

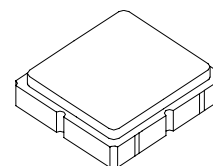


- CDMA 450 F-Band RF SAW Filter
- 3.8 x 3.8 x 1.4 mm Surface-mount Package
- Complies with Directive 2002/95/EC (RoHS)



## SF1213D

## 462.5 MHz SAW Filter



SM3838-6

### Absolute Maximum Ratings

| Rating                                                       | Value          | Units |
|--------------------------------------------------------------|----------------|-------|
| Maximum Incident Power in Passband                           | +27            | dBm   |
| Maximum DC Voltage between any Two Terminals                 | 30             | VDC   |
| Storage Temperature Range                                    | -40 to +85     | °C    |
| Suitable for Lead-free Soldering - Maximum Soldering Profile | 260°C for 30 s |       |

### Electrical Characteristics

| Characteristic                          | Sym   | Notes   | Min    | Typ   | Max   | Units |
|-----------------------------------------|-------|---------|--------|-------|-------|-------|
| Nominal 1 dB Center Frequency           | $f_c$ | 1       |        | 462.5 |       | MHz   |
| Passband Insertion Loss                 | IL    |         |        | 2.8   | 3.5   | dB    |
| VSWR                                    |       |         |        | 1.9:1 | 2.4:1 |       |
| Rejection                               |       | 1, 2, 3 |        |       |       | dB    |
| 0.3 to 450.0 MHz                        |       |         | 40     | 45    |       |       |
| 450.0 to 455.0 MHz                      |       |         | 35     | 46    |       |       |
| 485.0 to 505.0 MHz                      |       |         | 40     | 50    |       |       |
| 505.0 to 1200 MHz                       |       |         | 30     | 41    |       |       |
| 1200 to 2000 MHz                        |       |         | 20     | 32    |       |       |
| Operating Temperature Range             | $T_A$ | 1       | -30    |       | +80   | °C    |
| Impedance at $f_c$ Source, single ended |       |         | 50 ohm |       |       |       |
| Load, single ended                      |       |         | 50 ohm |       |       |       |

|                                                                  |                                         |  |
|------------------------------------------------------------------|-----------------------------------------|--|
| Case Style                                                       | SM3838-6 3.8 x 3.8 mm Nominal Footprint |  |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 642, YWWS                               |  |
| Standard Reel Quantity Reel Size 7 Inch                          | 1000 Pieces/Reel                        |  |
| Reel Size 13 Inch                                                | 3000 Pieces/Reel                        |  |

### Electrical Connections

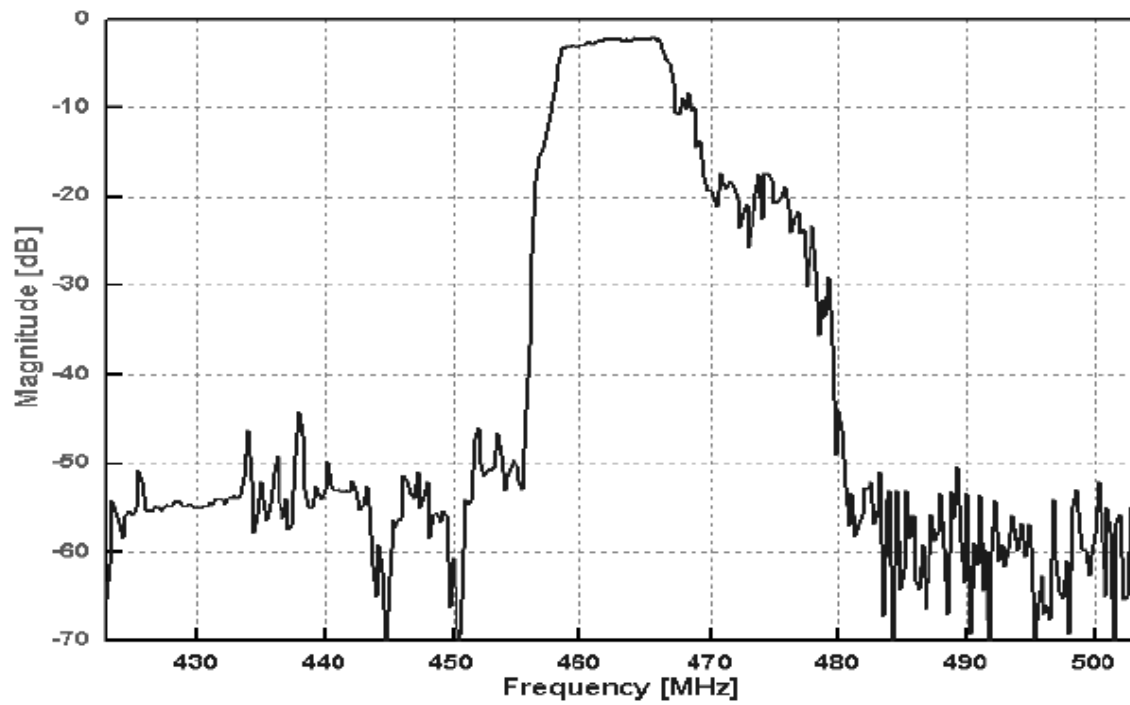
| Connection  | Terminals  |
|-------------|------------|
| Port 1      | 2          |
| Port 2      | 5          |
| Case Ground | All others |



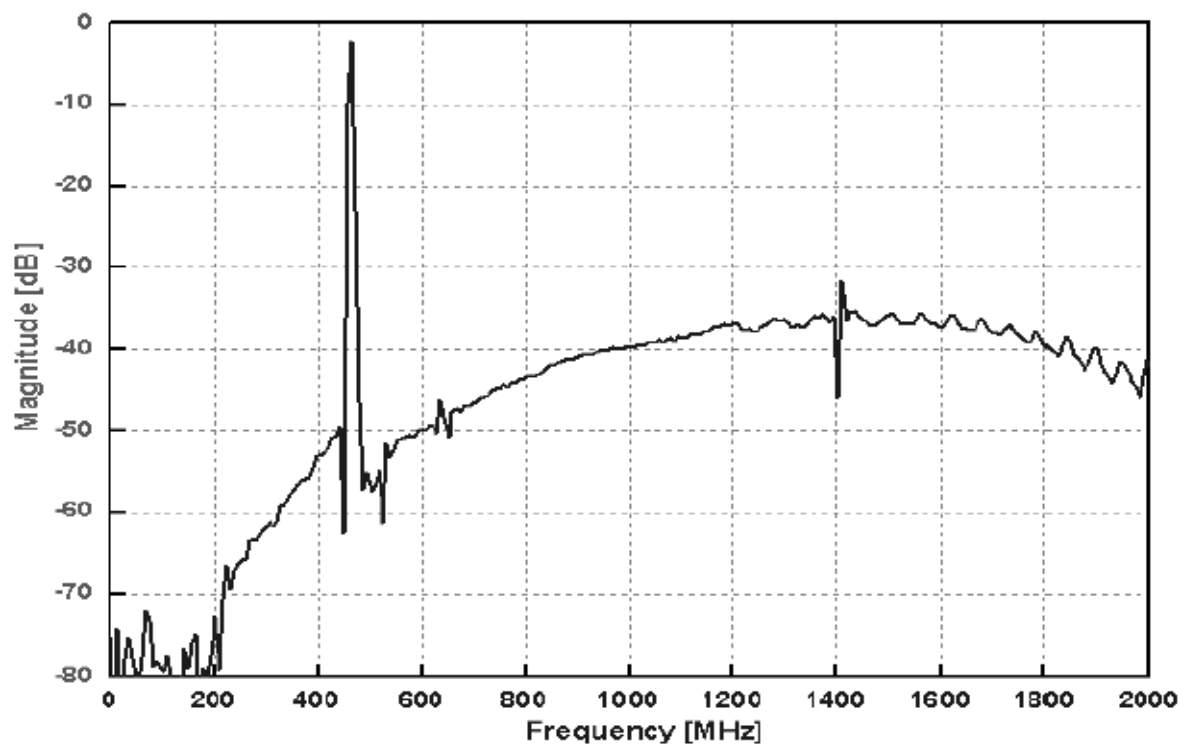
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### Notes:

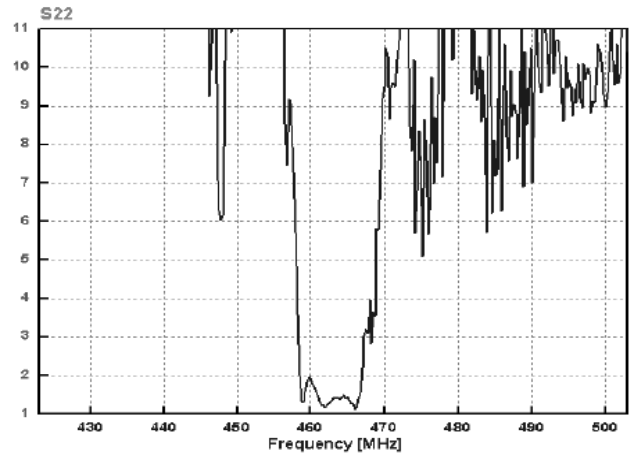
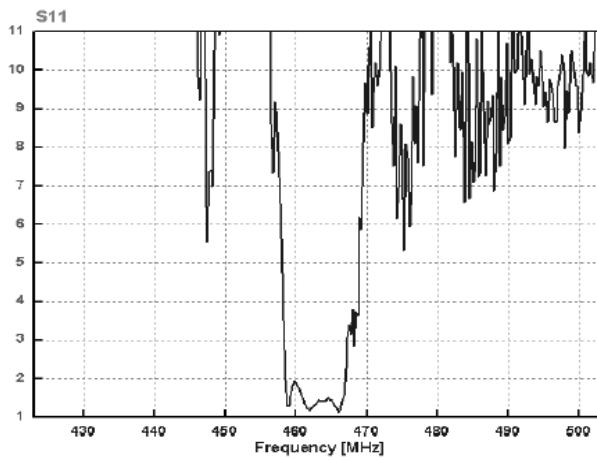
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50  $\Omega$  and measured with 50  $\Omega$  network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced 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. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.



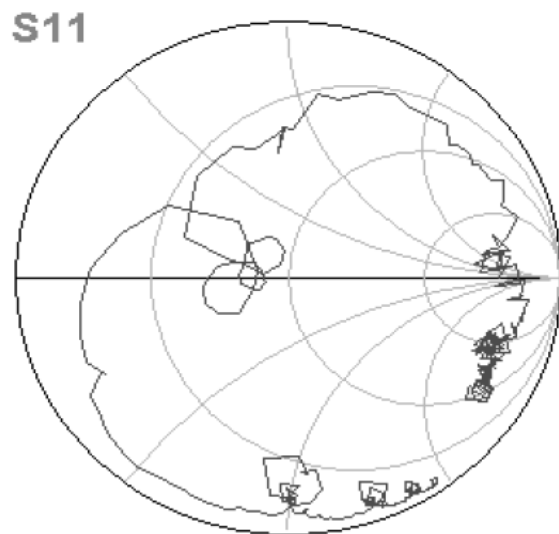
Passband Plot



Wideband Plot



VSWR



S11 and S22 Plots

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.

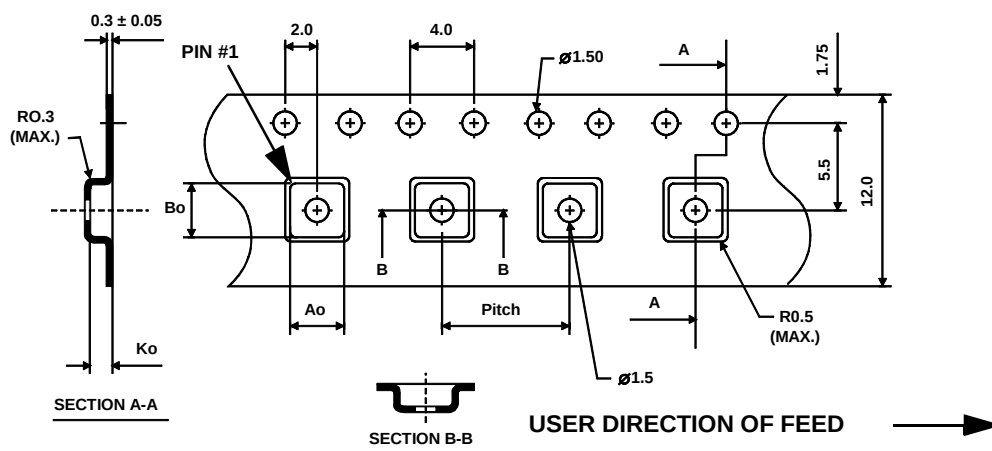
**Top View:** A large circle with a smaller concentric circle in the center. A horizontal dashed line and a vertical dashed line intersect at the center. A small circle with a crosshair is located at the center of the inner circle. An arrow points from the text "See Detail 'A'" to this central feature.

**Side View:** Two vertical lines representing the thickness of the component. The total thickness is labeled "12.0". The distance from the centerline to the outer edge is labeled "100 REF." and "B" REF.".

**Detail View (Detail A):** A cross-sectional view of the central feature. 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 the ring is labeled 20.2.

| “B “<br>Nominal Size |             | Quantity Per Reel |
|----------------------|-------------|-------------------|
| Inches               | millimeters |                   |
| 7                    | 178         | 1000              |
| 13                   | 330         | 3000              |

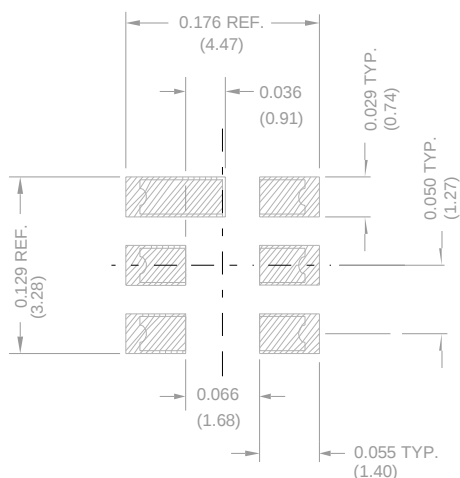
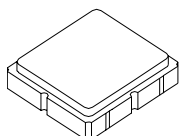
| Carrier Tape Dimensions |         |
|-------------------------|---------|
| Ao                      | 4.25 mm |
| Bo                      | 4.25 mm |
| Ko                      | 1.30 mm |
| Pitch                   | 8.0 mm  |
| W                       | 12.0 mm |



# SM3838-6 Case

## 6-Terminal Ceramic Surface-Mount Case

### 3.8 X 3.8 mm Nominal Footprint



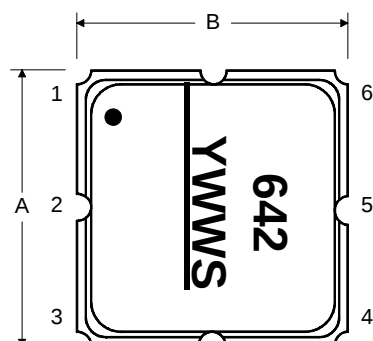
PCB Footprint

| Case Dimensions |      |      |      |        |       |       |
|-----------------|------|------|------|--------|-------|-------|
| Dimension       | mm   |      |      | Inches |       |       |
|                 | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A               | 3.60 | 3.80 | 4.0  | 0.14   | 0.15  | 0.16  |
| B               | 3.60 | 3.80 | 4.0  | 0.14   | 0.15  | 0.16  |
| C               | 1.30 | 1.50 | 1.70 | 0.05   | 0.06  | 0.067 |
| D               | 0.95 | 1.10 | 1.25 | 0.037  | 0.043 | 0.05  |
| E               | 2.39 | 2.54 | 2.69 | 0.090  | 0.10  | 0.110 |
| G               | 0.90 | 1.0  | 1.10 | 0.035  | 0.04  | 0.043 |
| H               | 1.90 | 2.0  | 2.10 | 0.75   | 0.08  | 0.83  |
| I               | 0.50 | 0.6  | 0.70 | 0.020  | 0.024 | 0.028 |
| J               | 1.70 | 1.8  | 1.90 | 0.067  | 0.07  | 0.075 |

| Electrical Connections      |                     |            |
|-----------------------------|---------------------|------------|
| Connection                  |                     | Terminals  |
| Port 1                      | Single Ended Input  | 2          |
| Port 2                      | Single Ended Output | 5          |
|                             | Ground              | All others |
| Single Ended Operation Only |                     |            |
| Dot indicates Pin 1         |                     |            |

| Materials              |                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------|
| Solder Pad Termination | Au plating 30 - 60 $\mu$ inches (76.2-152 $\mu$ m) over 80-200 $\mu$ inches (203-508 $\mu$ m) Ni. |
| Lid                    | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 $\mu$ inches Thick             |
| Body                   | Al <sub>2</sub> O <sub>3</sub> Ceramic                                                            |
| Pb Free                |                                                                                                   |

TOP VIEW



BOTTOM VIEW

