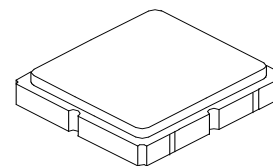


**Discontinued**

date of manufacture.

**SF2316E-1**

**1582 MHz  
SAW Filter**



**SM3030-6**

- **Low-loss 1582 MHz SAW Filter**
- **Designed for 50 ohm Source/Load**
- **Operable Temperature Range -45°/125°C**

**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                | -40 to +105 | °C    |
| Storage Temperature Range in Tape and Reel | -40 to +85  | °C    |

**Electrical Characteristics**

| Characteristic                                                            | Sym                                | Notes | Min | Typ  | Max | Units |  |
|---------------------------------------------------------------------------|------------------------------------|-------|-----|------|-----|-------|--|
| Center Frequency                                                          | f <sub>C</sub>                     |       |     | 1582 |     | MHz   |  |
| Insertion Loss, 1565.42 to 1585.42MHz                                     | IL                                 |       |     | 1.8  | 2.4 | dB    |  |
| Insertion Loss, 1574.42 to 1576.42MHz                                     |                                    |       |     | 1.6  | 2.2 |       |  |
| Insertion Loss, 1576.42 to 1597.42MHz                                     |                                    |       |     | 1.6  | 2.2 |       |  |
| Insertion Loss, 1597.55 to 1605.89MHz<br>(-40 to +85°)<br>(-40 to +105°C) |                                    |       |     | 2.0  | 2.6 |       |  |
|                                                                           |                                    |       |     | 2.0  | 2.8 |       |  |
| GD Ripple, 1597.55 to 1605.89 MHz                                         |                                    |       |     | 8.5  | 20  | ns    |  |
| Amplitude Ripple, 1559 to 1606 MHz<br>(-40 to +85°C)<br>(-40 to +105°C)   |                                    |       |     | 0.9  | 2.0 | dB    |  |
|                                                                           |                                    |       |     | 0.9  | 2.5 |       |  |
| VSWR, 1565.42 to 1585.42 MHz                                              |                                    |       |     | 2.0  | 2.2 | dB    |  |
| VSWR, 1597.55 to 1605.89 MHz                                              |                                    |       |     | 1.4  | 2.0 |       |  |
| Attenuation,                                                              |                                    |       |     |      |     | dB    |  |
| 1 to 925 MHz                                                              |                                    |       | 32  | 37   |     |       |  |
| 925 to 960 MHz                                                            |                                    |       | 32  | 37   |     |       |  |
| 1427 to 1453 MHz                                                          |                                    |       | 35  | 45   |     |       |  |
| 1453 to 1501 MHz                                                          |                                    |       | 35  | 46   |     |       |  |
| 1501 to 1525 MHz                                                          |                                    |       | 30  | 37   |     |       |  |
| 1626 to 1660 MHz                                                          |                                    |       | 30  | 43   |     |       |  |
| 1710 to 1785 MHz                                                          |                                    |       | 35  | 40   |     |       |  |
| 1850 to 1910 MHz                                                          |                                    |       | 35  | 41   |     |       |  |
| 1920 to 1980 MHz                                                          |                                    |       | 35  | 42   |     |       |  |
| 2110 to 2170 MHz                                                          |                                    |       | 35  | 44   |     |       |  |
| 2400 to 2500 MHz                                                          |                                    |       | 40  | 46   |     |       |  |
| 2500 to 2570 MHz                                                          |                                    |       | 40  | 44   |     |       |  |
| Case Style                                                                | SMD 3.0 x 3.0 mm Nominal Footprint |       |     |      |     |       |  |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator          | A80, YWWS                          |       |     |      |     |       |  |



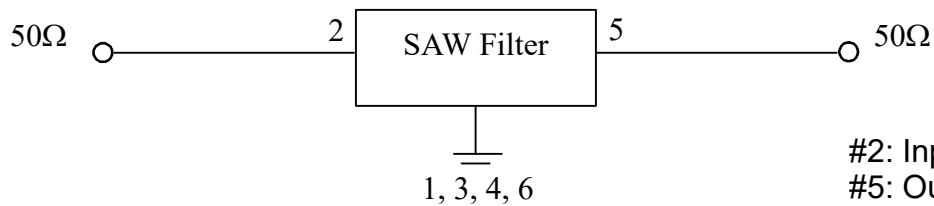
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**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. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
7. US and international patents may apply.
8. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

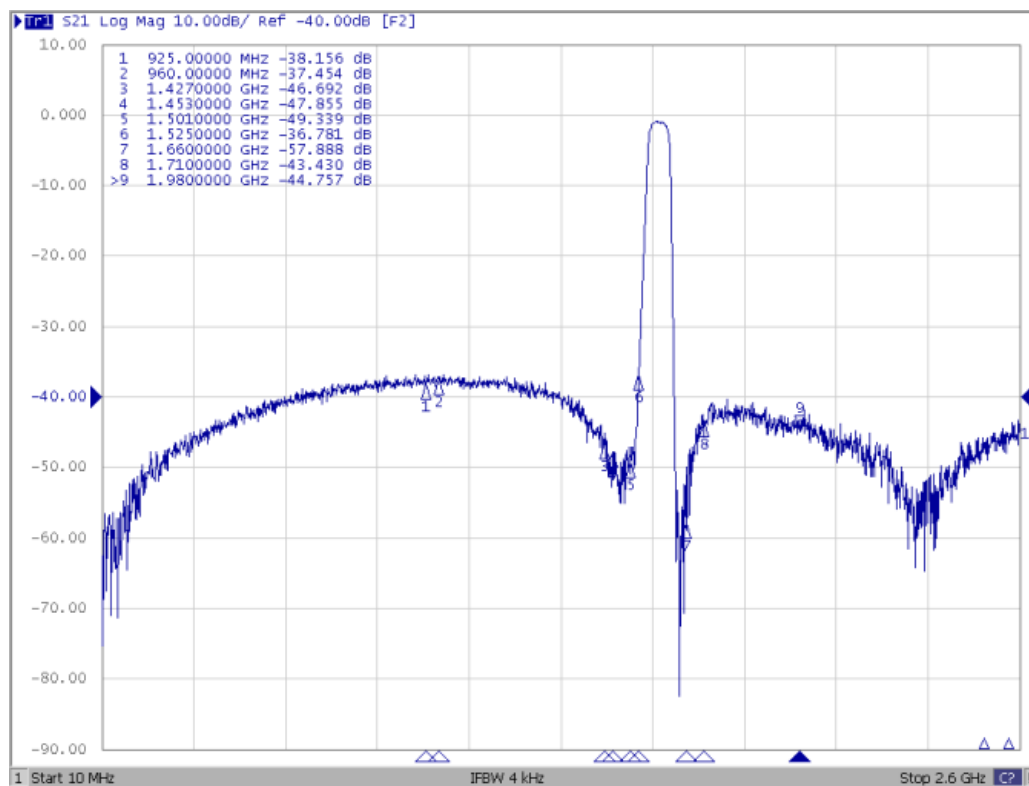
## Measurement Circuit:

HP Network analyzer

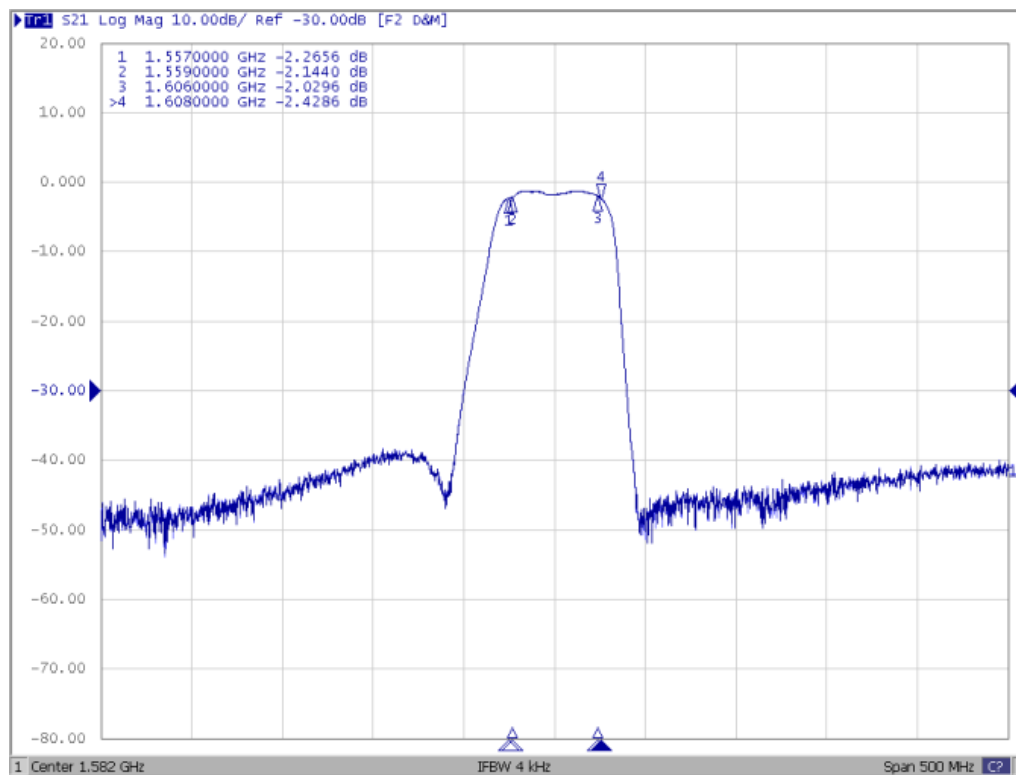


#2: Input  
#5: Output  
#1,3,4,6: Ground

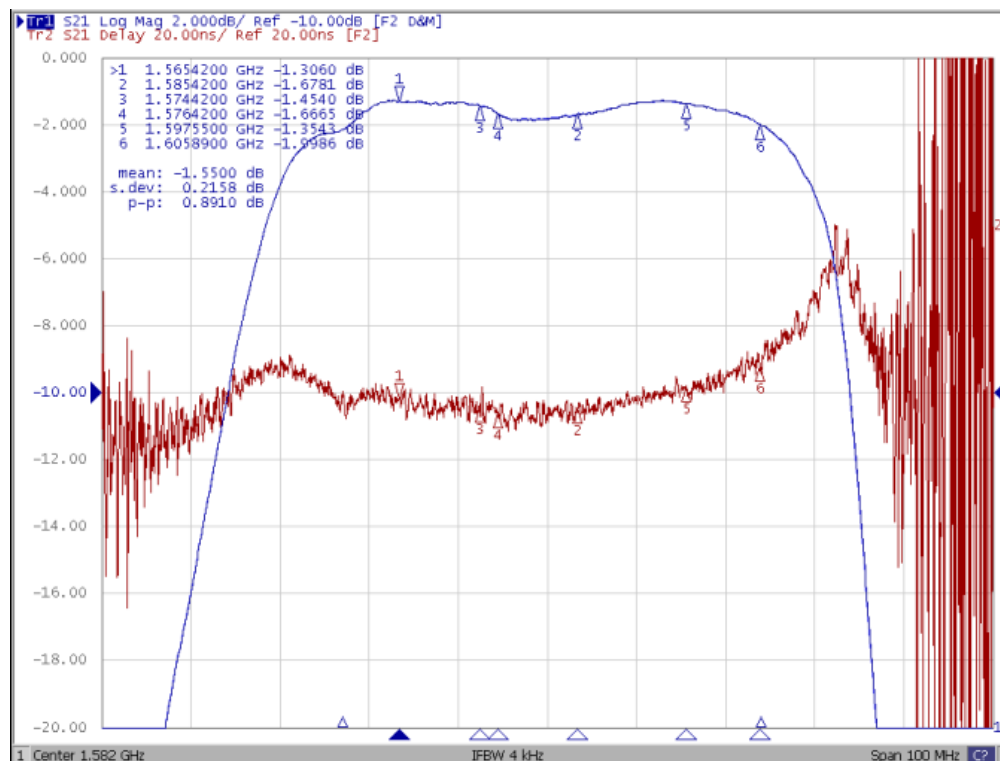
## Frequency Characteristics: S21 response: (span 2.6 GHz)



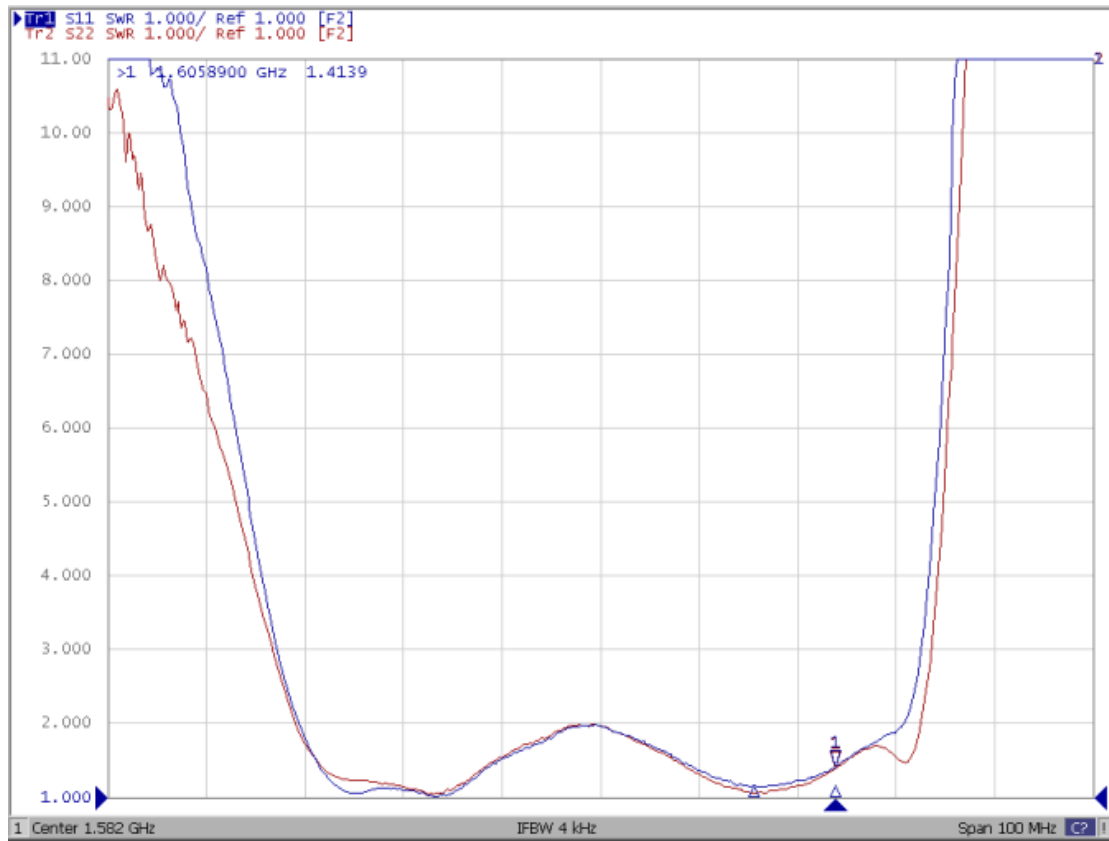
## S21 response: (span 500 MHz)



## S21 response: (span 100 MHz)



## S11 and S22 VSWR: (span 100 MHz)



# SM3030-6 Ceramic 6-Terminal Surface-Mount Case 3.0 X 3.0 mm Nominal Footprint

## Case and PCB Footprint Dimensions

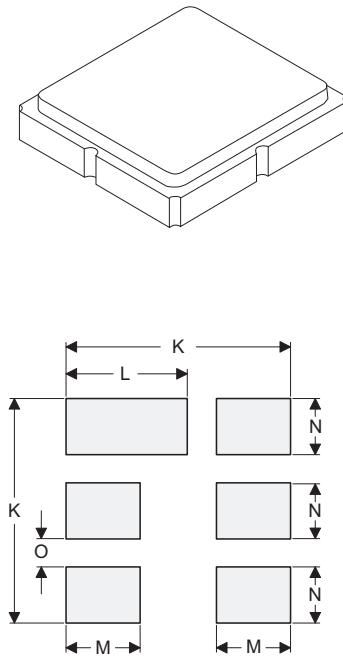
| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A         | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| B         | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| 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 µm Gold over 1.27 to 8.89 µm Nickel |
| Lid Plating        | 2.0 to 3.0 µm Nickel                           |
| Body               | Al <sub>2</sub> O <sub>3</sub> Ceramic         |
| Pb Free            |                                                |

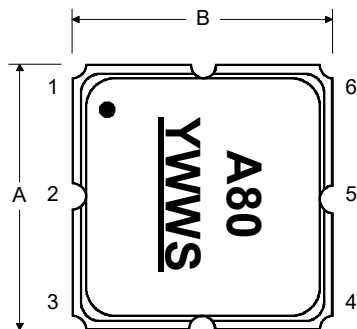
## Electrical Connections

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

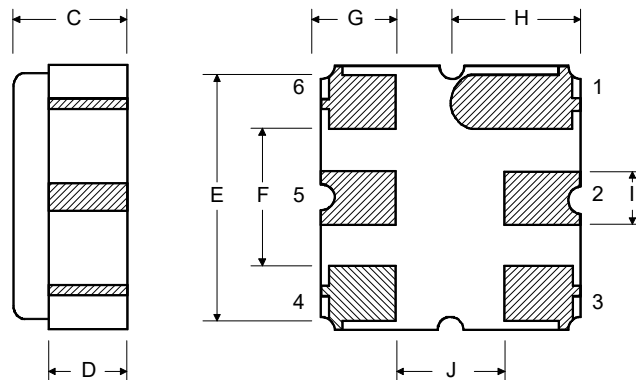


PCB Footprint Top View

TOP VIEW



BOTTOM VIEW



Technical drawing of a circular component, likely a flange or end plate, showing three views: a top view, a side view, and a detail view.

**Top View:** A large circle with a smaller concentric circle in the center. A horizontal dashed line and a vertical dashed line intersect at the center. A leader line points from the text "See Detail 'A'" to the center of the inner circle.

**Side View:** A vertical cross-section showing the thickness of the component. The total thickness is dimensioned as 12.0. The inner hole has a diameter of 100 REF. The outer diameter is dimensioned as "B" REF.

**Detail View (Detail A):** A cross-section of the central hole. It shows a circular hole with a diameter of 13.0. The hole is surrounded by a ring with a thickness of 2.0. The outer diameter of this ring is dimensioned as 20.2.

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

| Carrier Tape Dimensions |         |
|-------------------------|---------|
| Ao                      | 3.35 mm |
| Bo                      | 3.35 mm |
| Ko                      | 1.40 mm |
| Pitch                   | 8.0 mm  |
| W                       | 12.0 mm |

