



# SF2002E

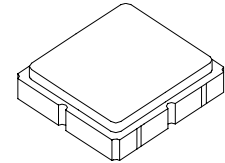
## 942.5 MHz SAW Filter

- RF Filter for EGSM
- Low-loss Design
- No Matching Circuit Required
- 3.0 x 3.0 x 1.3 mm Package
- Complies with Directive 2002/95/EC (RoHS)



### Absolute Maximum Ratings

| Rating   | Value      | Units |
|--|------------|-------|
| Maximum Input Power                                    | +15        | dBm   |
| DC Voltage on any Non-ground Terminal                  | -5 to +5   | VDC   |
| Operating Temperature Range                            | -30 to +85 | °C    |
| Storage Temperature Range in Tape and Reel             | -40 to +85 | °C    |
| Maximum Soldering Profile, 5 Cycles/10 seconds Maximum | 265        | °C    |



SM3030-6

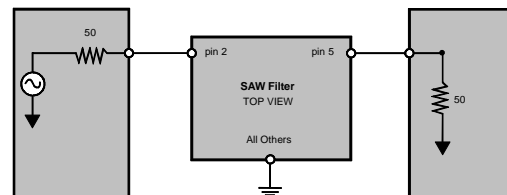
### Electrical Characteristics

| Characteristic                          | Sym   | Notes | Min  | Typ   | Max | Units             |
|---|-------|-------|------|-------|-----|-------------------|
| Nominal Operating Frequency             | $f_c$ |       |      | 942.5 |     | MHz               |
| Passband Insertion Loss, 925 to 960 MHz | IL    |       |      | 2.2   | 3.0 | dB                |
| Amplitude Ripple, 925 to 960 MHz        |       |       |      | 0.8   | 1.5 | dB <sub>p-p</sub> |
| Attenuation Referenced to 0 dB:         |       |       |      |       |     |                   |
| DC to 905 MHz                           |       |       | 17.0 | 20.5  |     | dB                |
| 905 to 915 MHz                          |       |       | 5.0  | 15.0  |     | dB                |
| 980 to 1000 MHz                         |       |       | 13.0 | 30.0  |     | dB                |
| 1000 to 2000 MHz                        |       |       | 20.0 | 23.0  |     | dB                |
| VSWR, 925 to 960 MHz                    |       |       | 2.2  |       | 2.7 | dB                |
| Source Impedance                        |       | 1     |      | 50    |     | $\Omega$          |
| Load Impedance                          |       | 1     |      | 50    |     | $\Omega$          |

|   |                                     |
|---|-------------------------------------|
| Case Style                                  | SM3030-6 3 x 3 mm Nominal Footprint |
| Lid Symbolization (YY=year, WW=week, D=day) | 597 YYWWD                           |

### Electrical Connections

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



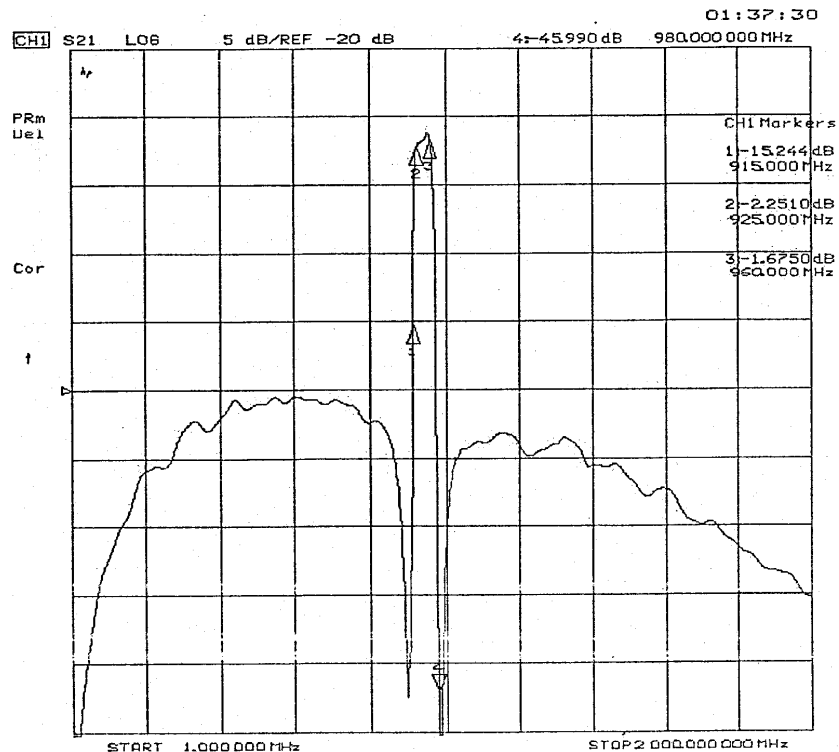
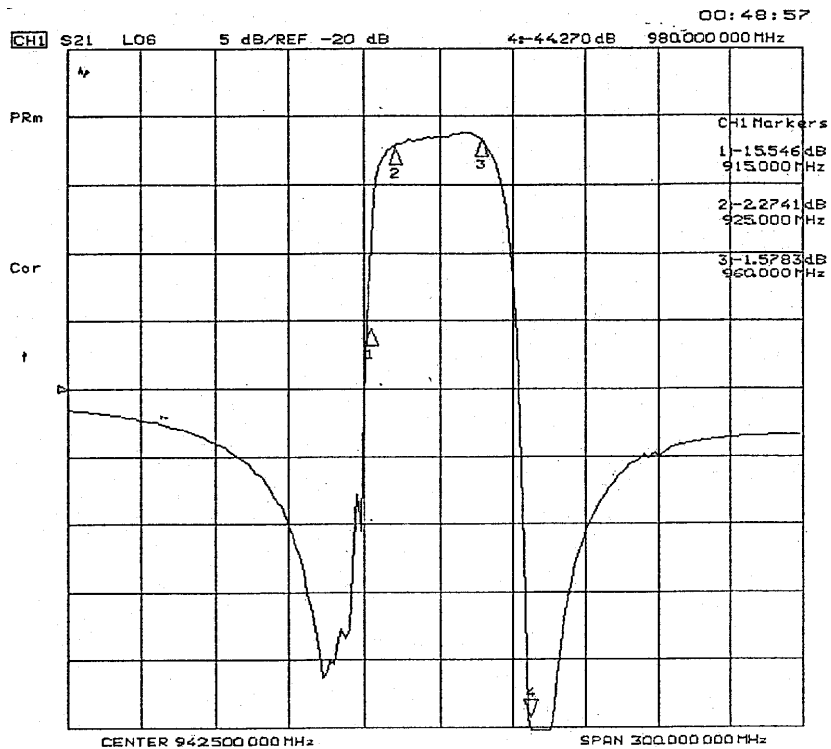
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### Notes:

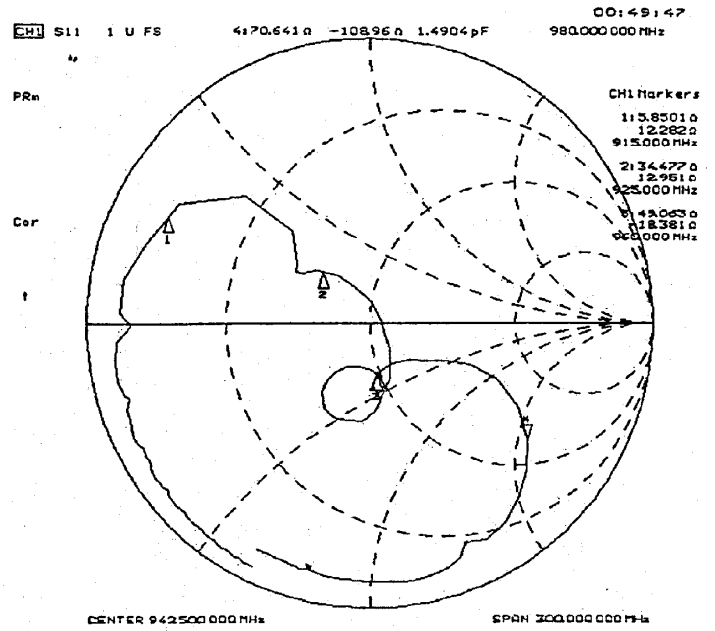
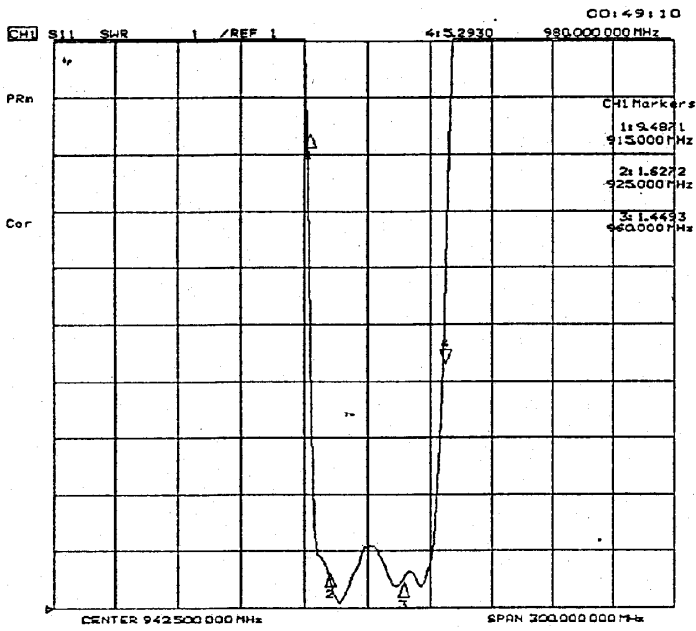
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50  $\Omega$  and measured with 50  $\Omega$  network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced 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. 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.

FREQUENCY CHARACTERISTICS:

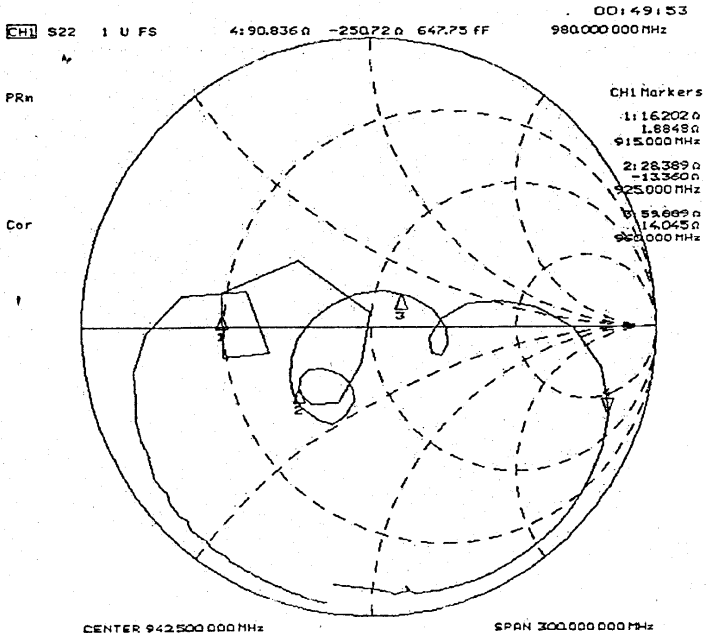
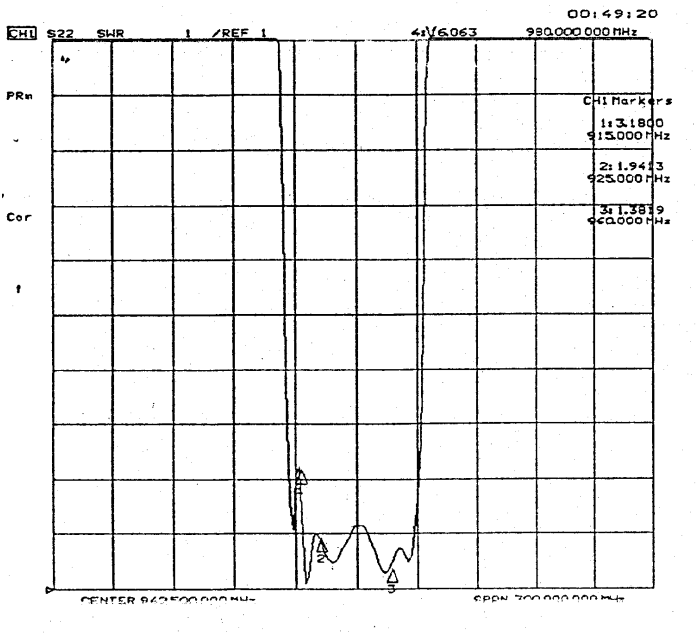
1. wideband response:



**S11 Return Loss & VSWR:**

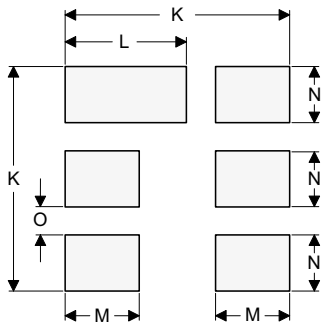
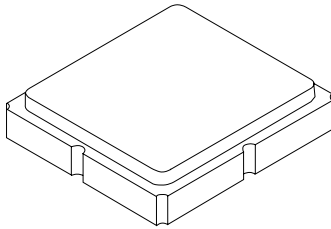


**S22 Return Loss & VSWR:**



# SM3030-6 Case

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



PCB Footprint Top View

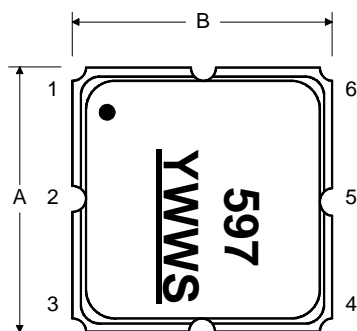
### Case and PCB Footprint Dimensions

| 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 |       |

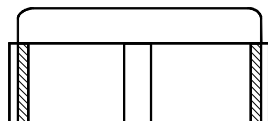
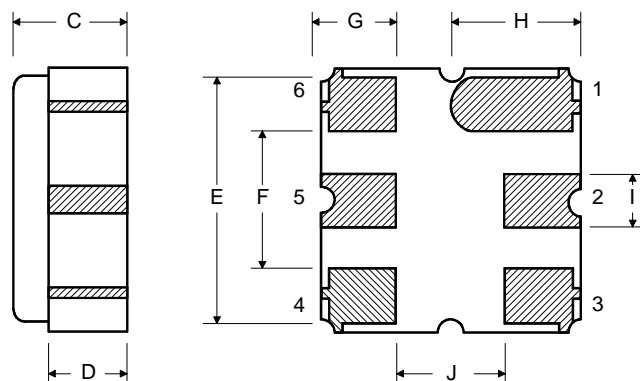
### Case Materials

| Materials          |  |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 $\mu\text{m}$ Gold over 1.27 to 8.89 $\mu\text{m}$ Nickel |
| Lid Plating        | 2.0 to 3.0 $\mu\text{m}$ Nickel                                      |
| Body               | $\text{Al}_2\text{O}_3$ Ceramic                                      |
| Pb Free            |  |

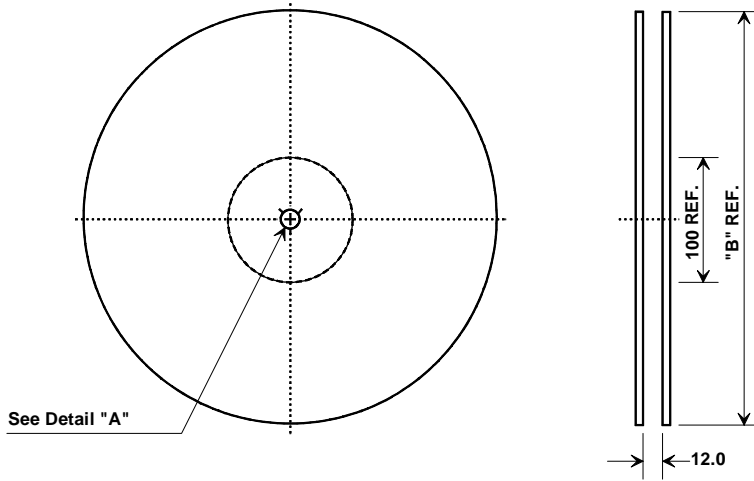
### TOP VIEW



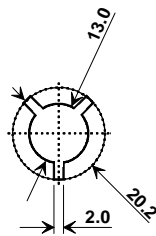
### BOTTOM VIEW



# Tape and Reel Specifications



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



## COMPONENT ORIENTATION

