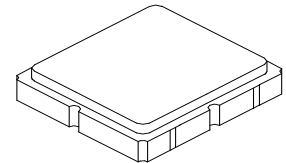


**SF2215E**

**1960 MHz  
SAW Filter**



**SM3030-6**

- **Low-loss 1960 MHz Filter**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**

**Absolute Maximum Ratings**

| Rating   | Value       | Units |
|--|-------------|-------|
| Input Power Level                                      | +10         | dBm   |
| DC Voltage on any Non-ground Terminal                  | 3           | V     |
| Operable Temperature Range                             | -45 to +125 | °C    |
| Operating Temperature Range                            | -20 to +75  | °C    |
| Storage Temperature Range in Tape and Reel             | -40 to +85  | °C    |
| Maximum Soldering Profile, 5 cycles/10 seconds maximum | 265         | °C    |

**Electrical Characteristics**

| Characteristic   | Sym                                     | Notes            | Min | Typ    | Max | Units |
|--|---|------------------|-----|--------|-----|-------|
| Center Frequency   | fC                                      |                  |     | 1960.0 |     | MHz   |
| Insertion Loss, 1927.5 to 1992.5 MHz                             | IL                                      |                  |     | 2.7    | 4.0 | dB    |
| Peak-to-Peak Amplitude Ripple, 1927.5 to 1992.5 MHz              |   |                  |     | 1.3    | 2.5 | dB    |
| Input/Output Return Loss, 1927.5 to 1992.5 MHz                   |   |                  | 7.4 | 2.5    |     |       |
| Group Delay, 1927.5 to 1992.5 MHz                                |   |                  |     | 25     |     | ns    |
| Attenuation, Referenced to 0 dB:                                 |   |                  |     |        |     | dB    |
| DC to 1740 MHz   |   |                  | 20  | 31     |     |       |
| 1740 to 1801 MHz   |   |                  | 30  | 36     |     |       |
| 1801 to 1880 MHz   |   |                  | 20  | 41     |     |       |
| 2040 to 2120 MHz   |   |                  | 25  | 40     |     |       |
| 2120 to 2500 MHz   |   |                  | 31  | 38     |     |       |
| 3700 to 4000 MHz   |   |                  | 25  | 32     |     |       |
| Source Impedance   | ZS                                      |                  |     | 50     |     | Ω     |
| Load Impedance   | ZL                                      |                  |     | 50     |     | Ω     |
| Case Style   | SM3030-6 3.0 x 3.0 mm Nominal Footprint |                  |     |        |     |       |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 951, <u>YWWS</u>                        |                  |     |        |     |       |
| Standard Reel Quantity   | Reel Size 7 inch                        | 500 Pieces/Reel  |     |        |     |       |
|  | Reel Size 13 inch                       | 3000 Pieces/Reel |     |        |     |       |

**Electrical Connections**

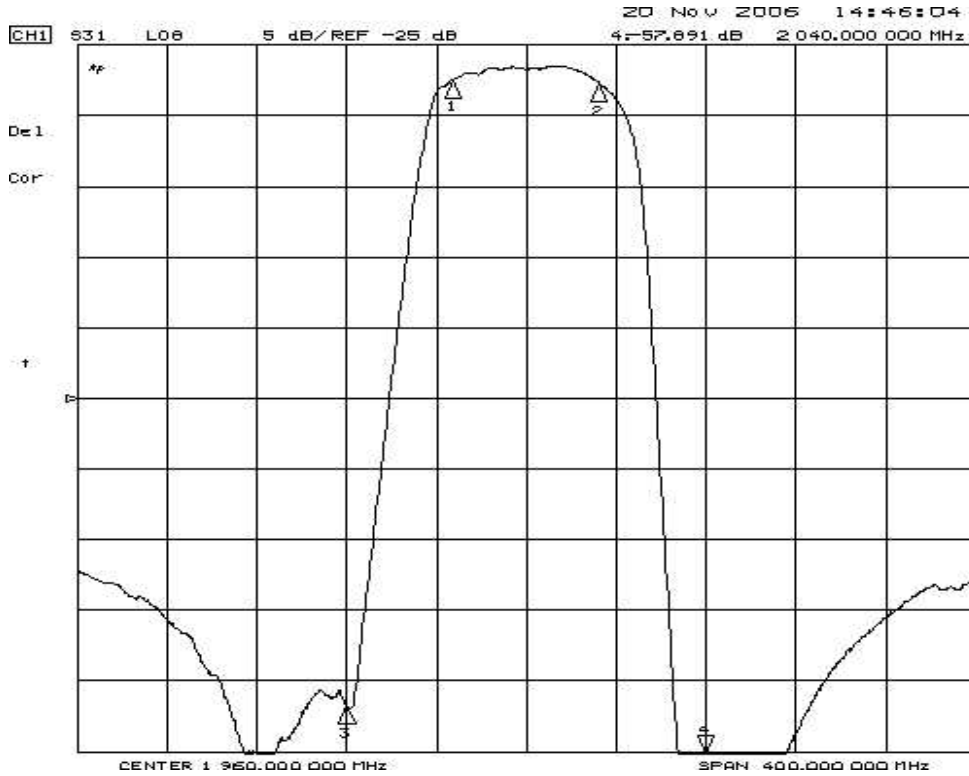
| Connection  | Terminals  |
|-------------|------------|
| Input       | 2          |
| Output      | 5          |
| Case Ground | All others |

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

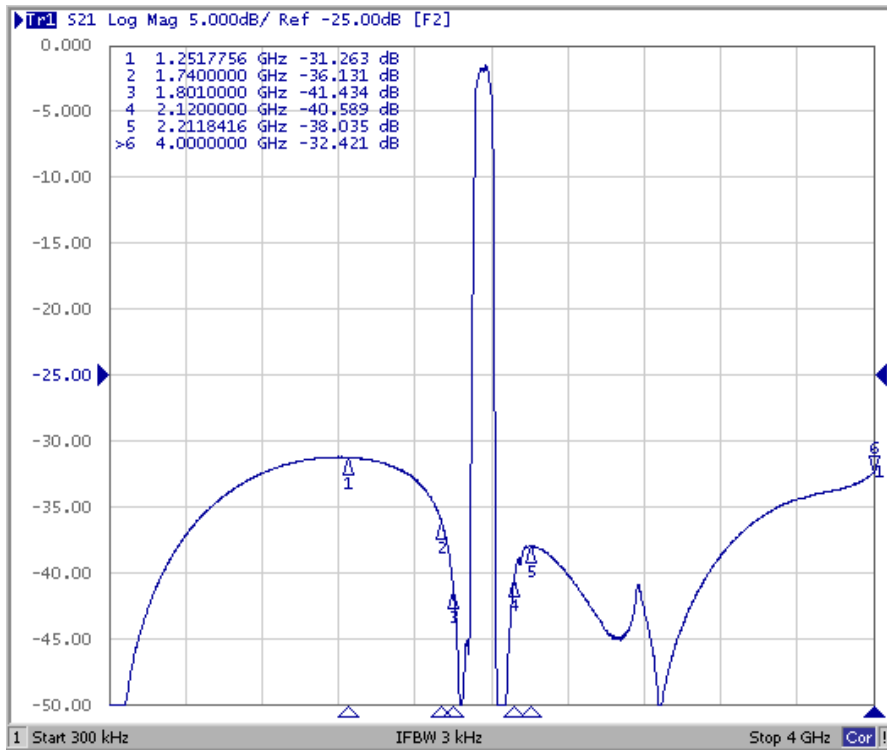
**NOTES:**

1. 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.

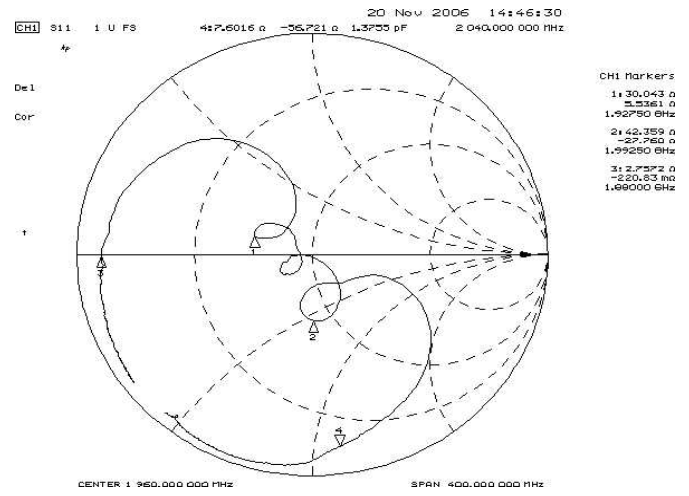
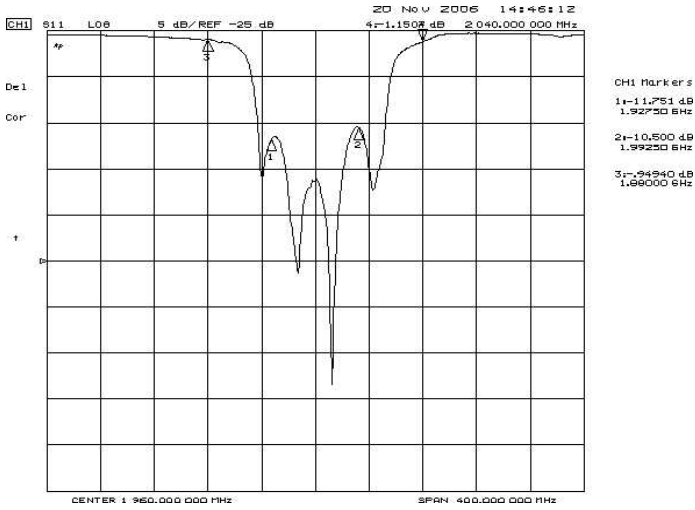
# Filter Passband Response



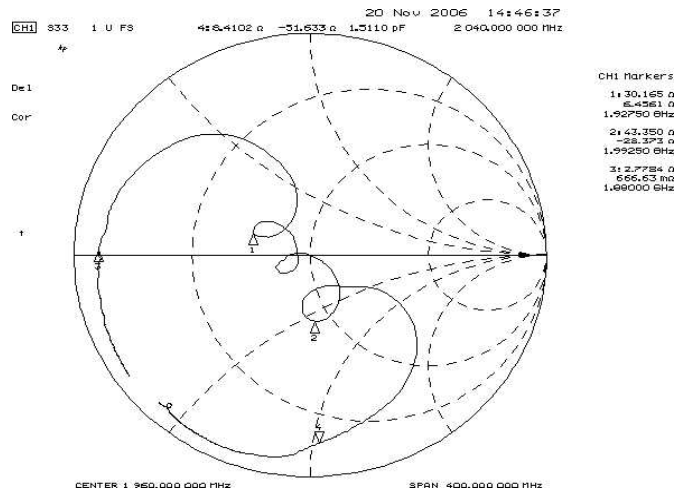
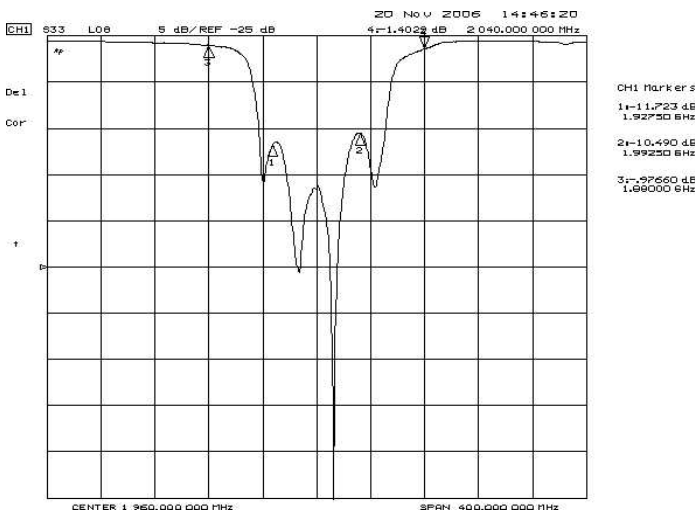
# Filter Broadband Response



## Filter Input VSWR and $S_{11}$ Plots

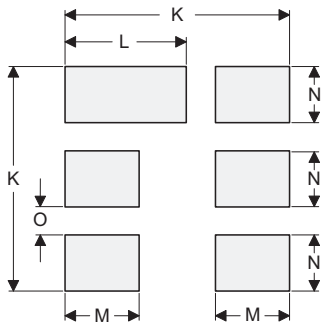
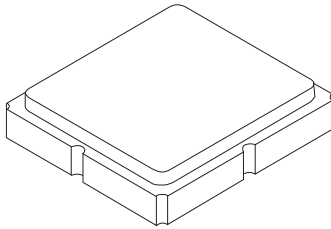


## Filter Output VSWR and $S_{22}$ Plots



# SM3030-6 Case

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



PCB Footprint Top View

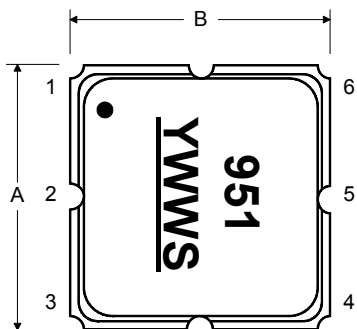
### Case and PCB Footprint Dimensions

| 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 |       |

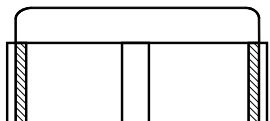
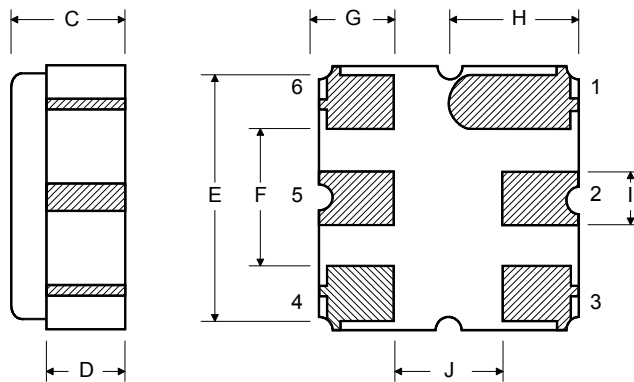
### Case Materials

| Materials          |  |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 $\mu$ 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                   |

### TOP VIEW



### BOTTOM VIEW





## 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.

