

Surface Mount EMI Filters Three Terminal Chips

Features

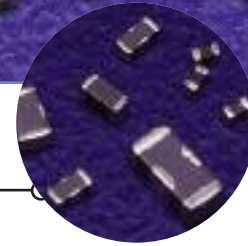
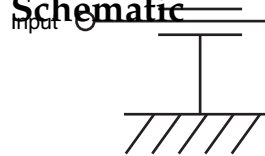
- Excellent performance in high current applications
- Non-polar, surface mountable
- Superior filtering characteristics
- Superb ability to withstand transient voltages and surge
- Offers exceptional solderability and resistance to solder heat
- Available in 0603, 0805, 1205 and 1806 body size
- Two 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 Megohms
 47,000 pF 5000 Megohms

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

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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 |
| SF0603Y104MAND-* | 0603 | 100,000 | ±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 |

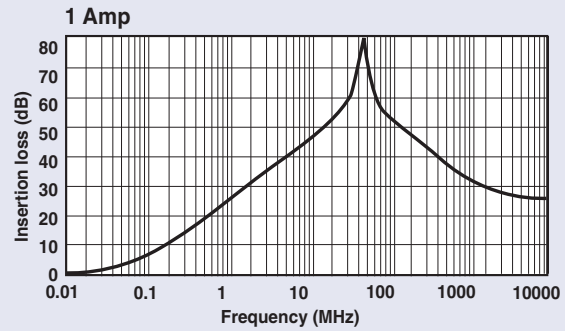
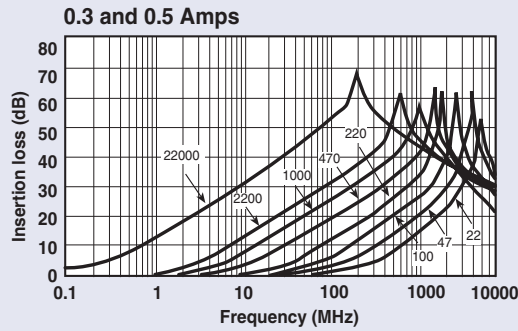
Bold Letter = High Current Applications
 † = Temperature Characteristic is +30/-80%

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

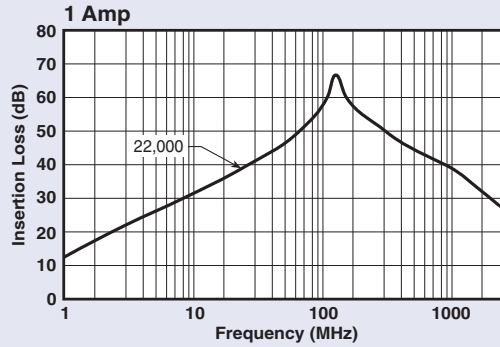
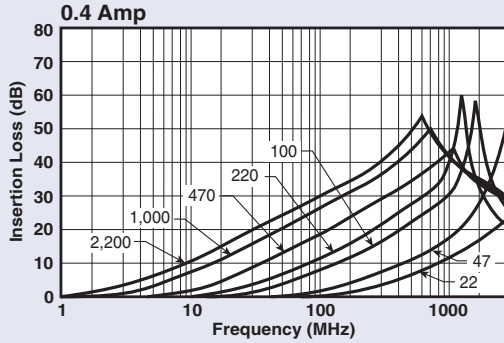
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Insertion Loss (Per MIL-STD-220)

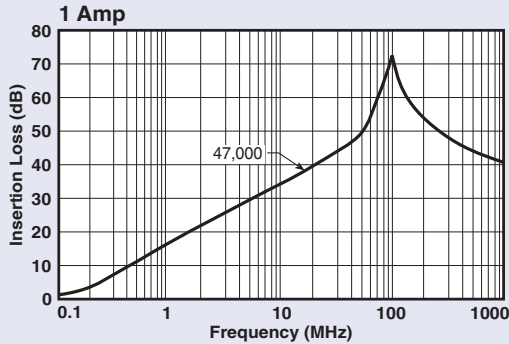
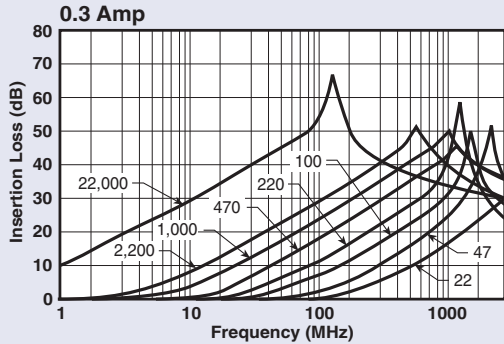
SF0603 Series



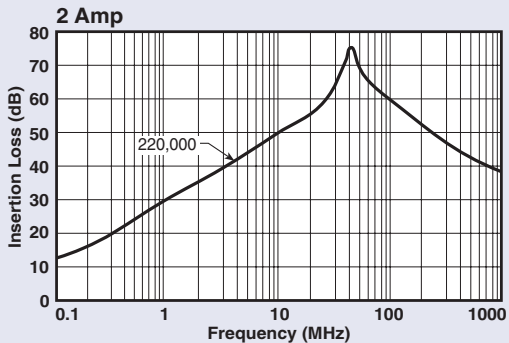
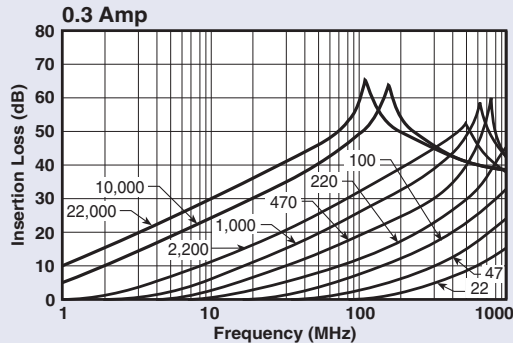
SF0805 Series



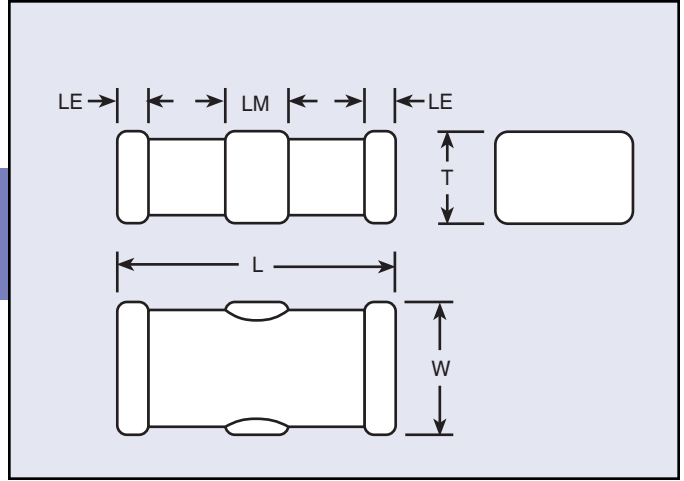
SF1205 Series



SF1806 Series



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 & Reel B - Bulk |

Surface Mount EMI Filters Three Terminal Chips Soldering Specifications

Soldering Instructions

Reflow Soldering



Board Pattern Dimensions in inches (mm)

| Body Style/Size | Dimension | | |
|-----------------|----------------|----------------|----------------|
| | A | B | C |
| SF0603 | 0.020 (0.5) | 0.047 (1.2) | 0.031 (0.8) |
| SF0805 | 0.024 (0.6) | 0.059 (1.5) | 0.039 (1.0) |
| SF1205 | 0.051 (1.3) | 0.091 (2.3) | 0.047 (1.2) |
| SF1806 | 0.079 (2.0) | 0.138 (3.5) | 0.051 (1.3) |

Reflow Soldering



General Soldering Notes

1. High soldering temperatures and long soldering times can cause leaching of the termination and adversely affect adhesion. These conditions can also decrease capacitance value. Use the above recommended solder temperature cycle.
2. Due to the mechanical characteristic of ceramic composition, aggressive thermal shock will degrade performance. Preheat the assembly before soldering using the above solder temperature profile as a guide.

Flow Soldering



Board Pattern Dimensions in inches (mm)

| Body Style/Size | Dimension | | | | | |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | A | B | C | D | E | F |
| SF0603 | 0.020 (0.5) | 0.031 (0.8) | 0.047 (1.2) | 0.031 (0.8) | 0.071 (1.8) | 0.016 (0.4) |
| SF0805 | 0.024 (0.6) | 0.031 (0.8) | 0.059 (1.5) | 0.039 (1.0) | 0.087 (2.2) | 0.024 (0.6) |
| SF1205 | 0.051 (1.3) | 0.059 (1.5) | 0.091 (2.3) | 0.047 (1.2) | 0.118 (3.0) | 0.024 (0.6) |
| SF1806 | 0.059 (1.5) | 0.079 (1.5) | 0.138 (3.5) | 0.051 (1.3) | 0.118 (3.0) | 0.024 (0.6) |

Flow Soldering



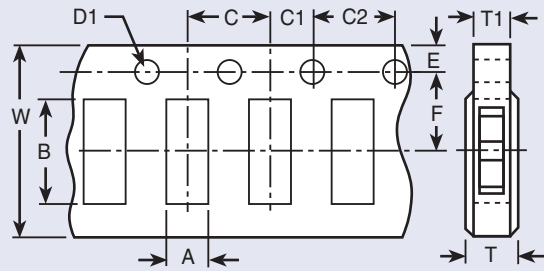
3. Use mild flux (less than 0.2% by weight of Chlorine), preferable rosin based. If water soluble, wash thoroughly to assure all residue is removed from the underside of components.
4. Ultrasonic Cleaning
When using an ultrasonic cleaning method, the following range is recommended:
Frequency: Not to exceed 28kHz
Output Power: Not to exceed 20W/liter
Cleaning Time: 5 minutes max

Surface Mount EMI Filters
Three Terminal Chips
Soldering Specifications

Package Quantities

| Body Style/Size | Tape and Reel |
|-----------------|------------------|
| SF0603 | 4,000 units/reel |
| SF0805 | 4,000 units/reel |
| SF1205 | 4,000 units/reel |
| SF1806 | 2,000 units/reel |

Package Information
Paper Tape Dimensions
SF0805 and SF1205 Bodies



Dimensions in inches (mm)

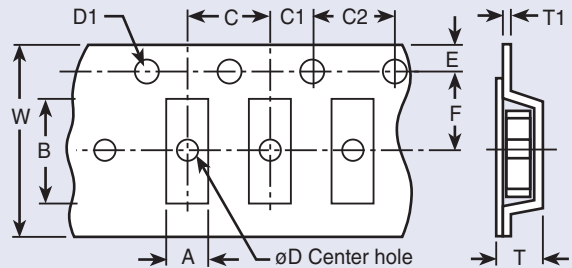
| Body Style/Size | Chip Cavity | | Tape | | | Holes | | | Hole Diameter | | Thickness | |
|-----------------|------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|------------------|------------------------|
| | Length A | Width B | Width W | Center to End F | Indexing to End E | Center to Center C | Indexing to Center C1 | Indexing to Center C2 | Center D (Min.) | Indexing D1 | Overall T (Max.) | Carrier Tape T1 (Max.) |
| SF0603 | 0.039 +/-0.00? (1.0 +/-0.?) | 0.075 +/-0.00? (1.9 +/-0.?) | 0.315 +/-0.012 (8.0 +/-0.3) | 0.138 +/-0.002 (3.5 +/-0.05) | 0.069 +/-0.004 (1.75 +/-0.1) | 0.157 +/-0.004 (4.0 +/-0.1) | 0.079 +/-0.004 (2.0 +/-0.1) | 0.157 +/-0.008 (4.0 +/-0.1) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.043 (1.1) | 0.039 (1.0) |
| SF0805 | 0.064 +/-0.008 (1.62 +/-0.2) | 0.091 +/-0.008 (2.3 +/-0.2) | 0.315 +/-0.012 (8.0 +/-0.3) | 0.138 +/-0.002 (3.5 +/-0.05) | 0.069 +/-0.004 (1.75 +/-0.1) | 0.157 +/-0.004 (4.0 +/-0.1) | 0.079 +/-0.004 (2.0 +/-0.1) | 0.157 +/-0.008 (4.0 +/-0.1) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.043 (1.1) | 0.039 (1.0) |
| SF1205 | 0.067 +/-0.008 (1.70 +/-0.2) | 0.138 +/-0.008 (3.5 +/-0.2) | 0.315 +/-0.012 (8.0 +/-0.3) | 0.138 +/-0.002 (3.5 +/-0.05) | 0.069 +/-0.004 (1.75 +/-0.1) | 0.157 +/-0.004 (4.0 +/-0.1) | 0.079 +/-0.004 (2.0 +/-0.1) | 0.157 +/-0.008 (4.0 +/-0.1) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.043 (1.1) | 0.039 (1.0) |

Plastic Reel Dimensions

Dimensions in inches (mm)

| Body Style/Size | Diameter (Max.) | Width (Max.) |
|-----------------|-----------------|--------------|
| SF0603 | 7.00 (180) | 0.46 (11.5) |
| SF0805 | 7.00 (180) | 0.46 (11.5) |
| SF1205 | 7.00 (180) | 0.46 (11.5) |
| SF1806 | 7.00 (180) | 0.61 (11.5) |

Package Information
Tape and Reel Specification
Plastic Carrier Tape Dimensions
SF1806 Body



Dimensions in inches (mm)

| Body Style/Size | Chip Cavity | | Tape | | | Holes | | | Hole Diameter | | Thickness | |
|-----------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------|-------------------------------------|------------------|------------------------|
| | Length A | Width B | Width W | Center to End F | Indexing to End E | Center to Center C | Indexing to Center C1 | Indexing to Center C2 | Center D (Min.) | Indexing D1 | Overall T (Max.) | Carrier Tape T1 (Max.) |
| SF1806 | 0.071 +/-0.008 (1.80 +/-0.2) | 0.185 +/-0.008 (4.70 +/-0.2) | 0.472 +/-0.008 (12.0 +/-0.2) | 0.217 +/-0.002 (5.5 +/-0.05) | 0.069 +/-0.004 (1.75 +/-0.1) | 0.157 +/-0.004 (4.0 +/-0.1) | 0.079 +/-0.004 (2.0 +/-0.1) | 0.157 +/-0.008 (4.0 +/-0.1) | 0.059 (1.5) | 0.059 +0.004/-0 (1.5 +0.1/-0) | 0.098 (2.5) | 0.024 (0.6) |



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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