

- RF Filter for Pager Applications
- High Rejection Out of Band
- Complies with Directive 2002/95/EC (RoHS)

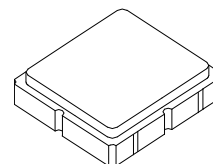


## Absolute Maximum Ratings

| Rating                                                       | Value           | Units |
|--------------------------------------------------------------|-----------------|-------|
| Maximum Incident Power in Passband                           | 0               | dBm   |
| Maximum DC Voltage Between Any Two Terminals                 | 30              | VDC   |
| Storage Temperature Range in Tape and Reel                   | -40 to +85      | °C    |
| Suitable for Lead-free Soldering - Maximum Soldering Profile | 260 °C for 30 s |       |

**SF2008D**

**930.5 MHz  
SAW Filter**



**SM3838-6**

## Electrical Characteristics

| Characteristic                                | Sym        | Notes   | Min          | Typ   | Max | Units             |
|-----------------------------------------------|------------|---------|--------------|-------|-----|-------------------|
| Center Frequency                              | $f_C$      | 1       |              | 930.5 |     | MHz               |
| Passband Insertion Loss, 928.5 to 932.5 MHz   | $IL_{MAX}$ |         |              |       | 4.5 | dB                |
| Passband Amplitude Ripple, 928.5 to 932.5 MHz |            | 1, 2    |              |       | 2.0 | dB <sub>P-P</sub> |
| Rejection Referenced to $IL_{MAX}$            |            |         |              |       |     |                   |
| 400 to 880 MHz                                |            | 1, 2, 3 | 35           |       |     | dB                |
| 884.8 to 890.2 MHz                            |            |         | 40           |       |     |                   |
| 906.8 to 911.2 MHz                            |            |         | 30           |       |     |                   |
| 980 to 1300 MHz                               |            |         | 35           |       |     |                   |
| Operating Temperature Range                   | $T_A$      | 1       | -20          |       | +70 | °C                |
| Input Impedance at $f_C$                      |            |         | 50 - j57 ohm |       |     |                   |
| Output Impedance at $f_C$                     |            |         | 50 - j57 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 | 455, YWWS                               |                  |  |  |  |  |
| Standard Reel Quantity                                           | Reel Size 7 Inch                        | 1000 Pieces/Reel |  |  |  |  |
|                                                                  | Reel Size 13 Inch                       | 3000 Pieces/Reel |  |  |  |  |

## Electrical Connections

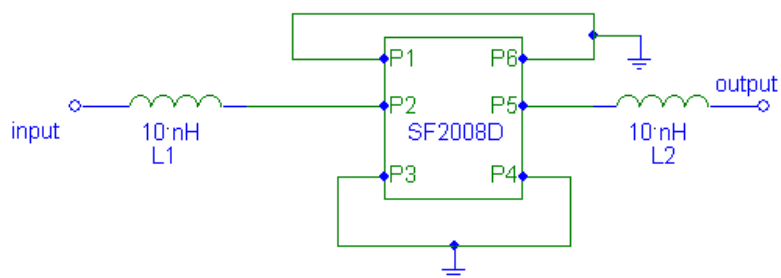
| Connection  | Terminals  |
|-------------|------------|
| Port 1      | 2          |
| Port 2      | 5          |
| Case Ground | All others |

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

## NOTES:

- 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.
- Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency,  $f_C$ .
- 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.
- "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
- The design, manufacturing process, and specifications of this filter are subject to change.
- 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.
- US and international patents may apply.
- Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

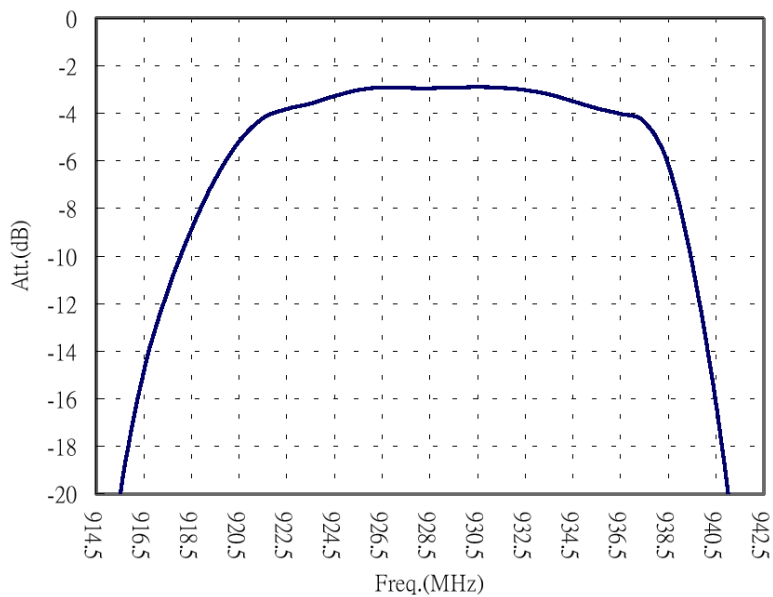
## Matching Circuit



## S21 Wide Span



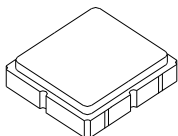
## S21 Narrow Span



# SM3838-6 Case

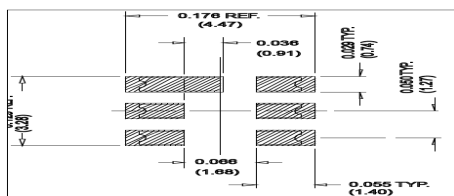
## 6-Terminal Ceramic Surface-Mount Case

### 3.8 X 3.8 mm Nominal 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 |

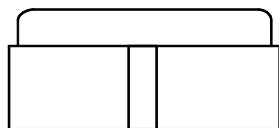
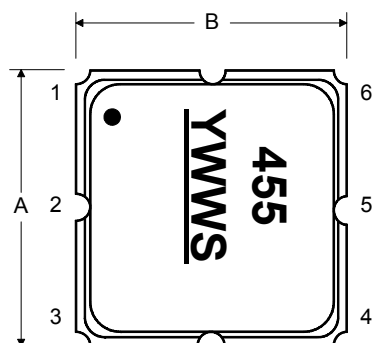
| Electrical Connections             |                     |            |
|------------------------------------|---------------------|------------|
| Connection                         |                     | Terminals  |
| Port 1                             | Single-ended Input  | 2          |
| Port 2                             | Single-ended Output | 5          |
|                                    | Ground              | All others |
| <b>Single-ended Operation Only</b> |                     |            |
| Dot indicates Pin 1                |                     |            |



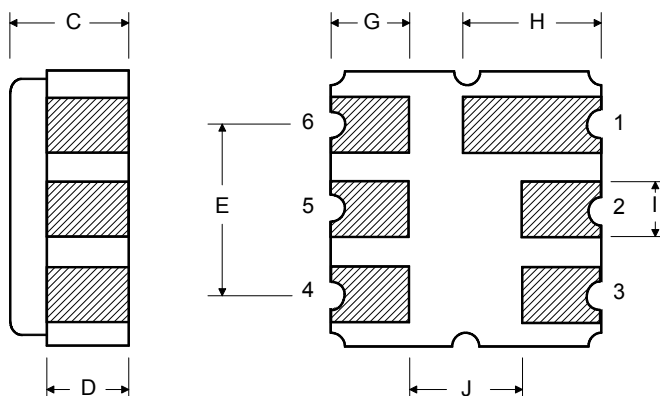
## PCB Footprint

| 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



See Detail "A"

100 REF.

"B" REF.

12.0

13.0

20.2

2.0

| “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 |

