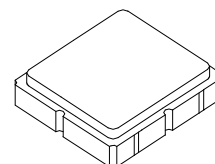


**SF2137E**

**869.00 MHz  
SAW Filter**



**SM3030-6**

- **Steep Roll-off Filter for 869.00 MHz Unlicensed Band**
- **Complies with Directive 2002/95/EC (RoHS)**
- **No Matching Required for Operation in 50Ω Environment**



#### Absolute Maximum Ratings

| Rating                                                 | Value      | Units |
|--------------------------------------------------------|------------|-------|
| Input Power Level                                      | 17         | dBm   |
| DC Voltage on any Non-ground Terminal                  | 3          | V     |
| Operating Temperature Range                            | -40 to +85 | °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                 | $f_C$ |       |     | 869.00 |     | MHz               |
| Bandwidth, 1 dB                  |       |       |     | 11     |     |                   |
| Bandwidth, 3 dB                  |       |       |     | 17     |     |                   |
| Insertion Loss, 868 to 870 MHz   | IL    |       |     | 2.8    | 4.0 | dB                |
| Amplitude Ripple, 868 to 870 MHz |       |       |     | 0.2    | 1.5 | dB <sub>P-P</sub> |
| Attenuation Referenced to 0 dB:  |       |       |     |        |     | dB                |
| 825 to 828 MHz                   |       |       | 40  | 47     |     |                   |
| 835 to 842 MHz                   |       |       | 30  | 39     |     |                   |
| 891 to 894 MHz                   |       |       | 30  | 42     |     |                   |
| 910 to 913 MHz                   |       |       | 40  | 47     |     |                   |
| Source Impedance                 | $Z_S$ |       |     | 50     |     | Ω                 |
| Load Impedance                   | $Z_L$ |       |     | 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 | 711, YWWS                               |                  |  |  |  |  |
| Standard Reel Quantity                                           | Reel Size 7 Inch                        | 500 Pieces/Reel  |  |  |  |  |
|                                                                  | Reel Size 13 Inch                       | 3000 Pieces/Reel |  |  |  |  |

#### Electrical Connections

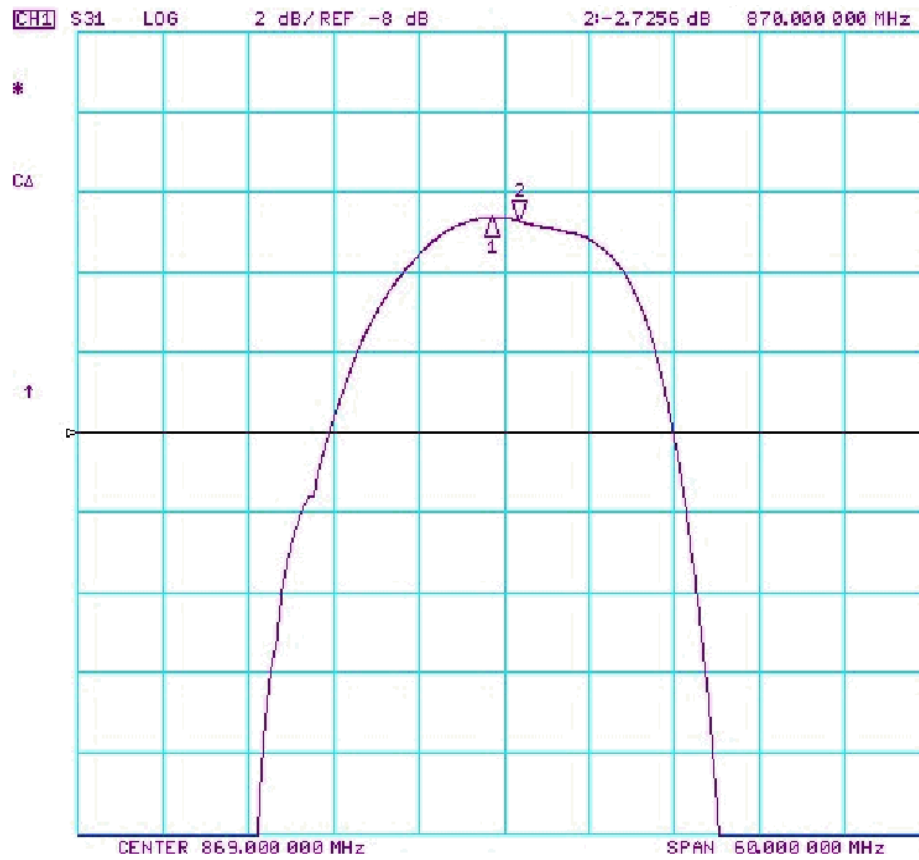
| Connection  | Terminals  |
|-------------|------------|
| Port 1      | 2          |
| Port 2      | 5          |
| Case Ground | All others |



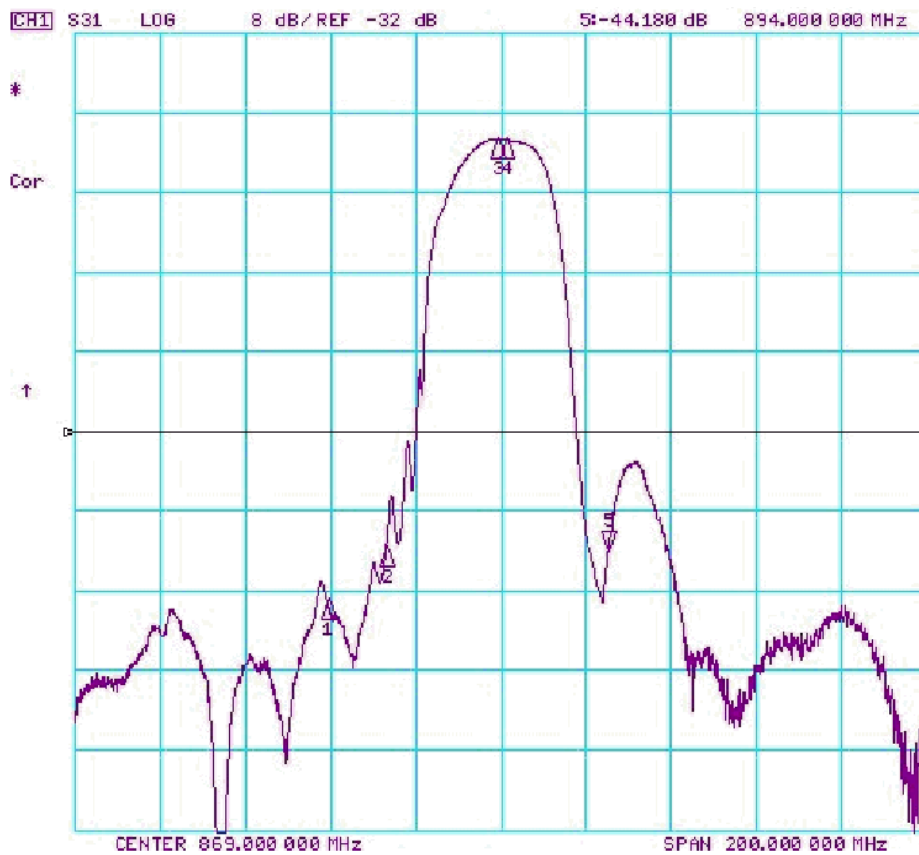
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### NOTES:

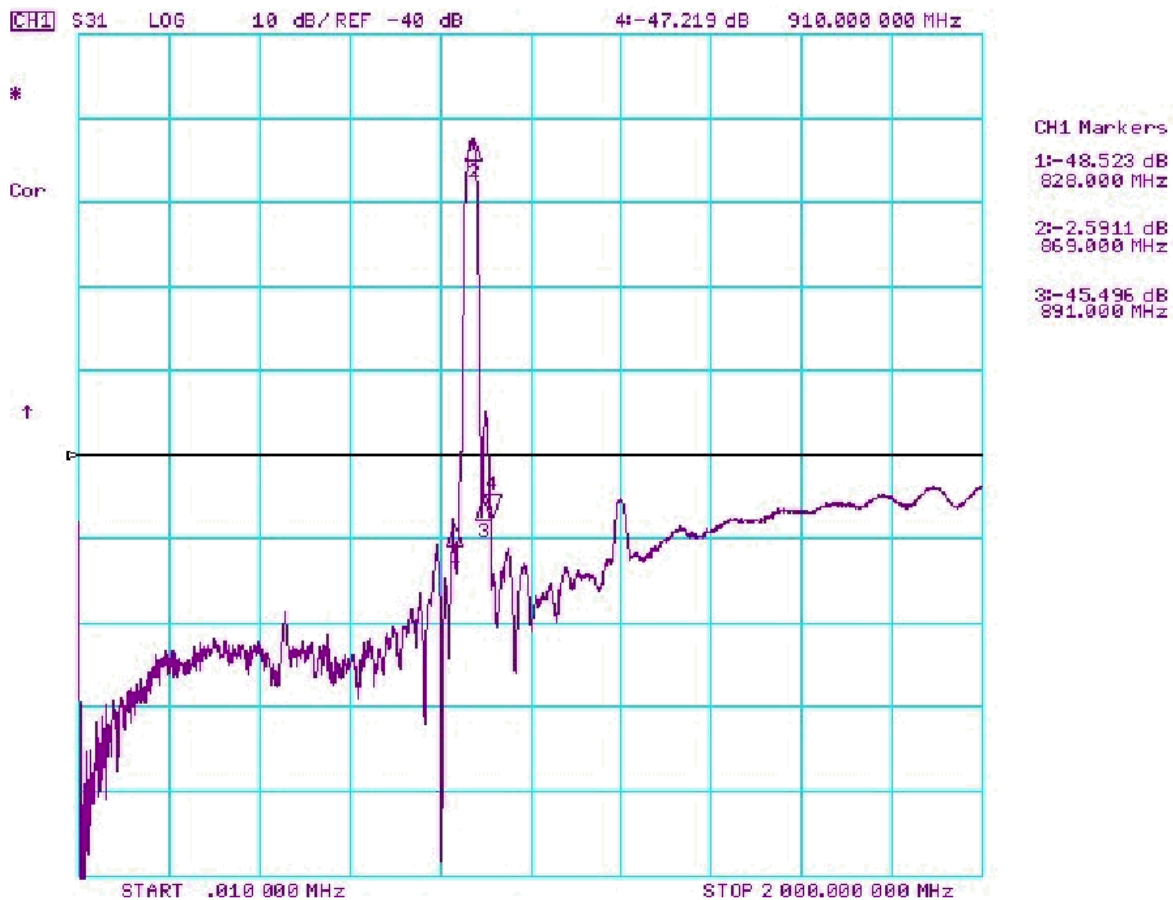
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency,  $f_C$ .
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. The design, manufacturing process, and specifications of this filter are subject to change.
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.



CH1 Markers  
1:-2.6412 dB  
868.000 MHz

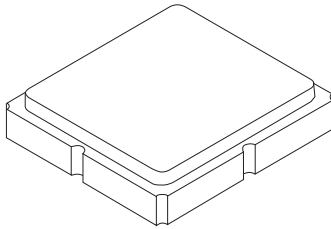
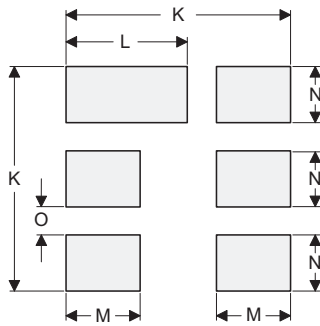


CH1 Markers  
1:-43.024 dB  
828.000 MHz  
2:-43.617 dB  
842.000 MHz  
3:-2.6378 dB  
868.000 MHz  
4:-2.7213 dB  
870.000 MHz



# SM3030-6 Case

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



PCB Footprint Top View

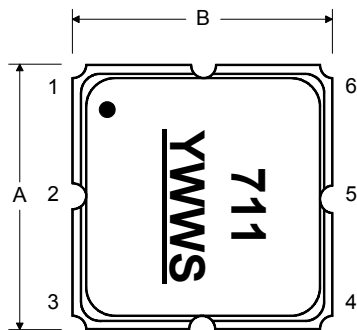
Case and PCB Footprint Dimensions

| 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 |       |

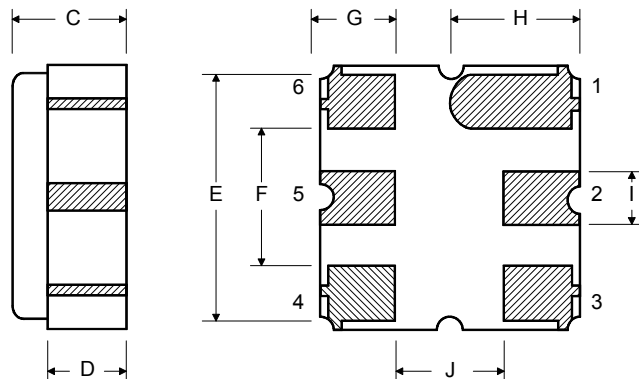
Case Materials

| 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                   |
| Pb Free            |                                                          |

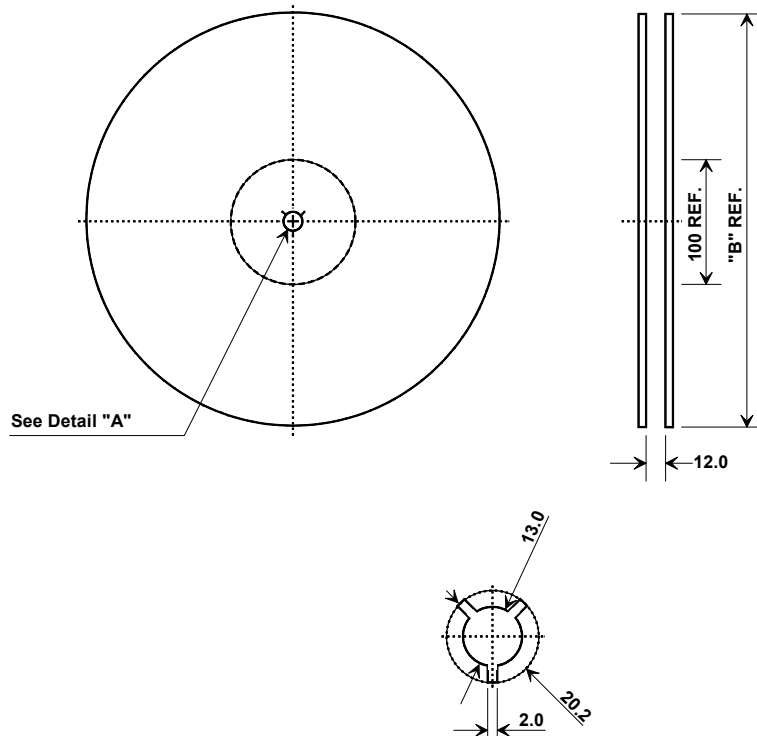
Top View



Bottom View



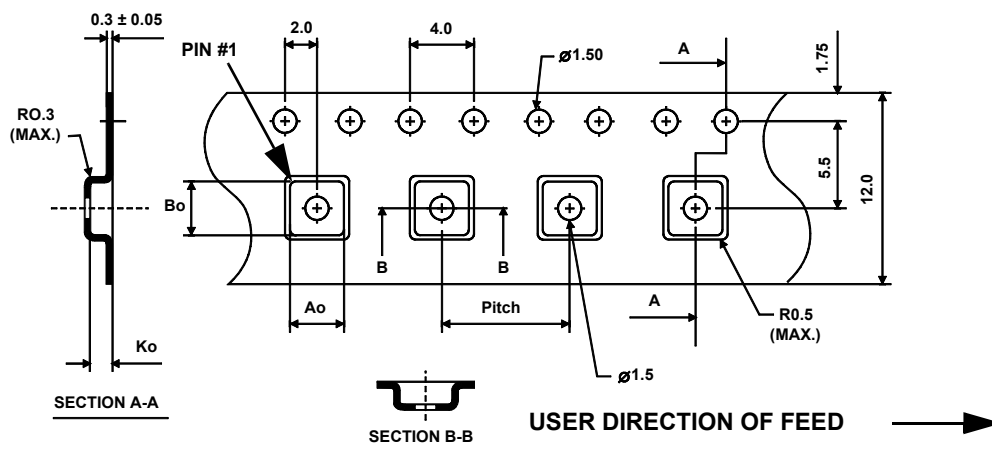
## Tape and Reel Specifications



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



Typical Solder Reflow Profile

