

- **Designed for Broadband Receiver IF Applications**
- **Low Insertion Loss**
- **5.0 X 5.0 mm Surface-mount Case**
- **Differential Input and Single-ended Output**
- **Complies with Directive 2002/95/EC (RoHS)**

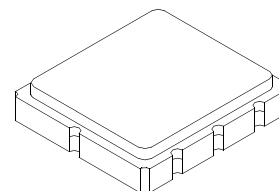


## Absolute Maximum Ratings

| Rating                                                       | Value           | Units |
|--------------------------------------------------------------|-----------------|-------|
| Maximum Incident Power in Passband                           | +10             | dBm   |
| Maximum DC Voltage on any Non-ground Terminal                | 3               | VDC   |
| Storage Temperature Range in Tape and Reel                   | -40 to +85      | °C    |
| Suitable for Lead-free Soldering - Maximum Soldering Profile | 260 °C for 30 s |       |

**SF2120C**

**149.00 MHz  
SAW Filter**



**SM5050-8**

## Electrical Characteristics

| Characteristic                                                   | Sym   | Min                                 | Typ              | Max | Units             |
|------------------------------------------------------------------|-------|-------------------------------------|------------------|-----|-------------------|
| Nominal Center Frequency                                         | $f_C$ |                                     | 149.00           |     | MHz               |
| Insertion Loss                                                   |       |                                     | 2.0              | 2.5 | dB                |
| 2 dB Passband                                                    |       | 148 to 150                          | 147.65 to 150.35 |     | MHz               |
| Amplitude Ripple, 148 to 150 MHz, -27.5 to 72.5 °C               |       |                                     | 1.5              | 1.8 | dB <sub>P-P</sub> |
| Amplitude Ripple, 148 to 150 MHz, -40 to -27.5 °C, 72.5 to 85 °C |       |                                     | 2.0              | 2.2 | dB <sub>P-P</sub> |
| Rejection, $f_C$ -2.5 MHz                                        |       | 15                                  | 54               |     | dB                |
| Rejection, $f_C$ +2.5 MHz                                        |       | 15                                  | 30               |     | dB                |
| Center Frequency Temperature Coefficient                         |       |                                     | -30              |     | ppm/K             |
| Operating Temperature                                            |       | -40                                 |                  | 85  | °C                |
| Case Style                                                       |       | SM5050-8 5 x 5 mm Nominal Footprint |                  |     |                   |
| Lid Symbolization (Y=year, WW=week, S=shift)                     |       | RFM 635 YWWS                        |                  |     |                   |

## Electrical Connections - Differential Operation

| Connection                | Terminals  |
|---------------------------|------------|
| Port 1 Differential Input | 1, 2       |
| Port 2 Output             | 5          |
| Ground                    | All others |
| Dot indicates Pin 1       |            |

## Electrical Connections - Single End Operation

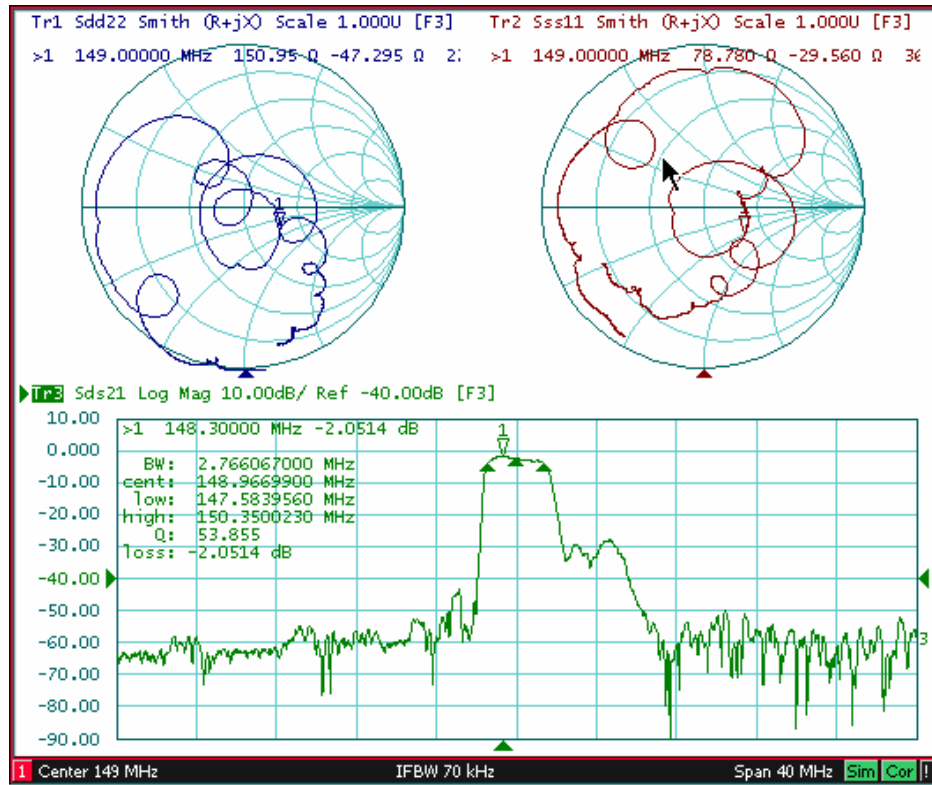
| Connection          | Terminals  |
|---------------------|------------|
| Port 1 Input        | 1          |
| Port 2 Output       | 5          |
| Ground              | All others |
| Dot indicates Pin 1 |            |

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

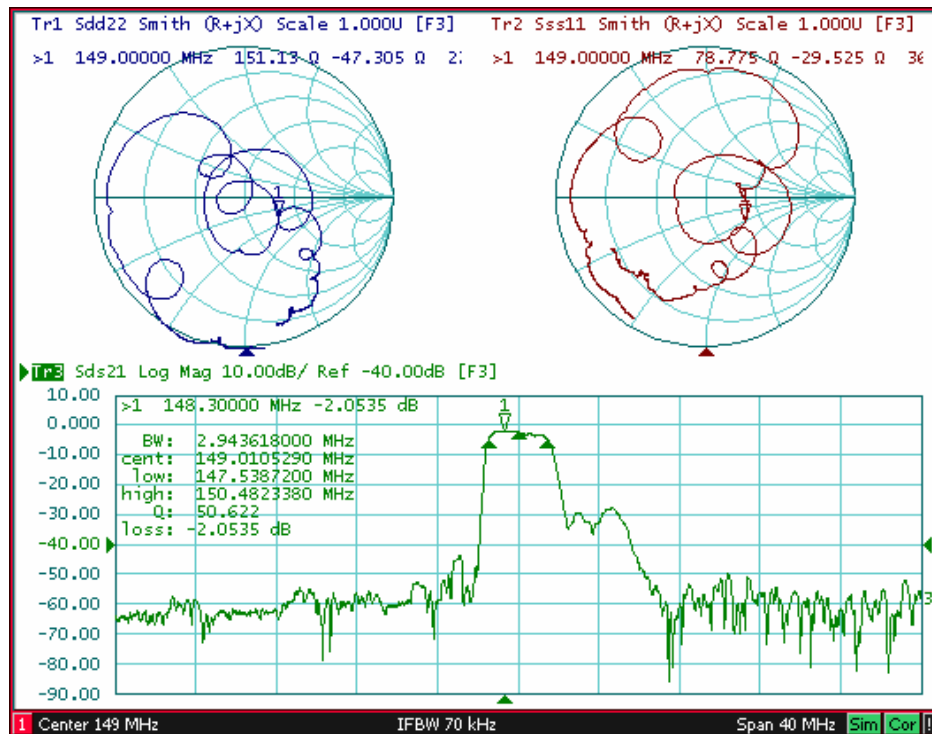
## NOTES:

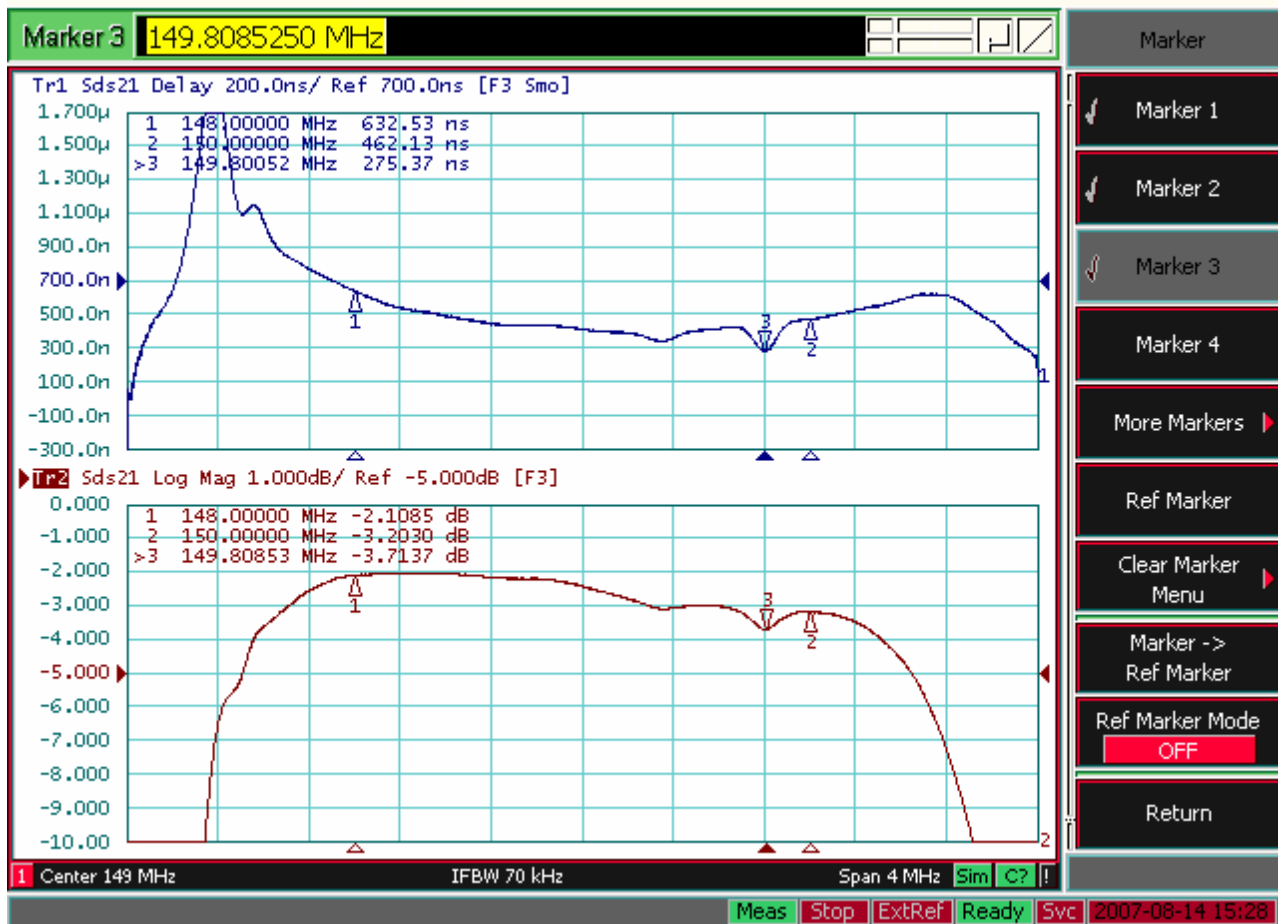
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50  $\Omega$  and measured with 50  $\Omega$  network analyzer.
2. Rejection is measured as attenuation below the minimum IL point 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.
3. The design, manufacturing process, and specifications of this filter are subject to change.
4. Tape and Reel Standard ANSI / EIA 481.
5. US and international patents may apply.
6. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.
7. The center frequency will move with ambient temperature changes.

## 2 dB BW

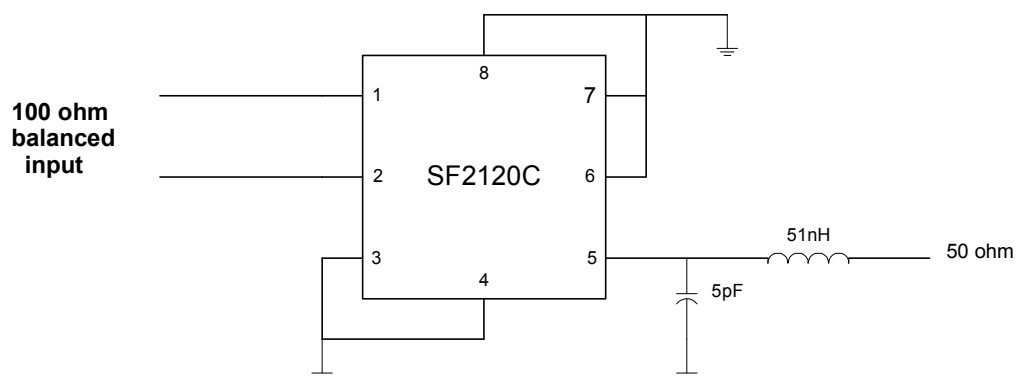


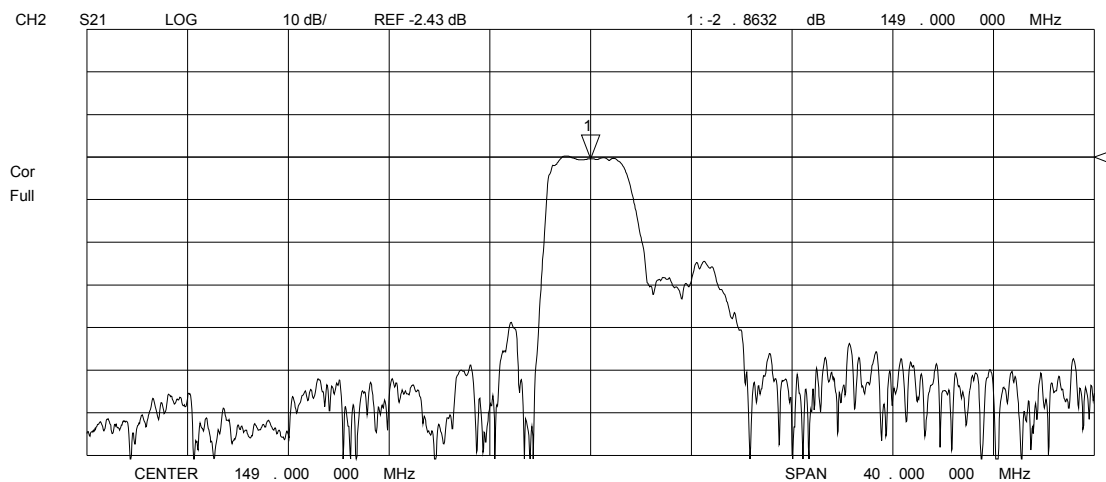
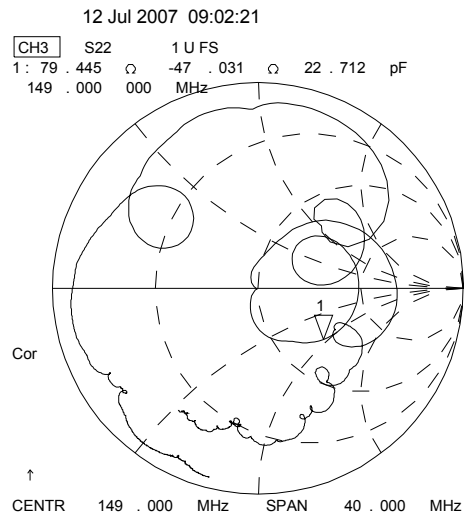
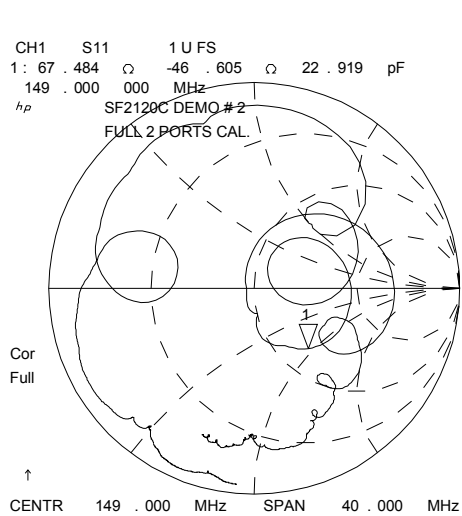
## 3 dB BW

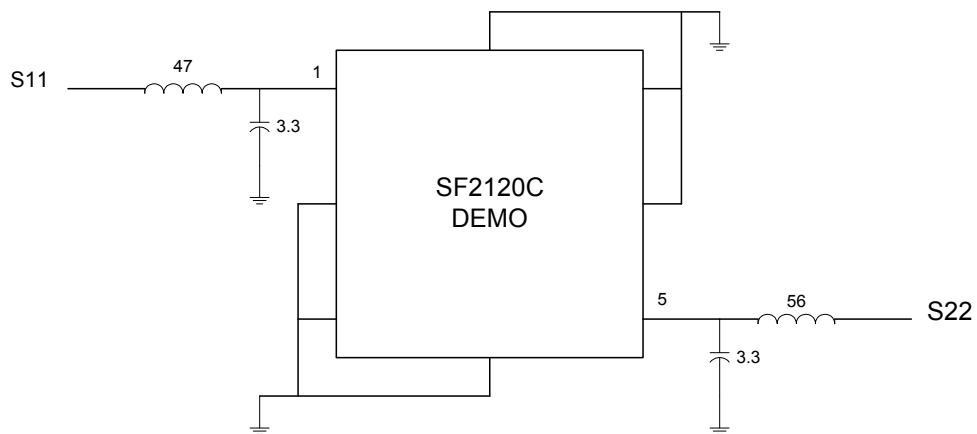
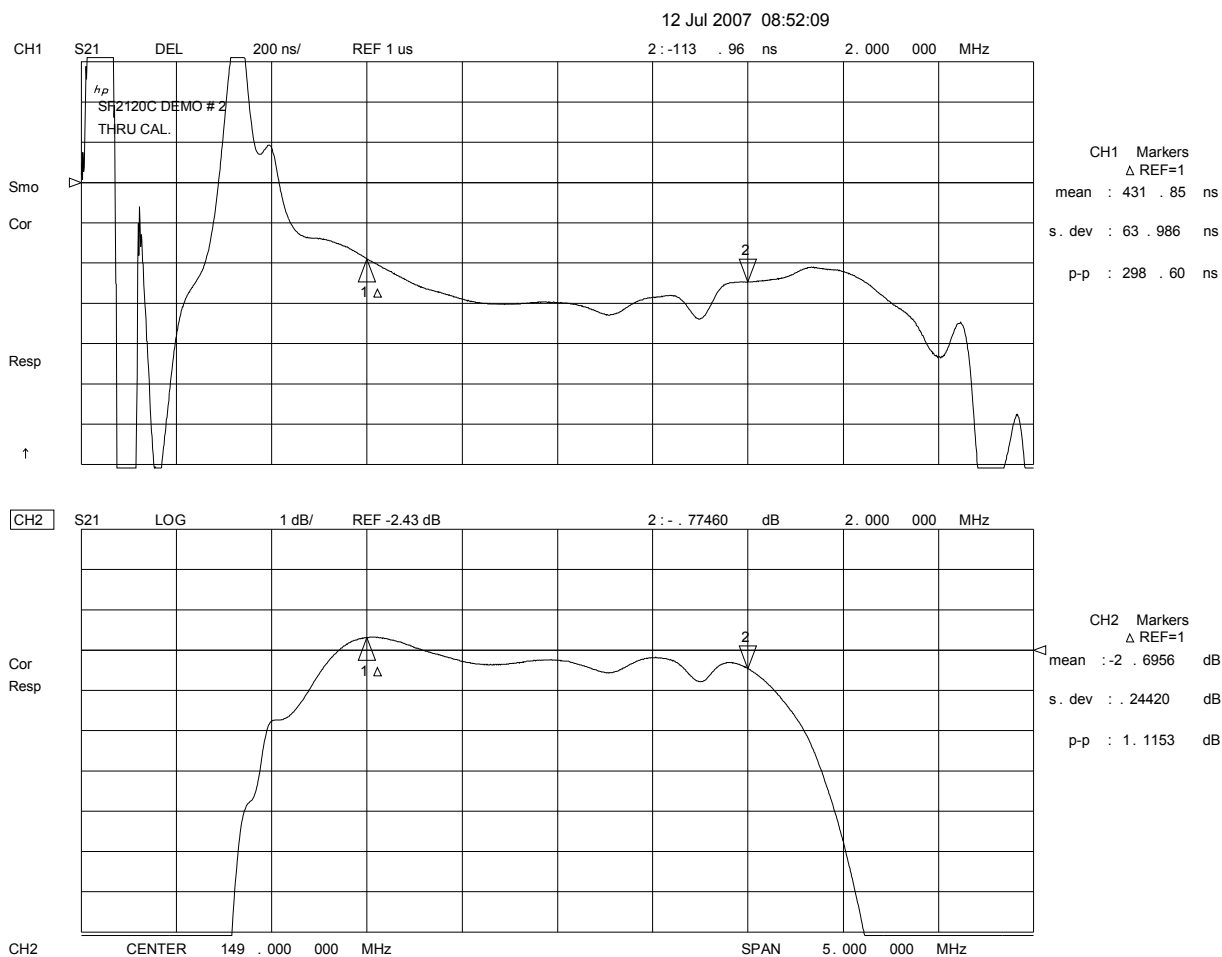




### Electrical Connections







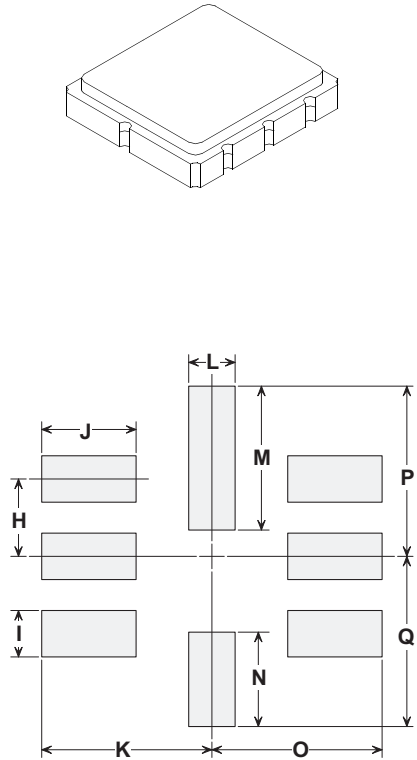
|              |             |        |
|--------------|-------------|--------|
| 401-1624-001 |             |        |
| 501-0782-470 | 0805, 47NH  | L1     |
| 501-0782-560 | 0805, 56NH  | L2     |
| 501-0621-033 | 0603, 3.3PF | C1, C2 |

# 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 |       |

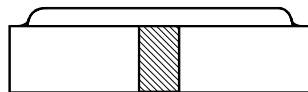
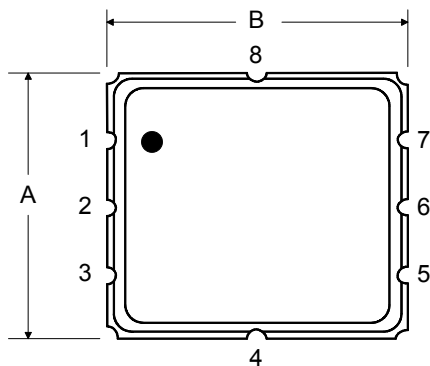


PCB Footprint

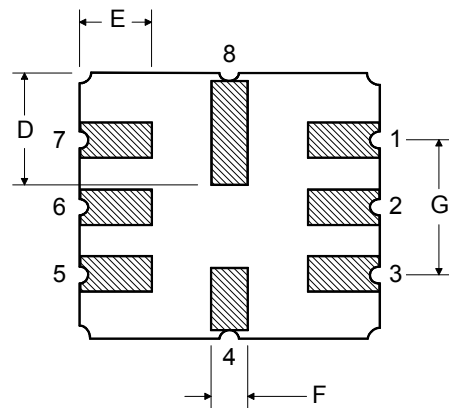
### Case Materials

| Materials          |                                                          |
|--------------------|----------------------------------------------------------|
| Solder Pad Plating | 0.3 to 1.0 $\mu$ m Gold over 1.27 to 8.89 $\mu$ m Nickel |
| Lid Plating        | 2.0 to 3.0 $\mu$ m Nickel                                |
| Body               | Al <sub>2</sub> O <sub>3</sub> Ceramic                   |
|                    | Pb Free                                                  |

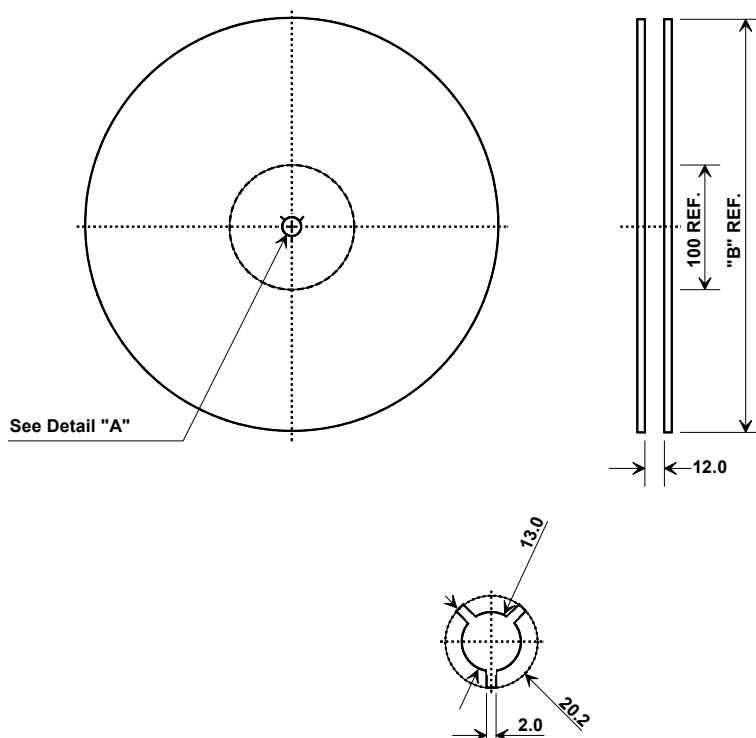
TOP VIEW



BOTTOM VIEW



## Tape and Reel Specifications



| "B"<br>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 |

