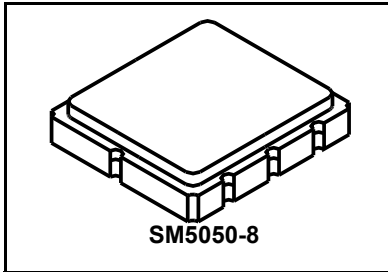


SF2038C-1

**76.500 MHz
SAW Filter**



- **Designed for SDARS IF Receiver**
- **Low Insertion Loss**
- **5.0 x 5.0 mm Surface-mount Case**
- **Differential or Single-ended Input and Output**

Absolute Maximum Ratings

| Rating | Value | Units |
|---|----------------|-------|
| Maximum Incident Power in Passband | +10 | dBm |
| Maximum DC Voltage on any Non-ground Terminal | 30 | VDC |
| Storage Temperature Range in Tape and Reel | -40 to +85 | °C |
| Maximum Soldering Profile | 265°C for 10 s | |

Electrical Characteristics

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|---|-----------|-------|-------------------------------------|------|------|-------------------|
| Nominal Center Frequency | f_C | 1 | 76.500 | | | MHz |
| Passband Insertion Loss | IL | | | 10.8 | 12.5 | dB |
| 1 dB Bandwidth | BW_1 | 1 | 12.0 | 12.7 | | MHz |
| 15 dB Bandwidth | BW_{15} | | | 17.5 | 18.0 | MHz |
| 30 dB Bandwidth | BW_{30} | | | 19.4 | 20.0 | MHz |
| Amplitude Ripple over $f_C \pm 6.0$ MHz | | | | 0.60 | 1.4 | dB _{p-p} |
| Group Delay Variation over $f_C \pm 6.0$ MHz | GDV | | | 40 | 150 | ns _{p-p} |
| Rejection: | | 1, 3 | | | | dB |
| 50 to 64.44 MHz | | | 35.5 | 42 | | |
| 64.44 to 66.70 MHz | | | 30.5 | 39 | | |
| 86.30 to 87.06 MHz | | | 16* | 24 | | |
| 87.06 to 91.50 MHz | | | 23* | 34 | | |
| 91.50 to 100.000 MHz | | | 36 | 40 | | |
| Operating Temperature Range | T_A | 1 | -40 | | +105 | °C |
| Frequency Temperature Coefficient | FTC | | | -87 | | ppm/°C |
| Differential Input | | | 175 ohms | | | |
| Differential Output | | | 180 ohms | | | |
| Case Style | | 6 | SM5050-8 5 x 5 mm Nominal Footprint | | | |
| Lid Symbolization (Y=year, WW=week, S=shift) See note 4 | | | RFM A11 YWWS | | | |

*At low temperature extreme -40 °C



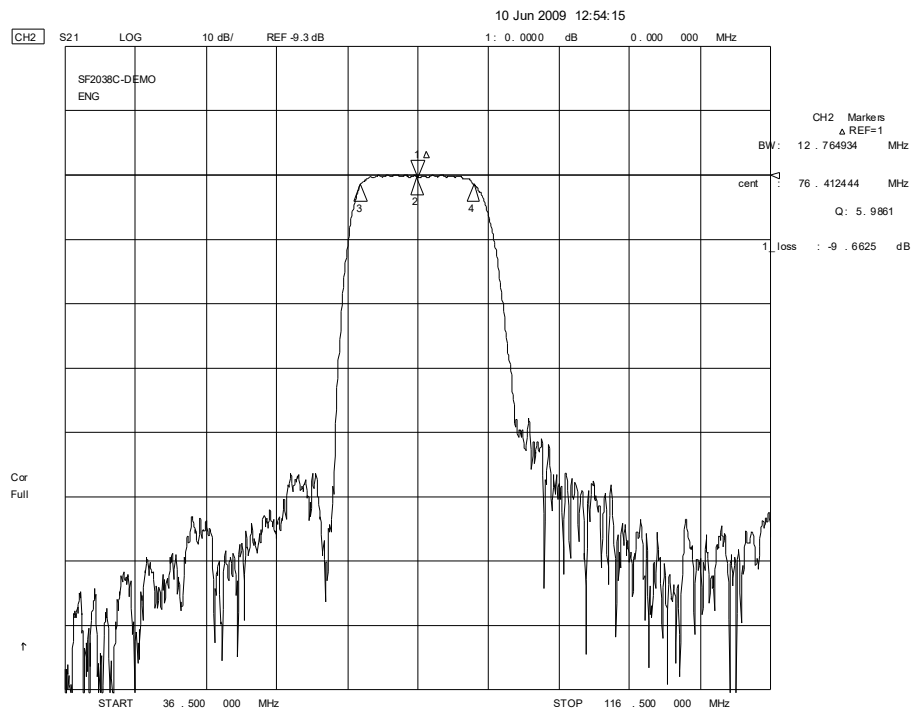
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

Notes:

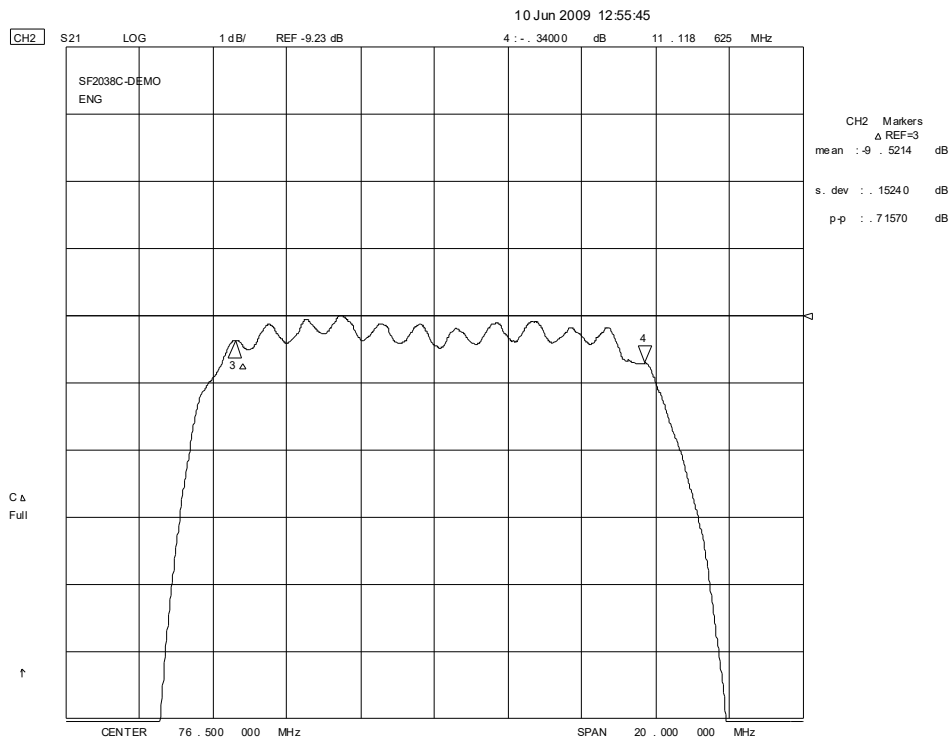
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal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

Discontinued

Filter Response, 36.5 to 116.5 MHz

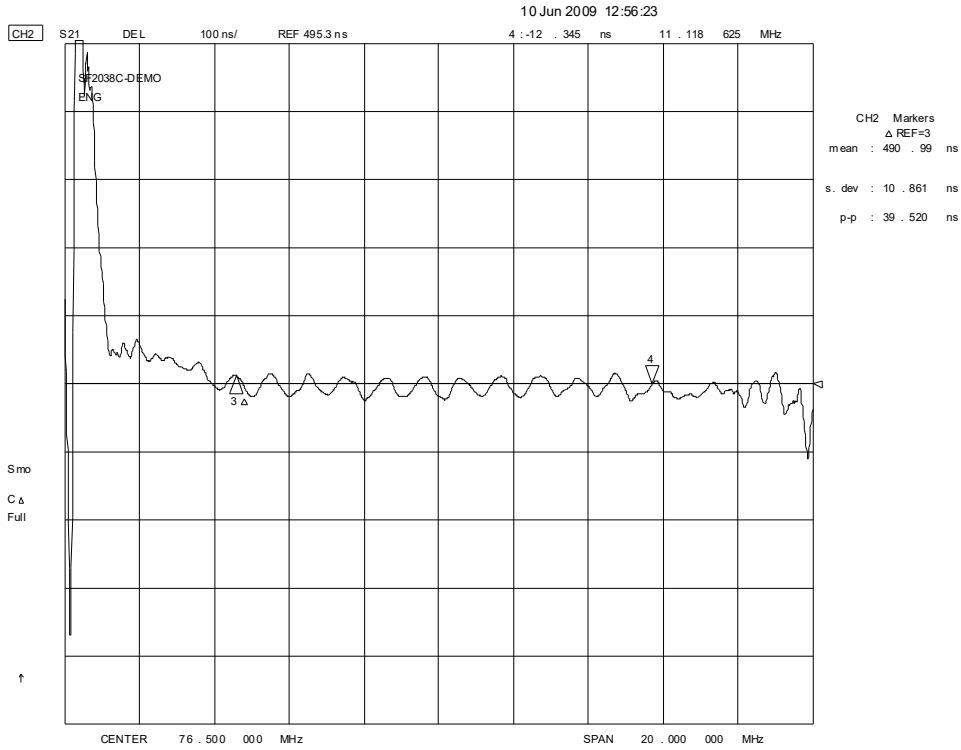


Filter Passband Response

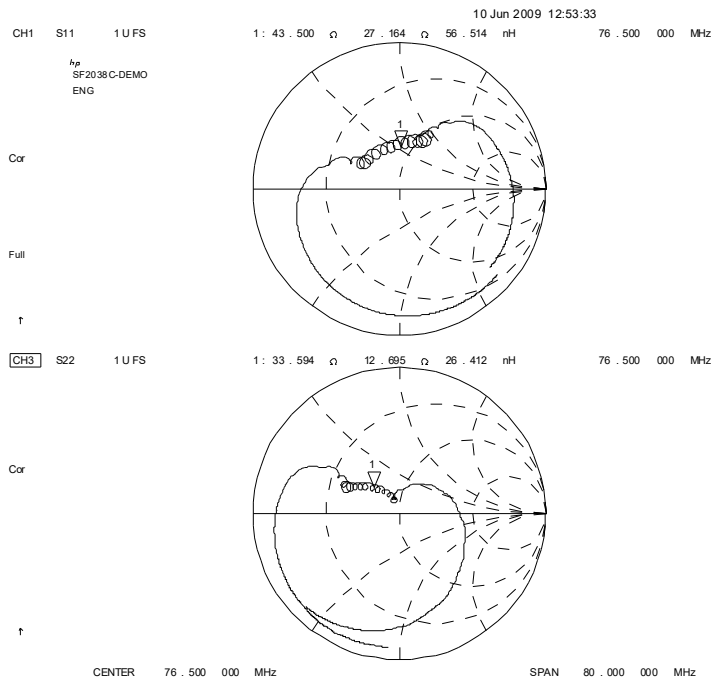


Discontinued

Filter Passband Group Delay Response

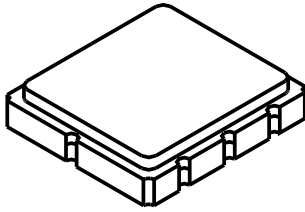


Filter S₁₁ and S₂₂ Plots



Discontinued

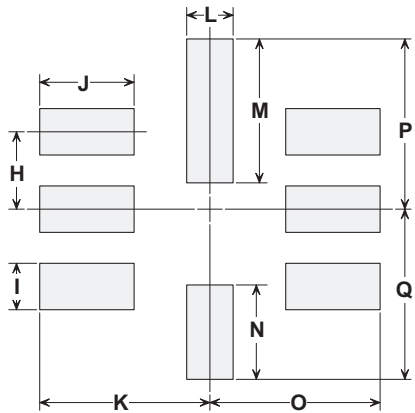
SM5050-8 Surface-mount 8-Terminal Ceramic Case 5.0 X 5.0 mm Nominal Footprint



Case Dimensions

| Dimension | mm | | | Inches | | |
|-----------|------|------|------|--------|-------|-------|
| | Min | Nom | Max | Min | Nom | Max |
| A | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| B | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| C | 1.30 | 1.50 | 1.70 | 0.050 | 0.060 | 0.067 |
| D | 1.98 | 2.08 | 2.18 | 0.078 | 0.082 | 0.086 |
| E | 1.07 | 1.17 | 1.27 | 0.042 | 0.046 | 0.050 |
| F | 0.50 | 0.64 | 0.70 | 0.020 | 0.025 | 0.028 |
| G | 2.39 | 2.54 | 2.69 | 0.094 | 0.100 | 0.106 |
| H | | 1.27 | | | 0.050 | |
| I | | 0.76 | | | 0.030 | |
| J | | 1.55 | | | 0.061 | |
| K | | 2.79 | | | 0.110 | |
| L | | 0.76 | | | 0.030 | |
| M | | 2.36 | | | 0.093 | |
| N | | 1.55 | | | 0.061 | |
| O | | 2.79 | | | 0.110 | |
| P | | 2.79 | | | 0.110 | |
| Q | | 2.79 | | | 0.110 | |

PCB Footprint



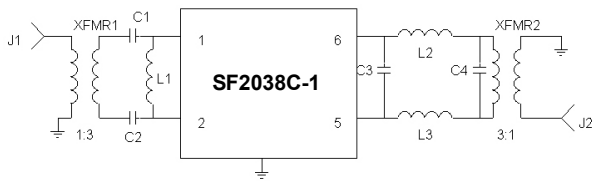
Case Materials

| Materials | |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 μm Gold over 1.27 to 8.89 μm Nickel |
| Lid Plating | 2.0 to 3.0 μm Nickel |
| Body | Al_2O_3 Ceramic |
| | Pb Free |

Electrical Connections

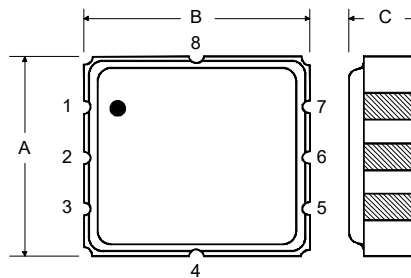
| Connection | Terminals |
|------------------------|-----------------------------|
| Port 1 | Differential Input 1, 2 |
| Port 2 | Differential Output 5, 6 |
| | Ground All others |
| Single-ended Operation | Return is ground |
| Differential Operation | Return is hot |
| Dot indicates Pin 1 | |

Test Circuit

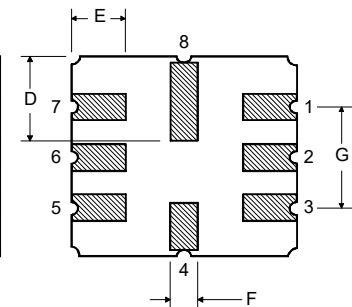


- L1 330 nH
- L2, L3 270 nH
- C1, C4 18 pF
- C2 15 pF
- C3 1 pF
- XFMR1, XFMR 2 3:1
- XFMR1, XFMR 2 3:1

TOP VIEW

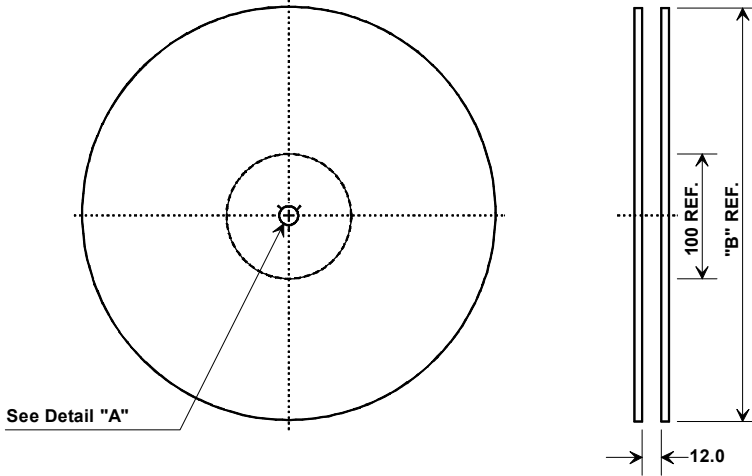


BOTTOM VIEW

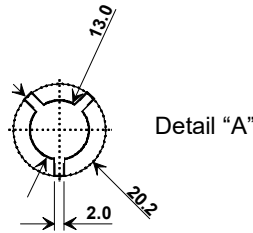


Discontinued

Tape and Reel Specifications

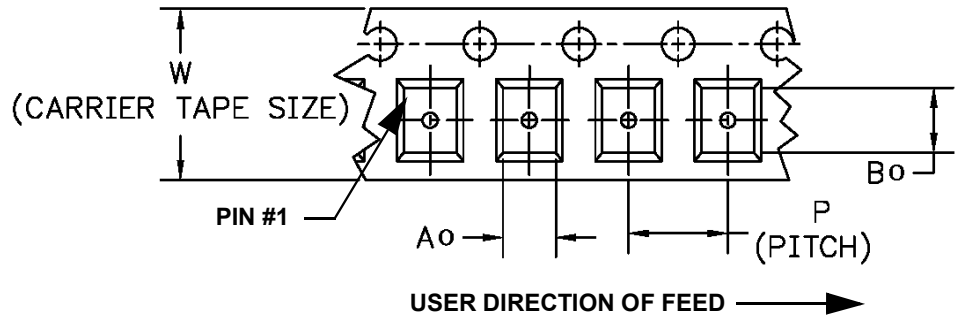
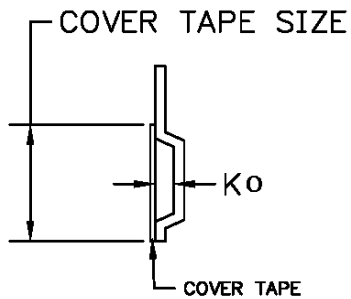


| "B" Nominal Size | | Quantity Per Reel |
|------------------|-------------|-------------------|
| Inches | millimeters | |
| 7 | 178 | 500 |
| 13 | 330 | 3000 |



COMPONENT ORIENTATION and DIMENSIONS

| Carrier Tape Dimensions | |
|-------------------------|---------|
| Ao | 5.3 mm |
| Bo | 5.3 mm |
| Ko | 2.0 mm |
| Pitch | 8.0 mm |
| W | 12.0 mm |



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