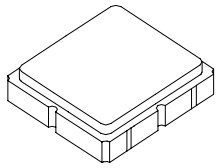
# Preliminary

# SF2208E

## 1227 MHz SAW Filter

- ***No Matching Network Required for 50 Ω Operation***
- ***Surface-mount 3.0 x 3.0 mm Package***
- ***Complies with Directive 2002/95/EC (RoHS)***



**SM3030-6**

### Absolute Maximum Ratings

| Rating | Value | Units |
|---|---|---|
| Input Power Level | 20 | dBm |
| DC Voltage on any Non-ground Terminal | 3 | V |
| Operating Temperature Range | -20 to +70 | ℃ |
| Storage Temperature Range in Tape and Reel | -30 to +85 | ℃ |
| Solder Reflow Temperature, 10 seconds, 5 cycles maximum | 260 | ℃ |

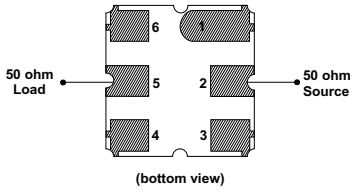
### Electrical Characteristics

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Center Frequency | $f_C$ | | | 1227 | | MHz |
| Insertion Loss, 1227 MHz | IL | | | 0.95 | 1.30 | dB |
| Amplitude Ripple, 1217 to 1237 MHz | | | | 0.1 | 0.8 | |
| Input/Output VSWR, 1217 to 1237 MHz | | | | 1.3:1 | 2.0:1 | |
| Attenuation, 0 dB Reference: | | | | | | dB |
| DC to 600 MHz | | | 10 | 26.4 | | |
| 600 to 1177 MHz | | | 10 | 21.6 | | |
| 1277 to 1290 MHz | | | 20 | 36.0 | | |
| 1290 to 3000 MHz | | | 10 | 25.2 | | |
| Source Impedance | $Z_S$ | | | 50 | | Ω |
| Load Impedance | $Z_L$ | | | 50 | | |

| | |
|---|---|
| Case Style | SM3030-6 3.0 x 3.0 mm Nominal Footprint |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 943, YWWS |
| Standard Reel Quantity Reel Size 7 Inch | 500 Pieces/Reel |
| Reel Size 13 Inch | 3000 Pieces/Reel |

### Electrical Connections

| Connection | Terminals |
|---|---|
| Input | 2 |
| Output | 5 |
| Case Ground | All others |

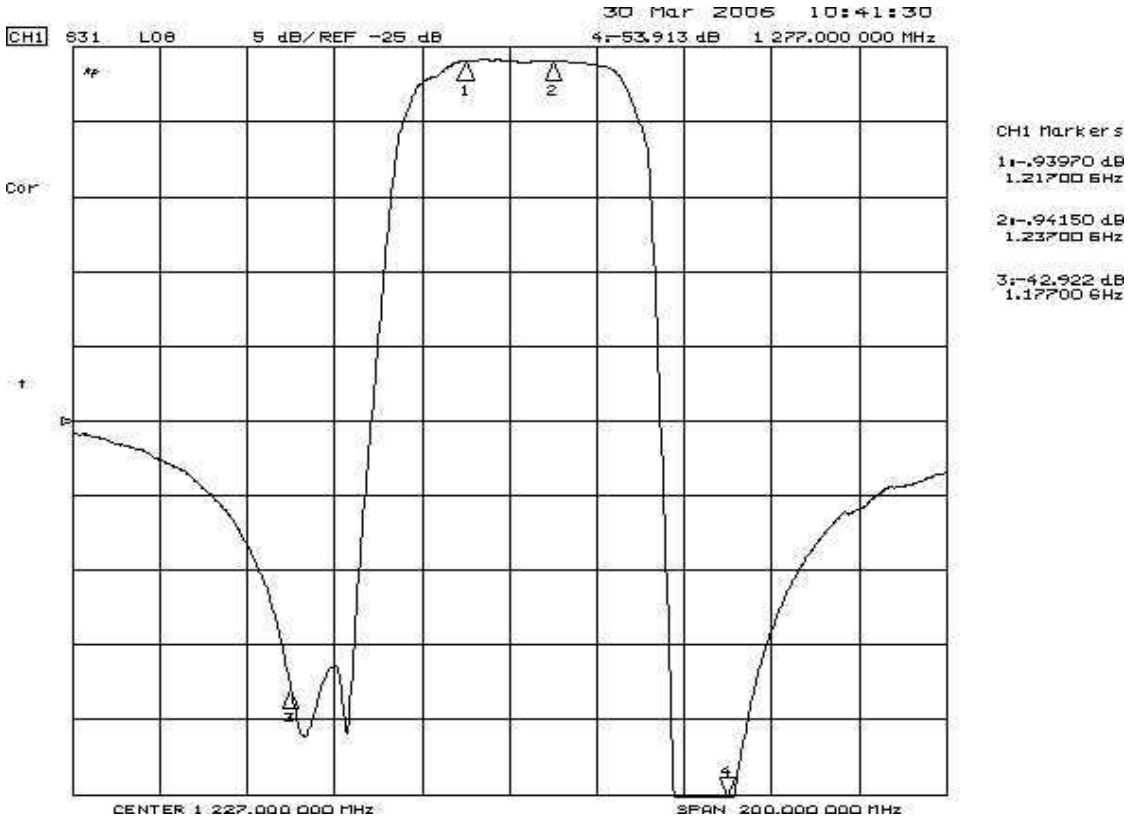


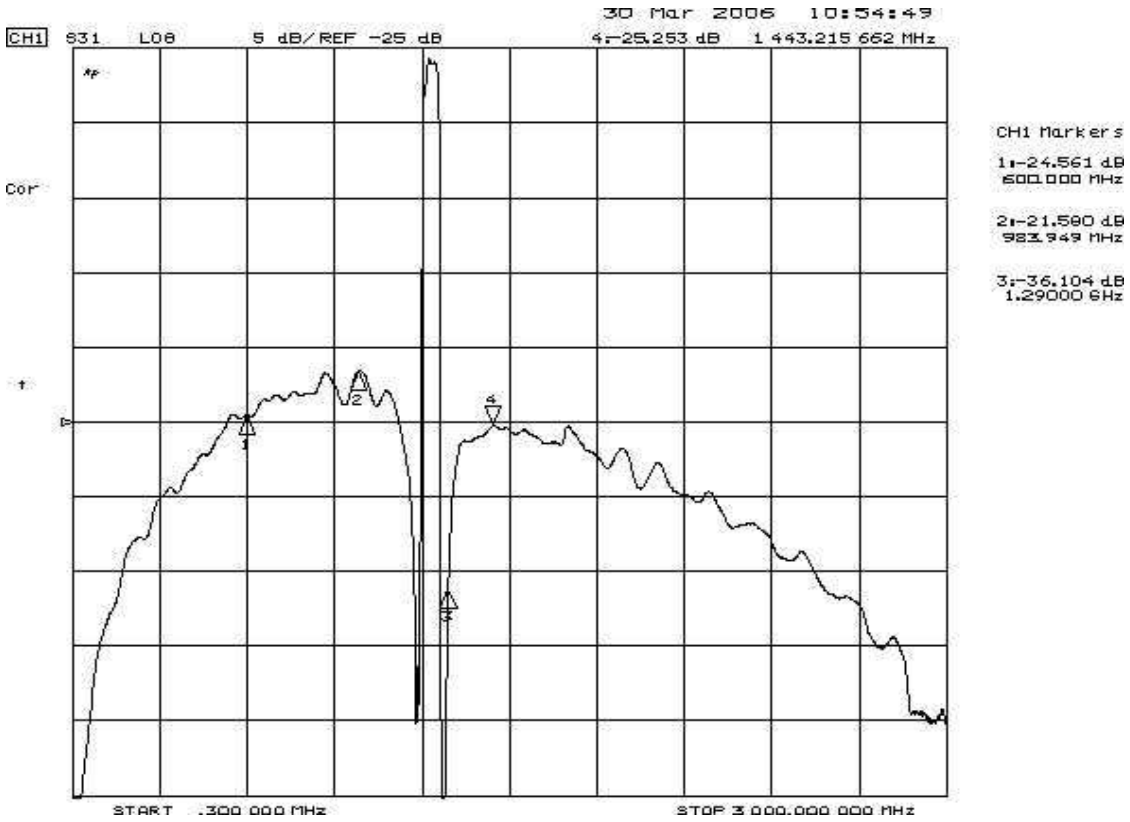

**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**Notes:**

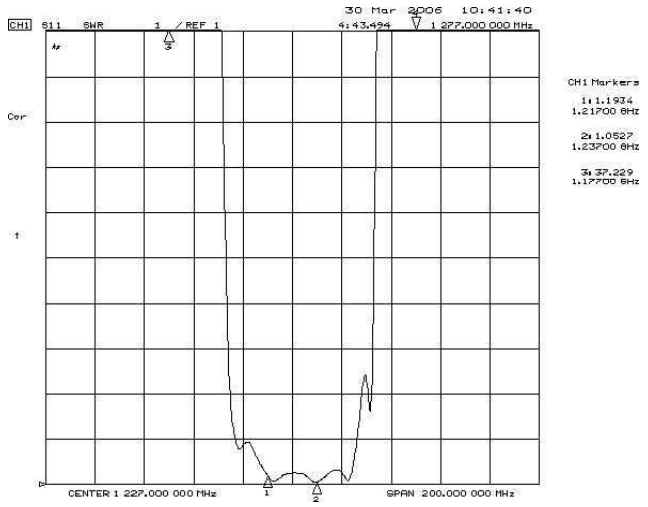
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, fc.
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. 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.
7. US and international patents may apply.
8. RFM, stylized RFM logo, and RF Monolithics, Inc., are registered trademarks of RF Monolithics, Inc.

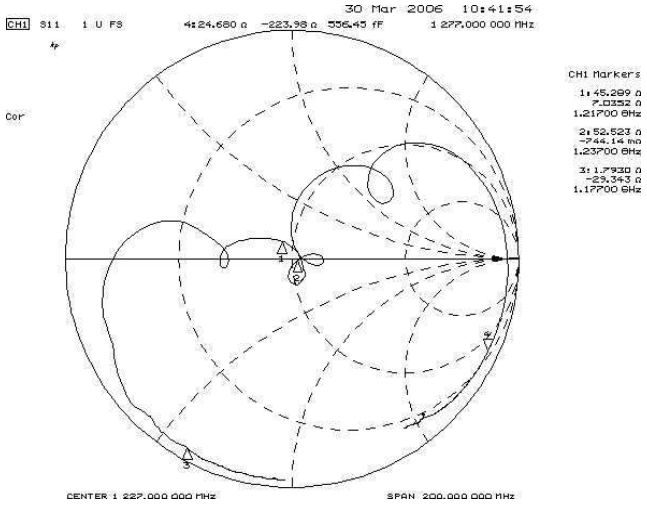
## Filter Frequency Response



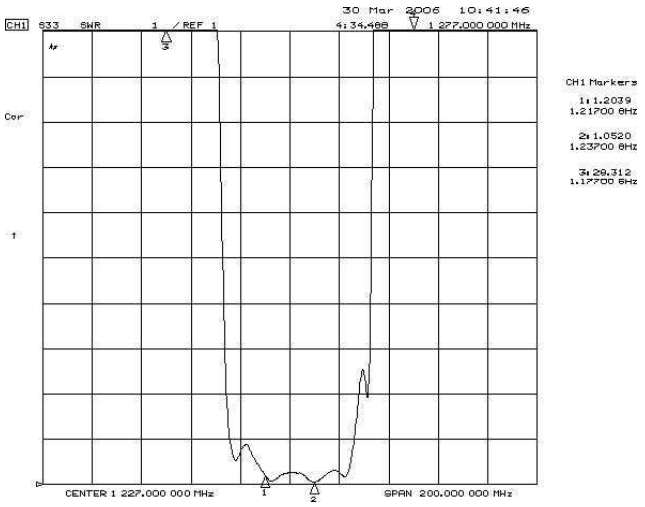



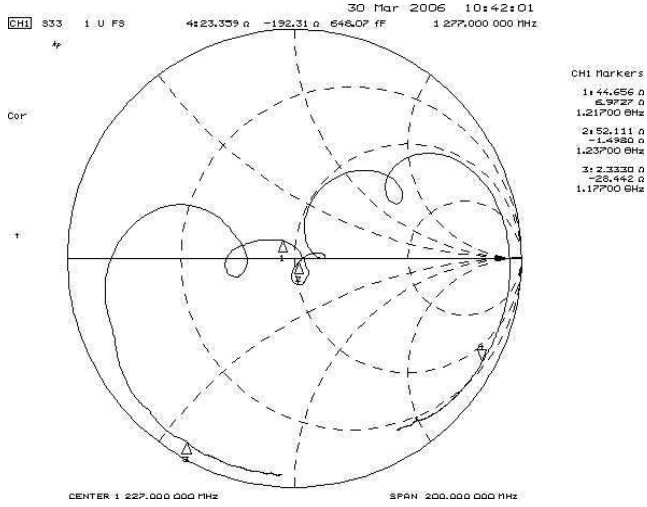
## Filter Input Impedance



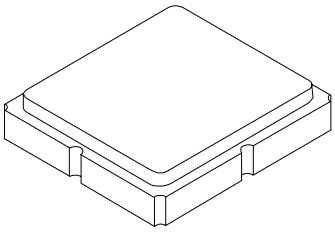

## Filter Output Impedance

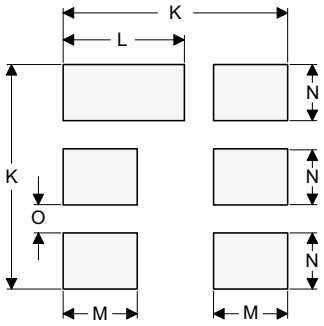


# SM3030-6 Case

## 6-Terminal Ceramic Surface-Mount Case
## 3.0 X 3.0 mm Nominal Footprint






**PCB Footprint Top View**

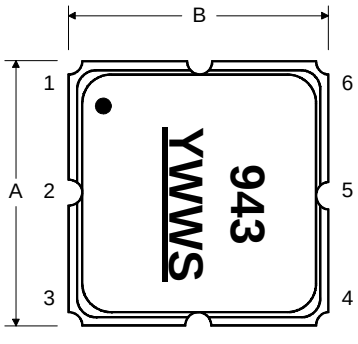
### Case and PCB Footprint Dimensions

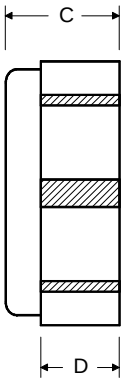
| Dimension | mm | | | Inches | | |
|---|---|---|---|---|---|---|
| | Min | Nom | Max | Min | Nom | Max |
| **A** | 2.87 | 3.00 | 3.13 | 0.113 | 0.118 | 0.123 |
| **B** | 2.87 | 3.00 | 3.13 | 0.113 | 0.118 | 0.123 |
| **C** | 1.12 | 1.25 | 1.38 | 0.044 | 0.049 | 0.054 |
| **D** | 0.77 | 0.90 | 1.03 | 0.030 | 0.035 | 0.040 |
| **E** | 2.67 | 2.80 | 2.93 | 0.105 | 0.110 | 0.115 |
| **F** | 1.47 | 1.60 | 1.73 | 0.058 | 0.063 | 0.068 |
| **G** | 0.72 | 0.85 | 0.98 | 0.028 | 0.033 | 0.038 |
| **H** | 1.37 | 1.50 | 1.63 | 0.054 | 0.059 | 0.064 |
| **I** | 0.47 | 0.60 | 0.73 | 0.019 | 0.024 | 0.029 |
| **J** | 1.17 | 1.30 | 1.43 | 0.046 | 0.051 | 0.056 |
| **K** | | 3.20 | | | 0.126 | |
| **L** | | 1.70 | | | 0.067 | |
| **M** | | 1.05 | | | 0.041 | |
| **N** | | 0.81 | | | 0.032 | |
| **O** | | 0.38 | | | 0.015 | |

### Case Materials

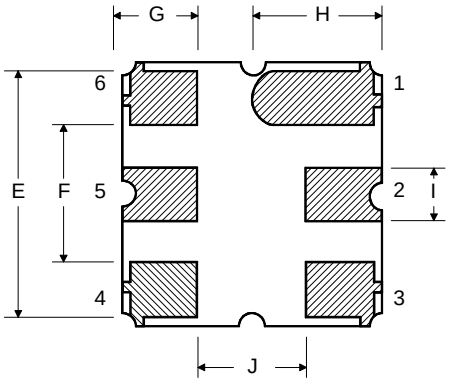
| Materials | |
|---|---|
| Solder Pad Plating | 0.3 to 1.0 µm Gold over 1.27 to 8.89 µm Nickel |
| Lid Plating | 2.0 to 3.0 µm Nickel |
| Body | $Al_2O_3$ Ceramic |
| Pb Free | |

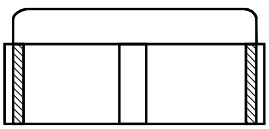
### TOP VIEW



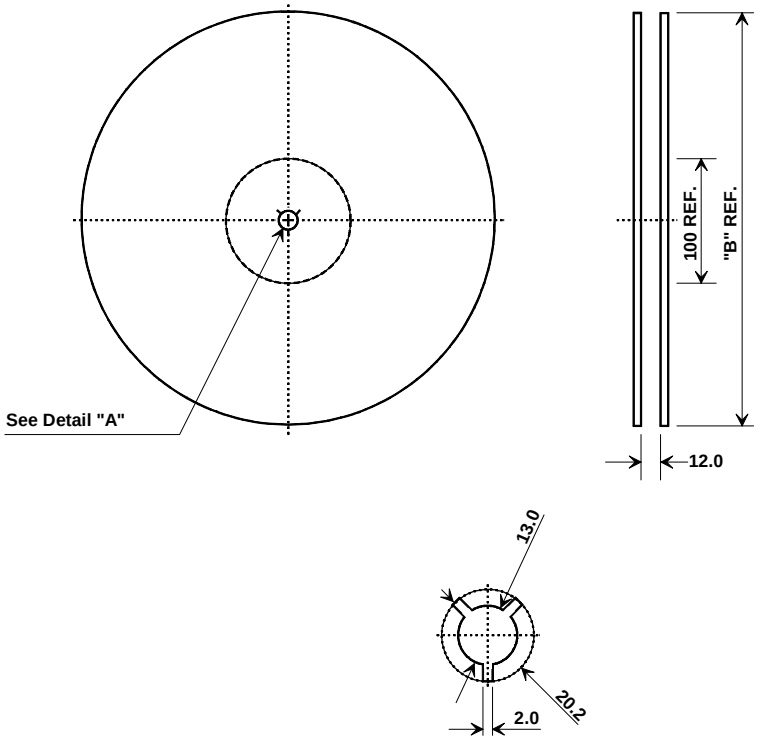




### BOTTOM VIEW



**Tape and Reel Specifications**




| "B" | | Quantity Per Reel |
|---|---|---|
| Inches | millimeters | |
| 7 | 178 | 1000 |
| 13 | 330 | 3000 |

**COMPONENT ORIENTATION and DIMENSIONS**

| Carrier Tape Dimensions | |
|---|---|
| Ao | 3.35 mm |
| Bo | 3.35 mm |
| Ko | 1.40 mm |
| Pitch | 8.0 mm |
| W | 12.0 mm |