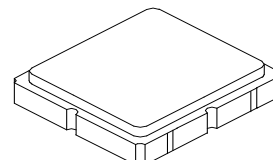



## RF3613E

## 956.4 MHz SAW Filter



SM3030-8

- **Designed for RF Front-end Filter Applications**
- **Low Insertion Loss**
- **Balanced 150 ohm IC Interface**
- **Complies with Directive 2002/95/EC (RoHS)** 

### Absolute Maximum Ratings

| Rating                                     | Value      | Units |
|--|------------|-------|
| Input Power Level                          | +10        | dBm   |
| DC Voltage                                 | ±5         | V     |
| Operating Temperature Range                | -40 to +85 | °C    |
| Storage Temperature Range in Tape and Reel | -40 to +85 | °C    |

### Electrical Characteristics

| Characteristic                                       | Sym        | Notes | Min | Typ   | Max | Units    |
|--|------------|-------|-----|-------|-----|----------|
| Center Frequency                                     | $f_c$      |       |     | 956.4 |     | MHz      |
| 1 dB Bandwidth                                       | $BW_1$     |       | 900 |       |     | kHz      |
| Maximum Insertion Loss, 956.3 to 956.9 MHz           | $IL_{MAX}$ |       |     | 2.4   | 3.0 | dB       |
| Amplitude Ripple, p-p, 956.3 to 956.9 MHz            |            |       |     | 1.0   | 1.5 |          |
| Rejection Referenced to Insertion Loss at 956.5 MHz: |            |       |     |       |     |          |
| 656.5 to 756.5 MHz                                   |            |       | 40  | 46    |     |          |
| 756.5 to 856.5 MHz                                   |            |       | 35  | 41    |     |          |
| 856.5 to 950.5 MHz                                   |            |       | 15  | 21    |     |          |
| 958.0 MHz  |            |       | 13  | 19    |     |          |
| 970.5 to 1070.5 MHz                                  |            |       | 18  | 23    |     |          |
| 1070.5 to 1256.5 MHz                                 |            |       | 34  | 40    |     |          |
| Source Impedance                                     | $Z_S$      |       |     | 50    |     | $\Omega$ |
| Load Impedance                                       | $Z_L$      |       |     | 150   |     | $\Omega$ |

|  |   |                  |  |  |  |
|--|---|------------------|--|--|--|
| Case Style   | SM3030-8 3.0 x 3.0 mm Nominal Footprint |                  |  |  |  |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 955, YWWS                               |                  |  |  |  |
| Standard Reel Quantity   | Reel Size 7 Inch                        | 1000 Pieces/Reel |  |  |  |
|  | Reel Size 13 Inch                       | 3000 Pieces/Reel |  |  |  |

### Electrical Connections

| Connection        | Terminals  |
|-------------------|------------|
| Single-ended Port | 6          |
| Balanced Port     | 1, 3       |
| Case Ground       | 4, 5, 7, 8 |
| No Connection     | 2          |



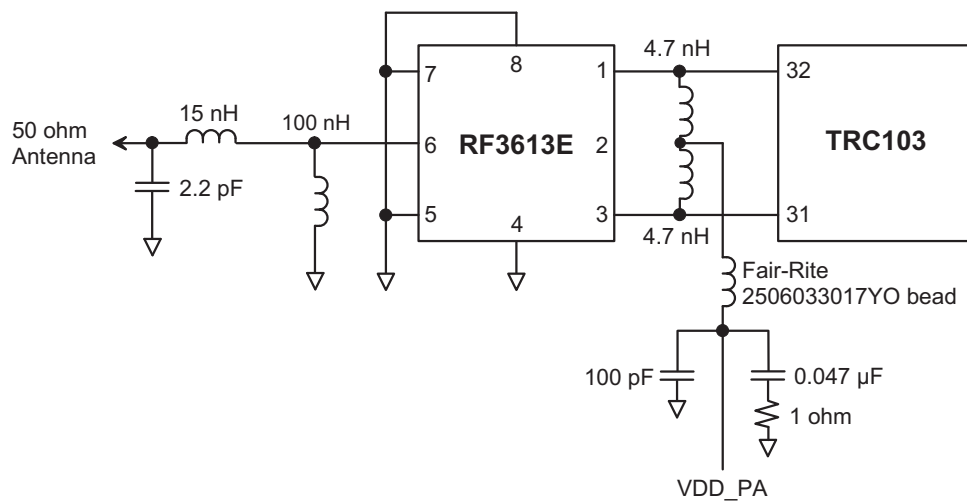
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

### 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. 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.

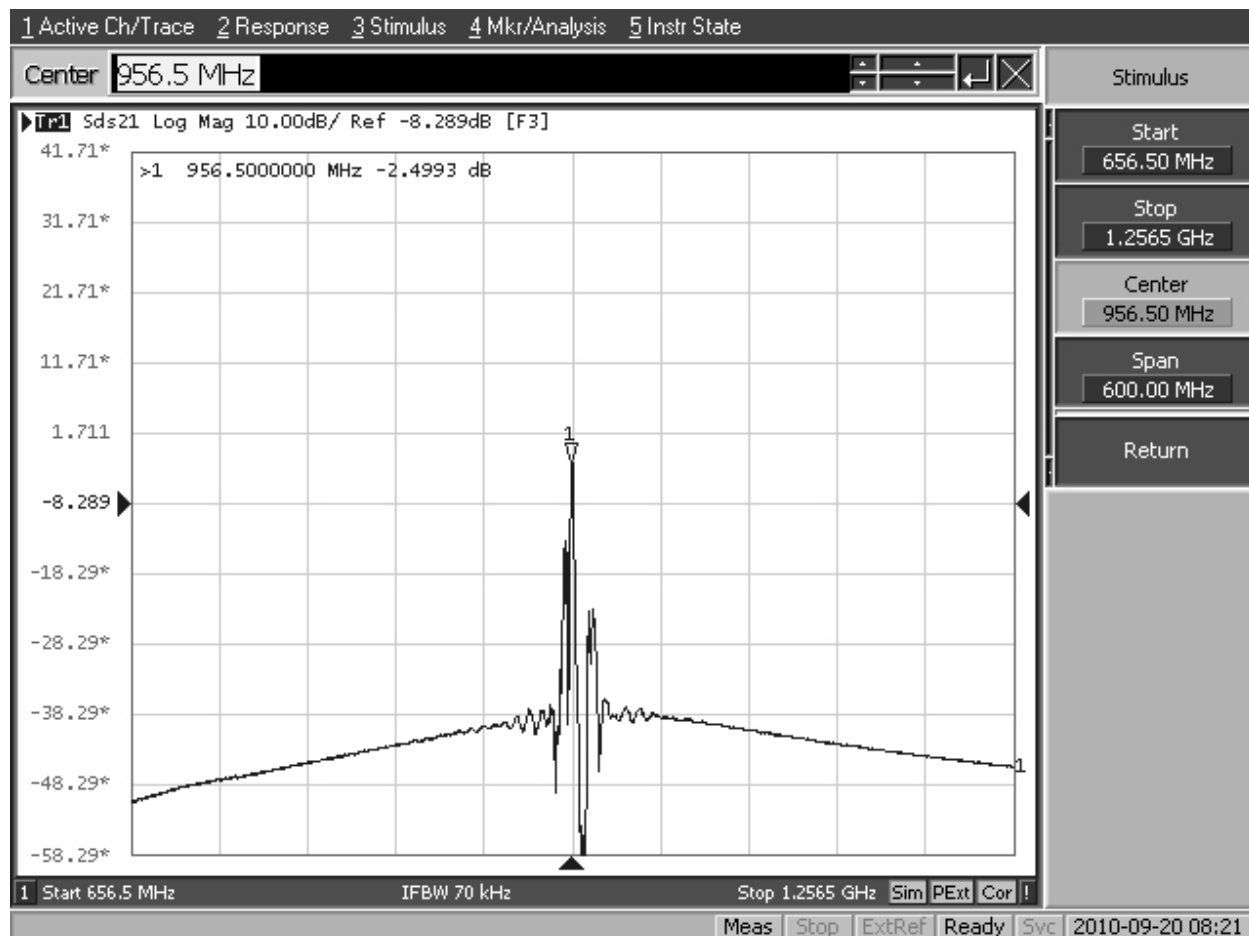
# Discontinued

## RF3613E-TRC103 Application Circuit



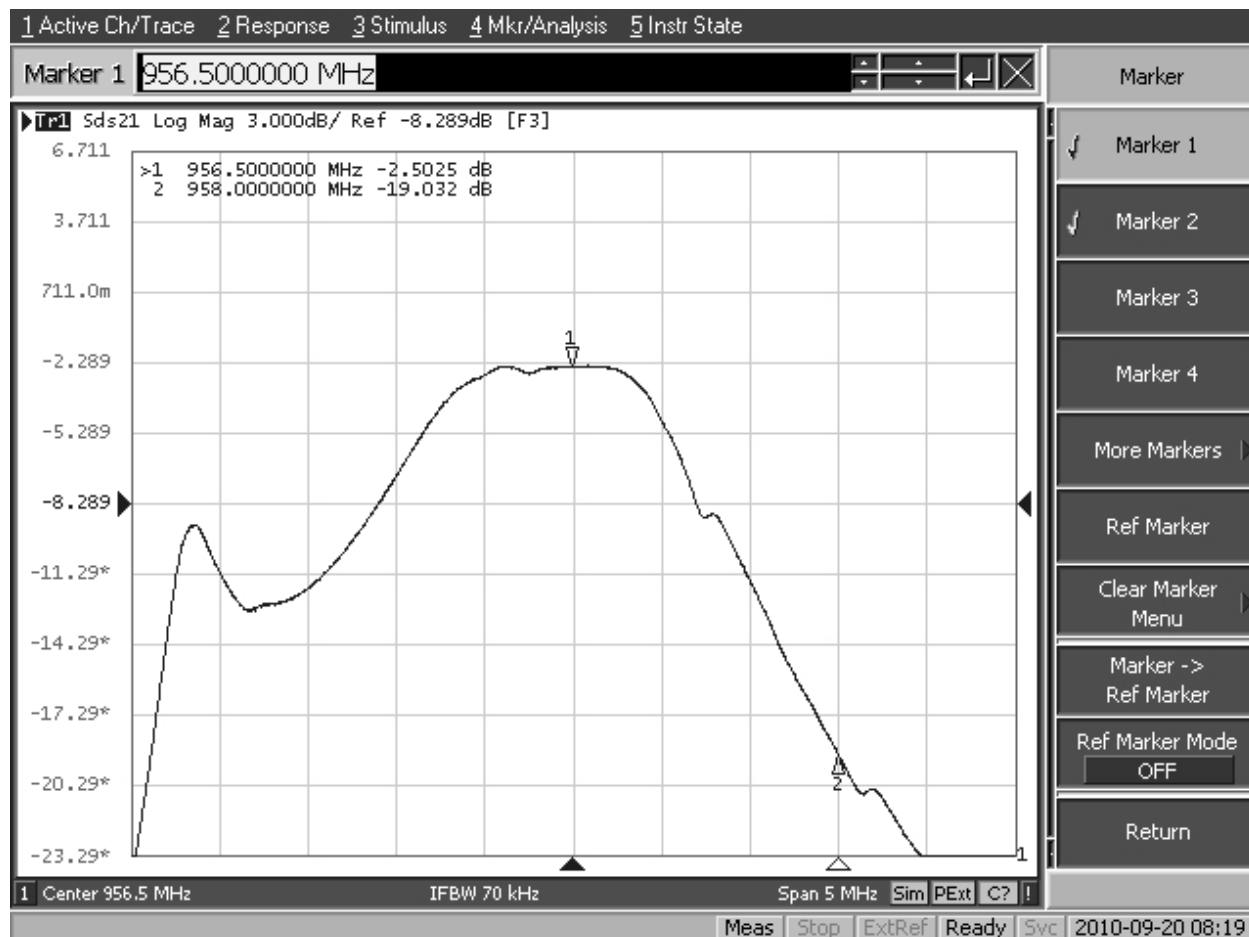
# Discontinued

## RF3613E Broadband Response, 656.5 to 1256.5 MHz



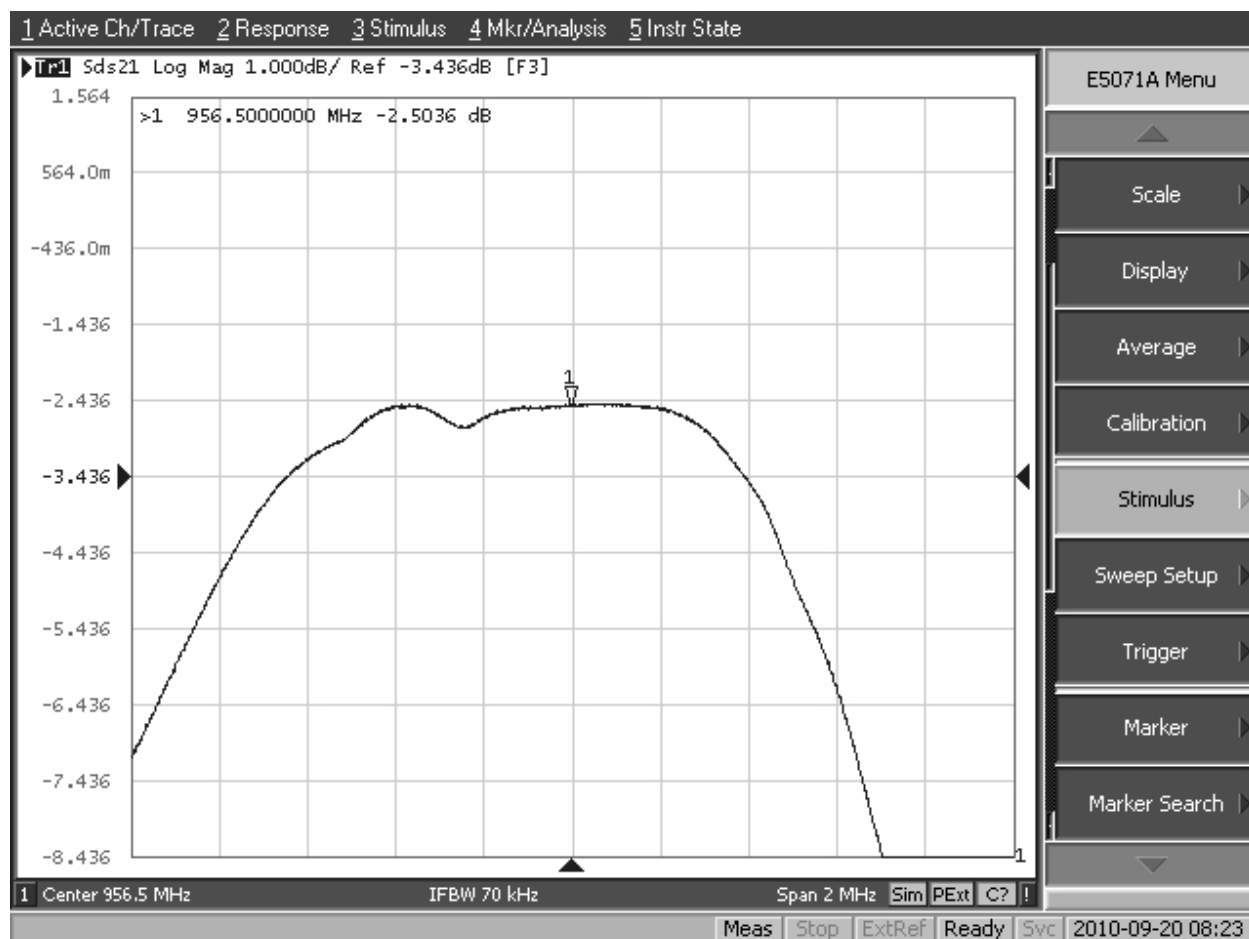
# Discontinued

## RF3613E Response, 954 to 959 MHz, Rejection Marker at 958 MHz



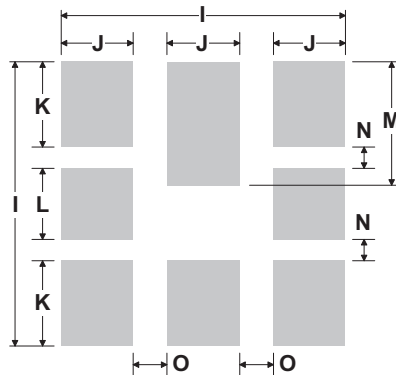
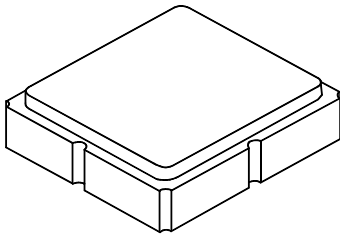
# Discontinued

## RF3613E Passband Response



# Discontinued

## 8-Terminal Case 3.0 X 3.0 mm Nominal Footprint



PCB Footprint Top View

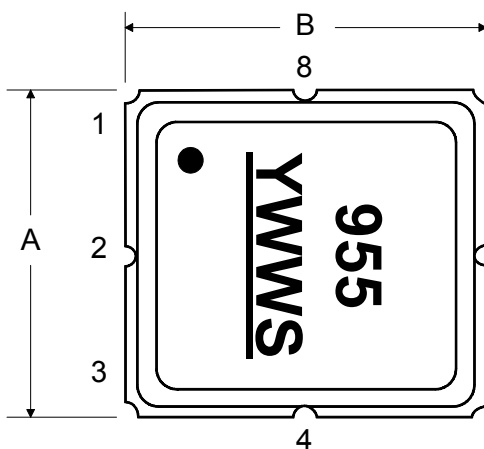
### Case and PCB Footprint Dimensions

| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A         | 2.87 | 3.0  | 3.13 | 0.113  | 0.118 | 0.123 |
| B         | 2.87 | 3.0  | 3.13 | 0.113  | 0.118 | 0.123 |
| C         | 1.14 | 1.27 | 1.40 | 0.045  | 0.050 | 0.055 |
| D         | 0.79 | 0.92 | 1.05 | 0.031  | 0.036 | 0.041 |
| E         | 0.62 | 0.75 | 0.88 | 0.024  | 0.029 | 0.034 |
| F         | 0.47 | 0.60 | 0.73 | 0.018  | 0.024 | 0.029 |
| G         | 0.47 | 0.60 | 0.73 | 0.018  | 0.024 | 0.029 |
| H         | 1.07 | 1.20 | 1.33 | 0.042  | 0.047 | 0.052 |
| I         |      | 3.19 |      |        | 0.126 |       |
| J         |      | 0.81 |      |        | 0.032 |       |
| K         |      | 0.96 |      |        | 0.038 |       |
| L         |      | 0.81 |      |        | 0.032 |       |
| M         |      | 1.39 |      |        | 0.055 |       |
| N         |      | 0.23 |      |        | 0.009 |       |
| O         |      | 0.38 |      |        | 0.015 |       |

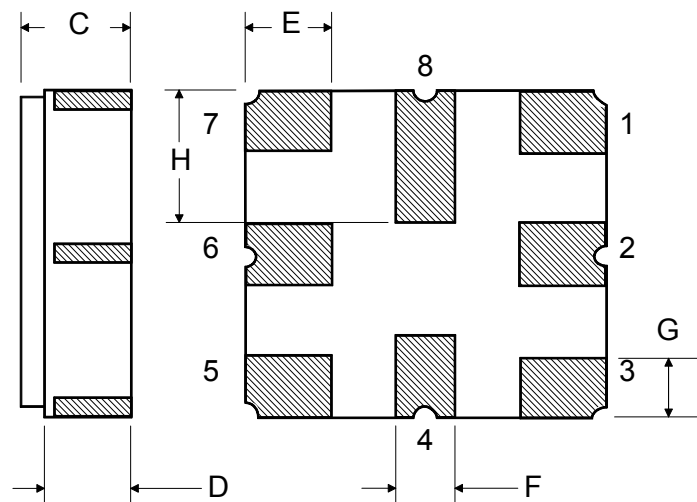
### Case Materials

| 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            |  |

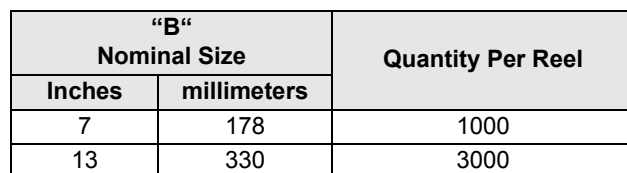
TOP VIEW



BOTTOM VIEW



## Tape and Reel Specifications



| Carrier Tape Dimensions |         |
|-------------------------|---------|
| Ao                      | 3.35 mm |
| Bo                      | 3.35 mm |
| Ko                      | 1.4 mm  |
| Pitch                   | 8.0 mm  |
| W                       | 12.0 mm |