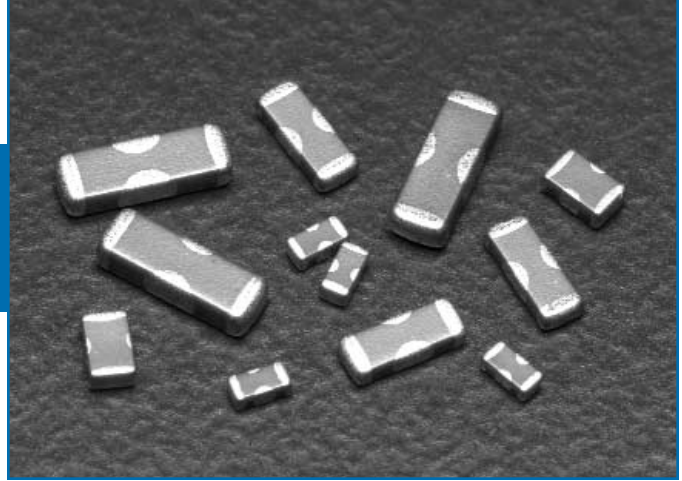


Surface Mount EMI Filters Three Terminal Chips



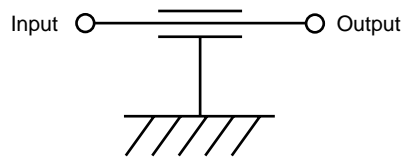
Features

- Excellent performance in high current applications
- Non-polar, surface mountable
- Superior filtering characteristics
- Superb ability to withstand transient voltages and surge
- Offers exceptional solderability and resistance to solder heat
- Available in 0603, 0805, 1205 and 1806 body size
- Two amp current rating available
- Available lead free/RoHS Compliant

Applications

- Cellular telephones and base stations
- Telecommunication equipment
- Industrial electronic interface or programmable controllers
- Electronic automotive equipment
- Computer and peripheral equipment

Circuit Schematic



Typical Electrical Characteristics

Capacitance Range COG (NPO) 22 pF to 470 pF
X7R 470 pF to 47,000 pF
YV5 100,000 pF and 220,000 pF

Capacitance Tolerance COG (NPO) +50/-20%
X7R +50/-20%
Y5V +80/-20%

Temperature Coefficient COG (NPO) 0 ±30 ppm/°C,
-55 to +125°C
X7R +/-15%,
-55 to +125°C
Y5V -25 to +85°C

Insulation Resistance up to 22,000 pF 10000 MΩ
47,000 pF 5000 MΩ

DC Resistance 0.4 Amp or less 0.3 Ohm max.
1 Amp 0.08 Ohm max.
2 Amp 0.04 Ohm max.

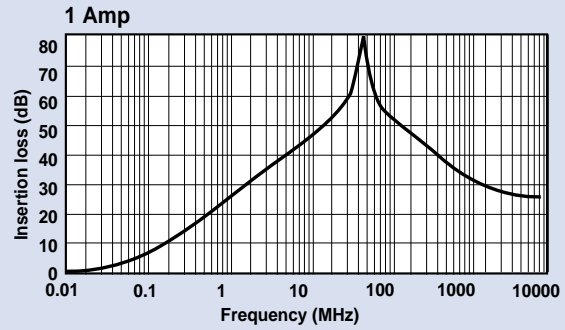
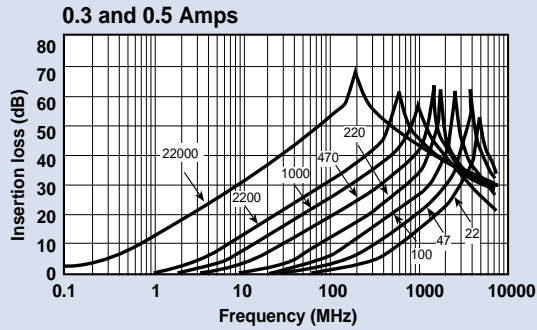
Rated Voltage up to 100 VDC

Rated Current up to 2 Amps

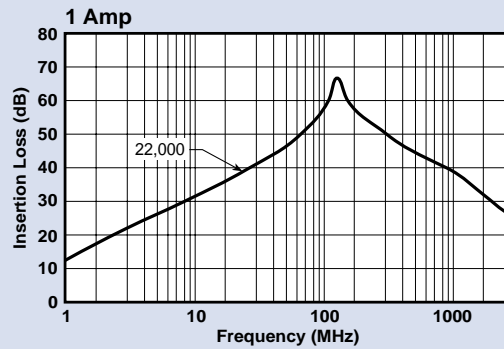
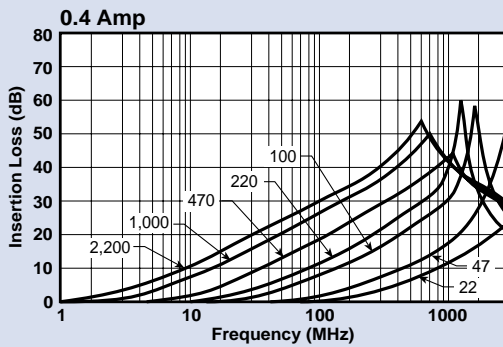
Surface Mount EMI Filters Three Terminal Chips

Insertion Loss (Per MIL-STD-220)

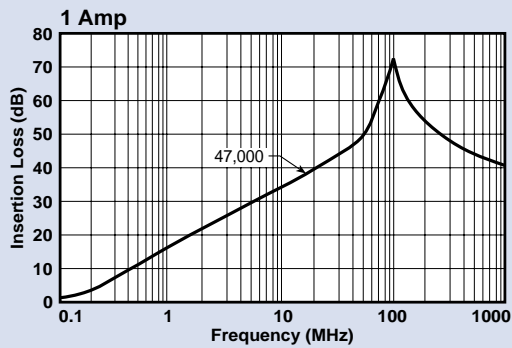
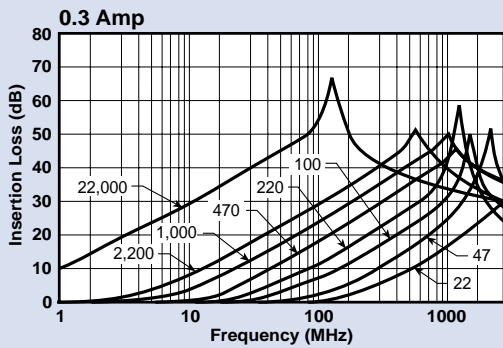
SF0603 Series



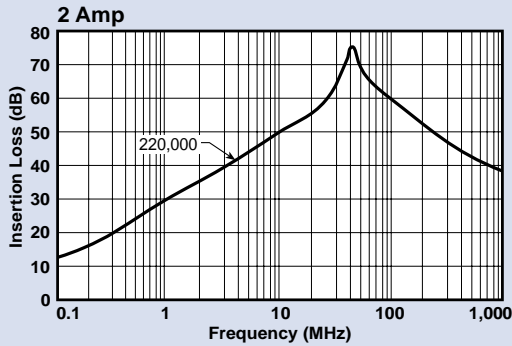
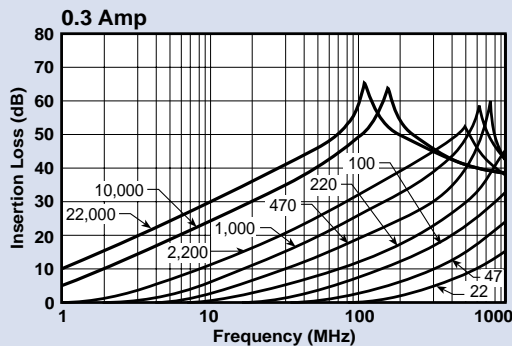
SF0805 Series



SF1205 Series



SF1806 Series



Surface Mount EMI Filters

Three Terminal Chips

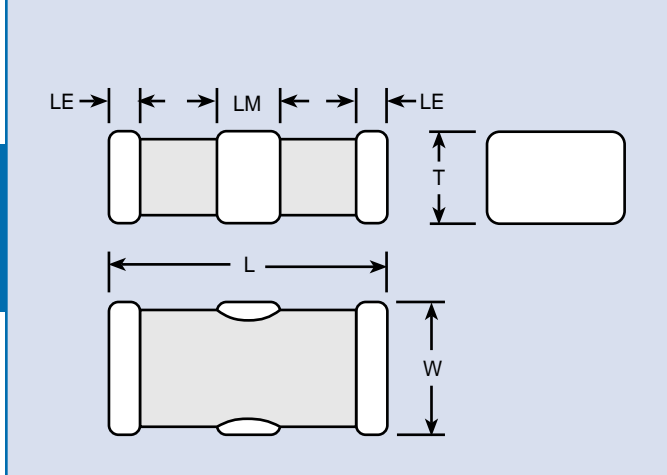
Selection Guide

| Part Number | Body Size | Capacitance (in picofarad) | Capacitance Tolerance | Temp. Charact. | Rated Voltage (Volts DC) | Rated Current (Amps DC) | IR (Megohms Min.) | DC Resistance (ohm Max.) | Operating Temp. |
|--------------------------------------|-------------|----------------------------|-----------------------|----------------|--------------------------|-------------------------|-------------------|--------------------------|-------------------|
| SF0603C220SBNB-* | 0603 | 22 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603C470SBNB-* | 0603 | 47 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603C101SBNB-* | 0603 | 100 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603C221SBNB-* | 0603 | 220 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603X471SBNB-* | 0603 | 470 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603X102SBNB-* | 0603 | 1,000 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603X222SBNB-* | 0603 | 2,200 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF0603X223SANC-* | 0603 | 22,000 | +50/-20% | X7R | 25 | 0.5 | 10,000 | 0.15 | -55/+125°C |
| SF0603Y104SAND-* | 0603 | 100,000 | +80/-20% | Y5V† | 25 | 1 | 1,000 | 0.08 | -25/+85°C |
| SF0805C220SBNC-* | 0805 | 22 | +50/-20% | COG | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805C470SBNC-* | 0805 | 47 | +50/-20% | COG | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805C101SBNC-* | 0805 | 100 | +50/-20% | COG | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805C221SBNC-* | 0805 | 220 | +50/-20% | COG | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805X471SBNC-* | 0805 | 470 | +50/-20% | X7R | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805X102SBNC-* | 0805 | 1,000 | +50/-20% | X7R | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805X222SBNC-* | 0805 | 2,200 | +50/-20% | X7R | 50 | 0.4 | 10,000 | 0.3 | -55/+125°C |
| SF0805X223SBND-* | 0805 | 22,000 | +50/-20% | X7R | 50 | 1.0 | 10,000 | 0.08 | -55/+125°C |
| SF1205C220SBNB-* | 1205 | 22 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205C470SBNB-* | 1205 | 47 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205C101SBNB-* | 1205 | 100 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205C221SBNB-* | 1205 | 220 | +50/-20% | COG | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205X471SBNB-* | 1205 | 470 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205X102SBNB-* | 1205 | 1,000 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205X222SBNB-* | 1205 | 2,200 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205X223SBNB-* | 1205 | 22,000 | +50/-20% | X7R | 50 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1205X473SBND-* | 1205 | 47,000 | +50/-20% | X7R | 50 | 1.0 | 5,000 | 0.08 | -55/+125°C |
| SF1806C220SDNB-* | 1806 | 22 | +50/-20% | COG | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806C470SDNB-* | 1806 | 47 | +50/-20% | COG | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806C101SDNB-* | 1806 | 100 | +50/-20% | COG | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806C221SDNB-* | 1806 | 220 | +50/-20% | COG | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806C471SDNB-* | 1806 | 470 | +50/-20% | COG | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806X102SDNB-* | 1806 | 1,000 | +50/-20% | X7R | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806X222SDNB-* | 1806 | 2,200 | +50/-20% | X7R | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806X103SDNB-* | 1806 | 10,000 | +50/-20% | X7R | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| SF1806X223SDNB-* | 1806 | 22,000 | +50/-20% | X7R | 100 | 0.3 | 10,000 | 0.3 | -55/+125°C |
| 2 AMP FILTER SF1806Y224ZBNE-* | 1806 | 220,000 | +80/-20% | Y5V† | 50 | 2.0 | 1,000 | 0.04 | -25/+85°C |

Bold Letter = High Current Applications
 † = Temperature Characteristic is +30/-80%

* = Denotes Packaging Style. Replace with T for Tape and Reel or B for Bulk

Surface Mount EMI Filters Three Terminal Chips



Mechanical Dimensions

Dimensions in inches (mm)

| Body Style/Size | Body Length (L) | Body Width (W) | Body Thickness (T) | End Terminal Length (LE) | Middle Terminal Length (LM) |
|-----------------|----------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|
| SF0603 | 0.063 +/-0.006 (1.60 +/-0.15) | 0.031 +/-0.006 (0.80+/-0.15) | 0.023 +/-0.006 (0.6+/-0.15) | 0.008 +/-0.006 (0.2 +/-0.15) | 0.020 +/-0.006 (0.5 +/-0.15) |
| SF0805 | 0.079 +/-0.008 (2.0 +/-0.2) | 0.049 +/-0.008 (1.25 +/-0.2) | 0.032 +/-0.008 (0.8 +/-0.2) | 0.012 +/-0.008 (0.3 +/-0.2) | 0.024 +/-0.008 (0.6 +/-0.2) |
| SF1205 | 0.126 +/-0.008 (3.2 +/-0.2) | 0.049 +/-0.008 (1.25 +/-0.2) | 0.028 +/-0.008 (0.7 +/-0.2) | 0.016 +/-0.012 (0.4 +/-0.3) | 0.043 +/-0.012 (1.1 +/-0.3) |
| SF1806 | 0.177 +/-0.012 (4.5 +/-0.3) | 0.063 +/-0.012 (1.6 +/-0.3) | 0.039 +/-0.012 (1.0 +/-0.3) | 0.020 +/-0.012 (0.5 +/-0.3) | 0.055 +/-0.012 (1.4 +/-0.3) |

Ordering Information

Example: **SF0805C221SBNCT**

This part number represents a three terminal chip with a body size of 0805 with a COG (NPO) dielectric. The capacitance is 220 pF with a capacitance tolerance of +50%/-20%. Voltage rating is 50 Volts DC. It has nickel barrier, solder plated terminations and a current rating of 0.4 Amp, (400 milliamps). The parts are taped and reeled.

| SF | 0805 | C | 221 | S | B | N | C | T |
|-------|------------------------------|-------------------------------|--|--------------------------------|-----------------------------|-------------------------------|--|-------------------------------|
| Style | Size | Ceramic | Capacitance Code | Capacitance Tolerance | Rated Voltage (Vdc) | Termination | Current Rating | Packaging |
| SF | 0603 0805 1205 1806 | C - COG X - X7R Y - Y5V | First Two Numbers are Significant, the Third Number Refers to Number of Zeroes | S - +50%/-20% Z - +80%/-20% | A - 25 B - 50 D - 100 | N - Ni Barrier, Solder Plated | B - 0.3 A C - 0.4 A D - 1 A E - 2 A F - 3 A G - 4 A H - 5 A I - 6 A | T - Tape and Reel B - Bulk |