

# Preliminary



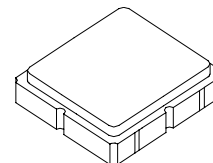
- 383.1 to 396.9 MHz Filter
- Optimized for use with the TRC105 Transceiver
- Balanced 150 ohm IC Interface
- Complies with Directive 2002/95/EC (RoHS) 

**RF3606D**

**390 MHz  
SAW Filter**

## 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    |



**SM3838-8**

## Electrical Characteristics

| Characteristic                                       | Sym        | Notes | Min | Typ   | Max | Units    |
|--|------------|-------|-----|-------|-----|----------|
| Center Frequency                                     | $f_C$      |       |     | 390.0 |     | MHz      |
| 1 dB Bandwidth                                       | $BW_1$     |       |     | 16.0  |     | MHz      |
| Maximum Insertion Loss, 383.1 to 396.9 MHz           | $IL_{MAX}$ |       |     | 1.4   | 2.4 | dB       |
| Amplitude Ripple, p-p, 383.1 to 396.9 MHz            |            |       |     |       | 1.0 |          |
| Rejection Referenced to Insertion Loss at 390.0 MHz: |            |       |     |       |     |          |
| DC to 370 MHz  |            |       | 32  | 35    |     |          |
| 400 to 490 MHz                                       |            |       | 32  | 35    |     |          |
| 490 to 890 MHz                                       |            |       | 42  | 45    |     |          |
| 890 to 1390 MHz                                      |            |       | 63  | 66    |     |          |
| 1390 to 1790 MHz                                     |            |       | 55  | 58    |     |          |
| 1790 to 2000 MHz                                     |            |       | 53  | 56    |     |          |
| Source Impedance                                     | $Z_S$      |       |     | 50    |     | $\Omega$ |
| Balanced Load Impedance                              | $Z_L$      |       |     | 150   |     | $\Omega$ |

|  |   |                  |  |
|--|---|------------------|--|
| Case Style   | SM3838-8 3.8 x 3.8 mm Nominal Footprint |                  |  |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 889, 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          |

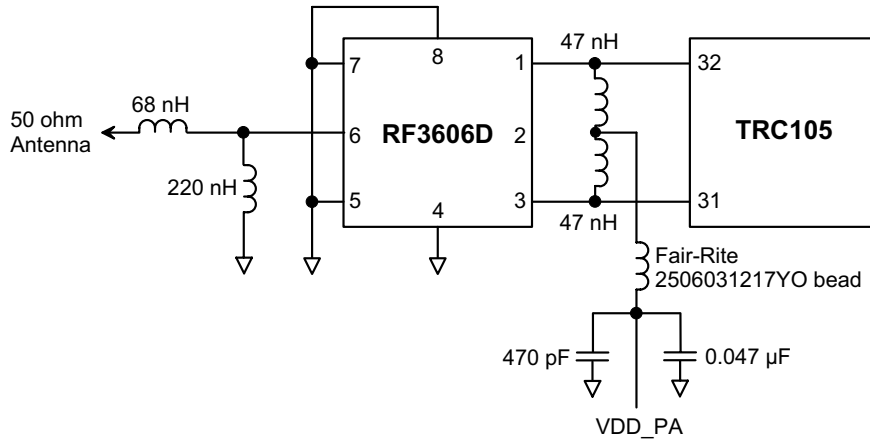


**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

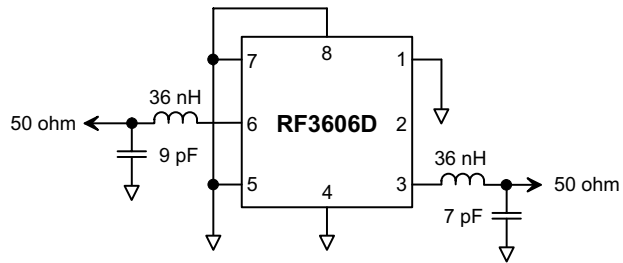
### Notes:

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. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.

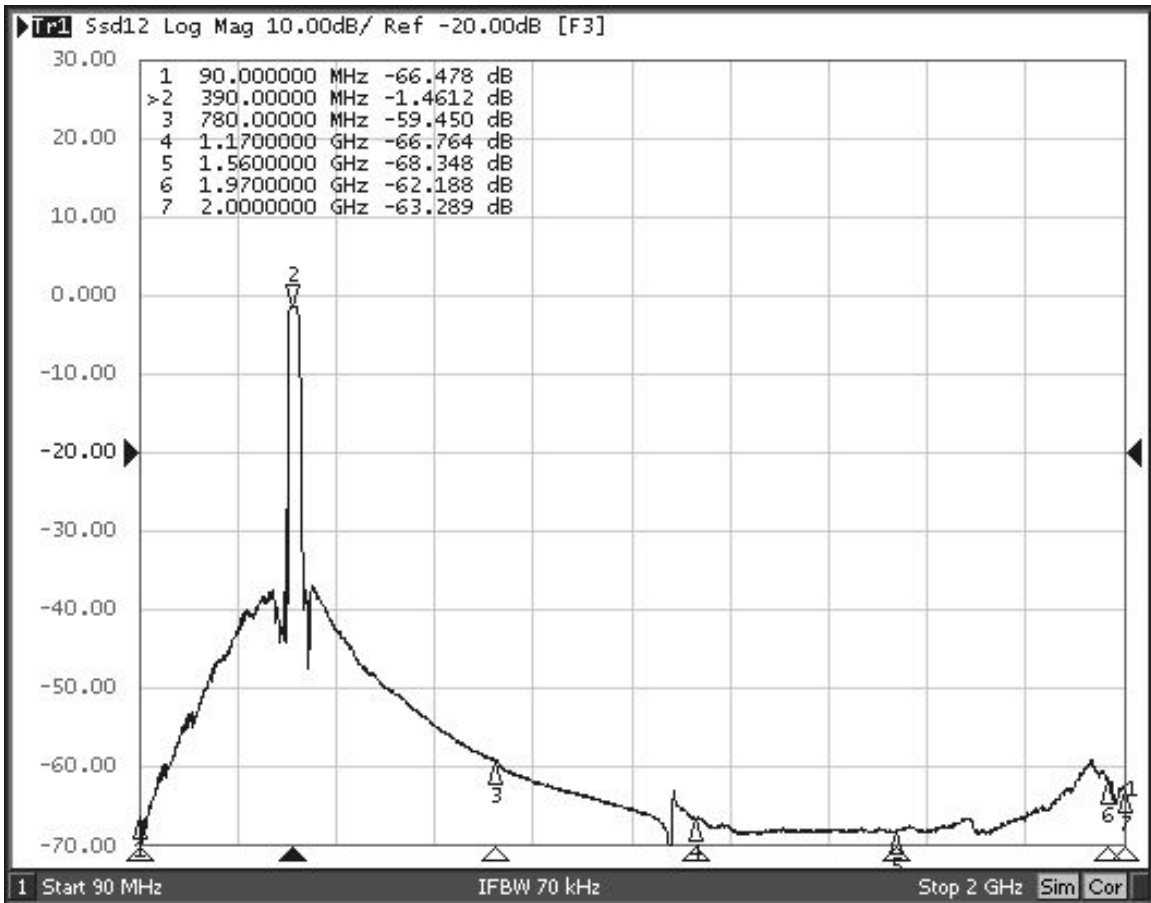
## RF3606D-TRC105 Application Circuit



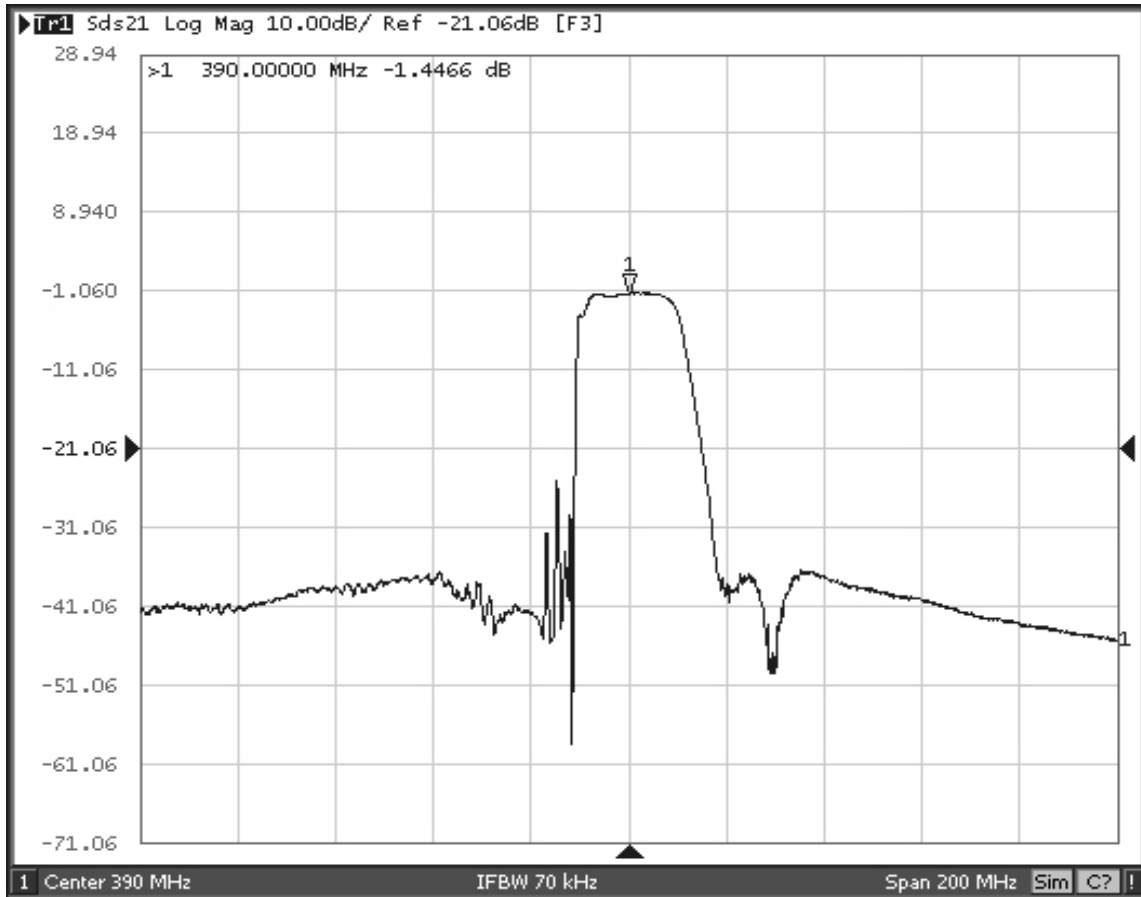
## RF3606D 50 Ohm Tuning Network



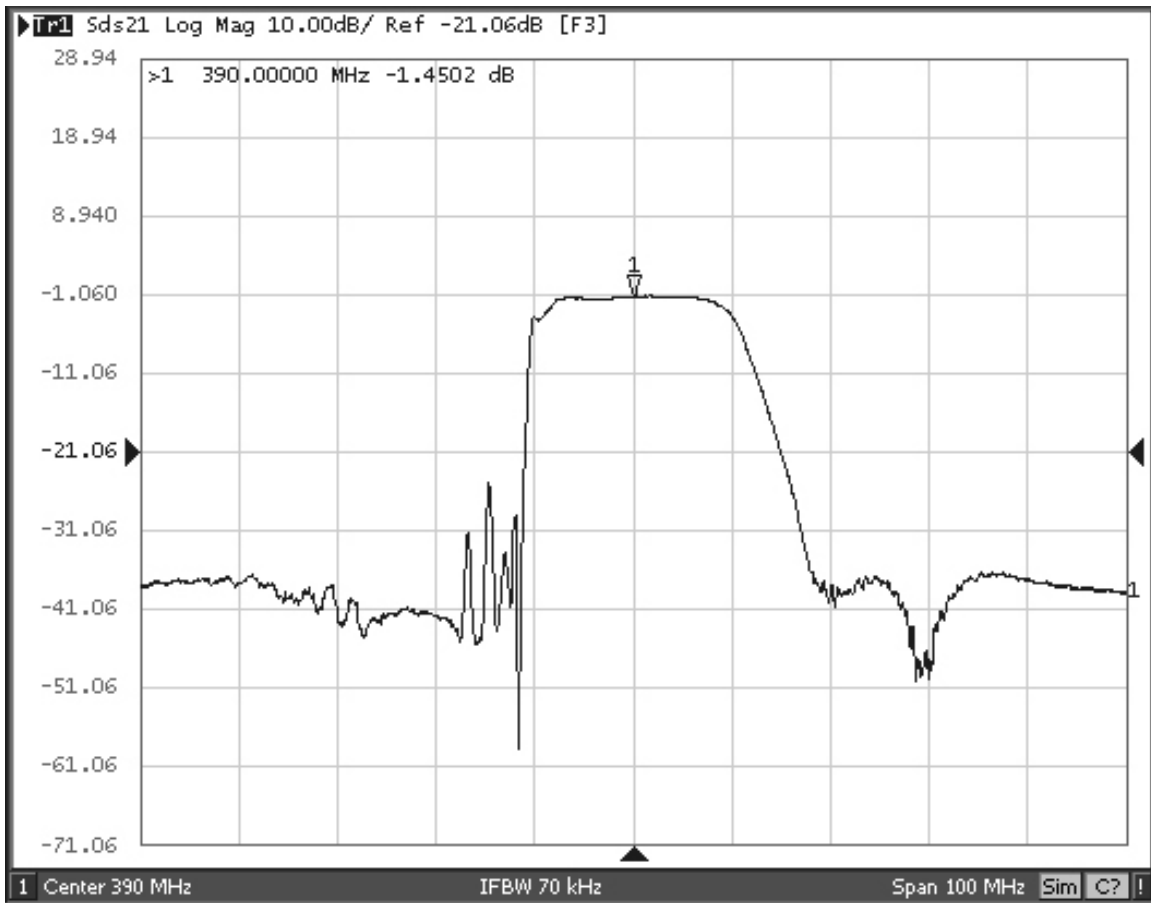
# RF3606D Broadband Response, 200 to 2000 MHz



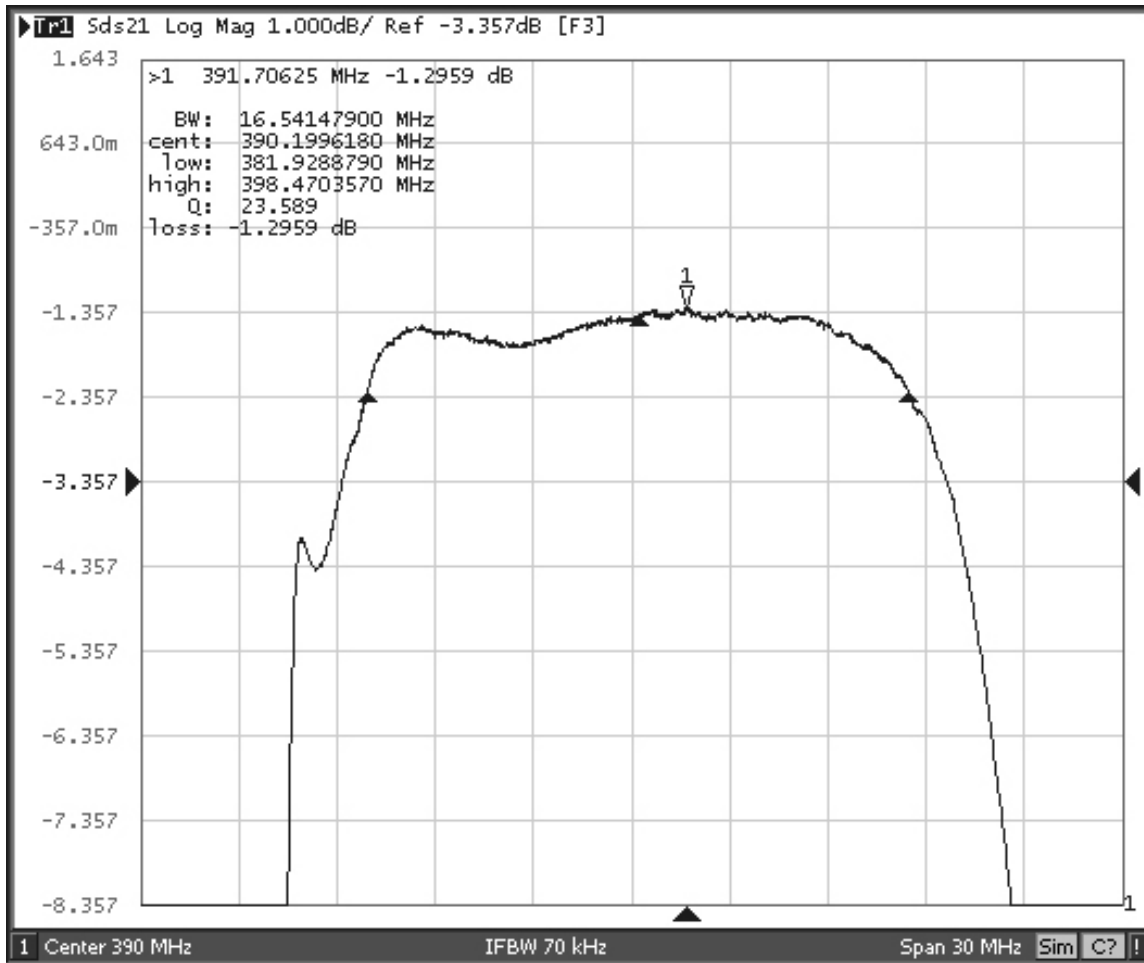
# RF3606D Response, 290 to 490 MHz



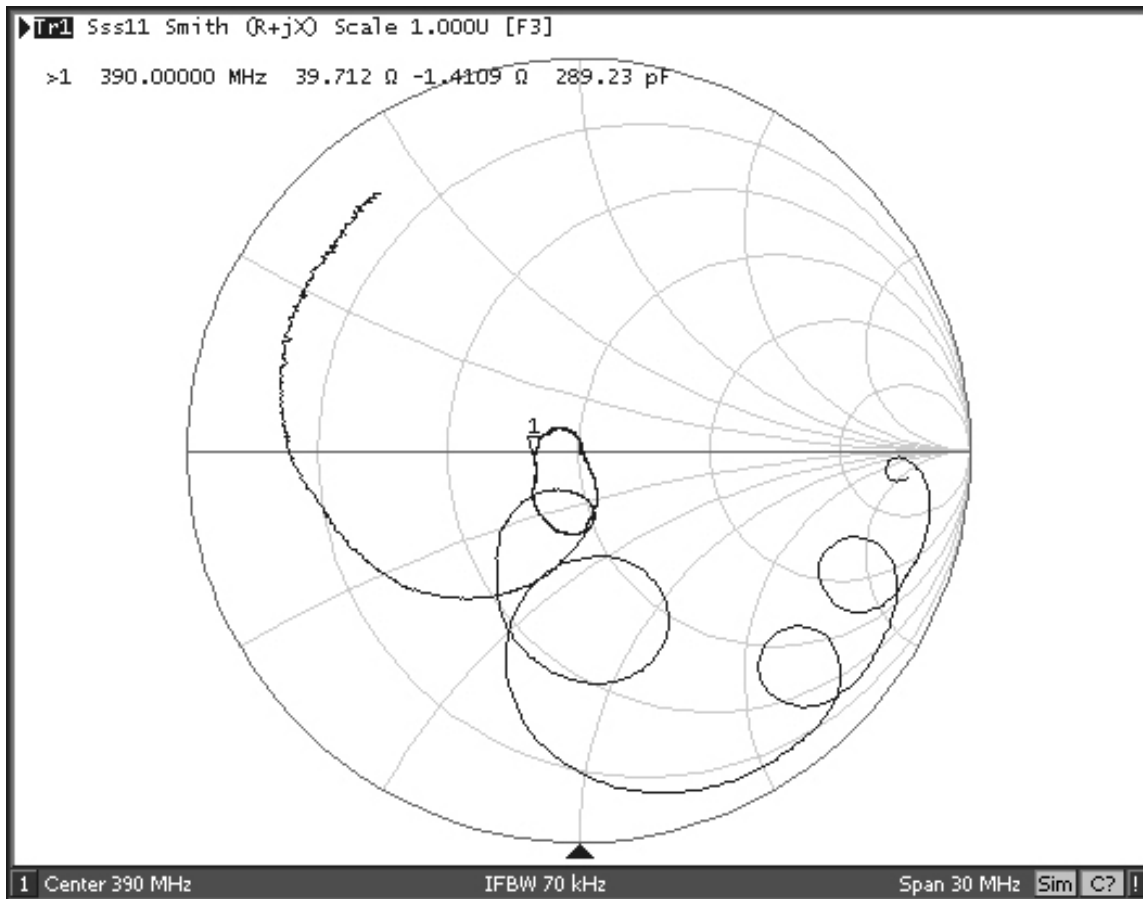
## RF3606D Response, 340 to 440 MHz



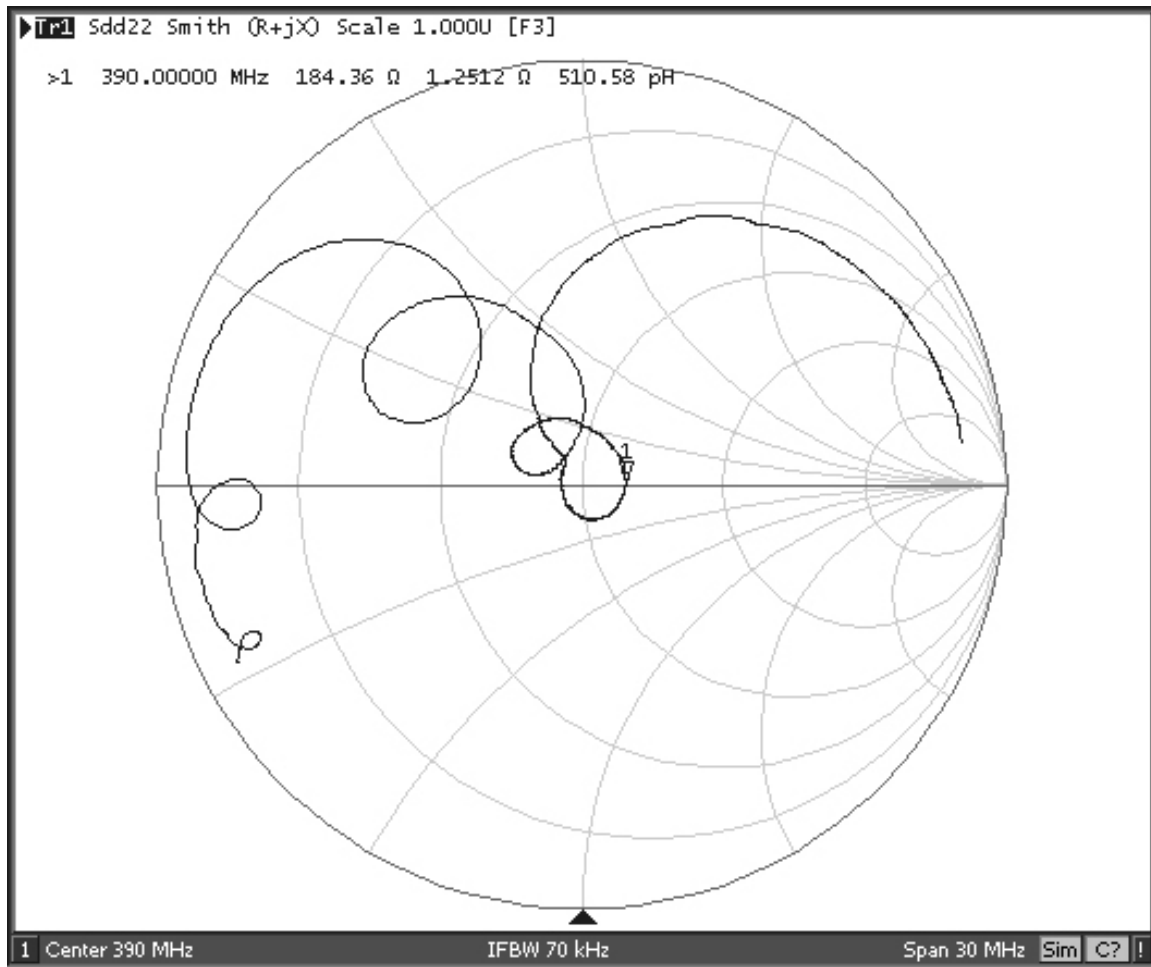
# RF3606D Passband Response



## RF3606D Input Impedance Plot

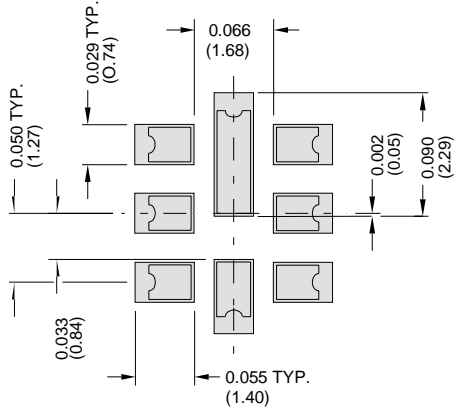


## RF3606D Balanced Output Impedance Plot





## 8-Terminal Ceramic Surface-Mount Case 3.8 X 3.8 mm Nominal Footprint



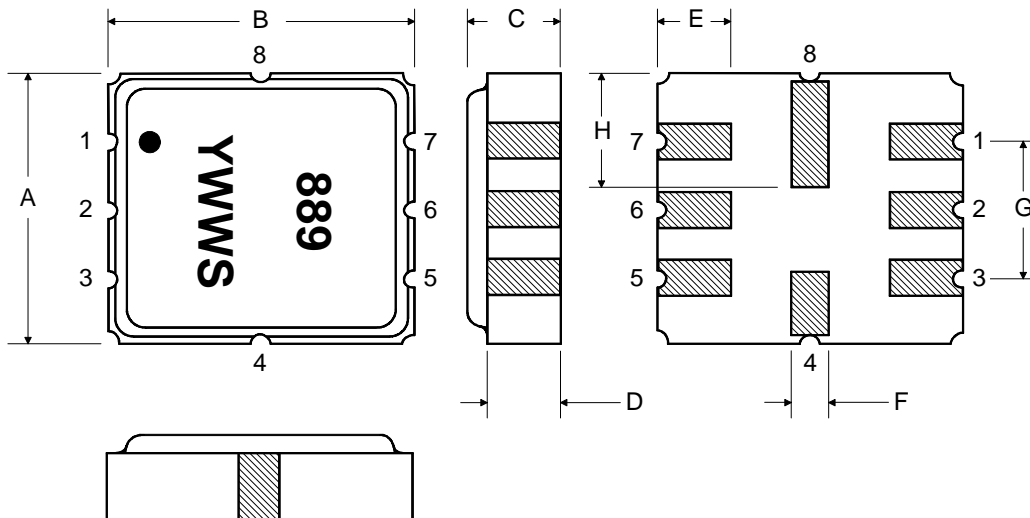
**PCB Footprint**

| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A         | 3.6  | 3.8  | 4.0  | 0.142  | 0.150 | 0.157 |
| B         | 3.6  | 3.8  | 4.0  | 0.142  | 0.150 | 0.157 |
| C         | 0.90 | 1.00 | 1.1  | 0.035  | 0.040 | 0.043 |
| D         | 0.80 | 0.90 | 1.0  | 0.031  | 0.035 | 0.040 |
| E         | 0.90 | 1.00 | 1.10 | 0.035  | 0.040 | 0.043 |
| F         | 0.50 | 0.60 | 0.70 | 0.020  | 0.024 | 0.028 |
| G         | 2.39 | 2.54 | 2.69 | 0.090  | 0.100 | 0.110 |
| H         | 1.40 | 1.75 | 2.05 | 0.055  | 0.069 | 0.080 |

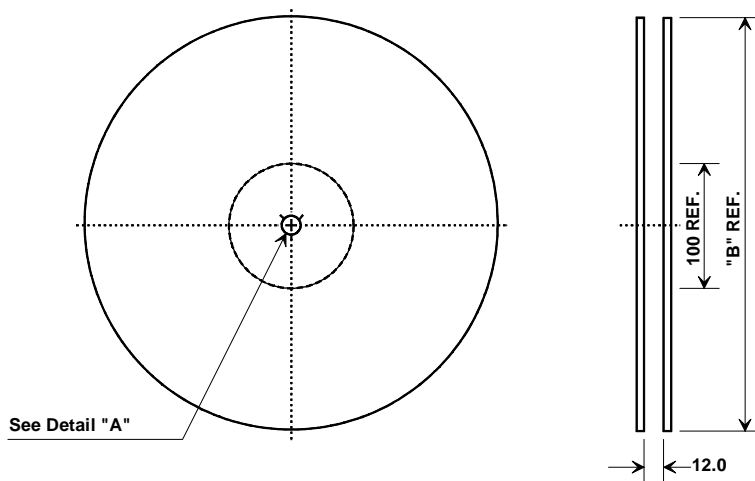
| Materials          |  |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 $\mu$ m Gold over 1.27 to 8.89 $\mu$ m Nickel |
| Lid Plating        | 2.0 to 3.0 $\mu$ m Nickel                                |
| Body               | Al <sub>2</sub> O <sub>3</sub> Ceramic                   |
| Pb Free            |  |

TOP VIEW

BOTTOM VIEW

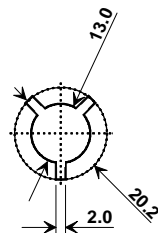


## Tape and Reel Specifications



See Detail "A"

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



## COMPONENT ORIENTATION and DIMENSIONS

| Carrier Tape Dimensions |         |
|-------------------------|---------|
| Ao                      | 4.25 mm |
| Bo                      | 4.25 mm |
| Ko                      | 1.30 mm |
| Pitch                   | 8.0 mm  |
| W                       | 12.0 mm |

