7292 = Waffle pack<br>7189 = 7" Reel marked |

### DLA Drawing 91019, BR Dielectric, 25 – 50 VDC, 2220 Case Size (5650 Metric)

**Capacitance Range:** 0.56 to 1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/DLA-91019**



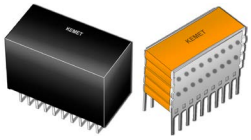
| 91019 | 01 | - | 7189 |
|---|---|---|---|
| Series | Dash Number[1] | Termination Finish[2] | Packaging/Grade (C-Spec) |
| 91019 = DSCC Drawing Number (2220 case size) | 01<br>02<br>03<br>04<br>05 | Blank = "U" termination finish / SnPb (4% Pb minimum)<br>Y = 100% Sn<br>Z = SnPb (4% Pb minimum) | Blank = Bulk bag<br>7246 = Anti-static bulk bag<br>7292 = Waffle pack<br>7189 = 7" Reel marked |

## MIL-PRF • Surface Mount (cont.)

### KPS MIL Series (MIL-PRF-49470, DLA Drawing 87106), SMPS Stacked Capacitors, 25 – 1,000 VDC

**Capacitance Range:** 0.047 to 75 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/Stack-MIL**



| L1 | R | N | 30 | C | 106 | K | S | 12 | |
|---|---|---|---|---|---|---|---|---|---|
| Product Family[1] | Dielectric Classification/ Characteristic[2] | Lead Configuration[3] | Case Size/ Case Code (CC) | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance | Testing Option[4] | Maximum Height Dimension (in.)[5] | |
| L1 = Unencapsulated<br>L2 = Encapsulated | Q = BQ<br>R = BR<br>X = BX<br>W = X7R | N = Straight<br>L = Formed "L"<br>M = Formed "L"<br>J = Formed "J"<br>K = Formed "J" | 30 = CC 3<br>40 = CC 4<br>50 = CC 5 | 3 = 25<br>5 = 50<br>1 = 100<br>2 = 200<br>C = 500<br>B = 630<br>D = 1,000 | Two significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | B = M49470 "B" Level<br>T = M49470 "T" Level<br>C = DSCC87106<br>S = Commercial<br>X = Non-Standard (Customer Specific Requirements) | Unencapsulated<br>12 = 0.12"<br>24 = 0.24"<br>36 = 0.36"<br>48 = 0.48"<br>65 = 0.65" | Encapsulated<br>27 = 0.27"<br>39 = 0.39"<br>53 = 0.53"<br>66 = 0.66"<br>80 = 0.80" |

### MIL-PRF-49470, DSCC 87106

| M49470 | R | 01 | 474 | K | C | N |
|---|---|---|---|---|---|---|
| Performance Specification Indicating MIL–PRF–49470[1] | Dielectric Classification/ Characteristic[2] | Performance Specification Sheet Number (Indicating MIL–PRF–49470/1)[3] | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Lead Configuration[4] |
| M49470 = B level<br>T49470 = T level<br>A "T" prefix is used in place of the "M" for T level product. | Q = BQ<br>R = BR<br>X = BX | 01 = Unencapsulated<br>02 = Encapsulated | Two significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | A = 50<br>B = 100<br>C = 200<br>E = 500 | N = Straight Pin<br>L = Formed "L"<br>M = Formed "L"<br>J = Formed "J"<br>K = Formed "J" |

#### BQ

| Case Size | Voltage | |
|---|---|---|
| | 200 | 500 |
| 3 | 2.4 µF – 27 µF | 2.2 µF – 5.6 µF |
| 4 | 0.82 µF – 10 µF | 0.82 µF – 1.8 µF |
| 5 | 0.33 µF – 3.3 µF | 0.15 µF – 0.68 µF |

#### BX

| Case Size | Voltage | | |
|---|---|---|---|
| | 25 | 50 | 100 |
| 3 | 6.8 µF – 75 µF | 6.8 µF – 75 µF | 10 µF – 27 µF |
| 4 | 2.2 µF – 24 µF | 2.2 µF – 24 µF | 3.9 µF – 8.2 µF |
| 5 | 0.82 µF – 7.5 µF | 0.82 µF – 7.5 µF | 0.68 µF – 3.3 µF |

#### BR

| Case Size | Voltage | |
|---|---|---|
| | 100 | 200 |
| 3 | 5.6 µF – 50 µF | 4.7 µF – 12 µF |
| 4 | 1.5 µF – 18 µF | 1.8 µF – 3.9 µF |
| 5 | 0.56 µF – 6 µF | 0.47 µF – 1.5 µF |

#### X7R

| Case Size | Voltage | | |
|---|---|---|---|
| | 500 | 630 | 1,000 |
| 3 | 1 µF – 12 µF | 0.22 µF – 6.8 µF | 0.1 µF – 3.3 µF |
| 4 | 0.39 µF – 3.9 µF | 0.1 µF – 2.2 µF | 0.1 µF – 1 µF |
| 5 | 0.12 µF – 1.5 µF | 6.8 nF – 0.75 µF | 4.7 nF – 0.39 µF |

## MIL-PRF • Leaded

### MIL-PRF-123, BP and BX Dielectric, Molded Radial, 50 – 100 VDC

**Capacitance Range:** 4.7 pF to 1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-123-Radial**


| C | 052 | Z | 102 | K | 5 | G | 5 | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Design | Lead Finish | Failure Rate |
| | 052<br>062<br>512 | Z = MIL-PRF-123 | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10% | 5 = 50<br>1= 100 | G = BP (Ultra-stable)<br>X = BX (Stable) | 5 = Standard | C = Solder coated copper (standard) | A = N/A |

### MIL–PRF–123

| M123 | A | 01 | BX | B | 103 | K | C |
|---|---|---|---|---|---|---|---|
| Series | Specification/ Series | Style/Size | Dielectric | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance | Lead Finish |
| M123 = MIL-PRF | A = Indicates the latest characteristics of the part in the specification sheet. | 01 = 052<br>02 = 062<br>03 = 512 | BP = G (Ultra-stable)<br>BX = X (Stable) | B = 50<br>C= 100 | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10% | C = Solder coated copper |

### BP

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.83 x 4.83 x 2.29) | 270 pF – 3.3 nF | 4.7 pF – 1.8 nF | 20 pF – 330 pF |
| C062 (7.37 x 7.37 x 2.29) | 2.7 nF – 0.018 µF | 270 pF – 4.7 nF | 360 pF – 1.8 nF |
| C512 (12.19 x 12.19 x 3.56) | 0.011 µF – 0.1 µF | 2.7 nF – 0.018 µF | 2.2 nF – 4.7 nF |

### BX

| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| C052 (4.83 x 4.83 x 2.29) | 5.6 nF – 0.01 µF | 270 pF – 4.7 nF |
| C062 (7.37 x 7.37 x 2.29) | 0.056 µF – 1 µF | 5.6 nF – 0.1 µF |
| C512 (12.19 x 12.19 x 3.56) | 0.56 µF – 1 µF | 0.056 µF – 0.47 µF |

## MIL-PRF • Leaded (cont.)

### GR900 High Reliability, BP and BX Dielectric, Molded Radial, 50 – 200 VDC

**Capacitance Range:** 1 pF to 3.3 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/GR900-Radial**


| C | 052 | B | 223 | K | 1 | X | 5 | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Design | Lead Finish | Failure Rate |
| | 052<br>062<br>512 | B = Leaded devices | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5%<br>K = ±10%<br>M = ±20% | 1 = 100<br>2 = 200<br>5 = 50 | G = C0G (CG, BP)<br>X = X7R (BX) | 5 = Standard | C = Solder coated copper (standard) | A = N/A |

#### BP

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.83 x 4.83 x 2.29) | 6.2 nF – 6.8 nF | 1.6 nF – 5.6 nF | 1 pF – 1.5 nF |
| C062 (7.37 x 7.37 x 2.29) | | 7.5 nF – 0.024 µF | 270 pF – 6.8 nF |
| C512 (12.19 x 12.19 x 3.56) | 0.12 µF – 0.15 µF | 0.039 µF – 0.1 µF | 2 nF – 0.033 µF |

#### BX

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.83 x 4.83 x 2.29) | 0.056 µF – 0.12 µF | 0.018 µF – 0.047 µF | 470 pF – 0.015 µF |
| C062 (7.37 x 7.37 x 2.29) | 0.27 µF – 1 µF | 0.082 µF – 0.22 µF | 3.3 nF – 0.068 µF |
| C512 (12.19 x 12.19 x 3.56) | 1.2 µF – 3.3 µF | 0.47 µF – 1 µF | 0.039 µF – 0.39 µF |

## MIL-PRF • Leaded (cont.)

### MIL-PRF-20, CG, Molded Axial and Radial, 50 – 200 VDC

**Capacitance Range:** 1 pF to 0.1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-20-Radial**


| C | 052 | G | 102 | J | 1 | G | 5 | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Design | Lead Finish | Failure Rate |
| | C052 – C522 (Radial)<br>C114 – C222 (Axial) | G – MIL-PRF-20 | 2 significant digits + number of zeros | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5%<br>K = ±10% | 1 = 100<br>2 = 200<br>5 = 50 | G = C0G, CG | 5 = Standard | C = 60/40 Tin/Lead (SnPb) | A = N/A<br>M = 1.0%<br>P = 0.1%<br>R = 0.01%<br>S = 0.001% |

### Axial

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C124 (2.29 x 6.35) | 750 pF – 1 nF | 270 pF – 680 pF | 82 pF – 130 pF |
| C192 (3.56 x 9.91) | 2.4 nF – 5.6 nF | 750 pF – 2.2 nF | 150 pF – 680 pF |
| C202 (6.35 x 12.7) | 0.015 µF – 0.027 µF | 3.9 nF – 0.012 µF | 820 pF – 3.3 nF |
| C222 (8.89 x 17.53) | 0.047 µF – 0.082 µF | 0.015 µF – 0.039 µF | 3.9 nF – 0.01 µF |

### Radial

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.826 x 5.969 x 2.286) | 2 nF – 3.3 nF | 360 pF – 1.8 nF | 1 pF – 330 pF |
| C062 (7.366 x 7.366 x 2.286) | 5.1 nF – 0.018 µF | 2 nF – 4.7 nF | 360 pF – 1.8 nF |
| C512 (12.192 x 12.192 x 3.556) | 0.015 µF – 0.1 µF | 5.6 nF – 0.012 µF | 2.2 nF – 4.7 nF |
| C522 (12.192 x 12.192 x 6.096) | 0.056 µF – 0.068 µF | 0.015 µF – 0.018 µF | 3.9 nF – 4.7 nF |

## MIL-PRF • Leaded (cont.)

### MIL-C-11015/MIL-PRF-39014, BX and BR, Molded Axial and Radial, 50 – 200 VDC

**Capacitance Range:** Axial: 10 pF to 3.3 µF, Radial: 10 pF to 0.1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-11015**


| C | 052 | K | 102 | K | 2 | X | 5 | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Design | Lead Finish | Failure Rate |
| | C052 – C066 (Radial)<br>C114 – C222 (Axial) | Military<br>T – MIL-PRF-39014<br>K – MIL-C-11015 | 2 significant digits + number of zeros | K = ±10%<br>M = ±20% | 1 = 100 V<br>2 = 200 V<br>5 = 50 V | X = BX (X7R)<br>R = BR | 5 = Multilayer | C = 60/40 Tin/Lead (SnPb) | A = N/A<br>M = 1.0%<br>P = 0.1%<br>R = 0.01%<br>S = 0.001% |

### BX and BR Axial

| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| C114 (2.29 x 4.06) | 5.6 nF – 0.01 µF | 10 pF – 4.7 nF |
| C124 (2.29 x 6.35) | 0.012 µF – 0.047 µF | 5.6 nF – 0.01 µF |
| C192 (3.56 x 9.91) | 0.12 µF – 0.27 µF | 0.012 µF – 0.1 µF |
| C202 (6.35 x 12.7) | 0.47 µF – 1 µF | 0.1 µF – 0.33 µF |
| C222 (8.89 x 17.53) | 2.2 µF – 3.3 µF | 1 µF – 4.7 µF |

### BX and BR Radial

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.826 x 5.969 x 2.286) | 0.012 µF – 0.1 µF | 1.2 nF – 0.01 µF | 10 pF – 1 nF |
| C056 (4.83 x 4.83 x 2.29) | 0.012 µF – 0.1 µF | 1.2 nF – 0.01 µF | 10 pF – 1 nF |
| C062 (7.366 x 7.366 x 2.286) | 0.12 µF – 1 µF | 0.012 µF – 0.1 µF | 1.2 nF – 0.01 µF |
| C066 (7.37 x 7.37 x 2.29) | 0.12 µF – 1 µF | 0.012 µF – 0.1 µF | 1.2 nF – 0.01 µF |

## MIL-PRF • Leaded (cont.)

### HV MIL-PRF-49467 Equivalent, BP BR and BZ, 500 – 5,000 VDC

**Capacitance Range:** 15 pF to 1.0 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-49467**


| 10 | HV60 | R | 102 | K | C |
|---|---|---|---|---|---|
| Rated Voltage (VDC) | Style/Size | Dielectric | Capacitance Code (pF) | Capacitance Tolerance | Grade/ Test Level |
| 05 = 500<br>06 = 600<br>10 = 1,000<br>20 = 2,000<br>30 = 3,000<br>40 = 4,000<br>50 = 5,000 | HV60 – HV69 | P = BP C0G (NP0)<br>R = BR (X7R)<br>Z = BZ (X7R) | Two significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | C = CSAM |

### BP

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 600 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 |
| HV60 (6.35 x 5.588 x 5.08) | 27 pF – 5.6 nF | 27 pF – 1.5 nF | 12 pF – 390 pF | | | |
| HV61 (8.128 x 7.112 x 6.35) | 39 pF – 0.012 µF | 39 pF – 1.8 nF | 22 pF – 1 nF | 22 pF – 470 pF | | |
| HV62 (9.398 x 7.62 x 6.35) | 47 pF – 0.018 µF | 47 pF – 8.2 nF | 27 pF – 1.2 nF | 27 pF – 680 pF | | |
| HV63 (11.938 x 10.16 x 6.858) | 120 pF – 0.039 µF | 120 pF – 4.7 nF | 47 pF – 2.2 nF | 47 pF – 1.5 nF | 47 pF – 1 nF | |
| HV64 (14.478 x 12.7 x 6.858) | 220 pF – 0.068 µF | 220 pF – 0.047 µF | 100 pF – 4.7 nF | 100 pF – 3.3 nF | 100 pF – 1.8 nF | 100 pF – 1.2 nF |
| HV65 (17.018 x 15.24 x 6.858) | | 330 pF – 0.018 µF | 150 pF – 0.01 µF | 150 pF – 4.7 nF | 150 pF – 3.3 nF | 150 pF – 2.2 nF |
| HV66 (19.558 x 18.288 x 6.858) | | 470 pF – 0.027 µF | 470 pF – 0.01 µF | 270 pF – 8.2 nF | 270 pF – 4.7 nF | 270 pF – 3.3 nF |

### BR and BZ

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 500 | 600 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 |
| HV60 (6.35 x 5.588 x 5.08) | 680 pF – 0.027 µF | | 680 pF – 0.012 µF | 270 pF – 4.7 nF | | | |
| HV61 (8.128 x 7.112 x 6.35) | | 1.2 nF – 0.082 µF | 1.2 nF – 0.047 µF | 560 pF – 0.01 µF | 560 pF – 3.3 nF | | |
| HV62 (9.398 x 7.62 x 6.35) | | 1.2 nF – 0.1 µF | 1.2 nF – 0.1 µF | 680 pF – 0.01 µF | 680 pF – 3.9 nF | | |
| HV63 (11.938 x 10.16 x 6.858) | | 3.3 nF – 0.33 µF | 3.3 nF – 0.33 µF | 1.2 nF – 0.033 µF | 1.2 nF – 0.015 µF | 270 pF – 6.8 nF | |
| HV64 (14.478 x 12.7 x 6.858) | | 6.8 nF – 0.47 µF | 6.8 nF – 0.47 µF | 2.7 nF – 0.1 µF | 2.7 nF – 0.022 µF | 470 pF – 0.01 µF | 470 pF – 6.8 nF |
| HV65 (17.018 x 15.24 x 6.858) | | | 0.01 µF – 0.22 µF | 3.9 nF – 0.082 µF | 3.9 nF – 0.033 µF | 680 pF – 0.015 µF | 680 pF – 0.01 µF |
| HV66 (19.558 x 18.288 x 6.858) | | | 0.01 µF – 0.47 µF | 6.8 nF – 0.15 µF | 6.8 nF – 0.056 µF | 1.2 nF – 0.027 µF | 1.2 nF – 0.015 µF |
| HV68 (33.02 x 15.24 x 6.858) | | | | | 5.6 nF – 0.068 µF | 2.2 nF – 0.039 µF | 2.2 nF – 0.022 µF |
| HV69 (38.1 x 18.288 x 6.858) | | | | | 8.2 nF – 0.1 µF | 3.3 nF – 0.056 µF | 3.3 nF – 0.056 µF |

## MIL-PRF • Leaded (cont.)

### SCA Series, Axial, C³ Technology, C0G Dielectric, 50 – 200 VDC

**Capacitance Range:** 10 pF to 0.1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SCA-C0G**

| S | C | A | 69 | B | 104 | J | W | S | |
|---|---|---|---|---|---|---|---|---|---|
| Specification/ Series | Dielectric | Lead Configuration | Style/Size | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance[1] | Lead Finish[2] | Screening Option | Packaging/Grade (C-Spec) |
| S=Standard | C = C0G | A = Axial | 16<br>25<br>39<br>50<br>69 | B = 50<br>D = 100<br>F = 200 | 2 significant digits + number of zeros<br>Use 9 for 1.0 – 9.9 pF<br>Use 8 for 0.5 – .99 pF<br>ex. 2.2 pF = 229<br>ex. 0.5 pF = 508 | J = ±5%<br>K = ±10%<br>M = ±20% | W = SnPb (60/40)<br>G = Au | S = Standard<br>A = Group A (MIL–PRF–20) | Blank = Tray |

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| 16 (4.32 x 2.03 x 2.03) | 1 pF – 820 pF | 1 pF – 560 pF | 1 pF – 220 pF |
| 25 (6.86 x 2.54 x 2.54) | 56 pF – 4.7 nF | 56 pF – 4.7 nF | 56 pF – 1.2 nF |
| 39 (10.16 x 3.81 x 3.81) | 150 pF – 0.015 µF | 150 pF – 0.015 µF | 150 pF – 8.2 nF |
| 50 (13.21 x 6.73 x 4.06) | 390 pF – 0.039 µF | 390 pF – 0.033 µF | 390 pF – 0.022 µF |
| 69 (18.29 x 9.4 x 4.06) | 820 pF – 0.1 µF | 820 pF – 0.1 µF | 820 pF – 0.068 µF |

### SCR Series, Radial, C³ Technology, C0G Dielectric, 50 – 200 VDC

**Capacitance Range:** 12 pF to 0.15 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SCR-C0G**


| S | C | R | 09 | D | 184 | J | W | S | |
|---|---|---|---|---|---|---|---|---|---|
| Specification/ Series | Dielectric | Lead Configuration | Style/Size | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance[1] | Lead Finish[2] | Screening Option | Packaging/Grade (C-Spec) |
| S=Standard | C = C0G | R =Radial | 05<br>06<br>07<br>08<br>09 | B = 50<br>D = 100<br>F = 200 | 2 significant digits + number of zeros<br>Use 9 for 1.0 – 9.9 pF<br>Use 8 for 0.5 – .99 pF<br>ex. 2.2 pF = 229<br>ex. 0.5 pF = 508 | J = ±5%<br>K = ±10%<br>M = ±20% | W = SnPb (60/40)<br>G = Au | S = Standard<br>A = Group A (MIL–PRF–20) | Blank = Tray |

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| 05 (5.08 x 5.08 x 2.54) | 10 pF – 0.015 µF | 10 pF – 0.015 µF | 10 pF – 5.6 nF |
| 06 (7.62 x 7.62 x 2.54) | 270 pF – 0.022 µF | 270 pF – 0.022 µF | 270 pF – 0.012 µF |
| 07 (7.62 x 7.62 x 3.81) | 270 pF – 0.068 µF | 270 pF – 0.033 µF | 270 pF – 0.018 µF |
| 08 (12.7 x 12.7 x 2.54) | 270 pF – 0.1 µF | 270 pF – 0.082 µF | 270 pF – 0.068 µF |
| 09 (12.7 x 12.7 x 3.81) | 270 pF – 0.1 µF | 270 pF – 0.1 µF | 270 pF – 0.068 µF |

## MIL-PRF • Leaded (cont.)

### SRA Series, Axial, C[3] Technology, X7R Dielectric, 50 – 200 VDC

**Capacitance Range:** 1,000 pF to 5.6 µF • **Temperature Range:** −55°C to +125°C

www.kemet.com/SRA-X7R

| S | R | A | 69 | B | 475 | J | W | S | |
|---|---|---|---|---|---|---|---|---|---|
| Specification/ Series | Dielectric | Lead Configuration | Style/Size | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance[1] | Lead Finish[2] | Screening Option | Packaging/Grade (C-Spec) |
| S=Standard | R = X7R | A = Axial | 16<br>25<br>39<br>50<br>69 | B = 50<br>D = 100<br>F = 200 | 2 significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | W = SnPb (60/40)<br>G = Au | S = Standard<br>A = Group A (MIL–PRF–39014) | Blank = Tray |

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| 16 (4.32 x 2.03 x 2.03) | 100 pF – 0.047 µF | 100 pF – 0.027 µF | 100 pF – 5.6 nF |
| 25 (6.86 x 2.54 x 2.54) | 100 pF – 0.27 µF | 100 pF – 0.22 µF | 100 pF – 0.047 µF |
| 39 (10.16 x 3.81 x 3.81) | 180 pF – 1 µF | 180 pF – 0.68 µF | 180 pF – 0.15 µF |
| 50 (13.21 x 6.73 x 4.06) | 390 pF – 2.2 µF | 390 pF – 1.5 µF | 390 pF – 0.47 µF |
| 69 (18.29 x 9.4 x 4.06) | 820 pF – 4.7 µF | 820 pF – 2.7 µF | 820 pF – 0.68 µF |

### SRR Series, Radial, C[3] Technology, X7R Dielectric, 50 – 200 VDC

**Capacitance Range:** 680 pF to 4.7 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/SRR-X7R**


| S | R | R | 09 | D | 475 | J | W | S | |
|---|---|---|---|---|---|---|---|---|---|
| Specification/ Series | Dielectric | Lead Configuration | Style/Size | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance[1] | Lead Finish[2] | Screening Option | Packaging/ Grade (C-Spec) |
| S=Standard | R = X7R | R =Radial | 05<br>06<br>07<br>08<br>09 | B = 50 V<br>D = 100 V<br>F = 200 V | 2 significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | W = SnPb (60/40)<br>G = Au | S = Standard<br>A = Group A (MIL–PRF–39014) | Blank = Tray |

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| 05 (5.08 x 5.08 x 2.54) | 100 pF – 0.68 µF | 100 pF – 0.68 µF | 100 pF – 0.22 µF |
| 06 (7.62 x 7.62 x 2.54) | 330 pF – 0.56 µF | 330 pF – 0.56 µF | 330 pF – 0.22 µF |
| 07 (7.62 x 7.62 x 3.81) | 330 pF – 2.2 µF | 330 pF – 1.5 µF | 330 pF – 0.82 µF |
| 08 (12.7 x 12.7 x 2.54) | 680 pF – 4.7 µF | 680 pF – 4.7 µF | 680 pF – 1.8 µF |
| 09 (12.7 x 12.7 x 3.81) | 680 pF – 6.8 µF | 680 pF – 4.7 µF | 680 pF – 2.7 µF |

## Space Quality

### MIL-PRF-123, BP and BX Dielectric, Molded Radial, 50 – 100 VDC

**Capacitance Range:** 4.7 pF to 1 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/MIL-123-Radial**


| C | 052 | Z | 102 | K | 5 | G | 5 | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Design | Lead Finish | Failure Rate |
| | 052<br>062<br>512 | Z = MIL-PRF-123 | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10% | 5 = 50<br>1= 100 | G = BP (Ultra-stable)<br>X = BX (Stable) | 5 = Standard | C = Solder coated copper (standard) | A = N/A |

### MIL–PRF–123

| M123 | A | 01 | BX | B | 103 | K | C |
|---|---|---|---|---|---|---|---|
| Series | Specification/ Series | Style/Size | Dielectric | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance | Lead Finish |
| M123 = MIL-PRF | A = Indicates the latest characteristics of the part in the specification sheet. | 01 = 052<br>02 = 062<br>03 = 512 | BP = G (Ultra-stable)<br>BX = X (Stable) | B = 50<br>C= 100 | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>J = ±5%<br>K = ±10% | C = Solder coated copper |

### BP

| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| C052 (4.83 x 4.83 x 2.29) | 270 pF – 3.3 nF | 4.7 pF – 1.8 nF |
| C062 (7.37 x 7.37 x 2.29) | 2.7 nF – 0.018 µF | 270 pF – 4.7 nF |
| C512 (12.19 x 12.19 x 3.56) | 0.011 µF – 0.1 µF | 2.7 nF – 0.018 µF |

### BX

| Case Size | Voltage | |
|---|---|---|
| | 50 | 100 |
| C052 (4.83 x 4.83 x 2.29) | 5.6 nF – 0.01 µF | 270 pF – 4.7 nF |
| C062 (7.37 x 7.37 x 2.29) | 0.056 µF – 1 µF | 5.6 nF – 0.1 µF |
| C512 (12.19 x 12.19 x 3.56) | 0.56 µF – 1 µF | 0.056 µF – 0.47 µF |

## Space Quality (cont.)

### GR900 High Reliability, BP and BX Dielectric, Molded Radial, 50 – 200 VDC

**Capacitance Range:** 1 pF to 3.3 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/GR900-Radial**


| C | 052 | B | 223 | K | 1 | X | 5 | C | A |
|---|---|---|---|---|---|---|---|---|---|
| Ceramic | Style/Size | Specification/ Series | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Dielectric | Design | Lead Finish | Failure Rate |
| | 052<br>062<br>512 | B = Leaded devices | Two significant digits + number of zeros<br>Use 9 for 1.0 - 9.9 pF<br>ex. 0.5 pF = 508<br>ex. 2.2 pF = 229<br>Use 8 for 0.5 - 0.99 pF | C = ±0.25 pF<br>D = ±0.5 pF<br>F = ±1%<br>G = ±2%<br>J = ±5%<br>K = ±10%<br>M = ±20% | 1 = 100<br>2 = 200<br>5 = 50 | G = C0G (CG, BP)<br>X = X7R (BX) | 5 = Standard | C = Solder coated copper (standard) | A = N/A |

#### BP

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.83 x 4.83 x 2.29) | 6.2 nF – 6.8 nF | 1.6 nF – 5.6 nF | 1 pF – 1.5 nF |
| C062 (7.37 x 7.37 x 2.29) | | 7.5 nF – 0.024 µF | 270 pF – 6.8 nF |
| C512 (12.19 x 12.19 x 3.56) | 0.12 µF – 0.15 µF | 0.039 µF – 0.1 µF | 2 nF – 0.033 µF |

#### BX

| Case Size | Voltage | | |
|---|---|---|---|
| | 50 | 100 | 200 |
| C052 (4.83 x 4.83 x 2.29) | 0.056 µF – 0.12 µF | 0.018 µF – 0.047 µF | 470 pF – 0.015 µF |
| C062 (7.37 x 7.37 x 2.29) | 0.27 µF – 1 µF | 0.082 µF – 0.22 µF | 3.3 nF – 0.068 µF |
| C512 (12.19 x 12.19 x 3.56) | 1.2 µF – 3.3 µF | 0.47 µF – 1 µF | 0.039 µF – 0.39 µF |

## Space Quality (cont.)

### HS High Voltage, C0G and X7R, Radial, 500 – 10,000 VDC

**Capacitance Range:** 12 pF to 5.6 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/HS**


| 10 | HS24 | B | 103 | K | C | F |
|---|---|---|---|---|---|---|
| Rated Voltage (VDC) | Style/Size | Dielectric | Capacitance Code (pF) | Capacitance Tolerance | Grade/ Test Level | Lead Finish |
| 05 = 500<br>10 = 1,000<br>20 = 2,000<br>30 = 3,000<br>40 = 4,000<br>50 = 5,000<br>75 = 7,500<br>100 = 10,000 | HS20 – HS36 | B = X7R<br>N = BP C0G (NP0) | 2 significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20%<br>P = 0/+100%<br>Z = -20%/+80% | C = CSAM | INERT LIQUID (BURN-IN) Standard for > 2kV; Add "F" if required for 500 V or 1 kV parts |

### C0G

| Case Size | Voltage | | | |
|---|---|---|---|---|
| | 500 | 1,000 | 2,000 | 3,000 |
| HS20 (6.35 x 5.59 x 5.08) | 27 pF – 4.7 nF | 27 pF – 2.7 nF | 12 pF – 470 pF | |
| HS21 (8.13 x 7.11 x 6.35) | 39 pF – 8.2 nF | 39 pF – 5.6 nF | 22 pF – 1.2 nF | |
| HS22 (9.4 x 7.62 x 6.35) | 47 pF – 0.012 µF | 47 pF – 5.6 nF | 27 pF – 1.5 nF | |
| HS23 (11.94 x 10.16 x 6.89) | 120 pF – 0.033 µF | 120 pF – 0.022 µF | 47 pF – 2.7 nF | 47 pF – 1.8 nF |
| HS24 (14.48 x 12.7 x 6.89) | 220 pF – 0.056 µF | 220 pF – 0.047 µF | 100 pF – 5.6 nF | 100 pF – 3.3 nF |
| HS25 (17.02 x 15.24 x 6.89) | 390 pF – 0.1 µF | 390 pF – 0.047 µF | 150 pF – 0.01 µF | 150 pF – 6.8 nF |
| HS26 (19.56 x 18.29 x 6.89) | 470 pF – 0.15 µF | 470 pF – 0.068 µF | 270 pF – 0.022 µF | 270 pF – 0.01 µF |
| HS30 (11.43 x 5.59 x 5.08) | 68 pF – 0.012 µF | 68 pF – 5.6 nF | 15 pF – 1 nF | 15 pF – 390 pF |
| HS31 (13.97 x 7.11 x 6.35) | 82 pF – 0.022 µF | 82 pF – 0.012 µF | 27 pF – 1.2 nF | 27 pF – 1.2 nF |
| HS33 (21.59 x 10.16 x 6.89) | 330 pF – 0.082 µF | 330 pF – 0.047 µF | 68 pF – 3.9 nF | 68 pF – 2.7 nF |
| HS34 (26.67 x 12.7 x 6.89) | 470 pF – 0.15 µF | 470 pF – 0.068 µF | 120 pF – 8.2 nF | 120 pF – 5.6 nF |
| HS35 (31.75 x 15.24 x 6.89) | 680 pF – 0.12 µF | 680 pF – 0.1 µF | 220 pF – 0.012 µF | 220 pF – 8.2 nF |
| HS36 (36.83 x 18.29 x 6.89) | 1 nF – 0.18 µF | 1 nF – 0.068 µF | 270 pF – 0.018 µF | 270 pF – 0.012 µF |

### C0G (cont.)

| Case Size | Voltage | | | |
|---|---|---|---|---|
| | 4,000 | 5,000 | 7,500 | 10,000 |
| HS24 (14.48 x 12.7 x 6.89) | 15 pF – 1 nF | 15 pF – 560 pF | | |
| HS25 (17.02 x 15.24 x 6.89) | 27 pF – 1.8 nF | 27 pF – 1.5 nF | | |
| HS26 (19.56 x 18.29 x 6.89) | 47 pF – 2.7 nF | 47 pF – 2.2 nF | | |
| HS33 (21.59 x 10.16 x 6.89) | 27 pF – 1.5 nF | 27 pF – 1.2 nF | | |
| HS34 (26.67 x 12.7 x 6.89) | 47 pF – 3.3 nF | 47 pF – 2.2 nF | 18 pF – 820 pF | |
| HS35 (31.75 x 15.24 x 6.89) | 82 pF – 4.7 nF | 82 pF – 3.9 nF | 33 pF – 1.2 nF | 33 pF – 1 nF |
| HS36 (36.83 x 18.29 x 6.89) | 120 pF – 0.01 µF | 120 pF – 6.8 nF | 56 pF – 2.7 nF | 56 pF – 1.5 nF |

## Space Quality (cont.)

### HS High Voltage, C0G and X7R, Radial, 500 – 10,000 VDC (cont.)

**Capacitance Range:** 12 pF to 5.6 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/HS**


| 10 | HS24 | B | 103 | K | C | F |
|---|---|---|---|---|---|---|
| Rated Voltage (VDC) | Style/Size | Dielectric | Capacitance Code (pF) | Capacitance Tolerance | Grade/ Test Level | Lead Finish |
| 05 = 500<br>10 = 1,000<br>20 = 2,000<br>30 = 3,000<br>40 = 4,000<br>50 = 5,000<br>75 = 7,500<br>100 = 10,000 | HS20 – HS36 | B = X7R<br>N = BP C0G (NP0) | 2 significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20%<br>P = 0/+100%<br>Z = -20%/+80% | C = CSAM | INERT LIQUID (BURN-IN) Standard for > 2kV; Add "F" if required for 500 V or 1 kV parts |

### X7R

| Case Size | Voltage | | | |
|---|---|---|---|---|
| | 500 | 1,000 | 2,000 | 3,000 |
| HS20 (6.35 x 5.59 x 5.08) | 680 pF – 0.047 µF | 680 pF – 0.012 µF | 270 pF – 4.7 nF | |
| HS21 (8.13 x 7.11 x 6.35) | 1.2 nF – 0.15 µF | 1.2 nF – 0.047 µF | 560 pF – 0.01 µF | |
| HS22 (9.4 x 7.62 x 6.35) | 1.2 nF – 0.22 µF | 1.2 nF – 0.1 µF | 680 pF – 0.01 µF | |
| HS23 (11.94 x 10.16 x 6.89) | 3.3 nF – 0.56 µF | 3.3 nF – 0.27 µF | 1.2 nF – 0.033 µF | 1.2 nF – 0.015 µF |
| HS24 (14.48 x 12.7 x 6.89) | 6.8 nF – 0.47 µF | 6.8 nF – 0.47 µF | 2.7 nF – 0.1 µF | 2.7 nF – 0.012 µF |
| HS25 (17.02 x 15.24 x 6.89) | 0.01 µF – 1 µF | 0.01 µF – 0.47 µF | 3.9 nF – 0.068 µF | 3.9 nF – 0.022 µF |
| HS26 (19.56 x 18.29 x 6.89) | 0.015 µF – 2.7 µF | 0.015 µF – 1 µF | 6.8 nF – 0.18 µF | 6.8 nF – 0.056 µF |
| HS30 (11.43 x 5.59 x 5.08) | 1.8 nF – 0.082 µF | 1.8 nF – 0.018 µF | 390 pF – 3.3 nF | 390 pF – 1.2 nF |
| HS31 (13.97 x 7.11 x 6.35) | 2.7 nF – 0.33 µF | 2.7 nF – 0.1 µF | 560 pF – 0.01 µF | 560 pF – 8.2 nF |
| HS33 (21.59 x 10.16 x 6.89) | 0.01 µF – 1.5 µF | 0.01 µF – 0.22 µF | 1.8 nF – 0.033 µF | 1.8 nF – 0.015 µF |
| HS34 (26.67 x 12.7 x 6.89) | 0.012 µF – 1.2 µF | 0.012 µF – 1.2 µF | 3.3 nF – 0.068 µF | 3.3 nF – 0.027 µF |
| HS35 (31.75 x 15.24 x 6.89) | 0.018 µF – 2.7 µF | 0.018 µF – 0.47 µF | 5.6 nF – 0.27 µF | 5.6 nF – 0.068 µF |
| HS36 (36.83 x 18.29 x 6.89) | 0.027 µF – 5.6 µF | 0.027 µF – 2.2 µF | 8.2 nF – 0.15 µF | 8.2 nF – 0.15 µF |

### X7R (cont.)

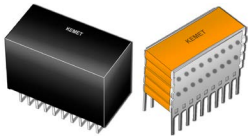
| Case Size | Voltage | | | | |
|---|---|---|---|---|---|
| | 4,000 | 5,000 | 7,000 | 7,500 | 10,000 |
| HS25 (17.02 x 15.24 x 6.89) | 680 pF – 0.01 µF | 680 pF – 0.01 µF | | | |
| HS26 (19.56 x 18.29 x 6.89) | 1.2 nF – 0.015 µF | 1.2 nF – 0.015 µF | | | |
| HS30 (11.43 x 5.59 x 5.08) | | | | | |
| HS33 (21.59 x 10.16 x 6.89) | 680 pF – 6.8 nF | 680 pF – 4.7 nF | | 220 pF – 4.7 nF | |
| HS34 (26.67 x 12.7 x 6.89) | 1.2 nF – 0.015 µF | 1.2 nF – 0.015 µF | | 470 pF – 3.3 nF | |
| HS35 (31.75 x 15.24 x 6.89) | 2.2 nF – 0.022 µF | 2.2 nF – 0.012 µF | | 820 pF – 0.01 µF | 820 pF – 3.3 nF |
| HS36 (36.83 x 18.29 x 6.89) | 3.3 nF – 0.068 µF | 3.3 nF – 0.039 µF | 1.2 nF – 0.033 µF | | 1.2 nF – 0.033 µF |

## Space Quality (cont.)

### KPS MIL Series (MIL-PRF-49470, DLA Drawing 87106), SMPS Stacked Capacitors, 25 – 1,000 VDC

**Capacitance Range:** 0.047 to 75 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/Stack-MIL**



| L1 | R | N | 30 | C | 106 | K | S | 12 | |
|---|---|---|---|---|---|---|---|---|---|
| Product Family[1] | Dielectric Classification/ Characteristic[2] | Lead Configuration[3] | Case Size/ Case Code (CC) | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance | Testing Option[4] | Maximum Height Dimension (in.)[5] | |
| L1 = Unencapsulated<br>L2 = Encapsulated | Q = BQ<br>R = BR<br>X = BX<br>W = X7R | N = Straight<br>L = Formed "L"<br>M = Formed "L"<br>J = Formed "J"<br>K = Formed "J" | 30 = CC 3<br>40 = CC 4<br>50 = CC 5 | 3 = 25<br>5 = 50<br>1 = 100<br>2 = 200<br>C = 500<br>B = 630<br>D = 1,000 | Two significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | B = M49470 "B" Level<br>T = M49470 "T" Level<br>C = DSCC87106<br>S = Commercial<br>X = Non-Standard (Customer Specific Requirements) | Unencapsulated<br>12 = 0.12"<br>24 = 0.24"<br>36 = 0.36"<br>48 = 0.48"<br>65 = 0.65" | Encapsulated<br>27 = 0.27"<br>39 = 0.39"<br>53 = 0.53"<br>66 = 0.66"<br>80 = 0.80" |

### MIL-PRF-49470, DSCC 87106

| M49470 | R | 01 | 474 | K | C | N |
|---|---|---|---|---|---|---|
| Performance Specification Indicating MIL–PRF–49470[1] | Dielectric Classification/ Characteristic[2] | Performance Specification Sheet Number (Indicating MIL–PRF–49470/1)[3] | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Lead Configuration[4] |
| M49470 = B level<br>T49470 = T level<br>A "T" prefix is used in place of the "M" for T level product. | Q = BQ<br>R = BR<br>X = BX | 01 = Unencapsulated<br>02 = Encapsulated | Two significant digits + number of zeros | J = ±5%<br>K = ±10%<br>M = ±20% | A = 50<br>B = 100<br>C = 200<br>E = 500 | N = Straight Pin<br>L = Formed "L"<br>M = Formed "L"<br>J = Formed "J"<br>K = Formed "J" |

#### BQ

| Case Size | Voltage | |
|---|---|---|
| | 200 | 500 |
| 3 | 2.4 µF – 27 µF | 2.2 µF – 5.6 µF |
| 4 | 0.82 µF – 10 µF | 0.82 µF – 1.8 µF |
| 5 | 0.33 µF – 3.3 µF | 0.15 µF – 0.68 µF |

#### BX

| Case Size | Voltage | | |
|---|---|---|---|
| | 25 | 50 | 100 |
| 3 | 6.8 µF – 75 µF | 6.8 µF – 75 µF | 10 µF – 27 µF |
| 4 | 2.2 µF – 24 µF | 2.2 µF – 24 µF | 3.9 µF – 8.2 µF |
| 5 | 0.82 µF – 7.5 µF | 0.82 µF – 7.5 µF | 0.68 µF – 3.3 µF |

#### BR

| Case Size | Voltage | |
|---|---|---|
| | 100 | 200 |
| 3 | 5.6 µF – 50 µF | 4.7 µF – 12 µF |
| 4 | 1.5 µF – 18 µF | 1.8 µF – 3.9 µF |
| 5 | 0.56 µF – 6 µF | 0.47 µF – 1.5 µF |

#### X7R

| Case Size | Voltage | | |
|---|---|---|---|
| | 500 | 630 | 1,000 |
| 3 | 1 µF – 12 µF | 0.22 µF – 6.8 µF | 0.1 µF – 3.3 µF |
| 4 | 0.39 µF – 3.9 µF | 0.1 µF – 2.2 µF | 0.1 µF – 1 µF |
| 5 | 0.12 µF – 1.5 µF | 6.8 nF – 0.75 µF | 4.7 nF – 0.39 µF |

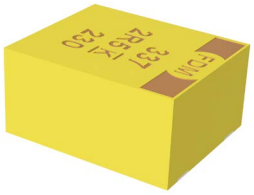
# Tantalum Capacitors

## High Reliability Commercial Off-the-Shelf (COTS)

### T428 COTS High Volumetric Efficiency Facedown $MnO_2$

**Capacitance Range:** 15 to 470 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T428**



| T | 428 | P | 227 | K | 006 | A | H | 61 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR |
| T = Tantalum | High Volumetric Efficiency Facedown Hi-Rel $MnO_2$ COTS | P | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | A = N/A<br>B = 0.1%/1,000 hours | H = Standard solder coated (SnPb 5% Pb)<br>T = 100% tin (Sn) | 61 = None<br>62 = 10 cycles, 25°C<br>63 = 10 cycles, −55°C and 85°C | 10 = Standard<br>20 = Low<br>30 = Ultra-low |

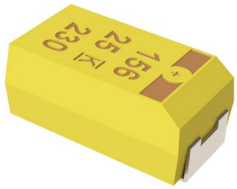
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| P/7260 – 35 | 470 µF | 390 µF – 470 µF | 330 µF | 180 µF – 220 µF | 150 µF | 68 µF | 22 µF | 15 µF |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T493 (CWR11 Style) COTS $MnO_2$

**Capacitance Range:** 0.1 µF to 470 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T493-COTS**



| T | 493 | D | 227 | K | 006 | C | H | 61 | 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR | Packaging (C-Spec) |
| T = Tantalum | Military COTS | A, B, C, D, E, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A<br>B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | C = Hot solder dipped<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>B = Gold plated<br>K = Solder fused<br>T = 100% Tin<br>N = Non-magnetic 100% Tin (Sn)<br>M = Non-magnetic (SnPb) | 61 = None<br>62 = 10 Cycles after Weibull, 25°C<br>63 = 10 cycles after Weibull, −55°C and 85°C after Weibull<br>64 = 10 cycles before Weibull,−55° and +85°C | 10 = ESR – Standard<br>20 = ESR – Low<br>30 = ESR – Ultra low | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### DLA Drawing 07016

| 07016- | 001 | K | B | H | A |
|---|---|---|---|---|---|
| Drawing Number | Dash Number | Capacitance Tolerance | Reliability Grade | Termination Finish | Surge |
| | See Part Number Table | J = ±5%<br>K = ±10%<br>M = ±20% | B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | C = Hot solder dipped<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>B = Gold plated | A = + 25°C after Weibull<br>B = −55°C and +85°C after Weibull<br>C = −55°C and + 85°C before Weibull<br>Z or no option= No test required |

### F-Tech and Simulated Breakdown Screening (SBDS)

| T | 493 | D | 226 | K | 020 | C | H | 61 | 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | Screening/ESR | Packaging (C-Spec) |
| T = Tantalum | Military COTS | A, B, C, D, E, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A<br>B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | C = Hot solder dipped<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>B = Gold plated K = Solder fused<br>K = Solder fused<br>T = 100% Tin<br>N = Non-magnetic 100% Tin (Sn)<br>M = Non-magnetic (SnPb) | 61 = None<br>62 = 10 Cycles after Weibull, 25°C<br>63 = 10 cycles after Weibull, −55°C and 85°C after Weibull<br>64 = 10 cycles before Weibull, −55° and +85°C | 11 = F-Tech + SBDS *<br>12 = SBDS<br>13 = F-Tech *<br>21 = Low ESR + 11<br>22= Low ESR + 12<br>23 = Low ESR + 13<br>31= Ultra Low ESR + 11<br>32 = Ultra Low ESR + 12<br>33 = Ultra Low ESR + 13 | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### T493

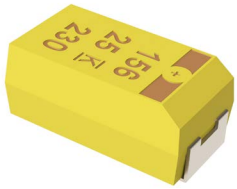
| Case Size | Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 | 63 |
| A/3216 – 18 | 2.2 µF – 33 µF | 1.5 µF – 22 µF | 1 µF – 15 µF | 680 nF – 6.8 µF | 470 nF – 3.3 µF | 330 nF – 1 µF | 100 nF – 1 µF | 100 nF – 220 nF | |
| B/3528 – 21 | 6.8 µF – 100 µF | 4.7 µF – 100 µF | 3.3 µF – 15 µF | 3.3 µF – 22 µF | 1.5 µF – 6.8 µF | 680 nF – 6.8 µF | 470 nF – 3.3 µF | 150 nF – 470 nF | |
| C/6032 – 28 | 22 µF – 150 µF | 15 µF – 220 µF | 10 µF – 100 µF | 6.8 µF – 47 µF | 4.7 µF – 22 µF | 2.2 µF – 15 µF | 1.5 µF – 10 µF | 470 nF – 2.2 µF | |
| D/7343 – 31 | 68 µF – 330 µF | 47 µF – 330 µF | 33 µF – 220 µF | 22 µF – 150 µF | 15 µF – 68 µF | 6.8 µF – 47 µF | 4.7 µF – 33 µF | 1.5 µF – 6.8 µF | |
| E/7360 – 38 | | | | | | | 47 µF | | |
| X/7343 – 43 | 330 µF | 220 µF – 470 µF | 68 µF – 470 µF | 100 µF – 220 µF | 47 µF – 68 µF | 15 µF – 68 µF | 10 µF – 47 µF | 4.7 µF – 15 µF | 6.8 µF – 10 µF |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T493 (CWR11 Style) COTS $MnO_2$ (cont.)

**Capacitance Range:** 0.1 µF to 470 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T493-COTS**



| T | 493 | D | 227 | K | 006 | C | H | 61 | 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR | Packaging (C-Spec) |
| T = Tantalum | Military COTS | A, B, C, D, E, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A<br>B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | C = Hot solder dipped<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>B = Gold plated<br>K = Solder fused<br>T = 100% Tin<br>N = Non-magnetic 100% Tin (Sn)<br>M = Non-magnetic (SnPb) | 61 = None<br>62 = 10 Cycles after Weibull, 25°C<br>63 = 10 cycles after Weibull, −55°C and 85°C after Weibull<br>64 = 10 cycles before Weibull,−55° and +85°C | 10 = ESR – Standard<br>20 = ESR – Low<br>30 = ESR – Ultra low | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### DLA Drawing 07016

| 07016- | 001 | K | B | H | A |
|---|---|---|---|---|---|
| Drawing Number | Dash Number | Capacitance Tolerance | Reliability Grade | Termination Finish | Surge |
| | See Part Number Table | J = ±5%<br>K = ±10%<br>M = ±20% | B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | C = Hot solder dipped<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>B = Gold plated | A = + 25°C after Weibull<br>B = −55°C and +85°C after Weibull<br>C = −55°C and + 85°C before Weibull<br>Z or no option= No test required |

### F-Tech and Simulated Breakdown Screening (SBDS)

| T | 493 | D | 226 | K | 020 | C | H | 61 | 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | Screening/ESR | Packaging (C-Spec) |
| T = Tantalum | Military COTS | A, B, C, D, E, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A<br>B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | C = Hot solder dipped<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>B = Gold plated K = Solder fused<br>K = Solder fused<br>T = 100% Tin<br>N = Non-magnetic 100% Tin (Sn)<br>M = Non-magnetic (SnPb) | 61 = None<br>62 = 10 Cycles after Weibull, 25°C<br>63 = 10 cycles after Weibull, −55°C and 85°C after Weibull<br>64 = 10 cycles before Weibull, −55° and +85°C | 11 = F-Tech + SBDS *<br>12 = SBDS<br>13 = F-Tech *<br>21 = Low ESR + 11<br>22= Low ESR + 12<br>23 = Low ESR + 13<br>31= Ultra Low ESR + 11<br>32 = Ultra Low ESR + 12<br>33 = Ultra Low ESR + 13 | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### DLA Drawing 07016

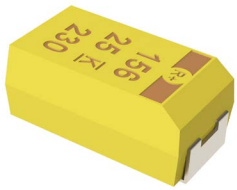
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| A/3216 – 18 | 33 µF – 100 µF | 3.3 µF – 22 µF | 4.7 µF – 15 µF | 2.2 µF – 10 µF | 1.5 µF – 4.7 µF | 680 nF – 4.7 µF | 470 nF – 1.5 µF | 150 nF – 680 nF |
| B/3528 – 21 | 100 µF | 22 µF – 68 µF | 15 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF – 10 µF | 2.2 µF – 4.7 µF | 1.5 µF – 4.7 µF | 470 nF – 1 µF |
| C/6032 – 28 | | 47 µF – 100 µF | 22 µF – 100 µF | 22 µF – 47 µF | 10 µF – 22 µF | 6.8 µF – 22 µF | 6.8 µF – 15 µF | 1.5 µF |
| D/7343 – 31 | | 150 µF – 220 µF | 68 µF – 220 µF | 68 µF – 150 µF | 33 µF – 68 µF | 22 µF – 47 µF | 4.7 µF – 33 µF | 1.5 µF – 6.8 µF |
| E/7360 – 38 | | | | 150 µF – 220 µF | | 68 µF | 47 µF | |
| X/7343 – 43 | | 330 µF – 470 µF | 220 µF – 470 µF | | 68 µF | | 33 µF – 47 µF | 6.8 µF |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T495 COTS Surge Robust $MnO_2$

**Capacitance Range:** 4.7 to 220 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T495-COTS**



| T | 495 | X | 107 | M | 010 | A | H | 4095 | |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Customer Specification | Packaging (C-Spec) |
| T = Tantalum | Surge Robust Low ESR | C, D, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | A = N/A | H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated | Tested to meet the Established Reliability | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### DLA Drawing 95158

| 95158- | 07 | M | H |
|---|---|---|---|
| Drawing Number | Dash Number | Capacitance Tolerance | Termination Finish |
| Capacitor, Fixed, Tantalum Chip, Low ESR | See Part Number List | K = ±10%<br>M = ±20% | H = Solder Plated<br>B= Gold Plated |

### T495

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| C/6032 – 28 | | | | | | 4.7 µF | |
| D/7343 – 31 | 68 µF – 220 µF | 47 µF – 150 µF | 33 µF – 47 µF | 15 µF – 22 µF | 15 µF | 10 µF | |
| X/7343 – 43 | 150 µF – 220 µF | 68 µF – 220 µF | 100 µF | 47 µF – 68 µF | 15 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF |

### DLA Drawing 95158

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| 6032 – 28 | | | | | | 4.7 µF | |
| 7343 – 31 | 68 µF – 220 µF | 47 µF – 150 µF | 33 µF – 47 µF | 15 µF – 22 µF | 15 µF | 10 µF | |
| 7343 – 43 | 150 µF – 220 µF | 68 µF – 220 µF | 100 µF | 47 µF – 68 µF | 15 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T496 COTS Fused $MnO_2$

**Capacitance Range:** 0.15 to 470 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T496-COTS**

| T | 496 | X | 227 | M | 010 | B | T | 61 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Performance | ESR | Packaging (C-Spec) |
| T = Tantalum | Fail Safe | B, C, D, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours<br>D = 0.001%/ 1,000 hours<br>A = Non-Weibull Graded | T = 100% Matte Tin (Sn) plated<br>H = Standard solder coated (SnPb 5% Pb minimum)<br>C = Hot solder dipped<br>K = Solder Fused | 61 = Surge None<br>62 = Surge at 25°C after Weibull<br>63 = Surge -55°C and +85°C after Weibull<br>64 = Surge -55°C and +85°C before Weibull | 10 = Standard<br>20 = Low | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### DLA Drawing 04053

| 04053- | 001 | B |
|---|---|---|
| Drawing Number | Dash Number | Reliability Grade |
| | See Part Number List | B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours<br>D = 0.001%/1,000 hours<br>Z = Non-Weibull Graded |

### T496

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| B/3528 – 21 | | 4.7 µF – 22 µF | 3.3 µF – 15 µF | 2.2 µF – 10 µF | 1.5 µF – 3.3 µF | 680 nF – 4.7 µF | 470 nF – 1 µF | 150 nF – 330 nF |
| C/6032 – 28 | 68 µF – 150 µF | 15 µF – 100 µF | 10 µF – 47 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 2.2 µF – 15 µF | 1.5 µF – 3.3 µF | 470 nF – 1.5 µF |
| D/7343 – 31 | 150 µF – 330 µF | 47 µF – 220 µF | 33 µF – 220 µF | 22 µF – 68 µF | 15 µF – 47 µF | 10 µF – 22 µF | 4.7 µF – 15 µF | 2.2 µF – 4.7 µF |
| X/7343 – 43 | 330 µF – 470 µF | 100 µF – 330 µF | 68 µF – 220 µF | 47 µF – 100 µF | 33 µF – 47 µF | 22 µF | 10 µF – 22 µF | 4.7 µF |

### DLA Drawing 04053

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| 3528 – 21 | | 4.7 µF – 22 µF | 3.3 µF – 15 µF | 2.2 µF – 10 µF | 1.5 µF – 3.3 µF | 680 nF – 1.5 µF | 470 nF – 1 µF | 150 nF – 330 nF |
| 6032 – 28 | 68 µF – 100 µF | 15 µF – 68 µF | 10 µF – 47 µF | 6.8 µF – 22 µF | 4.7 µF – 10 µF | 2.2 µF – 10 µF | 1.5 µF – 3.3 µF | 470 nF – 1.5 µF |
| 7343 – 31 | 150 µF – 330 µF | 47 µF – 220 µF | 33 µF – 150 µF | 22 µF – 47 µF | 15 µF – 22 µF | 10 µF – 22 µF | 4.7 µF – 6.8 µF | 2.2 µF – 3.3 µF |
| 7343 – 43 | 330 µF – 470 µF | 100 µF – 330 µF | 68 µF – 220 µF | 47 µF – 100 µF | 33 µF – 47 µF | 22 µF | 10 µF – 22 µF | |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T497 (CWR09/19/29 Style) COTS $MnO_2$

**Capacitance Range:** 0.1 to 150 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T497-COTS**

| T | 497 | G | 226 | K | 020 | A | H | 61 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | X-ray | Packaging (C-Spec) |
| T = Tantalum | High Grade COTS | A, B, C, D, E, F, G, H, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | A = N/A<br>B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | T = 100% Matte Tin (Sn) Plated<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated | 61 = Standard (in-process)<br>62 = 10 Cycles After Weibull, 25°C<br>63 = 10 Cycles After Weibull, −55° and 85°C<br>64 = 10 Cycles Before Weibull, −55° and 85°C | 10 = None<br>15 = 100% | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### F-Tech and Simulated Breakdown Screening (SBDS)

| T | 497 | H | 226 | K | 020 | A | H | 61 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | Design/Screening |
| T = Tantalum | High Grade COTS | H | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | A = N/A<br>B=0.1%/1,000 hours<br>C=.01%/1,000 hours | T = 100% Matte Tin (Sn) Plated<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated | 61 = Standard (in-process)<br>62 = 10 Cycles After Weibull, 25°C<br>63 = 10 Cycles After Weibull, −55° and 85°C<br>64 = 10 Cycles Before Weibull, −55° and 85°C | 10 = Standard<br>11 = F-Tech & SBDS<br>12 = SBDS<br>13 = F-Tech<br>15 = 100% X-ray<br>16 = F-Tech & SBDS & 100% X-ray<br>17 = SBDS & 100% X-ray<br>18 = F-Tech & 100% X-ray |

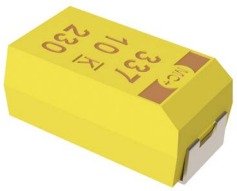
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/2513 – 16 | 4.7 µF | 1.5 µF – 4.7 µF | 470 nF – 3.3 µF | 100 nF – 2.2 µF | 150 nF – 1 µF | 330 nF – 470 nF | 220 nF – 330 nF | 100 nF – 150 nF |
| B/3813 – 16 | 4.7 µF – 15 µF | 3.3 µF – 15 µF | 2.2 µF – 10 µF | 1.5 µF – 4.7 µF | 680 nF – 2.2 µF | 680 nF – 1 µF | 470 nF | 220 nF – 330 nF |
| C/5113 – 16 | | | | | | 1 µF | 680 nF | 470 nF |
| D/3825 – 16 | 33 µF | 4.7 µF – 22 µF | 4.7 µF – 22 µF | 3.3 µF – 10 µF | 2.2 µF – 6.8 µF | 1.5 µF – 2.2 µF | 1 µF | 680 nF |
| E/5125 – 16 | 68 µF | 10 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 3.3 µF – 6.8 µF | 2.2 µF – 3.3 µF | 1.5 µF | 1 µF |
| F/5634 – 22 | 33 µF – 68 µF | 22 µF – 68 µF | 6.8 µF – 47 µF | 10 µF – 33 µF | 4.7 µF – 15 µF | 4.7 µF – 10 µF | 3.3 µF | 1.5 µF – 2.2 µF |
| G/6728 – 32 | 68 µF | 47 µF – 150 µF | 22 µF – 100 µF | 22 µF – 47 µF | 15 µF – 22 µF | 6.8 µF – 22 µF | 4.7 µF – 6.8 µF | 3.3 µF |
| H/7238 – 32 | 100 µF | 68 µF – 150 µF | 47 µF – 150 µF | 33 µF – 100 µF | 22 µF – 47 µF | 15 µF – 33 µF | 6.8 µF – 10 µF | 4.7 µF |
| X/6954 – 31 | | | | | | 22 µF – 33 µF | 15 µF | |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T513 COTS Multiple Anode $MnO_2$

**Capacitance Range:** 15 to 1,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T513-COTS**



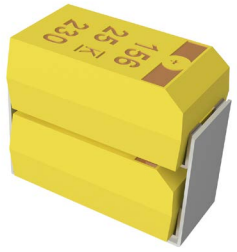
| T | 513 | X | 108 | K | 004 | B | H | 61 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR |
| T = Tantalum | Multiple Anode COTS | D, E, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35 | A = N/A<br>B = 0.1%/1,000 hours | C = Hot Solder Dipped<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated<br>K = Solder Fused<br>T = 100% Tin | 61 = None<br>62 = 10 cycles, 25°C after Weibull<br>63 = 10 cycles, −55°C & 85°C after Weibull<br>64 = 10 cycles, −55°C & 85°C before Weibull | 10 = Standard ESR<br>20 = Low ESR<br>30 = Ultra Low ESR |

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 |
| D/7343 – 31 | | | | 100 µF | | | 15 µF |
| E/7360 – 38 | 1 mF | 680 µF | | | | 100 µF | |
| X/7343 – 43 | 680 µF – 1 mF | 470 µF – 680 µF | 330 µF | 150 µF – 220 µF | 100 µF | 68 µF | 33 µF – 47 µF |

### Tantalum Stack $MnO_2$ (TSM)

**Capacitance Range:** 9.4 to 2,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/TSM**



| T | SM | 2D | 447 | K | 10 | A | H | 61 | 20 | D493 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR | C-Spec 2 |
| T = Tantalum | Stacks $MnO_2$ Cathode | 2C, 3C, 4C, 6C, 2D, 3D, 4D, 6D, 2X, 3X, 4X, 6X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | A = N/A<br>B = 0.1%/1,000 hours<br>C = 0.01%/1,000 hours | H = Standard Solder Coated (SnPb 5% Pb minimum)<br>C = Hot Solder Dipped<br>B = Gold Plated<br>T = 100% Tin | 61 = None<br>62 = 10 Cycles 25°C After Weibull<br>63 = 10 cycles, -55°C and 85°C After Weibull<br>64 = 10 cycles, -55°C and 85°C Before Weibull | 10 = ESR-Standard<br>20 = ESR-Low<br>30 = ESR-Ultra-low | Designates discrete component series. D493 = T493 |

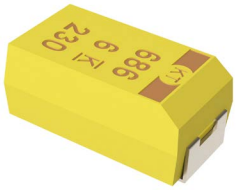
| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| 2C/6.5 x 3.3 x 5.3 | 440 µF | 200 µF | 94 µF | 44 µF | 30 µF | 20 µF | |
| 2D/8 x 4.4 x 6.2 | 660 µF | 440 µF | 300 µF | 130 µF | 94 µF | 44 µF | 9.4 µF |
| 2X/8 x 4.4 x 8.9 | | 660 µF | | | | | 20 µF |
| 3C/6.5 x 3.3 x 7.8 | 660 µF | 300 µF | 140 µF | 66 µF | 45 µF | 30 µF | |
| 3D/8 x 4.4 x 9.2 | 990 µF | 660 µF | 450 µF | 200 µF | 140 µF | 66 µF | 14 µF |
| 3X/8 x 4.4 x 13.3 | | 990 µF | | | | | 30 µF |
| 4C/6.5 x 6.6 x 5.3 | 880 µF | 400 µF | 190 µF | 88 µF | 60 µF | 40 µF | |
| 4D/8 x 8.9 x 6.2 | 1.3 mF | 880 µF | 600 µF | 270 µF | 180 µF | 88 µF | 19 µF |
| 4X/8 x 8.9 x 8.9 | | 1.3 mF | | | | | 40 µF |
| 6C/6.5 x 6.6 x 7.8 | 1.3 mF | 600 µF | 280 µF | 130 µF | 90 µF | 60 µF | |
| 6D/8 x 8.9 x 9.2 | 2 mF | 1.3 mF | 900 µF | 410 µF | 280 µF | 130 µF | 28 µF |
| 6X/8 x 8.9 x 13.3 | | 2 mF | | | | | 60 µF |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T540 COTS Single Anode Polymer Tantalum

**Capacitance Range:** 4.7 to 680 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T540-COTS**



| T | 540 | D | 107 | M | 10 | A | H | 65 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge Option | ESR | Packaging (C-Spec) |
| T = Tantalum | 540 = Polymer COTS | B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | M = ±20% | 2R5 = 2.5<br>003 = 3<br>004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A<br>B* = 0.1%/1,000 hours<br>C* = 0.01%/1,000 hours<br>D* = 0.001%/ 1,000 hours | H = Standard Solder Coated (SnPb 5% Pb minimum) | 65 = 4 cycles at 25°C ±5°C**<br>66 = 10 cycles at 25°C ±5°C***<br>67 = 10 cycles at −55°C +0°C/-5°C and +85°C ±5°C*** | 10 = ESR - Standard<br>20 = ESR - Low | Blank = 7" Reel<br>7280 = 13" Reel |

### DLA Drawing 04051

| 04051- | 001 | A |
|---|---|---|
| Drawing Number | Dash Number | Surge Current Option |
| 04051 | See Part Number List | Blank = 4 cycles +25°C ±5°C Before Voltage Aging<br>A = 10 cycles +25°C ±5°C After Voltage Aging<br>B = 10 cycles −55°C +0°C/-5°C and +85°C ±5°C After Voltage Aging |

| Case Size | Voltage | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.5 | 3 | 4 | 6.3 | 10 | 16 | 20 | 25 | 30 | 35 | 50 | 63 |
| B/3528 – 20 | | 100 µF – 150 µF | 68 µF – 100 µF | 33 µF – 68 µF | 22 µF – 33 µF | | | | | | | |
| C/6032 – 28 | | | | | | | | 6.8 µF – 10 µF | | | | |
| D/7343 – 31 | 330 µF – 680 µF | 330 µF – 680 µF | 220 µF – 470 µF | 150 µF – 330 µF | 100 µF – 220 µF | 47 µF – 100 µF | 22 µF – 47 µF | 15 µF – 33 µF | 22 µF | 15 µF | 10 µF | 4.7 µF |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T541 COTS Multiple Anode Polymer Tantalum

**Capacitance Range:** 10 to 1,500 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T541-COTS**

| T | 541 | D | 157 | M | 10 | A | H | 65 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge Option | ESR | Packaging (C-Spec) |
| T = Tantalum | 541 = Polymer COTS Multiple Anode | D, X, Y | First two digits represent significant figures. Third digit specifies number of zeros. | M = ±20% | 2R5 = 2.5<br>003 = 3<br>004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A<br>B* = 0.1%/1,000 hours<br>C* = 0.01%/1,000 hours<br>D* = 0.001%/1,000 hours | H = Standard Solder Coated (SnPb 5% Pb minimum) | 65 = 4 cycles at 25°C ±5°C**<br>66 = 10 cycles at 25°C ±5°C***<br>67 = 10 cycles at −55°C +0°C/-5°C and +85°C ±5°C*** | 10 = ESR - Standard<br>20 = ESR - Low<br>30 = ESR - Ultra Low ESR | Blank = 7" Reel<br>7280 = 13" Reel |

### DLA Drawing 04052

| 04052- | 001 | A |
|---|---|---|
| Drawing Number | Dash Number | Surge Current Option |
| 04052 | See Part Number List | Blank = 4 cycles +25°C ±5°C Before Voltage Aging<br>A = 10 cycles +25°C ±5°C After Voltage Aging<br>B = 10 cycles −55°C +0°C/-5°C and +85°C ±5°C After Voltage Aging |

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 2.5 | 3 | 4 | 6.3 | 10 | 16 |
| D/7343 – 31 | 470 µF – 680 µF | 470 µF – 680 µF | 330 µF – 470 µF | 220 µF – 330 µF | 150 µF – 220 µF | |
| X/7343 – 43 | 1 mF – 1.5 mF | 1 mF – 1.5 mF | 680 µF – 1 mF | 470 µF – 680 µF | 330 µF – 470 µF | 150 µF – 330 µF |
| Y/7343 – 40 | 680 µF | | 470 µF | 330 µF | 220 µF | |

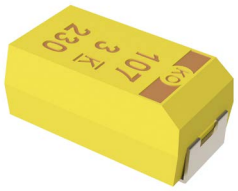
| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 20 | 25 | 30 | 35 | 50 | 63 |
| D/7343 – 31 | | | | | | |
| X/7343 – 43 | 100 µF | 68 µF – 100 µF | 47 µF – 68 µF | 33 µF – 47 µF | 22 µF – 33 µF | 10 µF – 15 µF |
| Y/7343 – 40 | | | | | | |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### T543 COTS Polymer Tantalum

**Capacitance Range:** 4.7 to 1,500 µF • **Temperature Range:** −55°C to +105°C

**www.kemet.com/T543-COTS**



| T | 543 | D | 156 | K | 035 | A | H | E | 100 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR | Packaging (C-Spec) |
| T = Tantalum | Polymer Tantalum COTS | A, B, C, D, H, L, M, T, U, V, W, X, Y | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 2R5 = 2.5<br>003 = 3<br>004 = 4<br>006 = 6.3<br>010 = 10<br>12R = 12.5<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 =63 | A = N/A | H = Standard Solder Coated (SnPb 5% Pb minimum)<br>T = 100% Tin (Sn) | E = None<br>S = 10 cycles 25°C<br>W = 10 cycles −55°C and 85°C | ESR in mΩ | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2.5 | 3 | 4 | 6.3 | 8 | 10 | 12.5 | 16 |
| A/3216 – 18 | 47 µF – 68 µF | | 33 µF – 100 µF | 22 µF – 68 µF | | 10 µF – 22 µF | | |
| B/3528 – 20 | 100 µF – 330 µF | 100 µF – 150 µF | 68 µF – 220 µF | 33 µF – 220 µF | 33 µF – 47 µF | 22 µF – 100 µF | | 10 µF |
| C/6032 – 28 | 220 µF – 470 µF | | 150 µF – 330 µF | 33 µF – 220 µF | | 47 µF – 150 µF | | 22 µF |
| D/7343 – 31 | 220 µF – 680 µF | 330 µF – 680 µF | 220 µF – 680 µF | 150 µF – 470 µF | 150 µF | 68 µF – 220 µF | | 47 µF – 100 µF |
| H/7360 – 20 | | | | 1 mF – 1.5 mF | | | | |
| L/6032 – 19 | 330 µF | | 220 µF | 150 µF | | 100 µF | | |
| M/3528 – 15 | | | | 150 µF | | | | |
| T/3528 – 12 | 56 µF – 100 µF | | 15 µF – 100 µF | 15 µF – 100 µF | 33 µF | 33 µF | 10 µF – 15 µF | |
| U/6032 – 15 | 150 µF – 220 µF | | 68 µF – 150 µF | 68 µF – 150 µF | 33 µF | 33 µF – 68 µF | | |
| V/7343 – 20 | 220 µF – 470 µF | 330 µF | 150 µF – 330 µF | 100 µF – 470 µF | 150 µF | 68 µF – 220 µF | | 33 µF – 100 µF |
| W/7343 – 15 | 220 µF – 330 µF | | 220 µF | 100 µF – 470 µF | | 68 µF – 100 µF | | 33 µF – 47 µF |
| X/7343 – 43 | 680 µF – 1.5 mF | 1 mF – 1.5 mF | 680 µF – 1 mF | 470 µF – 680 µF | | 330 µF | 330 µF | 150 µF – 330 µF |
| Y/7343 – 40 | 680 µF – 1 mF | | 470 µF – 680 µF | 330 µF – 470 µF | | 150 µF – 330 µF | | |

| Case Size | Voltage | | | | |
|---|---|---|---|---|---|
| | 20 | 25 | 30 | 35 | 50 |
| U/6032 – 15 | | | | | |
| V/7343 – 20 | 22 µF – 47 µF | 15 µF – 33 µF | | 15 µF | 6.8 µF |
| W/7343 – 15 | | | | | |
| X/7343 – 43 | 100 µF | 68 µF – 100 µF | 47 µF – 68 µF | 33 µF – 47 µF | 18 µF – 33 µF |
| Y/7343 – 40 | | | | | |

## High Reliability Commercial Off-the-Shelf (COTS) (cont.)

### Tantalum Stack Polymer (TSP)

**Capacitance Range:** 66 to 4,080 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/TSP**

| T | SP | 2D | 207 | M | 010 | A | H | 65 | 20 | D540 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR | C-Spec 2 |
| T = Tantalum | Stacks Polymer Cathode | 2B, 3B, 4B, 6B, 2D, 3D, 4D, 6D 2X, 3X 4X, 6X | First two digits represent significant figures. Third digit specifies number of zeros. | M = ±20% | 003 = 3<br>004 = 4<br>006 = 6.3<br>010 = 10<br>016 = 16<br>025 = 25<br>035 = 35<br>050 = 50<br>063 = 63 | A = N/A | H = Standard Solder Coated (SnPb 5% Pb minimum) | 65 = No Surge<br>66 = 10 cycles at 25°C<br>67 = 10 cycles at -55°C and 85°C | 10 = ESR - Standard<br>20 = ESR-Low | Designates discrete component series.<br>D540 = T540<br>D541 = T541 |

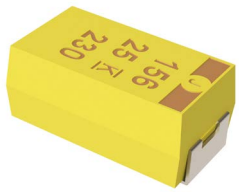
| Case Size | Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 |
| 2B/4.1 x 3.1 x 4.3 | | 200 µF | 130 µF | 66 µF | | | | | |
| 2D/8 x 4.4 x 6.2 | 660 µF – 1.4 mF | 440 µF – 940 µF | 660 µF | 200 µF – 440 µF | 94 µF | | | | |
| 2X/8 x 4.4 x 8.9 | | 1.3 mF – 2 mF | 940 µF | 660 µF | 300 µF – 660 µF | 130 µF | 66 µF – 94 µF | 44 µF – 66 µF | 20 µF – 30 µF |
| 3B/4.1 x 3.1 x 6.3 | 450 µF | 300 µF | 200 µF | 99 µF | | | | | |
| 3D/8 x 4.4 x 9.2 | 2 mF | 1.4 mF | 990 µF | 660 µF | 140 µF | | | | |
| 3X/8 x 4.4 x 13.3 | | 2 mF – 3 mF | 1.4 mF | 990 µF | 450 µF – 990 µF | 200 µF | 100 µF – 140 µF | 66 µF – 100 µF | 30 µF – 45 µF |
| 4B/4.1 x 6.1 x 4.3 | 600 µF | 400 µF | 270 µF | 130 µF | | | | | |
| 4D/8 x 8.9 x 6.2 | 2.7 mF | 880 µF – 1.9 mF | 1.3 mF | 400 µF – 880 µF | 190 µF | | | | |
| 4X/8 x 8.9 x 8.9 | | 2.7 mF – 4 mF | 1.9 mF | 1.3 mF | 600 µF – 1.3 mF | 260 µF | 130 µF – 190 µF | 88 µF – 130 µF | 40 µF – 60 µF |
| 6B/4.1 x 6.1 x 6.3 | 900 µF | 600 µF | 400 µF | 200 µF | | | | | |
| 6D/8 x 8.9 x 9.2 | 4.1 mF | 2.8 mF | 2 mF | 900 µF – 1.3 mF | 280 µF | | | | |
| 6X/8 x 8.9 x 13.3 | | 4 mF – 6 mF | 2.8 mF | 2 mF | 900 µF – 2 mF | 400 µF | 200 µF – 280 µF | 130 µF – 200 µF | 60 µF – 90 µF |

## MIL-PRF CWR Style • Surface Mount

### T409 (CWR09 Style) MIL-PRF-55365/4

**Capacitance Range:** 0.1 to 100 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T409**



| T | 409 | A | 225 | K | 004 | A | H | 4252 | 7280 |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Design | Termination Finish | Surge | Packaging (C-Spec) |
| T = Tantalum | CWR 09 Established Reliability | A, B, C, D, E, F, G, H | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D = (0.001%/1,000 hours)<br>T = (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours) | C = Hot Solder Dipped<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated<br>K = Solder Fused | 4250= 25°C after Weibull<br>4251 = −55°C and 85°C after Weibull<br>4252 = −55°C and 85°C before Weibull<br>TLVL = Weibull Grade Level "T" | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7005 = Moisture bags<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### MIL–PRF–55365/4

| CWR09 | J | H | 105 | K | C | A |
|---|---|---|---|---|---|---|
| Capacitor Style | Rated Voltage (VDC) | Termination Finish | Capacitance Code (pF) | Capacitance Tolerance | Reliability Level | Surge Current Option |
| Per MIL–PRF–55365/4 | C = 4<br>D = 6<br>F = 10<br>H = 15<br>J = 20<br>K = 25<br>M = 35<br>N = 50 | B = Gold Plated<br>C = Hot solder dipped<br>H = Solder Plated<br>K = Solder fused | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D =(0.001%/1,000 hours)<br>T= T Level* (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours) | A = +25°C after Weibull<br>B = −55°C +85°C after Weibull<br>C = −55°C +85°C before Weibull<br>Blank = No Surge |

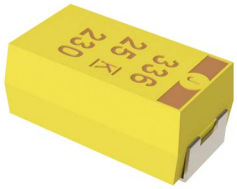
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/2513 – 16.5 | 2.2 µF | 1.5 µF | 1 µF | 680 nF | 470 nF | 330 nF | 220 nF | 100 nF – 150 nF |
| B/3813 – 16.5 | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | 680 nF – 1 µF | 680 nF | 470 nF | 220 nF – 330 nF |
| C/5113 – 16.5 | 6.8 µF | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | 1 µF | 680 nF | 470 nF |
| D/3825 – 16.5 | 10 µF | 6.8 µF | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | 1 µF | 680 nF |
| E/5125 – 16.5 | 15 µF | 10 µF | 6.8 µF | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | 1 µF |
| F/5634 – 21.6 | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF | 4.7 µF | 3.3 µF | 1.5 µF – 2.2 µF |
| G/6728 – 31.7 | 68 µF | 47 µF | 33 µF | 22 µF | 15 µF | 6.8 µF – 10 µF | 4.7 µF | 3.3 µF |
| H/7238 – 31.7 | 100 µF | 68 µF | 47 µF | 33 µF | 22 µF | 15 µF | 6.8 µF | 4.7 µF |

## MIL-PRF CWR Style • Surface Mount (cont.)

### T419 (CWR19 Style) MIL-PRF-55365/11

**Capacitance Range:** 0.33 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T419**



| T | 419 | A | 225 | K | 004 | A | H | 4251 | 7280 |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Design | Termination Finish | Surge | Packaging (C-Spec) |
| T = Tantalum | CWR19 Established Reliability | A, B, C, D, E, F, G, H, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35 | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D = (0.001%/1,000 hours)<br>T = (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours) | C = Hot Solder Dipped<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated<br>K = Solder Fused | Blank = No Surge<br>4250= 25°C after Weibull<br>4251 = −55°C and 85°C after Weibull<br>4252 = −55°C and 85°C before Weibull<br>TLVL = Weibull Grade Level "T" | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7005 = Moisture bags<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### MIL-PRF-55365/11

| CWR19 | K | H | 225 | K | C | D | A |
|---|---|---|---|---|---|---|---|
| Capacitor Style | Rated Voltage (VDC) | Termination Finish | Capacitance Code (pF) | Capacitance Tolerance | Reliability Level | Case Code | Surge Current Option |
| Per MIL–PRF–55365/11 | C = 4<br>D = 6<br>F = 10<br>H = 15<br>J = 20<br>K = 25<br>M = 35 | B = Gold Plated<br>C = Hot solder dipped<br>H = Solder Plated<br>K = Solder fused | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D =(0.001%/1,000 hours)<br>T= T Level* (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours) | A, B, C, D, E, F, G, H, X | A = +25°C after Weibull<br>B = −55°C +85°C after Weibull<br>C = −55°C +85°C before Weibull<br>Z = None |

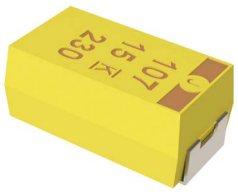
| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 15 | 20 | 25 | 35 |
| A/2513 – 16.5 | 3.3 µF – 6.8 µF | 3.3 µF – 4.7 µF | 2.2 µF – 3.3 µF | 1 µF – 2.2 µF | 680 nF – 1 µF | 470 nF | 330 nF |
| B/3813 – 16.5 | 10 µF – 22 µF | 6.8 µF – 15 µF | 4.7 µF – 10 µF | 3.3 µF – 4.7 µF | 1.5 µF – 2.2 µF | 1 µF | |
| C/5113 – 16.5 | | | 4.7 µF – 10 µF | 4.7 µF | | | |
| D/3825 – 16.5 | 22 µF – 33 µF | 15 µF – 22 µF | 6.8 µF – 15 µF | 4.7 µF – 10 µF | 3.3 µF | 2.2 µF | |
| E/5125 – 16.5 | 33 µF – 68 µF | 15 µF – 33 µF | 10 µF – 22 µF | 6.8 µF – 15 µF | 4.7 µF – 10 µF | 3.3 µF | |
| F/5634 – 21.6 | 100 µF | 47 µF – 68 µF | 33 µF – 47 µF | 15 µF – 33 µF | 10 µF – 15 µF | 6.8 µF | |
| G/6728 – 31.7 | 150 µF | 68 µF – 150 µF | 47 µF – 100 µF | 33 µF – 68 µF | 22 µF | 15 µF – 22 µF | 6.8 µF |
| H/7238 – 31.7 | 220 µF – 330 µF | 220 µF – 330 µF | 100 µF – 220 µF | 47 µF – 100 µF | 33 µF – 47 µF | 22 µF – 33 µF | 10 µF |
| X/6954 – 31.2 | | | 150 µF | | 47 µF | 22 µF – 33 µF | 15 µF |

## MIL-PRF CWR Style • Surface Mount (cont.)

### T429 (CWR29 Style) MIL-PRF-55365/11

**Capacitance Range:** 0.1 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T429**



| T | 429 | A | 225 | K | 004 | A | H | 4251 | 7280 |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Design | Termination Finish | Surge | Packaging (C-Spec) |
| T = Tantalum | CWR29 Established Reliability | A, B, C, D, E, F, G, H, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D =(0.001%/1,000 hours)<br>T = (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours) | C = Hot Solder Dipped<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated<br>K = Solder Fused | Blank = No surge<br>4250= 25°C after Weibull<br>4251 = −55°C and 85°C after Weibull<br>4252 = −55°C and 85°C before Weibull<br>TLVL= Weibull Grade Level "T" | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7005 = Moisture bags<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### MIL-PRF-55365/11

| CWR29 | K | H | 225 | K | C | D | A |
|---|---|---|---|---|---|---|---|
| Capacitor Style | Rated Voltage (VDC) | Termination Finish | Capacitance Code (pF) | Capacitance Tolerance | Reliability Level | Case Code | Surge Current Option |
| Per MIL–PRF–55365/11 | C = 4<br>D = 6<br>F = 10<br>H = 15<br>J = 20<br>K = 25<br>M = 35<br>N = 50 | B = Gold Plated<br>C = Hot solder dipped<br>H = Solder Plated<br>K = Solder fused | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D =(0.001%/1,000 hours)<br>T = T Level* (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours) | A, B, C, D, E, F, G, H, X | A = +25°C after Weibull<br>B = −55°C +85°C after Weibull<br>C = −55°C +85°C before Weibull<br>Z = None |

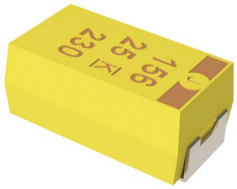
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/2513 – 16.5 | 2.2 µF – 6.8 µF | 1.5 µF – 4.7 µF | 1 µF – 3.3 µF | 680 nF – 2.2 µF | 470 nF – 1 µF | 330 nF – 470 nF | 220 nF – 330 nF | 100 nF – 150 nF |
| B/3813 – 16.5 | 4.7 µF – 22 µF | 3.3 µF – 15 µF | 2.2 µF – 10 µF | 1.5 µF – 4.7 µF | 680 nF – 2.2 µF | 680 nF – 1 µF | 470 nF | 220 nF – 330 nF |
| C/5113 – 16.5 | 6.8 µF | 4.7 µF | 3.3 µF – 10 µF | 2.2 µF – 4.7 µF | 1.5 µF | 1 µF | 680 nF | 470 nF |
| D/3825 – 16.5 | 10 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 3.3 µF – 10 µF | 2.2 µF – 3.3 µF | 1.5 µF – 2.2 µF | 1 µF | 680 nF |
| E/5125 – 16.5 | 15 µF – 68 µF | 10 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 3.3 µF – 10 µF | 2.2 µF – 3.3 µF | 1.5 µF | 1 µF |
| F/5634 – 21.6 | 33 µF – 100 µF | 22 µF – 68 µF | 15 µF – 47 µF | 10 µF – 33 µF | 6.8 µF – 15 µF | 4.7 µF – 6.8 µF | 3.3 µF – 6.8 µF | 1.5 µF – 2.2 µF |
| G/6728 – 31.7 | 68 µF – 150 µF | 47 µF – 150 µF | 33 µF – 100 µF | 22 µF – 68 µF | 15 µF – 22 µF | 6.8 µF – 22 µF | 4.7 µF | 3.3 µF |
| H/7238 – 31.7 | 100 µF – 330 µF | 68 µF – 330 µF | 47 µF – 220 µF | 33 µF – 100 µF | 22 µF – 47 µF | 15 µF – 33 µF | 6.8 µF – 10 µF | 4.7 µF |
| X/6954 – 31.2 | | | 150 µF | | 47 µF | 22 µF – 33 µF | 15 µF | |

## MIL-PRF CWR Style • Surface Mount (cont.)

### T492 (CWR11 Style) MIL-PRF-55365/8

**Capacitance Range:** 0.1 to 100 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T492**



| T | 492 | D | 156 | K | 020 | A | C | 4251 | |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Design | Termination Finish | Surge (C-Spec) | Packaging (C-Spec) |
| T = Tantalum | CWR11 Established Reliability | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4<br>006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D = (0.001%/1,000 hours)<br>T = (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours | C = Hot Solder Dipped<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated<br>K = Solder Fused | 4250= 25°C after Weibull<br>4251 = −55°C and 85°C after Weibull<br>4252 = −55°C and 85°C before Weibull<br>TLVL= Weibull Grade Level "T" | Blank = 7" Reel<br>7280 = 13" Reel<br>7610 = Bulk Bag<br>7640 = Bluk plastic box<br>WAFL = Waffle Pack |

### MIL–PRF–55365/8

| CWR11 | M | H | 105 | K | B | A |
|---|---|---|---|---|---|---|
| Capacitor Style | Rated Voltage (VDC) | Termination Finish | Capacitance Code (pF) | Capacitance Tolerance | Reliability Level | Surge Current Option |
| Per MIL–PRF–55365/8 | C = 4<br>D = 6<br>F = 10<br>H = 15<br>J = 20<br>K = 25<br>M = 35<br>N = 50 | B = Gold Plated<br>C = Hot solder dipped<br>H = Solder Plated<br>K = Solder fused | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | Weibull<br>A = non-ER<br>B = (0.1%/1,000 hours)<br>C = (0.01%/1,000 hours)<br>D =(0.001%/1,000 hours)<br>T= T Level* (0.01%/1,000 hours)<br>Exponential<br>M = (1.0%/1,000 hours)<br>P = (0.1%/1,000 hours)<br>R = (0.01%/1,000 hours)<br>S =(0.001%/1,000 hours | A = +25°C after Weibull<br>B = −55°C +85°C after Weibull<br>C = −55°C +85°C before Weibull<br>Blank = None |

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/3216 – 18 | 2.2 µF – 4.7 µF | 1.5 µF – 3.3 µF | 1 µF – 2.2 µF | 680 nF – 1.5 µF | 470 nF – 1 µF | 330 nF – 470 nF | 100 nF – 330 nF | 100 nF |
| B/3528 – 21 | 6.8 µF – 15 µF | 4.7 µF – 10 µF | 3.3 µF – 6.8 µF | 2.2 µF – 4.7 µF | 1.5 µF – 3.3 µF | 680 nF – 1.5 µF | 470 nF – 1 µF | 150 nF – 330 nF |
| C/6032 – 28 | 33 µF | 15 µF – 22 µF | 15 µF | 10 µF | 4.7 µF – 6.8 µF | 2.2 µF – 4.7 µF | 1.5 µF – 3.3 µF | 470 nF – 1 µF |
| D/7343 – 31 | 68 µF – 100 µF | 47 µF – 68 µF | 33 µF – 47 µF | 22 µF – 33 µF | 15 µF – 22 µF | 6.8 µF – 15 µF | 4.7 µF – 6.8 µF | 1.5 µF – 4.7 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial

### T110/T212 (CSR13 Style) MIL-PRF-39003 (Polar)

**Capacitance Range:** 0.0047 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T110**


| T | 110 | A | 105 | K | 050 | A | T | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>060 = 60<br>075 = 75<br>100 = 100<br>125 = 125 | A = N/A | T = 100% Tin<br>S= Standard (Sn/Pb) | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

### T212 (CSR13 Style)

| T | 212 | A | 105 | K | 050 | B | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial Military grade capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75<br>100 = 100 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G= 1.0 %/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard (Sn/Pb) | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = "A" surge current<br>4251 = "B" surge current<br>4252 = "C" surge current |

### MIL-PRF-39003

| M39003 | /01 | 6003 | A |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | A = C-4250<br>B = C-4251<br>C = C-4252<br>Blank - No surge |

### T110

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 25 | 35 |
| A/3.43 x 7.26 | 2.2 µF – 6.8 µF | 1 µF – 4.7 µF | 330 nF – 3.3 µF | 47 nF – 2.2 µF | | 4.7 nF – 1 µF |
| B/4.7 x 12.04 | 8.2 µF – 56 µF | 5.6 µF – 39 µF | 3.9 µF – 22 µF | 2.7 µF – 15 µF | 10 µF | 1.2 µF – 6.8 µF |
| C/7.34 x 17.42 | 68 µF – 180 µF | 47 µF – 120 µF | 27 µF – 68 µF | 18 µF – 47 µF | | 8.2 µF – 22 µF |
| D/8.92 x 19.96 | 220 µF – 330 µF | 150 µF – 220 µF | 82 µF – 150 µF | 56 µF – 100 µF | | 27 µF – 47 µF |

### T110 (cont.)

| Case Size | Voltage | | | | |
|---|---|---|---|---|---|
| | 50 | 60 | 75 | 100 | 125 |
| A/3.43 x 7.26 | 4.7 nF – 1 µF | 4.7 nF – 680 nF | 4.7 nF – 680 nF | 4.7 nF – 560 nF | 4.7 nF – 330 nF |
| B/4.7 x 12.04 | 1.2 µF – 4.7 µF | 820 nF – 3.9 µF | 820 nF – 3.9 µF | 680 nF – 2.7 µF | 390 nF – 2.2 µF |
| C/7.34 x 17.42 | 5.6 µF – 18 µF | 4.7 µF – 12 µF | 4.7 µF – 10 µF | 3.3 µF – 6.8 µF | 2.7 µF – 6.8 µF |
| D/8.92 x 19.96 | 22 µF | 15 µF – 22 µF | 12 µF – 15 µF | 8.2 µF – 10 µF | 8.2 µF – 10 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T110/T212 (CSR13 Style) MIL-PRF-39003 (Polar) (cont.)

**Capacitance Range:** 0.0047 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T110**


| T | 110 | A | 105 | K | 050 | A | T | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>060 = 60<br>075 = 75<br>100 = 100<br>125 = 125 | A = N/A | T = 100% Tin<br>S= Standard (Sn/Pb) | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

### T212 (CSR13 Style)

| T | 212 | A | 105 | K | 050 | B | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial Military grade capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75<br>100 = 100 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G= 1.0 %/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard (Sn/Pb) | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = "A" surge current<br>4251 = "B" surge current<br>4252 = "C" surge current |

### MIL-PRF-39003

| M39003 | /01 | 6003 | A |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | A = C-4250<br>B = C-4251<br>C = C-4252<br>Blank - No surge |

### T212 (CSR13 Style)

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 | 100 |
| A/3.43 x 7.26 | 5.6 µF – 6.8 µF | 3.9 µF – 4.7 µF | 2.7 µF – 3.3 µF | 1.2 µF – 2.2 µF | | 4.7 nF – 1 µF | 100 nF – 680 nF | 4.7 nF – 560 nF |
| B/4.7 x 12.04 | 47 µF – 56 µF | 27 µF – 39 µF | 18 µF – 22 µF | 8.2 µF – 15 µF | 5.6 µF – 6.8 µF | 1.2 µF – 4.7 µF | 820 nF – 3.9 µF | 680 nF – 2.7 µF |
| C/7.34 x 17.42 | 150 µF – 180 µF | 82 µF – 120 µF | 56 µF – 68 µF | 27 µF – 47 µF | 22 µF | 5.6 µF – 18 µF | 4.7 µF – 10 µF | 3.3 µF – 6.8 µF |
| D/8.92 x 19.96 | 270 µF – 330 µF | 180 µF – 220 µF | 120 µF – 150 µF | 56 µF – 100 µF | 27 µF – 47 µF | 22 µF | 12 µF – 15 µF | |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T111/T213 (CSR91 Style) MIL-PRF-39003 (Non-Polar)

**Capacitance Range:** 0.0023 to 160 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T111**


| T | 111 | A | 105 | K | 050 | A | S | |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75<br>100 = 100 | A = N/A | S= Standard (Sn/Pb) | All capacitors are sleeved unless specified. |

### T213 (CSR91 Style)

| T | 213 | A | 115 | K | 020 | B | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial Military grade capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75<br>100 = 100 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G= 1.0 %/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard (Sn/Pb) | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = "A" surge current<br>4251 = "B" surge current<br>4252 = "C" surge current |

### MIL-PRF-39003

| M39003 | /04 | 3007 | A |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | A = C-4250<br>B = C-4251<br>C = C-4252<br>Blank - No surge |

### T111

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 | 100 |
| A/4.09 x 14.61 | 2.8 µF – 3.4 µF | 1.9 µF – 2.3 µF | 1.3 µF – 1.6 µF | 600 nF – 1.1 µF | | 2.3 nF – 500 nF | 340 nF | 2.3 nF – 280 nF |
| B/5.26 x 24.26 | 23 µF – 28 µF | 13 µF – 19 µF | 9 µF – 11 µF | 4.1 µF – 7.5 µF | 2.8 µF – 3.4 µF | 600 nF – 2.3 µF | 410 nF – 1.9 µF | 340 nF – 1.3 µF |
| C/7.98 x 34.29 | 75 µF – 90 µF | 41 µF – 60 µF | 28 µF – 34 µF | 13 µF – 23 µF | 11 µF | 2.8 µF – 9 µF | 2.3 µF – 5 µF | |
| D/9.55 x 39.37 | 130 µF – 160 µF | 90 µF – 110 µF | 60 µF – 75 µF | 28 µF – 50 µF | 13 µF – 23 µF | 11 µF | 6 µF – 7.5 µF | |

### T213 (CSR91 Style)

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 | 100 |
| A/4.09 x 14.61 | 2.8 µF – 3.4 µF | 1.9 µF – 2.3 µF | 1.3 µF – 1.6 µF | 600 nF – 1.1 µF | | 2.3 nF – 500 nF | 340 nF | 2.3 nF – 280 nF |
| B/5.26 x 24.26 | 23 µF – 28 µF | 13 µF – 19 µF | 9 µF – 11 µF | 4.1 µF – 7.5 µF | 2.8 µF – 3.4 µF | 600 nF – 2.3 µF | 410 nF – 1.9 µF | 340 nF – 1.3 µF |
| C/7.98 x 34.29 | 75 µF – 90 µF | 41 µF – 60 µF | 28 µF – 34 µF | 13 µF – 23 µF | 11 µF | 2.8 µF – 9 µF | 2.3 µF – 5 µF | |
| D/9.55 x 39.37 | 130 µF – 160 µF | 90 µF – 110 µF | 60 µF – 75 µF | 28 µF – 50 µF | 13 µF – 23 µF | 11 µF | 6 µF – 7.5 µF | |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T140/T242 (CSR23 Style) MIL-PRF-39003 (Polar)

**Capacitance Range:** 0.82 to 1,200 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T140**


| T | 140 | A | 105 | K | 050 | A | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial Capacitor | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>030 = 30<br>035 = 35<br>060 = 60<br>050 = 50<br>060 = 60 | A = N/A | S = Standard (Sn/Pb)<br>T = 100% Tin | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = 10 cycles, 25°C after Weibull<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### T242 (CSR23 Style)

| T | 242 | A | 105 | K | 050 | A | S | C |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | T242 = CSR23 | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>030 = 30<br>035 = 35<br>060 = 60<br>050 = 50<br>060 = 60 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G = 1.0%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443= Ammo<br>4250 = 10 cycles, 25°C after Weibull<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### MIL-PRF-39003

| M39003 | /03 | 3075 | A |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | A = C-4250<br>B = C-4251<br>C = C-4252<br>Blank - No surge |

### T140

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 30 | 35 | 50 | 60 |
| A/3.43 x 7.26 | 8.2 µF – 12 µF | 5.6 µF – 8.2 µF | 3.9 µF – 5.6 µF | 2.7 µF – 3.9 µF | 1.2 µF – 2.7 µF | 1.2 µF – 1.8 µF | 1.2 µF – 1.5 µF | 820 nF – 1 µF |
| B/4.7 x 12.04 | 68 µF – 100 µF | 47 µF – 82 µF | 27 µF – 39 µF | 18 µF – 27 µF | 12 µF – 18 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF | 4.7 µF – 5.6 µF |
| C/7.34 x 17.42 | 220 µF – 470 µF | 150 µF – 270 µF | 82 µF – 180 µF | 56 µF – 120 µF | 33 µF – 68 µF | 27 µF – 47 µF | 22 µF – 27 µF | 15 µF – 22 µF |
| D/8.92 x 19.96 | 560 µF – 1.2 mF | 330 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 82 µF – 100 µF | 56 µF – 100 µF | 33 µF – 47 µF | 27 µF – 33 µF |

### T242 (CSR23 Style)

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 |
| A/3.43 x 7.26 | 10 µF – 12 µF | 6.8 µF – 8.2 µF | 4.7 µF – 5.6 µF | 2.7 µF – 3.9 µF | 1.8 µF | 1.2 µF – 1.5 µF |
| B/4.7 x 12.04 | 100 µF | 47 µF – 82 µF | 33 µF – 39 µF | 18 µF – 27 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF |
| C/7.34 x 17.42 | 330 µF – 470 µF | 220 µF – 270 µF | 150 µF – 180 µF | 56 µF – 120 µF | 33 µF – 47 µF | 22 µF – 27 µF |
| D/8.92 x 19.96 | 680 µF – 1 mF | 390 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 56 µF – 68 µF | 33 µF – 39 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T210/T240/GR500 Series High Reliability

**Capacitance Range:** 0.0047 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T210**


| T | 210 | A | 105 | K | 050 | R | S |
|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate | Termination Finish |
| T = Tantalum | 210 = GR500/J (KEMET) High Reliability, Solid Electrolyte, Graded, Hermetic Seal, Axial Lead, Polar | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros to follow. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>075 = 75<br>100 = 100 | M = 1%/k hours<br>P = 0.1/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard (Solder-coated nickel) |

### T210

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 | 100 |
| A/3.43 x 7.26 | 3.9 µF – 6.8 µF | 2.7 µF – 4.7 µF | 1.2 µF – 3.3 µF | 1.2 µF – 2.2 µF | 820 nF – 1 µF | 4.7 nF – 1 µF | 4.7 nF – 680 nF | 4.7 nF – 560 nF |
| B/4.7 x 12.04 | 27 µF – 56 µF | 12 µF – 39 µF | 5.6 µF – 22 µF | 4.7 µF – 15 µF | 2.7 µF – 6.8 µF | 1.2 µF – 4.7 µF | 820 nF – 3.9 µF | 680 nF – 2.7 µF |
| C/7.34 x 17.42 | 82 µF – 180 µF | 47 µF – 120 µF | 27 µF – 68 µF | 18 µF – 47 µF | 8.2 µF – 22 µF | 5.6 µF – 18 µF | 4.7 µF – 10 µF | 3.3 µF – 6.8 µF |
| D/8.92 x 19.96 | 220 µF – 330 µF | 150 µF – 220 µF | 82 µF – 150 µF | 56 µF – 100 µF | 27 µF – 47 µF | 22 µF | 12 µF – 15 µF | 8.2 µF – 10 µF |

### T240

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 30 | 35 | 50 | 60 |
| A/3.43 x 7.26 | 10 µF – 12 µF | 6.8 µF – 8.2 µF | 4.7 µF – 6.8 µF | 2.7 µF – 3.9 µF | 1.8 µF – 2.7 µF | 1.2 µF – 1.8 µF | 1.2 µF – 1.5 µF | 820 nF – 1 µF |
| B/4.7 x 12.04 | 100 µF | 47 µF – 82 µF | 27 µF – 39 µF | 18 µF – 27 µF | 12 µF – 18 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF | 4.7 µF – 5.6 µF |
| C/7.34 x 17.42 | 220 µF – 470 µF | 150 µF – 270 µF | 150 µF – 180 µF | 56 µF – 120 µF | 56 µF – 68 µF | 27 µF – 47 µF | 22 µF – 27 µF | 12 µF – 22 µF |
| D/8.92 x 19.96 | 680 µF – 1 mF | 330 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 82 µF – 100 µF | 56 µF – 68 µF | 33 µF – 39 µF | 27 µF – 33 µF |

Electronic Components KEMET CHARGED.

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T215 (CSR13 Style) High Temperature Solder

**Capacitance Range:** 0.0047 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T215**


| T | 215 | A | 105 | K | 050 | B | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial High Temperature Solder | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75<br>100 = 100 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G= 1.0 %/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard (Sn/Pb) | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = 10 cycles, 25°C after Weibull<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### CSR13 Style

| M39003 | /01 | 6003 | E |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | D = C-4250<br>E = C-4251<br>F = C-4252<br>H = No C-Spec |

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 | 100 |
| A/3.43 x 7.26 | 5.6 µF – 6.8 µF | 3.9 µF – 4.7 µF | 2.7 µF – 3.3 µF | 1.2 µF – 2.2 µF | | 4.7 nF – 1 µF | 100 nF – 680 nF | 4.7 nF – 560 nF |
| B/4.7 x 12.04 | 47 µF – 56 µF | 27 µF – 39 µF | 18 µF – 22 µF | 8.2 µF – 15 µF | 5.6 µF – 6.8 µF | 1.2 µF – 4.7 µF | 820 nF – 3.9 µF | 680 nF – 2.7 µF |
| C/7.34 x 17.42 | 150 µF – 180 µF | 82 µF – 120 µF | 56 µF – 68 µF | 27 µF – 47 µF | 22 µF | 5.6 µF – 18 µF | 4.7 µF – 10 µF | 3.3 µF – 6.8 µF |
| D/8.92 x 19.96 | 270 µF – 330 µF | 180 µF – 220 µF | 120 µF – 150 µF | 56 µF – 100 µF | 27 µF – 47 µF | 22 µF | 12 µF – 15 µF | |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T216 (CSS13 Style)/T256 (CSS33 Style) MIL-PRF-39003

**Capacitance Range:** CSS13: 0.12 to 330 µF, CSS33: 1.2 to 1,000 µF • **Temperature Range:** −55°C to +125°C **www.kemet.com/T216**


| T | 216 | A | 106 | K | 050 | C | S | |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate | Termination Finish | C-Spec |
| T = Tantalum | 216 (MIL–C–39003/10, CSS13)<br>256 (MIL–C–39003/10, CSS33) | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours | S = Standard (Solder-coated nickel) | Blank = Sleeved<br>0100 = Unsleeved<br>7200 = Tape & Reel<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

### CSS13 Style

| M39003 | /10 | 2049 | S |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Sleeve |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | S = Sleeved<br>U = Unsleeved use C - 0100 |

### CSS33 Style

| M39003 | /10 | 2549 | S |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Sleeve |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | S = Sleeved<br>U = Unsleeved use C - 0100 |

### T216 (CSS13 Style)

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 |
| A/3.43 x 7.26 | 5.6 µF – 6.8 µF | 3.9 µF – 4.7 µF | 2.7 µF – 3.3 µF | 1.2 µF – 2.2 µF | | 120 nF – 1 µF | 150 nF – 680 nF |
| B/4.7 x 12.04 | 47 µF – 56 µF | 27 µF – 39 µF | 18 µF – 22 µF | 8.2 µF – 15 µF | 5.6 µF – 6.8 µF | 1 µF – 4.7 µF | 820 nF – 3.9 µF |
| C/7.34 x 17.42 | 150 µF – 180 µF | 82 µF – 120 µF | 56 µF – 68 µF | 27 µF – 47 µF | 22 µF | 5.6 µF – 18 µF | 4.7 µF – 10 µF |
| D/8.92 x 19.96 | 270 µF – 330 µF | 180 µF – 220 µF | 120 µF – 150 µF | 56 µF – 100 µF | 27 µF – 47 µF | 22 µF | 12 µF – 15 µF |

### T256 (CSS33 Style)

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 |
| A/3.43 x 7.26 | 10 µF – 12 µF | 6.8 µF – 8.2 µF | 4.7 µF – 5.6 µF | 2.7 µF – 3.9 µF | 1.8 µF | 1.2 µF – 1.5 µF |
| B/4.7 x 12.04 | 100 µF | 47 µF – 82 µF | 33 µF – 39 µF | 18 µF – 27 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF |
| C/7.34 x 17.42 | 330 µF – 470 µF | 220 µF – 270 µF | 150 µF – 180 µF | 56 µF – 120 µF | 33 µF – 47 µF | 22 µF – 27 µF |
| D/8.92 x 19.96 | 680 µF – 1 mF | 390 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 56 µF – 68 µF | 33 µF – 39 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T222 (CSR09 Style) MIL-PRF-39003 Miniature (Polar)

**Capacitance Range:** 0.047 to 18 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T222**


| T | 222 | A | 225 | K | 010 | B | S | C |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | T222 (CSR09) | A, B | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G = 1.0%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard Positive: Alloy 52 (solder-coated) Negative: Solder-coated nickel | All capacitors are sleeved unless specified.<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

### CSR09 Style

| M39003 | /02 | 2061 | D |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | D = C-4250<br>E = C-4251<br>F = C-4252<br>H = No C-Spec |

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 |
| A/2.29 x 6.35 | 2.7 µF | 1.8 µF – 2.2 µF | 1 µF – 1.5 µF | 560 nF – 1 µF | 330 nF – 470 nF | 220 nF – 270 nF | 47 nF – 180 nF |
| B/3.51 x 9.91 | 18 µF | 10 µF – 15 µF | 8.2 µF | 3.3 µF – 6.8 µF | 2.2 µF – 2.7 µF | 1.5 µF – 1.8 µF | 220 nF – 1.2 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T225 (CSR09 Style) High Temperature Solder

**Capacitance Range:** 0.047 to 18 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T225**


| T | 225 | A | 225 | K | 010 | B | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial High Temperature Solder | A, B | First two digits represent significant figures. Third digit specifies number of zeros to follow. | J = ±5%<br>K = ±10% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50<br>075 = 75 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G = 1.0%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard | All capacitors are sleeved unless specified.<br>0100 = Without sleeve 7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = 10 cycles, 25°C after Weibull<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### CSR09 Style

| M39003 | /02 | 3036 | A |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | A = C-4250<br>B = C-4251<br>C = C-4252<br>Blank - No surge |

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 | 75 |
| A/2.29 x 6.35 | 2.7 µF | 1.8 µF – 2.2 µF | 1 µF – 1.5 µF | 560 nF – 1 µF | 330 nF – 470 nF | 220 nF – 270 nF | 47 nF – 180 nF |
| B/3.51 x 9.91 | 18 µF | 10 µF – 15 µF | 8.2 µF | 3.3 µF – 6.8 µF | 2.2 µF – 2.7 µF | 1.5 µF – 1.8 µF | 220 nF – 1.2 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T245 (CSR23 Style) High Temperature Solder

**Capacitance Range:** 1.2 to 1,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T245**


| T | 245 | A | 105 | K | 050 | A | S | 7200 |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial High Temperature Solder | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G = 1.0%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = 10 cycles, 25°C after Weibull<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### CSR23 Style

| M39003 | /03 | 3075 | E |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | D = C-4250<br>E = C-4251<br>F = C-4252<br>H = No C-Spec |

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 |
| A/3.43 x 7.26 | 10 µF – 12 µF | 6.8 µF – 8.2 µF | 4.7 µF – 5.6 µF | 2.7 µF – 3.9 µF | 1.8 µF | 1.2 µF – 1.5 µF |
| B/4.7 x 12.04 | 100 µF | 47 µF – 82 µF | 33 µF – 39 µF | 18 µF – 27 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF |
| C/7.34 x 17.42 | 330 µF – 470 µF | 220 µF – 270 µF | 150 µF – 180 µF | 56 µF – 120 µF | 33 µF – 47 µF | 22 µF – 27 µF |
| D/8.92 x 19.96 | 680 µF – 1 mF | 390 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 56 µF – 68 µF | 33 µF – 39 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T252 (CSR33 Style) MIL-PRF-39003

**Capacitance Range:** 1.2 to 1,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T252**


| T | 252 | A | 125 | K | 050 | M | S | C |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | 252 (CSR33) | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4250 = 10 cycles, 25°C after Weibull<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### CSR33 Style

| M39003 | /06 | 4073 | B |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | B = C-4251<br>C = C-4252 |

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 |
| A/3.43 x 7.26 | 10 µF – 12 µF | 6.8 µF – 8.2 µF | 4.7 µF – 5.6 µF | 2.7 µF – 3.9 µF | 1.8 µF | 1.2 µF – 1.5 µF |
| B/4.7 x 12.04 | 100 µF | 47 µF – 82 µF | 33 µF – 39 µF | 18 µF – 27 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF |
| C/7.34 x 17.42 | 330 µF – 470 µF | 220 µF – 270 µF | 150 µF – 180 µF | 56 µF – 120 µF | 33 µF – 47 µF | 22 µF – 27 µF |
| D/8.92 x 19.96 | 680 µF – 1 mF | 390 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 56 µF – 68 µF | 33 µF – 39 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T255 (CSR33 Style) High Temperature Solder

**Capacitance Range:** 1.2 to 1,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T255**


| T | 255 | A | 125 | K | 050 | M | S | C |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product Only | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial High Temperature Solder | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros to follow. | K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>G = 1.0%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard | 4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

### CSR33 Style

| M39003 | /06 | 4073 | H |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | E = C-4251<br>F = C-4252<br>H = Hi Temp Solder Only |

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 |
| A/3.43 x 7.26 | 10 µF – 12 µF | 6.8 µF – 8.2 µF | 4.7 µF – 5.6 µF | 2.7 µF – 3.9 µF | 1.8 µF | 1.2 µF – 1.5 µF |
| B/4.7 x 12.04 | 100 µF | 47 µF – 82 µF | 33 µF – 39 µF | 18 µF – 27 µF | 8.2 µF – 10 µF | 5.6 µF – 6.8 µF |
| C/7.34 x 17.42 | 330 µF – 470 µF | 220 µF – 270 µF | 150 µF – 180 µF | 56 µF – 120 µF | 33 µF – 47 µF | 22 µF – 27 µF |
| D/8.92 x 19.96 | 680 µF – 1 mF | 390 µF – 560 µF | 220 µF – 330 µF | 150 µF – 180 µF | 56 µF – 68 µF | 33 µF – 39 µF |

## MIL-PRF CWR Style • Hermetically Sealed Axial (cont.)

### T262 (CSR21 Style) MIL-PRF-39003

**Capacitance Range:** 5.6 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T262**


| T | 262 | C | 106 | K | 050 | C | S | |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate | Termination Finish | Specification |
| T = Tantalum | Hermetically Sealed Axial Capacitor | C, D | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>035 = 35<br>050 = 50 | Graded:<br>B = 0.1%/k hours<br>C = 0.01%/k hours<br>D = 0.001%/k hours<br>Exponential:<br>M = 1%/k hours<br>P = 0.1%/k hours<br>R = 0.01%/k hours<br>S = 0.001%/k hours | S = Standard | All capacitors are sleeved unless specified.<br>0100 = Without sleeve<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo<br>4251 = 10 cycles, -55 & 85°C after Weibull<br>4252 = 10 cycles, -55 & 85°C before Weibull |

### CSR21 Style

| M39003 | /09 | 3074 | B |
|---|---|---|---|
| Capacitor Class | Slash | Dash Number | Surge Option |
| Military Specification Number | Specification Sheet Number | Failure Rate Level | B = C-4251<br>C = C-4252 |

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 35 | 50 |
| C/7.34 x 17.42 | 150 µF – 180 µF | 82 µF – 120 µF | 56 µF – 68 µF | 27 µF – 47 µF | 22 µF | 5.6 µF – 18 µF |
| D/8.92 x 19.96 | 270 µF – 330 µF | 180 µF – 220 µF | 120 µF – 150 µF | 56 µF – 100 µF | 27 µF – 47 µF | 22 µF |

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## MIL-PRF CWR Style • Polymer Hermetic Seal (PHS)

### T550 Polymer Hermetic Seal (PHS) 105ºC and DLA Drawing 13030

**Capacitance Range:** 20 to 820 µF • **Temperature Range:** −55°C to +105°C

**www.kemet.com/T550**


| T | 550 | B | 107 | M | 025 | A | T | 4251 | |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Product Level | Termination Finish | Surge Option | Sleeve Option |
| T = Tantalum | 550 = Polymer Hermetic Seal | B | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6.3<br>008 = 8<br>015 = 15<br>025 = 25<br>040 = 40<br>050 = 50<br>060 = 60<br>075 = 75<br>100 = 100 | A = N/A<br>B* = DLA 13030 Standard reliability<br>T* = DLA 13030 High reliability | T = 100% tin (Sn) plated<br>H = Tin/lead (SnPb) solder coated (5% Pb minimum) | Blank = 25°C ±5°C, 10 cycles, after constant voltage conditioning (KEMET standard)<br>4251 = 10 cycles, -55°C and +85°C after voltage aging<br>4252 = 10 cycles, -55°C and +85°C before voltage aging | Blank = Sleeved<br>0100 = Unsleeved<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

### DLA Drawing 13030

| 13030 | -01 | K | A | S | L | B |
|---|---|---|---|---|---|---|
| Drawing Number | Dash Number | Capacitance Tolerance | Surge Current Testing | Insulation | Lead Length | Product Level |
| | See Part Number Table | K = ±10%<br>M = ±20% | A = +25°C ± 5°C, 10 cycles, after constant voltage conditioning (KEMET standard)<br>B = -55°C -5°C, +0°C and +85°C ± 5°C; after constant voltage conditioning.<br>C = -55°C -5°C, +0°C and +85°C ± 5°C; before constant voltage conditioning. | S = Sleeved<br>U = Unsleeved | L = 1.50 inches (standard) | B = Standard reliability<br>T = High reliability |

### T550

| Case Size | Voltage | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 8 | 10 | 15 | 25 | 30 |
| B/7.09 x 16.51 | 140 µF – 820 µF | 220 µF – 680 µF | 100 µF – 560 µF | 70 µF – 390 µF | 50 µF – 100 µF | 40 µF – 68 µF |
| B/7.34 x 17.42 | 140 µF – 820 µF | 220 µF – 680 µF | 100 µF – 560 µF | 70 µF – 390 µF | 50 µF – 100 µF | 40 µF – 68 µF |

| Case Size | Voltage | | | | |
|---|---|---|---|---|---|
| | 40 | 50 | 60 | 75 | 100 |
| B/7.09 x 16.51 | 100 µF – 120 µF | 25 µF – 120 µF | 20 µF – 100 µF | 75 µF | 25 µF |
| B/7.34 x 17.42 | 100 µF – 120 µF | 25 µF – 120 µF | 20 µF – 100 µF | 75 µF | 25 µF |

### DLA Drawing 13030

| Case Size | Voltage | | |
|---|---|---|---|
| | 25 | 40 | 50 |
| 7.92 x 16.28 | 100 µF | 100 µF – 120 µF | 100 µF – 120 µF |

## MIL-PRF CWR Style • Polymer Hermetic Seal (PHS) (cont.)

### T551 Polymer Hermetic Seal (PHS) 125ºC

**Capacitance Range:** 20 to 820 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T551**


| T | 551 | B | 107 | M | 025 | A | T | 4251 | |
|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Product Level | Termination Finish | Surge Option | Sleeve Option |
| T = Tantalum | 551 = Polymer Hermetic Seal | B | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6.3 V<br>008 = 8 V<br>015 = 15 V<br>025 = 25 V<br>040 = 40 V<br>050 = 50 V<br>060 = 60 V | A = N/A | T = 100% tin (Sn) plated<br>H = Tin/lead (SnPb) solder coated (5% Pb minimum) | 4251 = Surge current, 10 cycles, -55°C and +85°C | Blank = Sleeved<br>0100 = Unsleeved<br>7200 = Tape & Reel<br>7293 & 7443 = Ammo |

| Case Size | Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6 | 8 | 10 | 15 | 25 | 30 | 40 | 50 | 60 |
| B/7.92 x 17.2 | 140 µF – 820 µF | 220 µF – 680 µF | 100 µF – 560 µF | 70 µF – 390 µF | 50 µF – 100 µF | 40 µF – 68 µF | 100 µF – 120 µF | 25 µF – 120 µF | 20 µF – 100 µF |

### M550 Module Polymer Hermetic Seal

**Capacitance Range:** 250 to 82,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/M55**


| M | 550 | B | 108 | M | 060 | A | A |
|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Product Level | Termination Finish |
| M = Module | 550= Capacitor Series (PHS 105°C)<br>551= Capacitor Series (PHS 125°C) | B | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>008 = 8<br>010 = 10<br>015 = 15<br>025 = 25<br>030 = 30<br>040 = 40<br>050 = 50<br>060 = 60<br>075 = 75<br>100 = 100 | A = N/A<br>B* = DLA 13030 standard reliability<br>T* = DLA 13030 high reliability | A = 100% silver (Ag)<br>T = 100% tin (Sn) plated<br>H = Tin/lead (SnPb) solder coated (5% Pb minimum)<br>S = Solder coated (60% Sn, 40% Pb)<br>G = 100% gold (Au) |

| Case Size | Voltage | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 8 | 10 | 15 | 25 | 30 | 40 | 50 | 60 | 75 | 100 |
| B/50.6 x 52.1 x 11.1 | 8.2 mF | 6.8 mF | 5.6 mF | 3.9 mF | 1 mF | 680 µF | 1 mF – 1.2 mF | 1 mF – 1.2 mF | 1 mF | 750 µF | 250 µF |

## MIL-PRF CWR Style • Polymer Hermetic Seal (PHS) (cont.)

### M551 Module Polymer Hermetic Seal

**Capacitance Range:** 250 to 82,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/M55**


| M | 550 | B | 108 | M | 060 | A | A |
|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Product Level | Termination Finish |
| M = Module | 550= Capacitor Series (PHS 105°C)<br>551= Capacitor Series (PHS 125°C) | B | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 006 = 6<br>008 = 8<br>010 = 10<br>015 = 15<br>025 = 25<br>030 = 30<br>040 = 40<br>050 = 50<br>060 = 60<br>075 = 75<br>100 = 100 | A = N/A<br>B* = DLA 13030 standard reliability<br>T* = DLA 13030 high reliability | A = 100% silver (Ag)<br>T = 100% tin (Sn) plated<br>H = Tin/lead (SnPb) solder coated (5% Pb minimum)<br>S = Solder coated (60% Sn, 40% Pb)<br>G = 100% gold (Au) |

| Case Size | Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6 | 8 | 10 | 15 | 25 | 30 | 40 | 50 | 60 |
| B/50.6 x 52.1 x 11.1 | 8.2 mF | 6.8 mF | 5.6 mF | 3.9 mF | 1 mF | 680 µF | 1 mF – 1.2 mF | 1 mF – 1.2 mF | 1 mF |

## MIL-PRF CWR Style • Radial Dipped

### T363 (CX02 Style)/T369 (CX12 Style) MIL-PRF-49137/2

**Capacitance Range:** 0.1 to 330 µF • **Temperature Range:** −55°C to +85°C

**www.kemet.com/T363**


| T | 35X | A | 105 | M | 035 | A | S | |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate | Termination Finish | Specification |
| T = Tantalum | 363<br>369 | A, B, C, D | First two digits represent significant figures. Third digit specifies number of zeros to follow. | M = ±20%<br>K = ±10% | 006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | Not Applicable | S = Standard | 7301 & 7303 = Tape & Reel<br>7305 & 7317 = Ammo |

### MIL-PRF-49137/2 (CX02 and CX12 Style)

| CX | 02 | D | 225 | K |
|---|---|---|---|---|
| Capacitor Class | Series | Voltage | Capacitance Code (pF) | Capacitance Tolerance |
| CX = MIL-PRF | 02 = T363<br>12 = T369 | D = 6 V<br>F = 10 V<br>H = 15 V<br>J = 20 V<br>K = 25 V<br>M = 35 V<br>N = 50 V | First two digits represent significant figures. Third digit specifies number of zeros to follow. | K = ±10%<br>M = ±20% |

### T363 (CX02 Style)

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/4.45 x 8.89 | 6.8 µF | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | | 100 nF – 1 µF |
| B/6.35 x 11.43 | 47 µF – 68 µF | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF | 1.5 µF – 4.7 µF |
| C/8.89 x 15.49 | 150 µF | 100 µF | 68 µF | 47 µF | 33 µF | 22 µF | 6.8 µF – 15 µF |
| D/10.16 x 18.8 | 330 µF | 220 µF | 150 µF | 100 µF | 68 µF | 33 µF – 47 µF | 22 µF |

### T369 (CX12 Style)

| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/4.45 x 8.89 | 6.8 µF | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | | 100 nF – 1 µF |
| B/6.35 x 11.43 | 47 µF – 68 µF | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF | 1.5 µF – 4.7 µF |

## MIL-PRF CWR Style • Molded Axial and Radial

### T322 (CX01 Style)/T323 (CX05 Style) MIL-PRF-49137/1 and /5

**Capacitance Range:** 0.1 to 330 µF • **Temperature Range:** −55°C to +85°C

**www.kemet.com/T322**

| T | 32X | A | 474 | M | 035 | A | T | |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/Military Product | Termination Finish | Packaging |
| T = Tantalum | Axial Molded Polar Solid Tantalum. Insert appropriate number to replace letter ""X"" = 322 or 323 (CX01 or CX05). | A, B, C, D, E, F | First two digits represent significant figures. Third digit specifies number of zeros to follow. | J = ±5%<br>K = ±10%<br>M = ±20% | 002 = 2<br>004 = 4<br>006 = 6<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50 | Not Applicable | T = 100% tin<br>S = standard (solder-coated nickel) | (When necessary) Reeling per EIA Specification RS-296<br>Blank = Bulk<br>7200 = Reel |

### MIL-PRF-49137/1 and /5 (CX01 and CX05 Style)

| CX | 05 | D | 225 | K |
|---|---|---|---|---|
| Capacitor Class | Series | Rated Voltage (VDC) | Capacitance Code (pF) | Capacitance Tolerance |
| CX = MIL-PRF | 01 = T322<br>05 = T323 | D = 6<br>F = 10<br>H = 15<br>J = 20<br>K = 25<br>M = 35<br>N = 50 | First two digits represent significant figures. Third digit specifies number of zeros to follow. | K = ±10%<br>M = ±20% |

### T322 (CX01 Style)

| Case Size | Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/2.41 x 6.6 | 6.8 µF – 10 µF | 4.7 µF – 6.8 µF | 3.3 µF – 4.7 µF | 2.2 µF – 3.3 µF | 1.5 µF – 2.2 µF | 1 µF – 1.5 µF | 470 nF – 1 µF | 100 nF – 470 nF | 100 nF – 270 nF |
| B/2.79 x 7.37 | 12 µF – 33 µF | 8.2 µF – 22 µF | 5.6 µF – 15 µF | 3.9 µF – 10 µF | 2.7 µF – 6.8 µF | 1.8 µF – 4.7 µF | 1.2 µF – 3.3 µF | 560 nF – 1.5 µF | 330 nF – 1 µF |
| C/4.57 x 8.76 | 39 µF – 68 µF | 27 µF – 47 µF | 18 µF – 33 µF | 12 µF – 22 µF | 8.2 µF – 15 µF | 5.6 µF – 10 µF | 3.9 µF – 10 µF | 1.8 µF – 4.7 µF | 1.2 µF – 2.2 µF |
| D/4.57 x 10.67 | | 56 µF – 68 µF | 39 µF – 68 µF | 27 µF – 47 µF | 18 µF – 33 µF | 12 µF – 22 µF | 12 µF – 15 µF | 5.6 µF – 10 µF | 2.7 µF – 4.7 µF |
| E/7.11 x 13.46 | | | 82 µF – 220 µF | 56 µF – 150 µF | 39 µF – 100 µF | 27 µF – 68 µF | 18 µF – 47 µF | 12 µF – 33 µF | 5.6 µF – 10 µF |
| F/7.62 x 18.03 | | | 270 µF – 330 µF | 180 µF – 220 µF | 120 µF – 150 µF | 82 µF – 100 µF | 56 µF – 68 µF | 39 µF – 47 µF | 12 µF – 22 µF |

### T323 (CX05 Style)

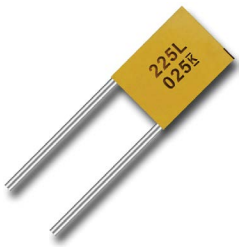
| Case Size | Voltage | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/2.41 x 6.6 | 4.7 µF | 3.3 µF | 2.2 µF | 1.5 µF | 1 µF | 330 nF – 470 nF | 100 nF – 220 nF |
| B/2.79 x 7.37 | 5.6 µF – 15 µF | 10 µF | 6.8 µF | 4.7 µF | 1.5 µF – 3.3 µF | 560 nF – 1.5 µF | 330 nF – 1 µF |
| C/4.57 x 8.76 | 33 µF | 22 µF | 15 µF | | 6.8 µF – 10 µF | 3.3 µF – 4.7 µF | 1.5 µF – 2.2 µF |
| D/4.57 x 10.67 | 47 µF | 27 µF – 47 µF | 22 µF – 33 µF | 12 µF – 15 µF | | 6.8 µF – 10 µF | 3.3 µF – 4.7 µF |

## MIL-PRF CWR Style • Molded Axial and Radial (cont.)

### T370/T378 (CX06 Style) MIL-PRF-4913716 (Micron)

**Capacitance Range:** T370: 0.68 to 220 µF, T378: 2.2 to 220 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T370**




| T | 37X | D | 475 | M | 035 | A | S | |
|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate | Termination Finish | Specification |
| T = Tantalum | 370<br>378 | C, D, E, F | First two digits represent significant figures. Third digit specifies number of zeros to follow. | M = ±20%<br>K = ±10%<br>J = ±5%<br>L = 40%, -20% | 003 = 3<br>004 = 4<br>006 = 6.3<br>010 = 10<br>015 = 15<br>020 = 20<br>025 = 25<br>035 = 35 | Not Applicable | S = Standard (Solder-coated nickel) | 7301 = Tape & Reel<br>7305 & 7317 = Ammo |

### MIL-PRF-49137/6 (CX06 Style)

| CX | 06 | D | 225 | K |
|---|---|---|---|---|
| Capacitor Class | Series | Voltage | Capacitance Code (pF) | Capacitance Tolerance |
| CX = MIL-PRF | 06 = T378 | A = 2 V<br>B = 3 V<br>C = 4 V<br>D = 6 V<br>F = 10 V<br>H = 15 V<br>J = 20 V<br>K = 25 V<br>M = 35 V | First two digits represent significant figures. Third digit specifies number of zeros to follow. | K = ±10%<br>M = ±20% |

### T370

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 6 | 10 | 15 | 20 | 25 | 35 |
| C/5.72 x 4.7 x 1.91 | | 15 µF | 10 µF | 6.8 µF | | 3.3 µF – 4.7 µF | 2.2 µF | 680 nF – 1.5 µF |
| D/7.73 x 5.59 x 2.79 | | 47 µF | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF | 2.2 µF – 4.7 µF |
| E/7.87 x 5.84 x 3.3 | | 68 µF | 47 µF | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF |
| F/12.07 x 9.53 x 3.81 | 220 µF | | 150 µF | 100 µF | 68 µF | 47 µF | 33 µF | 10 µF – 22 µF |

### T378

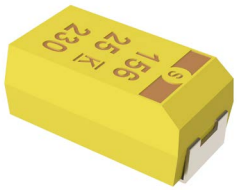
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 6 | 10 | 15 | 20 | 25 | 35 |
| D/7.73 x 5.59 x 2.79 | | 47 µF | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF | 2.2 µF – 4.7 µF |
| E/7.87 x 5.84 x 3.3 | | 68 µF | 47 µF | 33 µF | 22 µF | 15 µF | 10 µF | 6.8 µF |
| F/12.07 x 9.53 x 3.81 | 220 µF | | 150 µF | 100 µF | 68 µF | 47 µF | 33 µF | 10 µF – 22 µF |

## Space Grade

### T493 (CWR11 Style) COTS $MnO_2$

**Capacitance Range:** 0.1 to 330 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T493-Space**



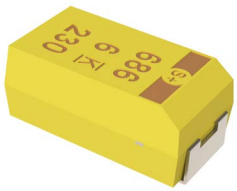
| T | 493 | D | 227 | K | 006 | C | H | 61 | 2 | A |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Voltage | Failure Rate/ Design | Lead Material | Surge | ESR | Testing |
| T = Tantalum | CRW11 Style Space Grade | A, B, C, D, X | First two digits represent significant figures. Third digit specifies number of zeros. | J = ±5%<br>K = ±10%<br>M = ±20% | 004 = 4 V<br>006 = 6.3 V<br>010 = 10 V<br>016 = 16 V<br>020 = 20 V<br>025 = 25 V<br>035 = 35 V<br>050 = 50 V | C = .01%/1,000 hours | C = Hot Solder Dipped<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated<br>K = Solder Fused<br>T = 100% Tin | 61 = None<br>62 = 10 Cycles after Weibull,25°C<br>63 = 10 Cycles, after Weibull,-55°C and 85°C<br>64 = 10 Cycles before Weibull, -55°C and 85°C<br>65 = 10 Cycles Before and After Weibull, -55°C and 85°C | 1 = ESR - Standard<br>2 = ESR - Low | A = Option A<br>B = Option B<br>C = Option C |

| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| A/3216 – 18 | 2.2 µF – 22 µF | 1.5 µF – 15 µF | 1 µF – 10 µF | 680 nF – 2.2 µF | 470 nF – 1 µF | 330 nF – 1.5 µF | 100 nF – 680 nF | 100 nF – 150 nF |
| B/3528 – 21 | 6.8 µF – 68 µF | 4.7 µF – 47 µF | 3.3 µF – 22 µF | 3.3 µF – 6.8 µF | 1.5 µF – 3.3 µF | 680 nF – 3.3 µF | 470 nF – 2.2 µF | 150 nF – 470 nF |
| C/6032 – 28 | 22 µF – 150 µF | 15 µF – 100 µF | 10 µF – 68 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 2.2 µF – 15 µF | 1.5 µF – 4.7 µF | 470 nF – 2.2 µF |
| D/7343 – 31 | 68 µF – 330 µF | 47 µF – 330 µF | 33 µF – 220 µF | 22 µF – 68 µF | 15 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 1.5 µF – 4.7 µF |
| X/7343 – 43 | 330 µF | 220 µF – 330 µF | 68 µF – 330 µF | 100 µF | 47 µF – 68 µF | 15 µF – 33 µF | 10 µF – 22 µF | 4.7 µF – 10 µF |

### T496 Fail-Safe Fused $MnO_2$

**Capacitance Range:** 0.15 to 470 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T496-Space**



| T | 496 | X | 227 | M | 010 | C | T | 61 | 2 | A |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Voltage | Failure Rate/ Design | Lead Material | Surge | ESR | Testing |
| T = Tantalum | Fail Safe - Space Grade | B, C, D, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 004 = 4 V<br>006 = 6.3 V<br>010 = 10 V<br>016 = 16 V<br>020 = 20 V<br>025 = 25 V<br>035 = 35 V<br>050 = 50 V | C = 0.01%/1,000 hours | C = Hot Solder Dipped<br>T = 100% Matte Tin (Sn) Plated<br>H = Standard Solder Coated (SnPb 5% Pb minimum) | 61 = None<br>62 = 10 Cycles after Weibull,25°C<br>63 = 10 Cycles, after Weibull,-55°C and 85°C<br>64 = 10 Cycles before Weibull, -55°C and 85°C<br>65 = 10 Cycles Before and After Weibull, -55°C and 85°C | 1 = ESR - Standard<br>2 = ESR - Low | A = Option A<br>B = Option B<br>C = Option C |

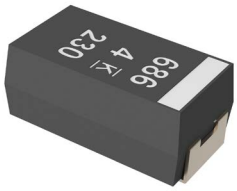
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |
| B/3528 – 21 | | 4.7 µF – 22 µF | 3.3 µF – 15 µF | 2.2 µF – 4.7 µF | 1.5 µF – 2.2 µF | 680 nF – 4.7 µF | 470 nF – 1 µF | 150 nF – 330 nF |
| C/6032 – 28 | 68 µF – 150 µF | 15 µF – 100 µF | 10 µF – 47 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 2.2 µF – 15 µF | 1.5 µF – 3.3 µF | 470 nF – 1.5 µF |
| D/7343 – 31 | 150 µF – 330 µF | 47 µF – 220 µF | 33 µF – 150 µF | 22 µF – 68 µF | 15 µF – 33 µF | 10 µF – 22 µF | 4.7 µF – 15 µF | 2.2 µF – 4.7 µF |
| X/7343 – 43 | 330 µF – 470 µF | 100 µF – 330 µF | 68 µF – 220 µF | 47 µF | 33 µF | 22 µF | 10 µF – 15 µF | 4.7 µF |

## Space Grade (cont.)

### T497 (CWR09/19/29 Style) COTS $MnO_2$

**Capacitance Range:** 0.1 to 150 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T497-Space**




| T | 497 | G | 226 | K | 020 | C | H | 61 | 2 | A |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Voltage | Failure Rate/ Design | Lead Material | Surge | ESR | Testing |
| T = Tantalum | High Grade - Space Grade | A, B, C, D, E, F, G, H, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 004 = 4 V<br>006 = 6.3 V<br>010 = 10 V<br>015 = 15 V<br>020 = 20 V<br>025 = 25 V<br>035 = 35 V<br>050 = 50 V | C = 0.01%/1,000 hours | C = Hot Solder Dipped<br>T = 100% Matte Tin (Sn) Plated<br>H = Standard Solder Coated (SnPb 5% Pb minimum)<br>B = Gold Plated | 61 = None<br>62 = 10 Cycles after Weibull,25°C<br>63 = 10 Cycles, after Weibull,-55°C and 85°C<br>64 = 10 Cycles before Weibull, -55°C and 85°C<br>65 = 10 Cycles Before and After Weibull, -55°C and 85°C | 1 = ESR - Standard<br>2 = ESR - Low | A = Option A<br>B = Option B<br>C = Option C |

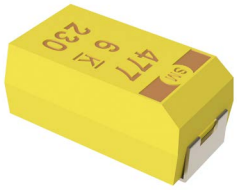
| Case Size | Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 6.3 | 10 | 15 | 20 | 25 | 35 | 50 |
| A/2513 – 16 | 2.2 µF – 6.8 µF | 1.5 µF – 4.7 µF | 1 µF – 3.3 µF | 680 nF – 2.2 µF | 470 nF | | | 100 nF |
| B/3813 – 16 | 4.7 µF – 15 µF | 3.3 µF – 15 µF | 2.2 µF – 6.8 µF | 1.5 µF | 680 nF – 1 µF | 680 nF – 1 µF | 470 nF | 220 nF – 330 nF |
| C/5113 – 16 | 6.8 µF | 4.7 µF | 3.3 µF – 10 µF | 2.2 µF | 1.5 µF | 1 µF | 680 nF | 470 nF |
| D/3825 – 16 | 10 µF – 33 µF | 6.8 µF – 22 µF | 4.7 µF – 15 µF | 3.3 µF – 6.8 µF | 2.2 µF – 3.3 µF | 1.5 µF – 2.2 µF | 1 µF | 680 nF |
| E/5125 – 16 | 15 µF – 68 µF | 10 µF – 33 µF | 6.8 µF – 15 µF | 4.7 µF – 6.8 µF | 3.3 µF – 6.8 µF | 2.2 µF – 3.3 µF | 1.5 µF | 1 µF |
| F/5634 – 22 | 33 µF – 100 µF | 22 µF – 68 µF | 15 µF – 47 µF | 10 µF – 33 µF | 6.8 µF – 10 µF | 4.7 µF – 6.8 µF | 3.3 µF | 1.5 µF – 2.2 µF |
| G/6728 – 32 | 68 µF – 150 µF | 47 µF – 150 µF | 33 µF – 100 µF | 22 µF – 47 µF | 15 µF – 22 µF | 6.8 µF – 22 µF | 4.7 µF | 3.3 µF |
| H/7238 – 32 | 100 µF – 330 µF | 68 µF – 330 µF | 47 µF – 220 µF | 33 µF – 68 µF | 22 µF – 33 µF | 15 µF – 33 µF | 6.8 µF – 10 µF | 4.7 µF |
| X/6954 – 31 | | | 150 µF | | 47 µF | 22 µF – 33 µF | 15 µF | |

## Space Grade (cont.)

### T510 Multiple Anode $MnO_2$

**Capacitance Range:** 10 to 1,000 µF • **Temperature Range:** −55°C to +125°C

**www.kemet.com/T510**




| T | 510 | X | 477 | M | 006 | C | T | 61 | 1 | A |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Voltage | Failure Rate/ Design | Lead Material | Surge | ESR | Testing |
| T = Tantalum | Ultra Low ESR - Space Grade | E, X | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 004 = 4 V<br>006 = 6.3 V<br>010 = 10 V | C = 0.01%/1,000 hours | C = Hot Solder Dipped<br>T = 100% Matte Tin (Sn) Plated<br>H = Standard Solder Coated (SnPb 5% Pb minimum) | 61 = None<br>62 = 10 Cycles after Weibull,25°C<br>63 = 10 Cycles, after Weibull,-55°C and 85°C<br>64 = 10 Cycles before Weibull, -55°C and 85°C<br>65 = 10 Cycles Before and After Weibull, -55°C and 85°C | 1 = ESR - Standard | A = Option A<br>B = Option B<br>C = Option C |

| Case Size | Voltage | | |
|---|---|---|---|
| | 4 | 6.3 | 10 |
| E/7360 – 38 | | 680 µF | |
| X/7343 – 43 | 1 mF | | 330 µF |

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