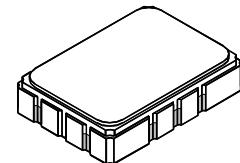


- **Designed for SDARS IF Receiver**
- **Low Insertion Loss**
- **5.0 X 7.0 mm Surface-Mount Case**
- **Differential or Single Ended Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**


**SF2039B-3**
**72.540 MHz  
SAW Filter**

**SMP-03-S**
**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               | -40 to +85     | °C    |
| Max Soldering Profile                   | 265°C for 10 s |       |

**Electrical Characteristics**

| Characteristic   | Sym                 | Notes | Min  | Typ                                 | Max  | Units             |
|--|---------------------|-------|------|-------------------------------------|------|-------------------|
| Nominal Center Frequency                                 | $f_c$               |       |      | 72.540                              |      | MHz               |
| Passband   | Insertion Loss      | 1     |      | 10.5                                | 12.5 | dB                |
| 1dB Passband   | $BW_1$              |       | 3.7  | 4.0                                 |      | MHz               |
| 15dB Bandwidth   | $BW_{15}$           |       |      | 6.5                                 | 6.7  | MHz               |
| 30dB Bandwidth   | $BW_{30}$           | 1     |      | 7.5                                 | 7.7  | MHz               |
| Amplitude Ripple over $f_c \pm 1.85$ MHz                 |                     |       |      | 0.5                                 | 1.3  | dB <sub>P-P</sub> |
| Group Delay Variation over $f_c \pm 1.85$ MHz            | GDV                 |       |      | 60                                  | 150  | ns <sub>P-P</sub> |
| Rejection  | 50 to 66.48 MHz     |       | 40   | 47                                  |      |                   |
|  | 66.48 to 68.08 MHz  |       | 33.5 | 43                                  |      |                   |
|  | 77.30 to 78.60 MHz  |       | 38   | 42                                  |      |                   |
|  | 78.60 to 86.50 MHz  |       | 40   | 44                                  |      |                   |
|  | 86.50 to 91.50 MHz  |       | 45   | 50                                  |      |                   |
|  | 91.50 to 100.00 MHz |       | 45   | 55                                  |      |                   |
| Operating Temperature Range                              | $T_A$               | 1     | -40  |                                     | +85  | °C                |
| Frequency Temperature Coefficient                        | FTC                 |       |      | -18                                 |      | ppm/°C            |
| Differential Input                                       |                     |       |      | 175 ohms                            |      |                   |
| Differential Output                                      |                     |       |      | 1000 ohms                           |      |                   |
| Case Style   |                     |       |      | SMP-03-S 5 x 7 mm Nominal Footprint |      |                   |
| Lid Symbolization (YY=year, WW=week, S=shift) See note 4 |                     | 6     |      | RFM SF2039B-3 YYWWS                 |      |                   |

**Electrical Connections**

| Connection | Port 1 Hot | Port 1 Ground Return or Hot | Port 2 Hot | Port 2 Ground Return or Hot | Case Ground |
|------------|------------|-----------------------------|------------|-----------------------------|-------------|
| Terminals  | 10         | 1                           | 5          | 6                           | All Others  |


**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**
**NOTES:**

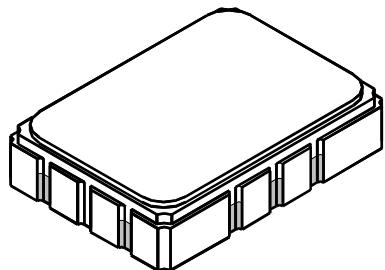
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to  $50 \Omega$  and measured with  $50 \Omega$  network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced 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. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

# SMP-03-S Case



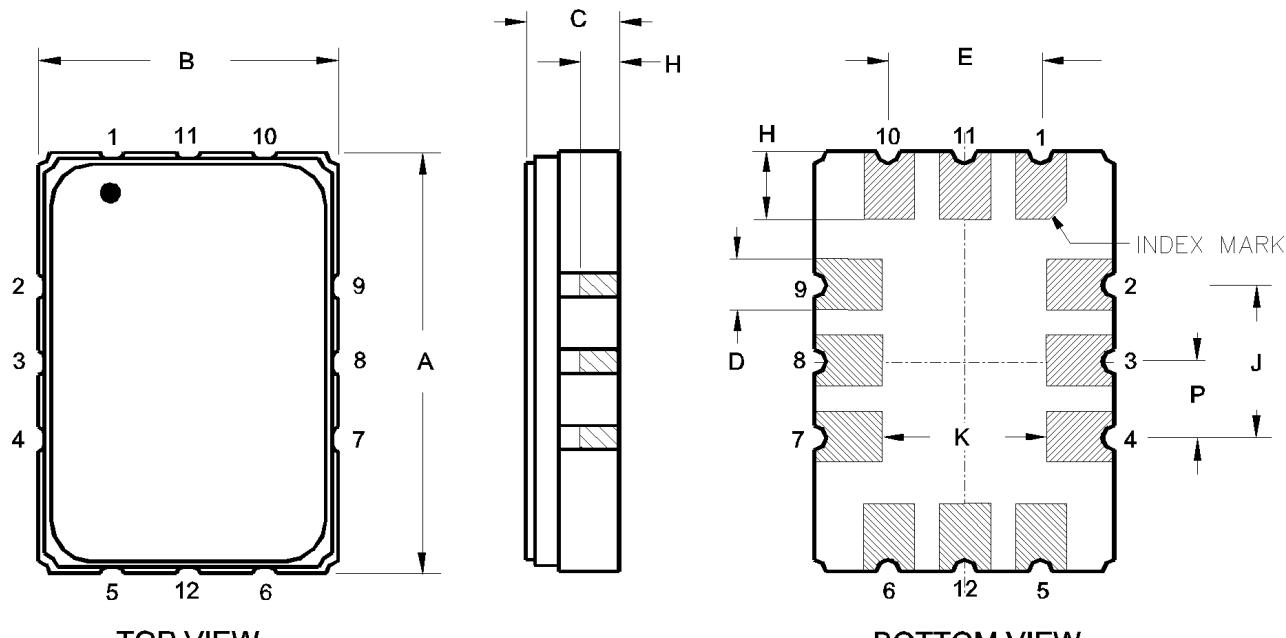
## 12-Terminal Ceramic Surface-Mount Case

5 x 7 mm Nominal Footprint

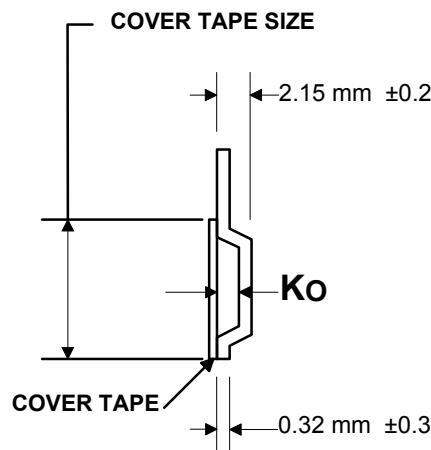
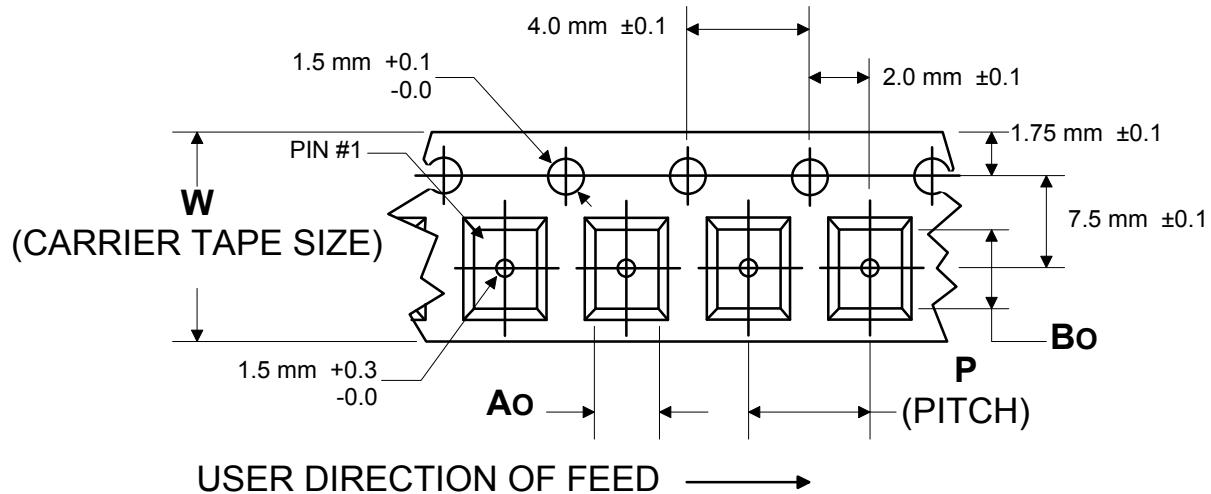


| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| <b>A</b>  | 6.80 | 7.00 | 7.20 | 0.268  | 0.276 | 0.283 |
| <b>B</b>  | 4.80 | 5.00 | 5.20 | 0.189  | 0.197 | 0.205 |
| <b>C</b>  |      | 1.65 | 2.00 |        | 0.065 | 0.079 |
| <b>D</b>  |      | 0.80 |      |        |       |       |
| <b>E</b>  | 2.41 | 2.54 | 2.67 | 0.095  | 0.100 | 0.105 |
| <b>H</b>  | 0.87 | 1.1  | 1.13 | 0.034  | 0.039 | 0.044 |
| <b>J</b>  |      | 2.54 |      |        |       |       |
| <b>K</b>  | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| <b>P</b>  | 1.14 | 1.27 | 1.40 | 0.045  | 0.050 | 0.055 |

| Materials              |   |
|------------------------|---|
| Solder Pad Termination | Au plating 30 - 60 $\mu$ inches (76.2-152 $\mu$ m) over 80-200 $\mu$ inches (203-508 $\mu$ m) Ni. |
| Lid                    | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 $\mu$ inches Thick             |
| Body                   | $\text{Al}_2\text{O}_3$ Ceramic   |
| Pb Free                |   |



## COMPONENT ORIENTATION and DIMENSIONS



| Carrier Tape Dimensions |         |           |
|-------------------------|---------|-----------|
| <b>Ao</b>               | 5.5 mm  | $\pm 0.1$ |
| <b>Bo</b>               | 7.5 mm  | $\pm 0.1$ |
| <b>Ko</b>               | 2.0 mm  | $\pm 0.1$ |
| <b>Pitch</b>            | 8.0 mm  | $\pm 0.1$ |
| <b>W</b>                | 16.0 mm | $\pm 0.3$ |

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