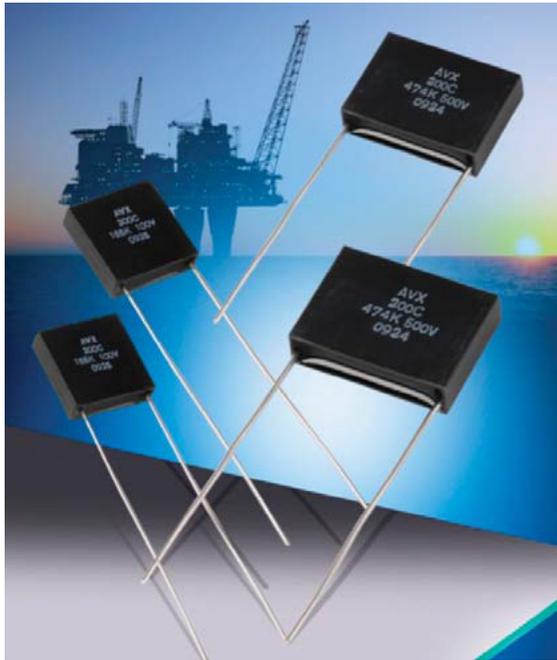


# SMPS Molded Radial MLC Capacitors

## SXP Style for High Temperature Applications up to 200°C



SXP-style, encapsulated radial leaded MLC capacitors are ideally suited for high temperature applications up to 200°C. This product is intended for downhole oil exploration, including logging while drilling, geophysical probes, as well as space, aerospace and hybrid automotive applications. This product supplements the SMX family of capacitors and offers mechanical protection to the ceramic element in extreme harsh environment. The high temperature solder utilized in the construction of SXP-style parts assures reliable operation in high temperature and rugged environments. The SXP-style capacitors are ideally suited for applications as DC filters in high power, high frequency motor drives, high pulsed-current circuitry, as well as standard electronic equipment designed for high temperature applications.

SXP-style, switch mode power supply capacitors are characterized with excellent performance. The main benefits of SXP product include:

- Low ESR, low ESL
- Low DC leakage
- Excellent high frequency performance

### HOW TO ORDER

|            |                                    |  |  |   |   |                            |   |
|------------|------------------------------------|--|--|---|---|----------------------------|---|
| <b>SXP</b> | <b>3</b>                           | <b>1</b>   | <b>C</b>   | <b>104</b>  | <b>M</b>  | <b>A</b>                   | <b>A</b>                                    |
| Style      | Size<br>See<br>Dimensions<br>chart | Voltage<br>Code<br>50V = 5<br>100V = 1<br>200V = 2<br>500V = 7<br>1000V = A<br>1500V = S<br>2000V = G<br>3000V = H | Temperature<br>Coefficient<br>COG = A<br>VHT/X7R = C | Capacitance Code<br>(2 significant digits<br>+ number of zeros)<br>100 pF = 101<br>22,000 pF = 223<br>1µF = 105 | Capacitance<br>Tolerance<br>COG:<br>J = ±5%<br>K = ±10%<br>M = ±20%<br>VHT/X7R:<br>K = ±10%<br>M = ±20%<br>Z = +80%, -20% | Test Level<br>A = Standard | Leads<br>A = Standard<br>Sn/Pb (min. 5% Pb) |
|            |                                    |  |  |   | <b>Not RoHS Compliant</b>   |                            |   |
|            |                                    |  |  |   | Tighter tolerances<br>available upon<br>request   |                            |   |

### ELECTRICAL SPECIFICATIONS

#### Temperature Coefficient

COG: A Temperature Coefficient 0 ±30 ppm/°C, -55° to +200°C  
 VHT/X7R: C Temperature Coefficient ±15%, -55°C to +125°C  
 +15% - 56%, -55°C to +200°C

#### Capacitance Test (MIL-STD-202 Method 305)

25°C, 1.0±0.2 Vrms (open circuit voltage) at 1KHz

#### Dissipation Factor 25°C

COG: 0.15% Max @ 25°C, 1.0±0.2 Vrms (open circuit voltage) at 1KHz  
 VHT/X7R: 2.5% Max @ 25°C, 1.0±0.2 Vrms (open circuit voltage) at 1KHz

#### Insulation Resistance 25°C (MIL-STD-202 Method 302)

100K MΩ or 1000 MΩ-µF, whichever is less.

#### Insulation Resistance 125°C (MIL-STD-202 Method 302)

10K MΩ or 100 MΩ-µF, whichever is less.

#### Insulation Resistance 200°C (MIL-STD-202 Method 302)

1K MΩ or 10 MΩ -µF, whichever is less.

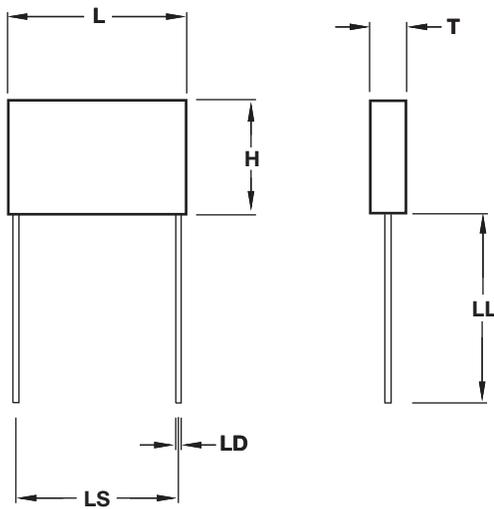
#### Dielectric Withstanding Voltage 25°C (Flash Test)

250% rated voltage for 5 seconds with 50 mA max charging current. (150% for 500 VDC and 120% for 1000 VDC and higher voltage ratings)

# SMPS Molded Radial MLC Capacitors

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### STYLE



### DIMENSIONS

millimeters (inches)

| Style | Length (L)<br>±0.25 (±0.010) | Height (H)<br>±0.25 (±0.010) | Thickness (T)<br>±0.25 (±0.010) | Lead Spacing<br>±0.76 (±0.030) | LD<br>±0.05 (±0.002) | LL           |
|-------|------------------------------|------------------------------|---------------------------------|--------------------------------|----------------------|--------------|
| SXP1  | 8.9 (0.350)                  | 8.9 (0.350)                  | 5.08 (0.200)                    | 5.08 (0.200)                   | 0.51 (0.020)         | 25.4 (1.000) |
| SXP2  | 11.4 (0.450)                 | 11.4 (0.450)                 | 5.08 (0.200)                    | 5.08 (0.200)                   | 0.51 (0.020)         |              |
| SXP3  | 12.7 (0.500)                 | 12.7 (0.500)                 | 5.08 (0.200)                    | 10.2 (0.400)                   | 0.64 (0.025)         |              |
| SXP4  | 22.4 (0.880)                 | 16.3 (0.640)                 | 5.84 (0.230)                    | 19.8 (0.780)                   | 0.81 (0.032)         |              |

### CAPACITANCE RANGE

#### COG

| Style | 50V   | 100V   | 200V   | 500V   | 1000V  | 1500V  | 2000V  | 3000V  |
|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| SXP1  | (MIN) | 1000pF | 1000pF | 1000pF | 100pF  | 100pF  | 100pF  | 100pF  |
|       | (MAX) | .047μF | .027μF | 8200pF | 4700pF | 2200pF | 1000pF | 560pF  |
| SXP2  | (MIN) | .01μF  | 1000pF | 1000pF | 100pF  | 100pF  | 100pF  | 100pF  |
|       | (MAX) | .10μF  | .056μF | .018μF | 8200pF | 4700pF | 1800pF | 1200pF |
| SXP3  | (MIN) | .01μF  | 1000pF | 1000pF | 1000pF | 100pF  | 100pF  | 100pF  |
|       | (MAX) | .15μF  | .068μF | .022pF | .012pF | 6800pF | 2700pF | 1500pF |
| SXP4  | (MIN) | .01μF  | .01μF  | 1000pF | 1000pF | 1000pF | 100pF  | 100pF  |
|       | (MAX) | .39μF  | .22μF  | .068pF | .033pF | .018μF | 8200pF | 4700pF |

#### VHT/X7R

| Style | 50V   | 100V  | 200V  | 500V  | 1000V | 1500V  | 2000V  | 3000V  |
|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| SXP1  | (MIN) | .1μF  | .01μF | .01μF | .01μF | .01μF  | .01μF  | 1000pF |
|       | (MAX) | 1.5μF | 1.0μF | .33μF | .12μF | .056μF | .022μF | .012μF |
| SXP2  | (MIN) | .1μF  | .1μF  | .01μF | .01μF | .01μF  | .01μF  | .01μF  |
|       | (MAX) | 2.7μF | 1.8μF | .68μF | .27μF | .10μF  | .056μF | .022μF |
| SXP3  | (MIN) | .01μF | .1μF  | .01μF | .01μF | .01μF  | .01μF  | .01μF  |
|       | (MAX) | 3.9μF | 2.7μF | 1.0μF | .33μF | .15μF  | .082μF | .033μF |
| SXP4  | (MIN) | 1μF   | .1μF  | .1μF  | .01μF | .01μF  | .01μF  | .01μF  |
|       | (MAX) | 12μF  | 8.2μF | 2.7μF | 1.0μF | .47μF  | .22μF  | .10μF  |