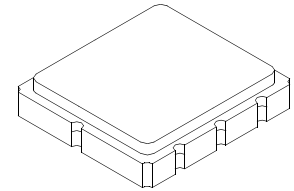


SF2037C

76.500 MHz
SAW Filter



SM5050-8

- *Designed for SDARS IF Receiver*
- *5.0 X 5.0 mm Surface-mount Case*
- *Differential or Single-ended Input and Output*
- *Complies with Directive 2002/95/EC (RoHS)*
- *Moisture Sensitivity Level: 1*
- *AEC-Q200 Qualified*

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

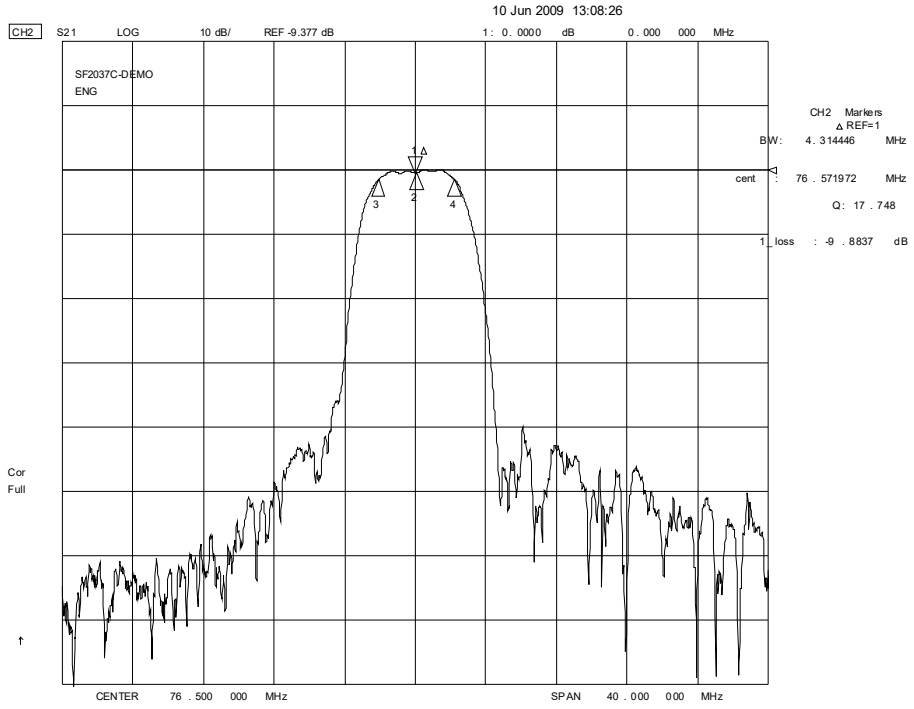
| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|--|-----------|-------|-----|-------------------------------------|------|-------------------|
| Center Frequency | f_C | | | 76.500 | | MHz |
| Insertion Loss | IL | | | 10.0 | 12.0 | dB |
| 1 dB Bandwidth | BW_1 | | 3.8 | 4.4 | | MHz |
| 15 dB Bandwidth | BW_{15} | | | 7.1 | 7.4 | MHz |
| 30 dB Bandwidth | BW_{30} | | | 8.2 | 8.5 | MHz |
| Amplitude Ripple, $f_C \pm 1.9$ MHz | | | | 0.7 | 1.10 | dB _{P-P} |
| Group Delay Ripple, $f_C \pm 1.9$ MHz | GDV | | | 55 | 150 | ns _{P-P} |
| Rejection: | | | | | | dB |
| 50 to 70.44 MHz | | | 34 | 41 | | |
| 70.44 to 72.04 MHz | | | 31 | 37 | | |
| 81.26 to 82.56 MHz | | | 36 | 42 | | |
| 82.56 to 86.50 MHz | | | 36 | 43 | | |
| 86.5 to 91.50 MHz | | | 40 | 46 | | |
| 91.50 to 100.00 MHz | | | 42 | 51 | | |
| Operating Temperature Range | T_A | | -40 | | +85 | °C |
| Frequency Temperature Coefficient | FTC | | | -18 | | ppm/°C |
| Differential Input | | | | 175 ohms | | |
| Differential Output | | | | 1000 ohms | | |
| Case Style | | | | SM5050-8 5 x 5 mm Nominal Footprint | | |
| Lid Symbolization (Y=year, WW=week, S=shift) | | | | 912, <u>YWWS</u> | | |

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

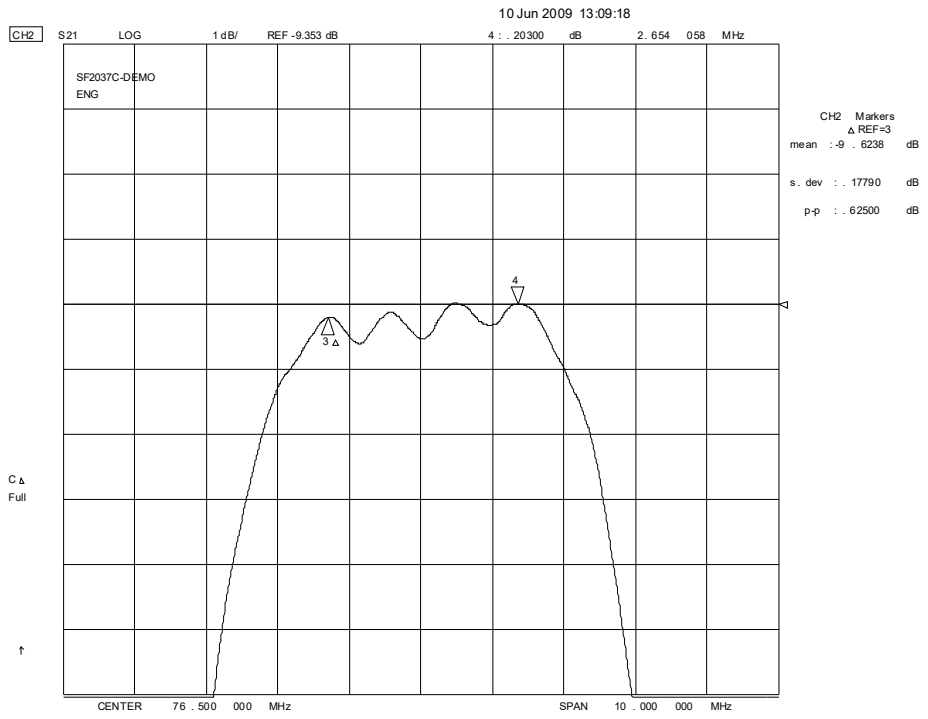
NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

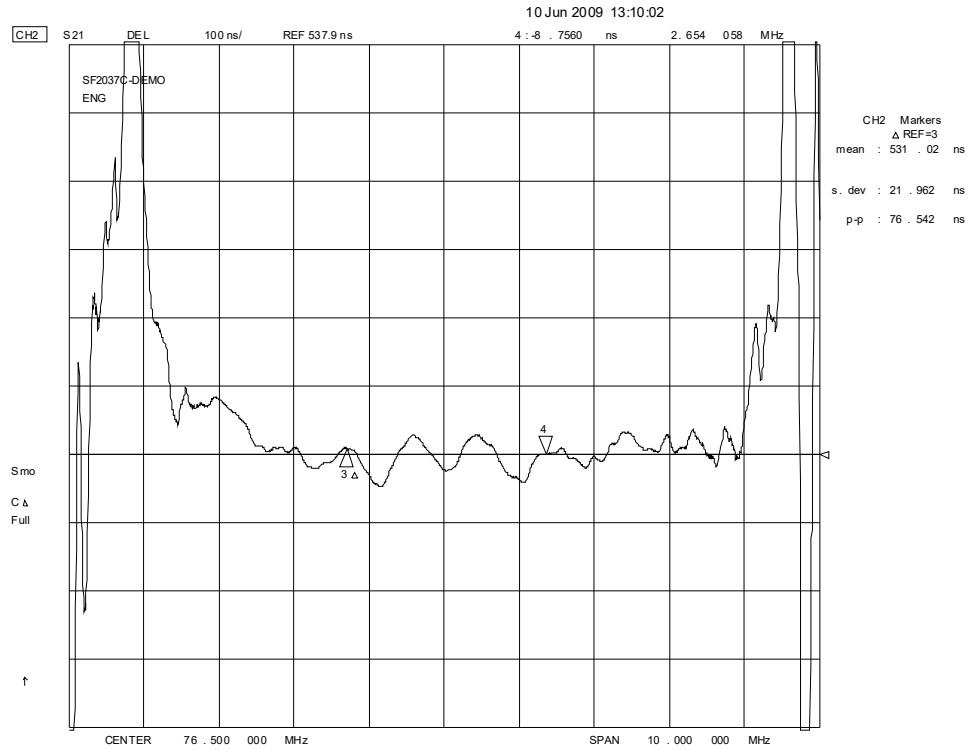
Filter Amplitude Response Plot, 56.5 to 96.5 MHz



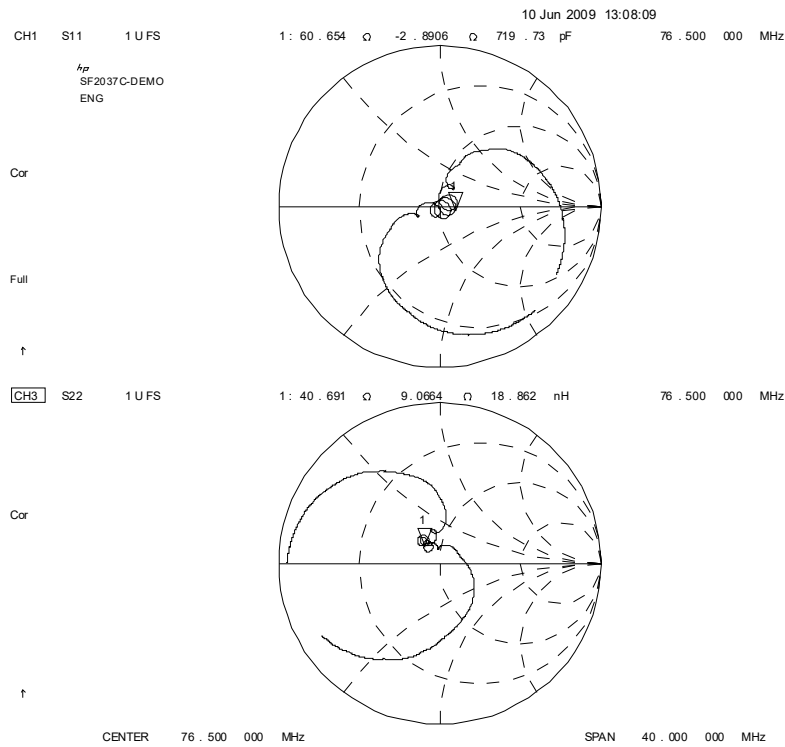
Filter Passband Amplitude Plot



Filter Passband Group Delay Plot



Filter Input and Output Impedance Plots

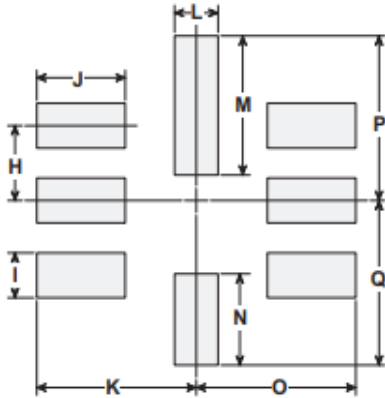
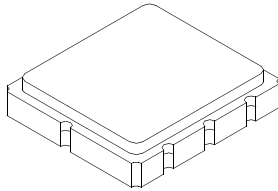


SM5050-8 Surface-Mount 8-Terminal Ceramic Case

5.0 X 5.0 mm Nominal Footprint

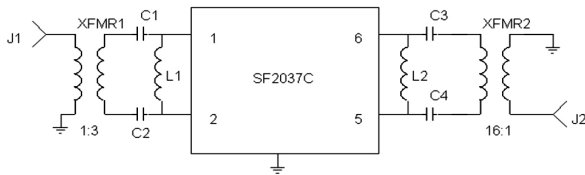
Case Dimensions

| 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

SF2037C Demo Board



- C1,C2 501-0621-090 9pF 0603
- C3,C4 501-0621-180 18pF 0603
- L1,L2 501-1068-331 330nH 0603CS
- XFMR1 501-0912-003 3:1 Transformer
- XFMR2 501-0912-004 16:1 Transformer
- PCB 401-1706-001 5x5 PCB pins 1, 2 & 5, 6
- J1, J2 500-1241-001 SMA e-snap fem gold conn.

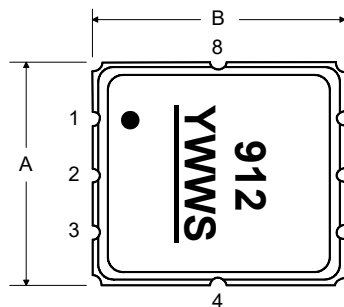
Case Materials

| Materials | |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 μ m Gold over 1.27 to 8.89 μ m Nickel |
| Lid Plating | 2.0 to 3.0 μ m Nickel |
| Body | Al ₂ O ₃ Ceramic |

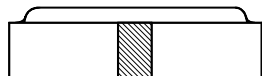
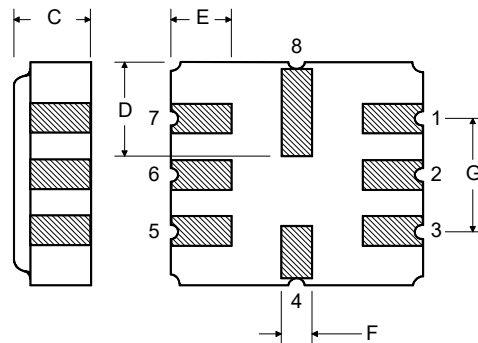
Electrical Connections

| 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 | | |

TOP VIEW

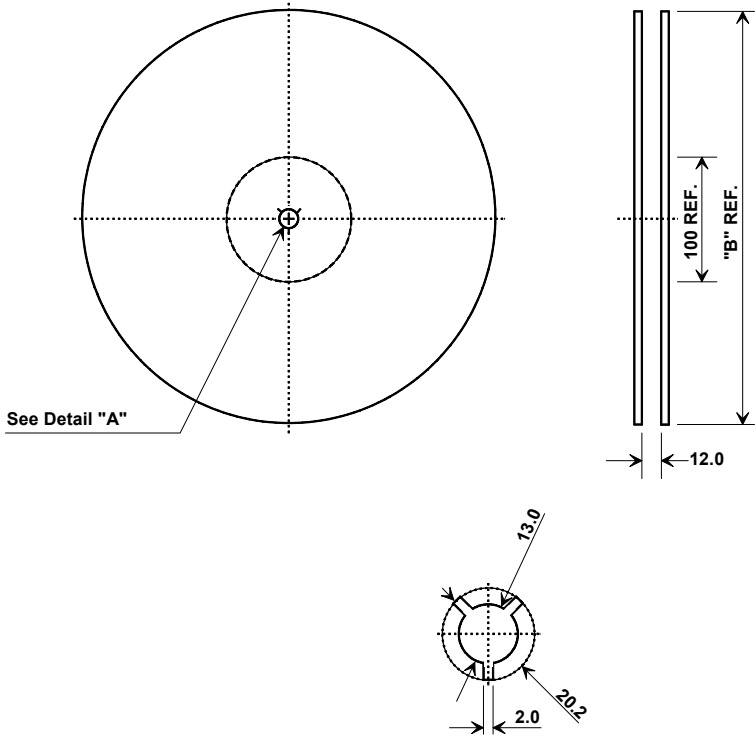


BOTTOM VIEW



Tape and Reel Specifications

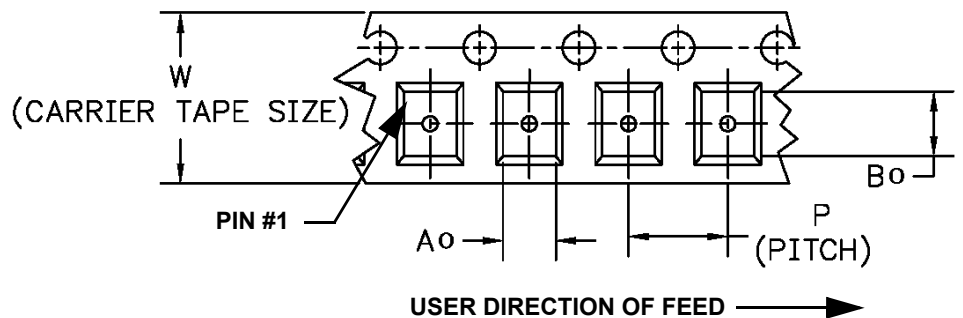
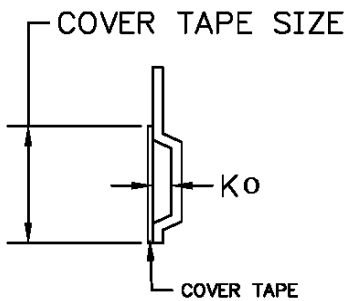
Tape and Reel Standard per ANSI/EIA-481



| "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 |



Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C+0/-5°C peak (10 seconds).
4. Time: 5 times maximum.

