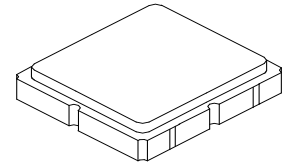


# RF3501E

## 866.1 MHz SAW Filter



SM3030-8

- 863.0 - 870.0 MHz Filter
- Optimized for use with the TRC103 Transceiver
- Balanced 150 ohm IC Interface
- Complies with Directive 2002/95/EC (RoHS)



### Absolute Maximum Ratings

| Rating                                     | Value      | Units |
|--|------------|-------|
| Input Power Level                          | +15        | 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                                     | $f_c$      |       |     | 866.1 |     | MHz      |
| 1 dB Bandwidth                                       | $BW_1$     |       |     | 31    |     | MHz      |
| 3 dB Bandwidth                                       | $BW_3$     |       |     | 40    |     | MHz      |
| Maximum Insertion Loss, 863.0 to 870.0 MHz           | $IL_{MAX}$ |       |     | 3.0   | 4.5 | dB       |
| Amplitude Ripple, p-p, 863.0 to 870.0 MHz            |            |       |     |       | 1.0 |          |
| Rejection Referenced to Insertion Loss at 866.1 MHz: |            |       |     |       |     |          |
| 518 to 618 MHz                                       |            |       | 45  | 48    |     |          |
| 618 to 768 MHz                                       |            |       | 42  | 45    |     |          |
| 768 to 818 MHz                                       |            |       | 40  | 43    |     |          |
| 918 to 1218 MHz                                      |            |       | 35  | 38    |     |          |
| Source Impedance                                     | $Z_S$      |       |     | 50    |     | $\Omega$ |
| Load Impedance                                       | $Z_L$      |       |     | 200   |     | $\Omega$ |

|  |   |                  |
|--|---|------------------|
| Case Style   | SM3030-8 3.0 x 3.0 mm Nominal Footprint |                  |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 805, YWWS                               |                  |
| Standard Reel Quantity   | Reel Size 7 Inch                        | 500 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          |

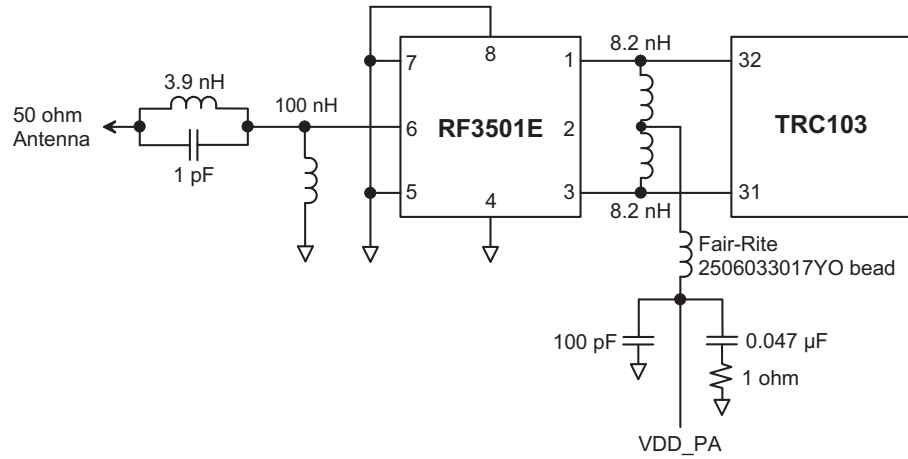


**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

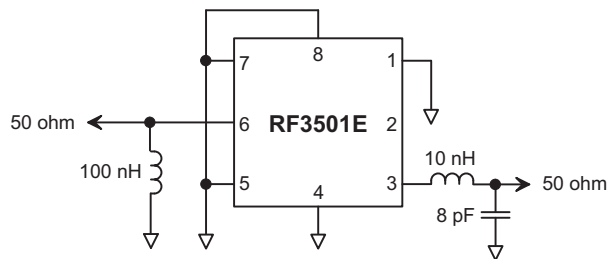
#### NOTES:

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.

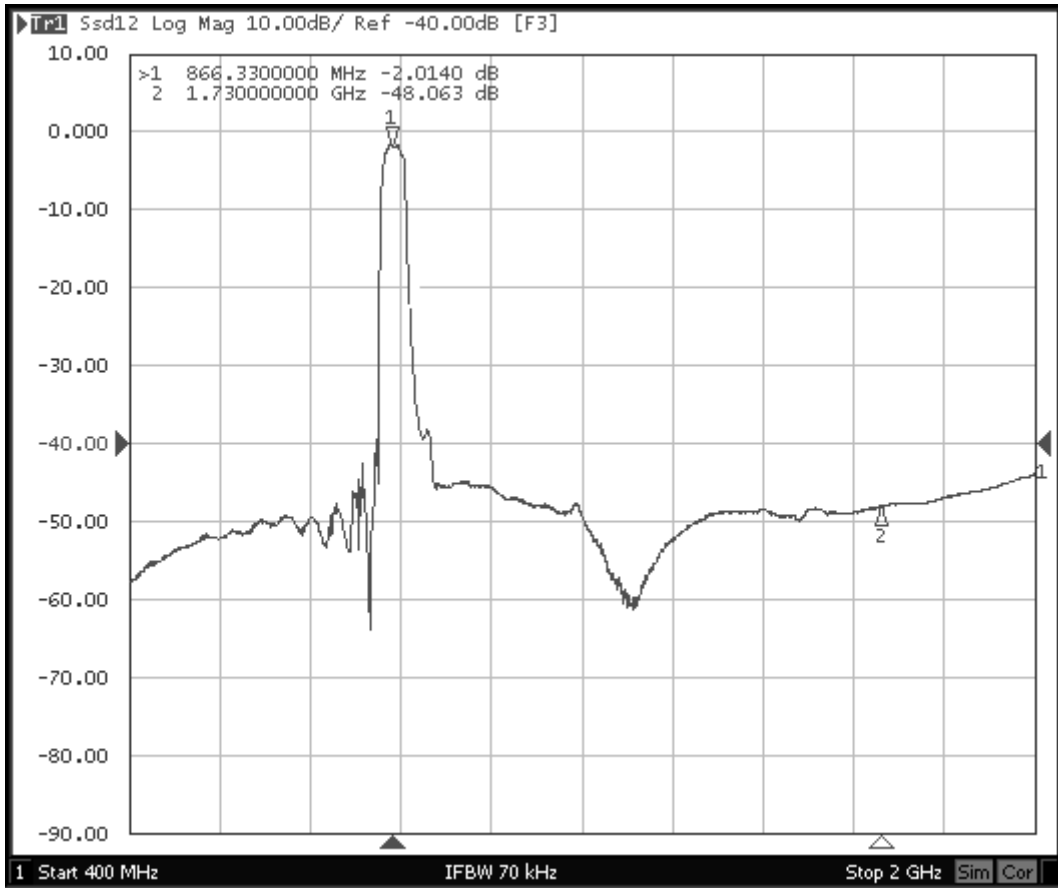
## RF3501E-TRC103 Application Circuit



## RF3501E 50 Ohm Tuning Network



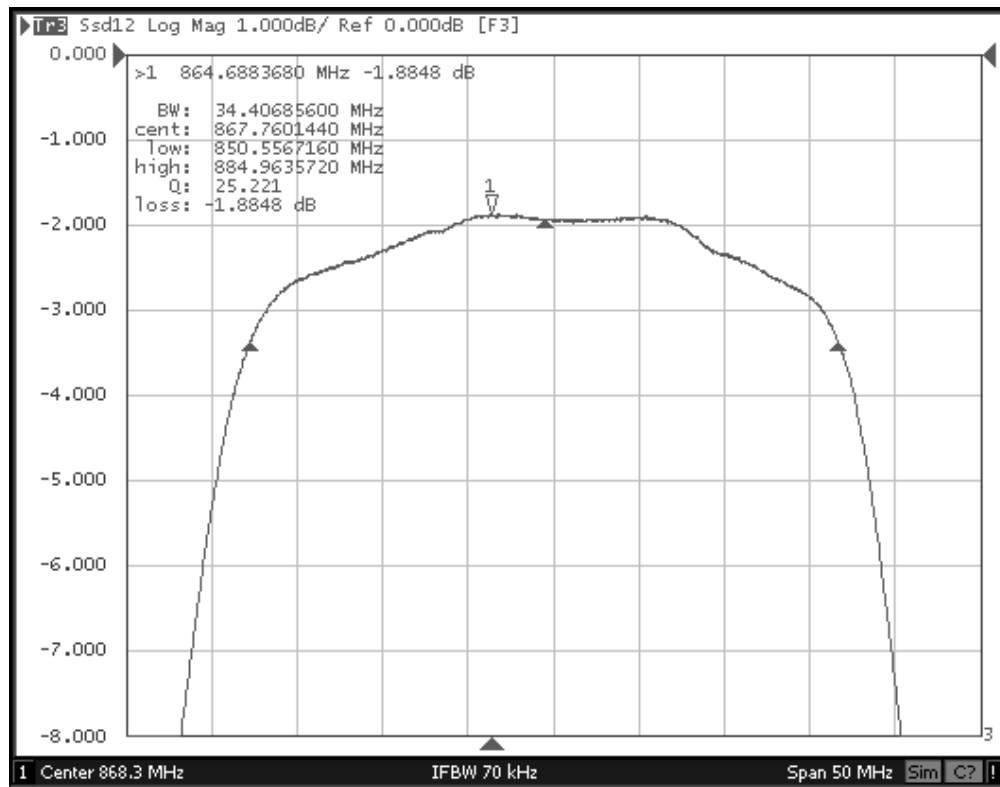
# RF3501E Broadband Response, 400 to 2000 MHz



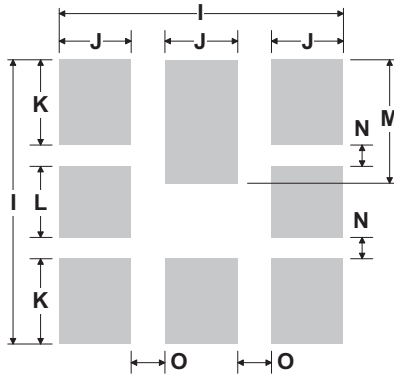
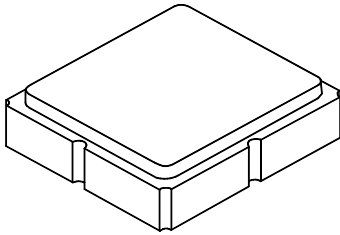
# RF3501E Response, 818.3 to 918.3 MHz



## RF3501E Passband Response



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



**PCB Footprint Top View**

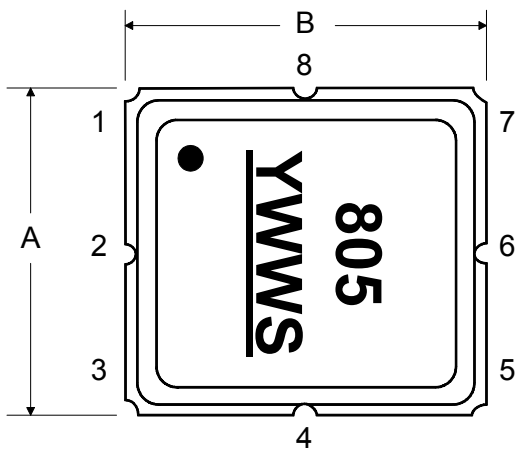
### Case and PCB Footprint Dimensions

| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A         | 2.87 | 3.0  | 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 |       |

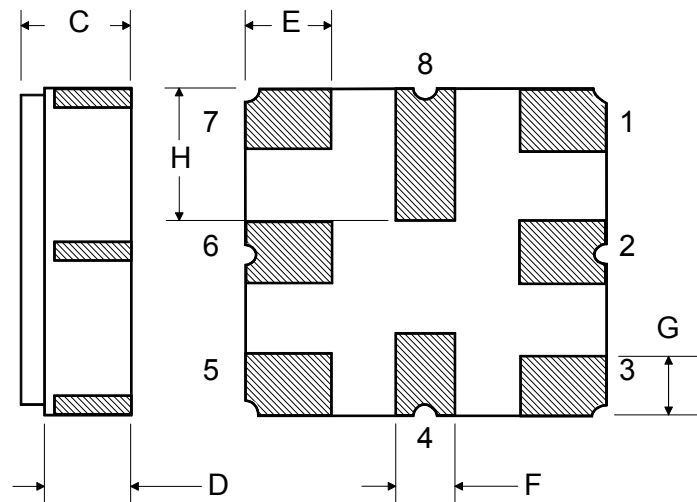
### Case Materials

| Materials          |  |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 $\mu\text{m}$ 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  |

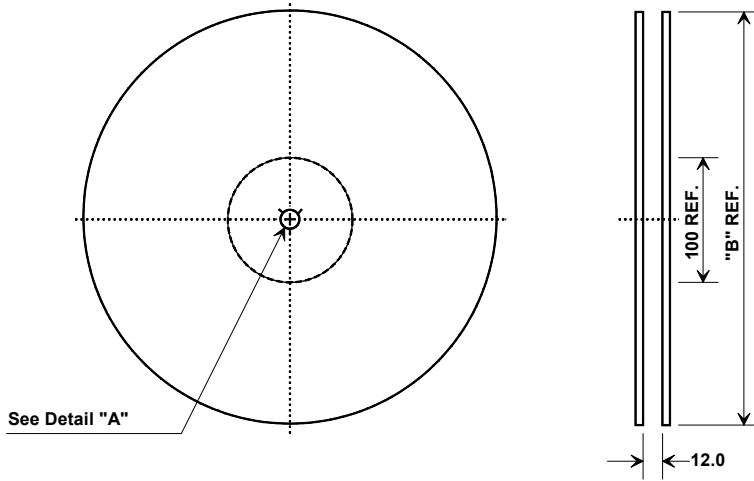
**TOP VIEW**



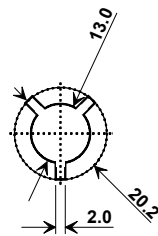
**BOTTOM VIEW**



# Tape and Reel Specifications



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



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

## COMPONENT ORIENTATION and DIMENSIONS

