HIGH RELIABILITY EXTENDED RANGE
CHIP CAPACITORS FOR SPACE

NEW HIGH CAP VALUES

100% Screened &
Inspected to
MIL-PRF-123 Including
0201 & 0402
SIZES

Catalog 2001
REV 1
HIGH RELIABILITY EXTENDED RANGE CHIP CAPACITORS
FORMERLY THE PRESIDIO COMPONENTS, INC. “#M123” DRAWING

For space flight applications that require the highest level of reliability, Presidio recommends its high reliability extended range chip capacitors. Tested to the requirements of MIL-PRF-123, Presidio manufactures these chips on the same manufacturing line as its military products. Please note these capacitors are NOT MIL-qualified. Unless noted in the data sheet, the parts do meet the MIL-PRF-123 design requirements for dielectric thickness and electrode composition. All parts are manufactured with PRECIOUS METAL ELECTRODES.

QUALITY ASSURANCE PROVISIONS
Every lot undergoes the following inspection and tests.

DESTRUCTIVE PHYSICAL ANALYSIS (DPA) — A representative sample is pulled from each lot and examined per EIA RS469 and to verify adherence to Presidio’s design criteria. Sample size is per MIL-PRF-123.

ULTRASONIC INSPECTION —
Code A: Ultrasonic inspection is performed on 100% of the parts, except for Case Code 0201 where real time X-Ray is used instead.
Code B: No Ultrasonic inspection or real time X-Ray is performed.


EXAMPLE: SR0805X7R103K2P5(L)#M123A

DIELECTRIC WITHSTANDING VOLTAGE (DWV) — All parts are tested at 2.5X rated voltage in accordance with Method 301 of MIL-STD-202.

INSULATION RESISTANCE (IR @ 125°C) — All parts are tested at 125°C and Rated Voltage in accordance with Method 302 of MIL-STD-202. The minimum IR required is 10,000 Megohms or 100 Megohm-Microfarads.

VOLTAGE CONDITIONING — All parts receive a voltage conditioning at 2X rated voltage and 125°C for a minimum of 168 hours and a maximum of 264 hours. Voltage Conditioning may be terminated at any time between 168 and 264 hour time interval that failures are less than .1% or 1 piece during the last 48 hours of the test. Method follows MIL-PRF-123. Resistors, instead of fuses are acceptable.

INSULATION RESISTANCE (IR @ 25°C) — All parts are tested at 25°C and Rated Voltage in accordance with Method 302 of MIL-STD-202. The minimum IR required is 10,000 Megohms or 100 Megohm-Microfarads.

CAPACITANCE — All parts are tested at 25°C and 1VACRMS in accordance with Method 305 of MIL-STD-202.

DISSIPATION FACTOR (DF) — See following table:

<table>
<thead>
<tr>
<th>VOLTAGE RATING</th>
<th>NPO</th>
<th>X7R</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/6.3/10</td>
<td>N/A</td>
<td>7.5%</td>
</tr>
<tr>
<td>16</td>
<td>0.15%</td>
<td>5%</td>
</tr>
<tr>
<td>25</td>
<td>0.15%</td>
<td>4%</td>
</tr>
<tr>
<td>50</td>
<td>0.15%</td>
<td>3.5%</td>
</tr>
<tr>
<td>100</td>
<td>0.15%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

* For 10V high cap values see note 1/ on page 3

EXAMPLE: SR0805X7R103K2P5(L)#M123A

HOW TO ORDER

See Back Page for Design-In Codes

NASA S-311 SPECIFICATION
Most of these chips are qualified to the NASA S-311 drawing. For more information click on the NASA S-311-P-829 link on Presidio’s website:
www.presidiocomponents.com

DESTRUCTION PHYSICAL ANALYSIS (DPA) — The cumulative PDA after Voltage Conditioning is 5%. Pieces rejected as out of tolerance for capacitance or visual screening will be removed from the lot but not counted in the PDA calculation.

VISUAL — A 100% inspection is performed IAW MIL-PRF-123 Appendix B.

MECHANICAL — Level 1 AQL 1% in accordance with MIL-PRF-123.

THERMAL SHOCK AND LIFE TEST — A sample is pulled from each lot. 100 Thermal shock cycles are performed and Life Test is performed for 1000 hours at 2X rated voltage and 125°C. Sample size and method follows MIL-PRF-123.

HUMIDITY, STEADY STATE, LOW VOLTAGE — A sample of 12 pieces is pulled from each lot and tested per MIL-PRF-123.

MARKING (Optional for sizes 0805 and larger only) — Parts will not be marked unless marking is specified on the PO. If marking is specified, a color letter will be used per Presidio’s chip marking system.

STANDARD PACKAGING
Product will be packaged in individual waffle trays. Tape and reel option is available.

DATA PACKAGE
Data will be sent with each shipment including:
• CERTIFICATE of COMPLIANCE
• DPA REPORT
• GROUP A & B ATTRIBUTE DATA SHEET
• LIFE TEST AND HUMIDITY VARIABLES DATASHEET.

Group B required for flight parts. Parts for engineering models may be subject to lesser screening requirements.

EXAMPLE PART NUMBER
SR0805X7R103K2P5(L)#M123A

PART DESCRIPTION: SR, 0805, X7R, 10nF, ±10%, 50VDC, PdAg Termination, Waffle Pack, Design-In Code (L) for Vermont, Screened per MIL-PRF-123, with 100% Ultrasonic Inspection.

See Page 3 For Sizes Other Sizes Available

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>SR</td>
<td>0805</td>
<td>X7R</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>L (inches)</td>
<td>W (inches)</td>
<td>THICKNESS MAX (T)</td>
<td>METALIZATION BAND (M.B.)</td>
<td>WVDC</td>
<td>DIELECTRIC (MAXIMUM CAPACITY)</td>
<td>Available as S-311</td>
<td></td>
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</tr>
<tr>
<td>0201</td>
<td>0.024 (0.61) ± 0.003 (0.08)</td>
<td>0.011 (0.28) ± 0.001 (0.03)</td>
<td>0.013 (0.33)</td>
<td>.004 (0.10) min. band .008 (0.20) min. space</td>
<td>10 V</td>
<td>New! 0.01 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0402</td>
<td>0.040 (1.02) ± 0.006 (0.15)</td>
<td>0.020 (0.51) ± 0.004 (0.10)</td>
<td>0.024 (0.61)</td>
<td>.004 (0.10) min. band .015 (0.38) min. space</td>
<td>10 V</td>
<td>New! 0.1 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0403</td>
<td>0.040 (1.02) ± 0.010 (0.25)</td>
<td>0.030 (0.76) ± 0.010 (0.25)</td>
<td>0.030 (0.76)</td>
<td>.004 (0.10) min. band .015 (0.38) min. space</td>
<td>16 V</td>
<td>0.01 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0504</td>
<td>0.050 (1.27) ± 0.010 (0.25)</td>
<td>0.040 (1.02) ± 0.010 (0.25)</td>
<td>0.040 (1.02)</td>
<td>.005 (0.13) min. band .015 (0.38) min. space</td>
<td>16 V</td>
<td>0.022 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Inductance 0306</td>
<td>0.032 (0.81) ± 0.006 (0.15)</td>
<td>0.063 (1.60) ± 0.006 (0.15)</td>
<td>0.033 (0.84)</td>
<td>See Note 2/ .005 (0.13) min. band .010 (0.25) min. space</td>
<td>5 V</td>
<td>0.10 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0603</td>
<td>0.063 (1.60)</td>
<td>0.032 (0.81)</td>
<td>0.035 (0.89)</td>
<td>.005 (0.13) min. band .025 (0.64) min. space</td>
<td>10 V</td>
<td>0.22 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Inductance 0508</td>
<td>0.050 (1.27) ± 0.010 (0.25)</td>
<td>0.080 (2.03) ± 0.010 (0.25)</td>
<td>0.045 (1.14)</td>
<td>See Note 3/ .005 (0.13) min. band .020 (0.51) min. space</td>
<td>10 V</td>
<td>0.12 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0805</td>
<td>0.080 (2.03) ± 0.010 (0.25)</td>
<td>0.050 (1.27) ± 0.010 (0.25)</td>
<td>0.055 (1.40)</td>
<td>0.020 (0.51) ± 0.010 (0.25)</td>
<td>10 V</td>
<td>New! 1.00 µF</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Inductance 0612</td>
<td>0.063 (1.60)</td>
<td>0.010 (0.25)</td>
<td>0.126 (3.20)</td>
<td>0.010 (0.25)</td>
<td>0.055 (1.40)</td>
<td>.005 (0.13) min. band .025 (0.64) min. space</td>
<td>16 V</td>
<td>0.27 µF</td>
<td>No</td>
</tr>
<tr>
<td>1206</td>
<td>0.126 (3.20)</td>
<td>0.008 (0.20)</td>
<td>0.063 (1.60)</td>
<td>0.008 (0.20)</td>
<td>0.060 (1.52)</td>
<td>0.020 (0.51) ± 0.010 (0.25)</td>
<td>10 V</td>
<td>New! 1.8 µF</td>
<td>No</td>
</tr>
<tr>
<td>1209</td>
<td>0.125 (3.18)</td>
<td>0.010 (0.25)</td>
<td>0.095 (2.41)</td>
<td>0.010 (0.25)</td>
<td>0.065 (1.66)</td>
<td>0.020 (0.51) ± 0.010 (0.25)</td>
<td>10 V</td>
<td>New! 2.7 µF</td>
<td>No</td>
</tr>
<tr>
<td>Low Inductance 0912</td>
<td>0.095 (2.41) ± 0.010 (0.25)</td>
<td>0.126 (3.20)</td>
<td>0.010 (0.25)</td>
<td>0.065 (1.65)</td>
<td>.005 (0.13) min. band .025 (0.64) min. space</td>
<td>16 V</td>
<td>0.68 µF</td>
<td>No</td>
<td></td>
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<tr>
<td>1712</td>
<td>0.175 (4.45)</td>
<td>0.013 (0.33)</td>
<td>0.125 (3.18)</td>
<td>0.010 (0.25)</td>
<td>0.065 (1.65)</td>
<td>0.020 (0.51) ± 0.010 (0.25)</td>
<td>16 V</td>
<td>1.2 µF</td>
<td>No</td>
</tr>
<tr>
<td>1812</td>
<td>0.180 (4.572)</td>
<td>0.015 (0.38)</td>
<td>0.125 (3.18)</td>
<td>0.015 (0.38)</td>
<td>0.080 (2.03)</td>
<td>0.020 (0.51) ± 0.010 (0.25)</td>
<td>10 V</td>
<td>New! 4.7 µF</td>
<td>No</td>
</tr>
<tr>
<td>1725</td>
<td>0.180 (4.45)</td>
<td>0.013 (0.33)</td>
<td>0.250 (6.35)</td>
<td>0.018 (0.46)</td>
<td>0.065 (1.65) *0.080 (2.03) For max cap value</td>
<td>16 V</td>
<td>3.3 µF</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2225</td>
<td>0.220 (5.59)</td>
<td>0.015 (0.38)</td>
<td>0.250 (6.35)</td>
<td>0.018 (0.46)</td>
<td>0.080 (2.03)</td>
<td>0.020 (0.51) ± 0.010 (0.25)</td>
<td>16 V</td>
<td>3.9 µF</td>
<td>No</td>
</tr>
</tbody>
</table>

**MIL-PRF-123 MINIMUM DIELECTRIC THICKNESS COMPLIANT:**

- 0.8 mils for 50V
- 1.0 mils for 100 V

**YES/NO**
After the design work is done, outsourcing manufacturing on a global basis is a management option. At Presidio Components, we are striving for complete customer satisfaction which includes “after” service for all of our products.

For quick traceability, if needed, we added a “Design-In” locator code. Please select your location from the list below and add the appropriate code at the end of the part number. If you need assistance give us a call at (858) 578-9390 or email us at info@presidiocomponents.com.

**PART NUMBER EXAMPLE:**
```
SR0805X7R103K2P5(L)#M123A
```

PART DESCRIPTION: SR, 0805, X7R, 10nF, ±10%, 50VDC, PdAg Termination, Waffle Pack, Design-In Code (L) for Vermont, Screened per MIL-PRF-123, with 100% Ultrasonic Inspection.

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**MAIN PRODUCT CATALOGS**

*Click Catalog Cover to Visit Product Page on Website*

- CERAMIC CHIP CAPACITORS
- HIGH RELIABILITY EXTENDED RANGE CHIPS FOR SPACE
- SMPS STACKED CAPACITORS
- HIGH TEMPERATURE CERAMIC CAPACITORS
- CERAMIC CAPACITORS FOR RF, MICROWAVE & FIBER OPTIC APPLICATIONS
- ULTRA-PORCELAIN RF CAPACITORS
- HIGH VOLTAGE & RADIAL LEDGED PRODUCTS MIL-PRF-49467