



**SF2038B-2**

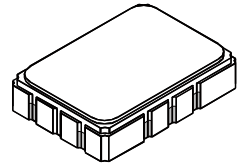
**76.500 MHz  
SAW Filter**

- **Designed for SDARS IF Receiver**
- **Low Insertion Loss**
- **5.0 X 7.0 mm Surface-Mount Case**
- **Differential or Single Ended Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**



**Absolute Maximum Ratings**

| Rating  | Value          | Units |
|---|----------------|-------|
| Maximum Incident Power in Passband              | +10            | dBm   |
| Max. DC voltage between any 2 terminals         | 30             | VDC   |
| Storage Temperature Range (with tape & reel)    | -40 to +85     | °C    |
| Storage Temperature Range (without tape & reel) | -50 to +125    | °C    |
| Max Soldering Profile                           | 265°C for 10 s |       |



**SMP-03**

**Electrical Characteristics**

| Characteristic   | Sym   | Notes | Min                               | Typ    | Max  | Units             |
|--|---|-------|-----------------------------------|--------|------|-------------------|
| Nominal Center Frequency                                 | $f_c$   | 1     |                                   | 76.500 |      | MHz               |
| Passband   | Insertion Loss                                | 1     |                                   | 10.0   | 12.0 | dB                |
|  | 1dB Passband                                  |       | 12.5                              | 14.0   |      | MHz               |
|  | 15dB Bandwidth                                |       |                                   | 16.8   | 18.0 | MHz               |
|  | 30dB Bandwidth                                |       |                                   | 18.0   | 19.2 | MHz               |
|  | Amplitude Ripple over $f_c \pm 6.25$ MHz      |       |                                   | 0.70   | 1.3  | dB <sub>P-P</sub> |
|  | Group Delay Variation over $f_c \pm 6.25$ MHz | GDV   |                                   | 40     | 150  | ns <sub>P-P</sub> |
| Rejection  | 50 to 64.44 MHz                               | 1, 3  | 40                                | 46     |      | dB                |
|  | 64.44 to 66.70 MHz -40 to 85°C                |       | 36                                | 41     |      |                   |
|  | 64.44 to 66.70 MHz 85 to 105°C                |       | 30                                |        |      |                   |
|  | 86.30 to 87.54 MHz                            |       | *30                               | 44     |      |                   |
|  | 87.54 to 91.50 MHz                            |       | 31                                | 44     |      |                   |
|  | 91.50 to 100 MHz                              |       | 40                                | 47     |      |                   |
| Operating Temperature Range                              | $T_A$   | 1     | -40                               |        | +105 | °C                |
| Frequency Coefficient                                    | FTC   |       |                                   | -87    |      | ppm/°C            |
| Differential Input                                       |   |       | 175 ohms                          |        |      |                   |
| Differential Output                                      |   |       | 180 ohms                          |        |      |                   |
| Case Style   |   | 6     | SMP-03 7 x 5 mm Nominal Footprint |        |      |                   |
| Lid Symbolization (YY=year, WW=week, S=shift) See note 4 |   |       | RFM SF2038B YYWWS                 |        |      |                   |

\*At low temperature extreme -40°C

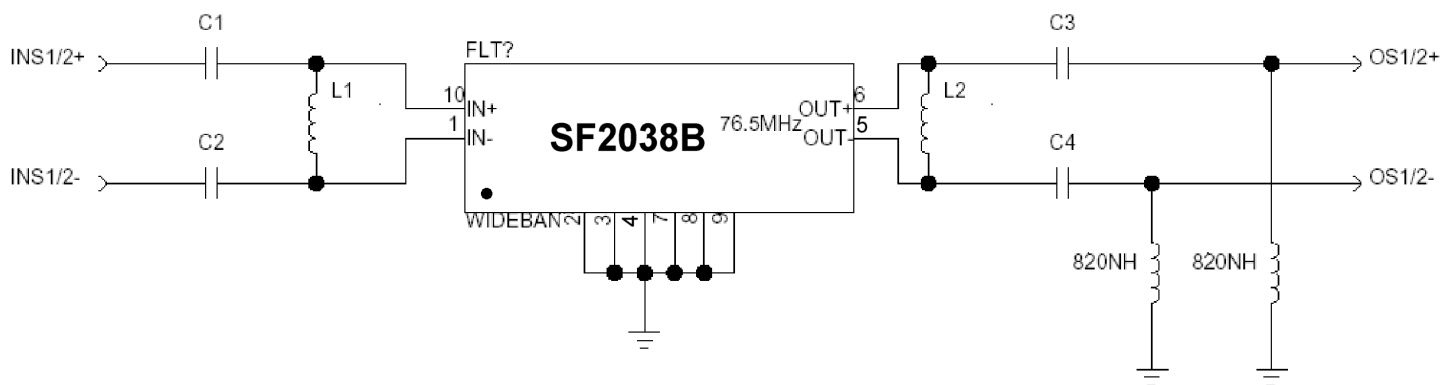
**Notes:**

1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency,  $f_c$ .
3. Rejection is measured as attenuation below the minimum IL point in the passband. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
4. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. Tape and Reel Standard ANSI / EIA 481.
7. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
8. US and international patents may apply.
9. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.
10. ©Copyright 1999, RF Monolithics Inc.
11. Electrostatic Sensitive Device. Observe precautions for handling.



## Matching Circuit and Matching Component Values Used in G3 Sirius Radios

(Refer to Sirius Radio G3 Chipset Application Note, Doc. #RX000104-B, Sec. 4.2.2)

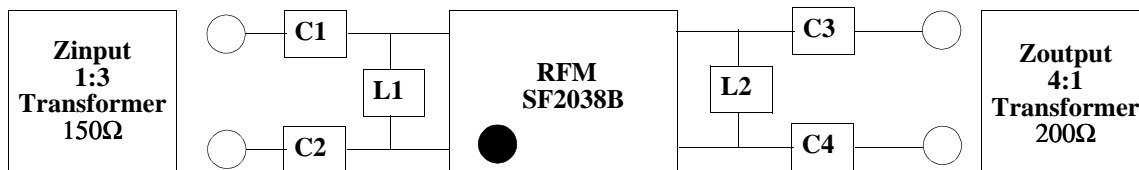


**Wideband SAW Matching Circuit**

### Wideband SAW Matching Values

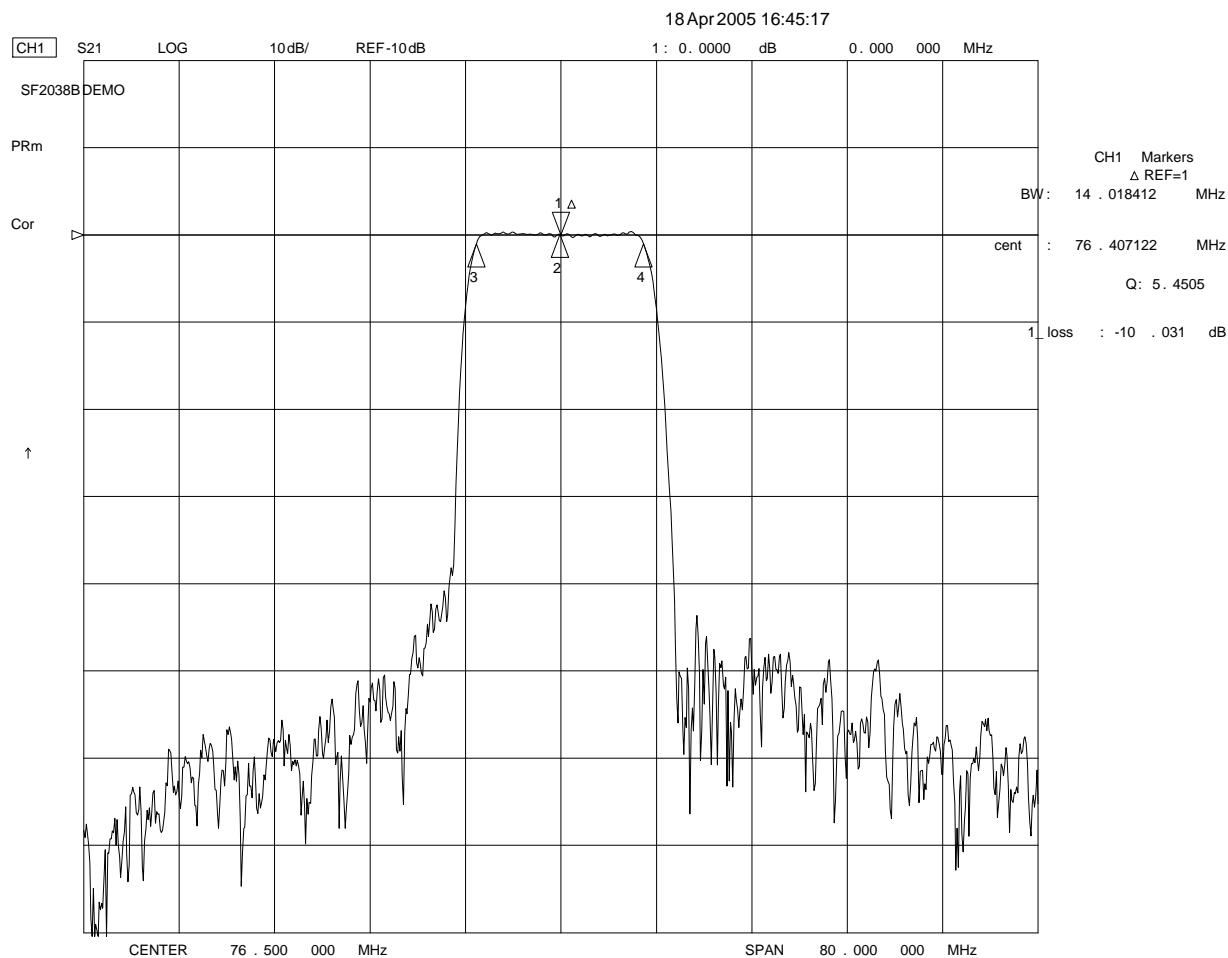
| Reference Designator | Value  |
|----------------------|--------|
| C1                   | 15 pF  |
| C2                   | 15 pF  |
| L1                   | 270 nH |
| L2                   | 270 nH |
| C3                   | 27 pF  |
| C4                   | 27 pF  |

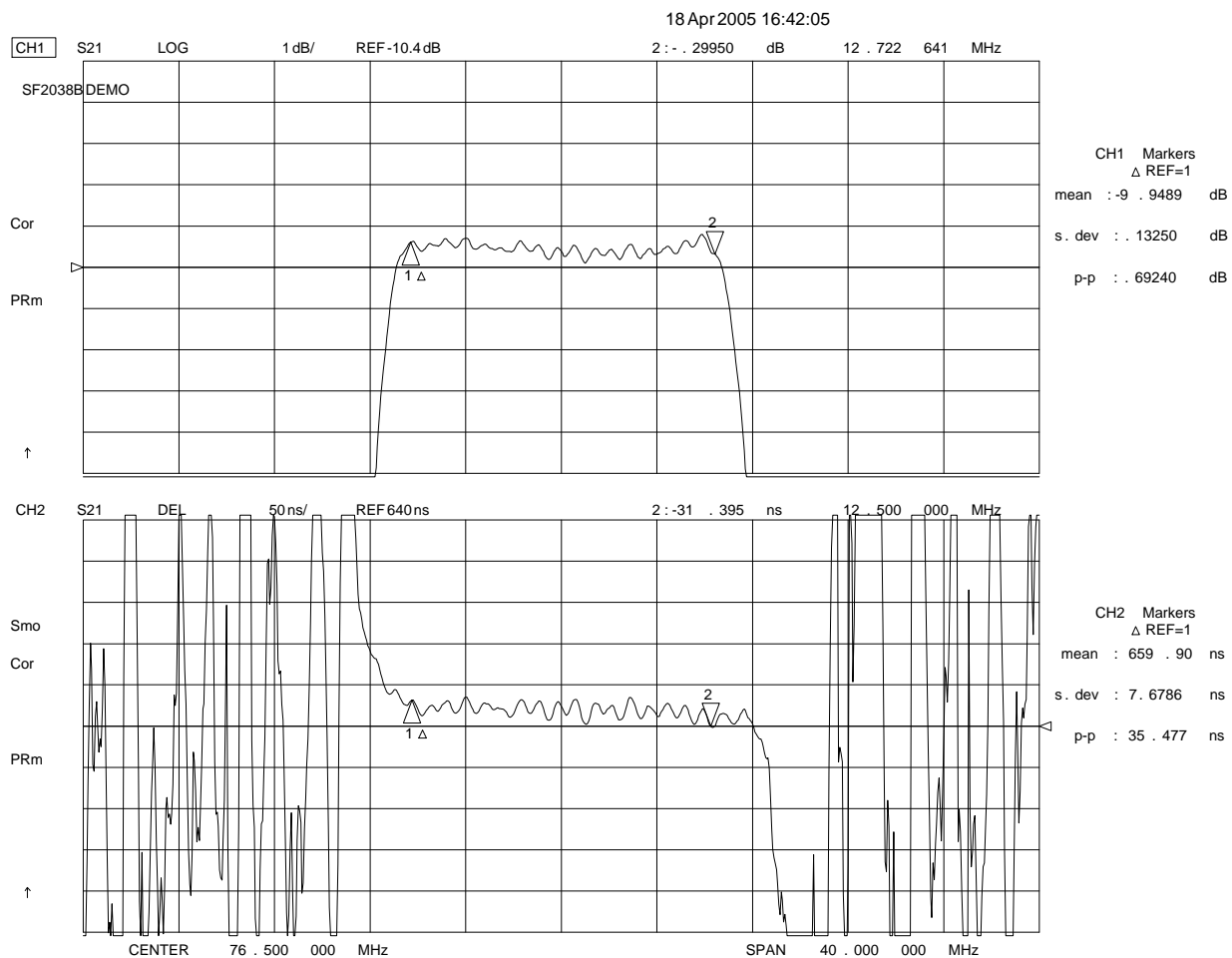
## Matching Circuit and Matching Component Values Used on Filter Demo Board



**SF2038B**  
76.500 MHz

**C1 = 22pF**  
**C2 = 22pF**  
**L1 = 220nH**  
**L2 = 270nH**  
**C3 = 22pF**  
**C4 = 22pF**





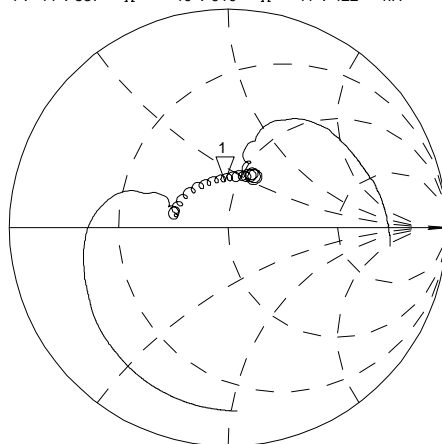
18Apr2005 16:35:10

CH1 S11 1UFS 1 : 44 . 537 Ω 19 . 910 Ω 41 . 422 nH 76 . 500 000 MHz

SF2038BDEMO

Cor

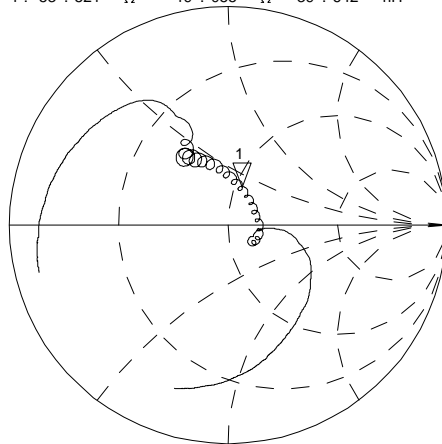
PRm



CH2 S22 1UFS 1 : 53 . 521 Ω 19 . 055 Ω 39 . 642 nH 76 . 500 000 MHz

Cor

PRm

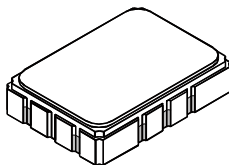


CENTER 76 . 500 000 MHz

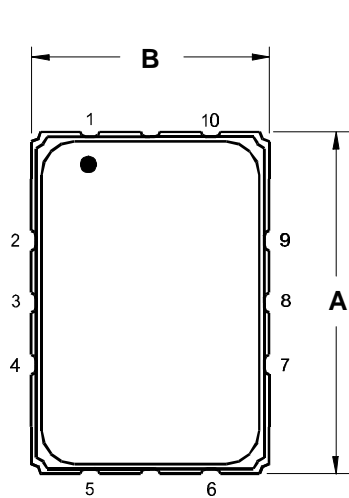
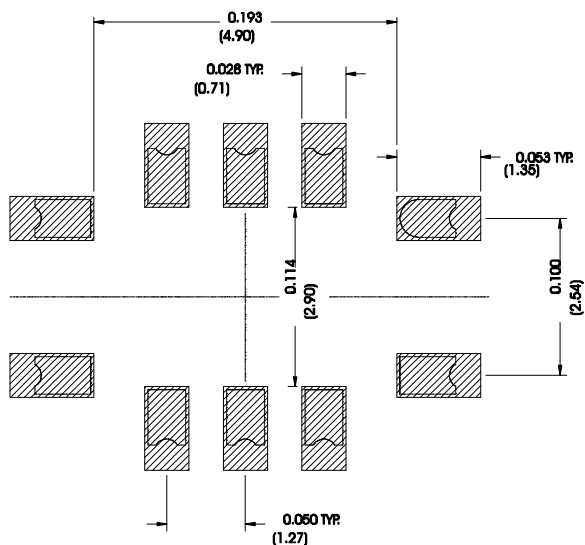
SPAN 40 . 000 000 MHz

# SMP-03 Case

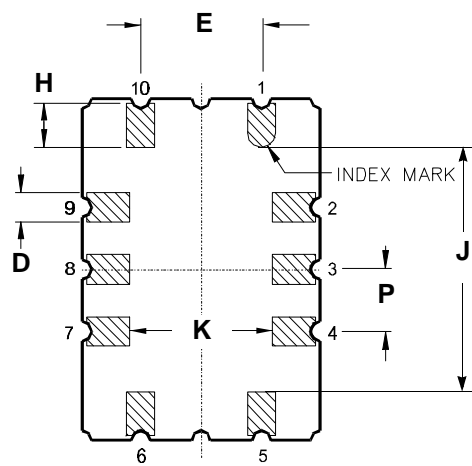
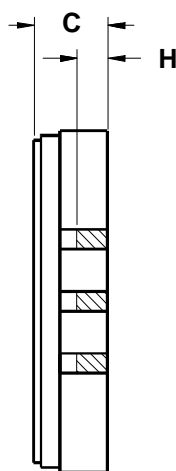
## 10-Terminal Ceramic Surface-Mount Case 7 x 5 mm Nominal Footprint



### Recommended PCB Footprint



TOP VIEW



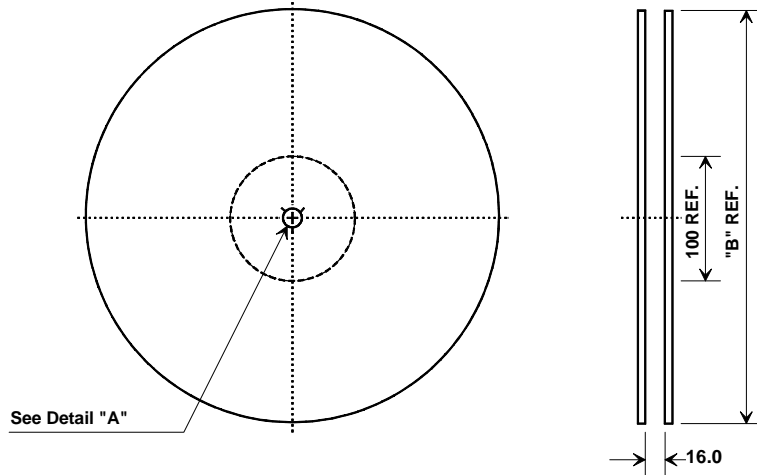
BOTTOM VIEW

| Case Dimensions |      |      |      |        |       |       |
|-----------------|------|------|------|--------|-------|-------|
| Dimension       | mm   |      |      | Inches |       |       |
|                 | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A               | 6.80 | 7.00 | 7.20 | 0.268  | 0.276 | 0.283 |
| B               | 4.80 | 5.00 | 5.20 | 0.189  | 0.197 | 0.205 |
| C               |      | 1.65 | 2.00 |        | 0.065 | 0.079 |
| D               | .47  | 0.60 | .73  | 0.019  | 0.024 | 0.029 |
| E               | 2.41 | 2.54 | 2.67 | 0.095  | 0.100 | 0.105 |
| H               | 0.87 | 1.0  | 1.13 | 0.034  | 0.039 | 0.044 |
| J               | 4.87 | 5.00 | 5.13 | 0.192  | 0.197 | 0.202 |
| K               | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| P               | 1.14 | 1.27 | 1.40 | 0.045  | 0.050 | 0.055 |

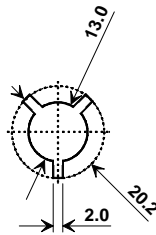
| Materials              |  |
|------------------------|--|
| Solder Pad Termination | Au plating 30 - 60 ulnches (76.2-152 uM) over 80-200 ulnches (203-508 uM) Ni.    |
| Lid                    | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 ulnches Thick |
| Body                   | Al <sub>2</sub> O <sub>3</sub> Ceramic   |
| Pb Free                |  |

| Electrical Connections |                  |                  |
|------------------------|------------------|------------------|
| Connection             |                  | Terminals        |
| Port 1                 | Input or Return  | 10               |
|                        | Return or Input  | 1                |
| Port 2                 | Output or Return | 5                |
|                        | Return or Output | 6                |
| Ground                 |                  | All others       |
| Single Ended Operation |                  | Return is ground |
| Differential Operation |                  | Return is hot    |

## Tape and Reel Specifications

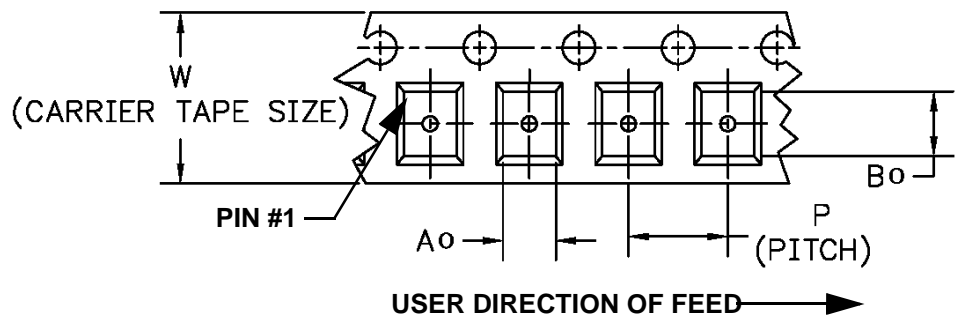
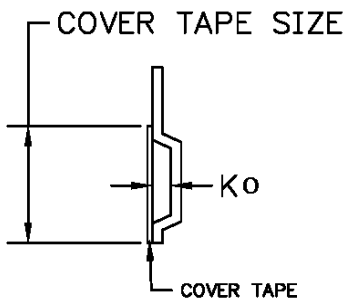


| "B "   |             | Quantity Per Reel |
|--------|-------------|-------------------|
| Inches | millimeters |                   |
| 7      | 178         | 500               |
| 13     | 330         | 2000              |



## COMPONENT ORIENTATION and DIMENSIONS

| Carrier Tape Dimensions |         |
|-------------------------|---------|
| <b>Ao</b>               | 5.5 mm  |
| <b>Bo</b>               | 7.5 mm  |
| <b>Ko</b>               | 2.0 mm  |
| <b>Pitch</b>            | 8.0 mm  |
| <b>W</b>                | 16.0 mm |





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

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.