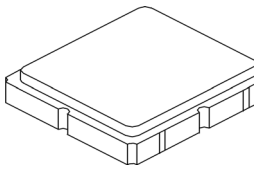
Discontinued

RFM products are now Murata products.

# SF2181D

## 140 MHz SAW Filter

- ***22 MHz Filter Bandwidth***
- ***3.8 x 3.8 x 1.4 mm Surface-mount Package***
- ***Complies with Directive 2002/95/EC (RoHS)***



SM3838-8

### Absolute Maximum Ratings

| Rating | Value | Units |
|---|---|---|
| Maximum Incident Power in Passband | +10 | dBm |
| Maximum DC Voltage between any Two Terminals | 3 | 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 | |

### Electrical Characteristics

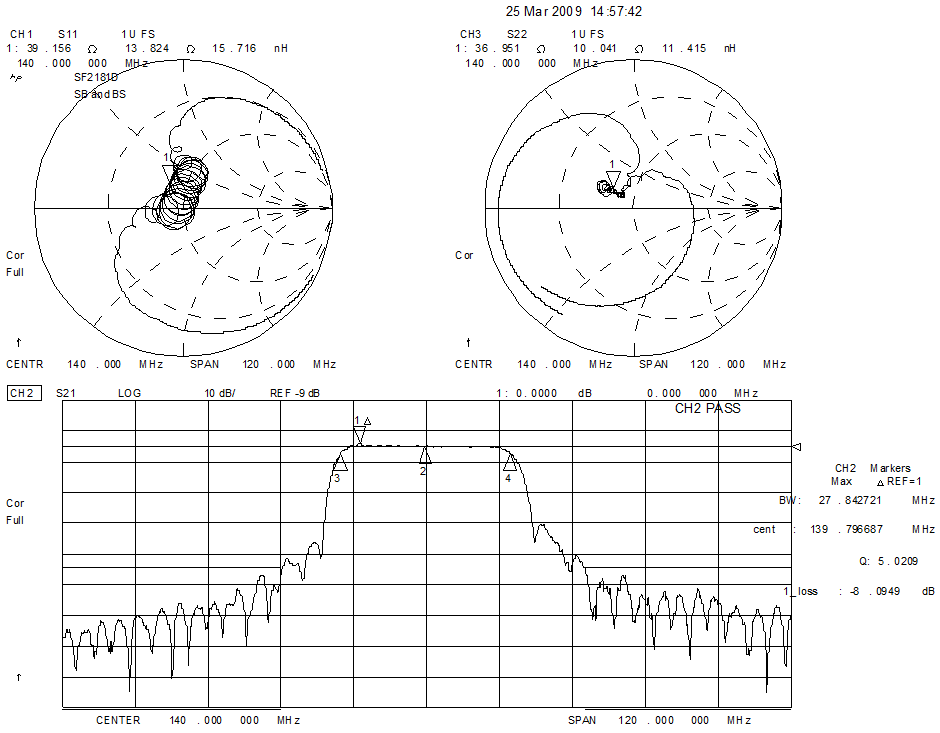
| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Nominal Center Frequency | $F_C$ | 1 | | 140 | | MHz |
| Insertion Loss | $IL_{MAX}$ | 1 | | 8 | 9 | dB |
| Insertion Loss Variation over Temperature | | 1 | | | 1 | dB |
| 3 dB Bandwidth | | 1 | 22 | 27 | | MHz |
| Passband Amplitude Ripple, Matching Network A, 129 to 151 MHz | | 1 | | 0.8 | 1.2 | $dB_{P-P}$ |
| Passband Amplitude Ripple, Matching Network B, 129 to 151 MHz | | 1 | | 0.6 | 1.0 | $dB_{P-P}$ |
| Passband Amplitude Ripple, Matching Network C or D, 130 to 150 MHz | | | | 0.9 | 1.0 | $dB_{P-P}$ |
| Absolute Attenuation (referenced to $IL_{MAX}$) | | | | | | |
| 10 to 116 MHz | | 3 | 35 | 40 | | dB |
| 165 to 700 MHz | | 3 | 35 | 40 | | dB |
| Absolute Group Delay in Passband | | 1 | | 300 | 350 | ns |
| Passband Group Delay Ripple, Matching Network A or B, 129 to 151 MHz | | 1 | | 40 | 80 | $ns_{P-P}$ |
| Input Impedance, Unbalanced Matching Network | | 1 | | 50 | | ohm |
| Input Impedance, Balanced Matching Network | | 1 | | 200 | | ohm |
| Input Return Loss through any Matching Network | | 1 | 6 | 14 | | dB |
| Output Impedance, Unbalanced Matching Network | | 1 | | 50 | | ohm |
| Output Impedance, Balanced Matching Network | | 1 | | 200 | | ohm |
| Output Return Loss through any Matching Network | | 1 | 6 | 14 | | dB |
| Operating Temperature Range | | | -40 | | +85 | °C |
| Case Style | | SM3838-8 3.8 x 3.8 mm Nominal Footprint | | | | |
| Lid Symbolization (Y=year, WW=week, S=shift) | | RFM 872 YWWS | | | | |

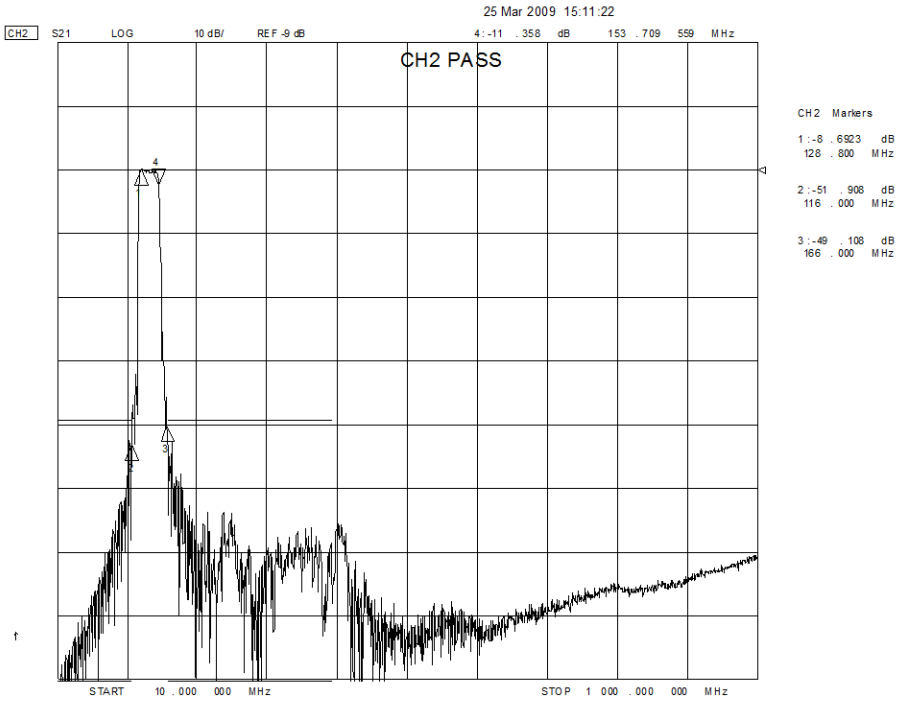
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**NOTES:**

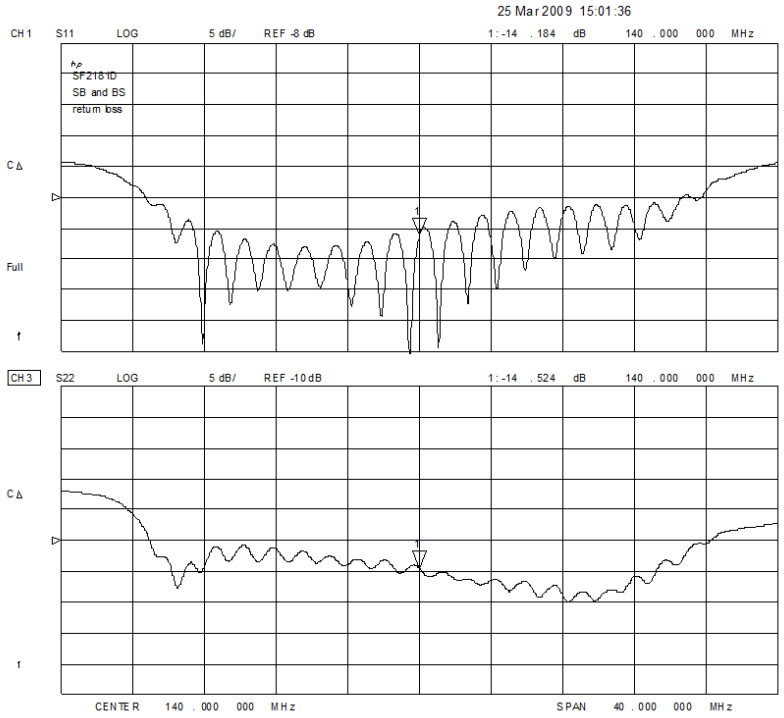
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, fc.
3. 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.

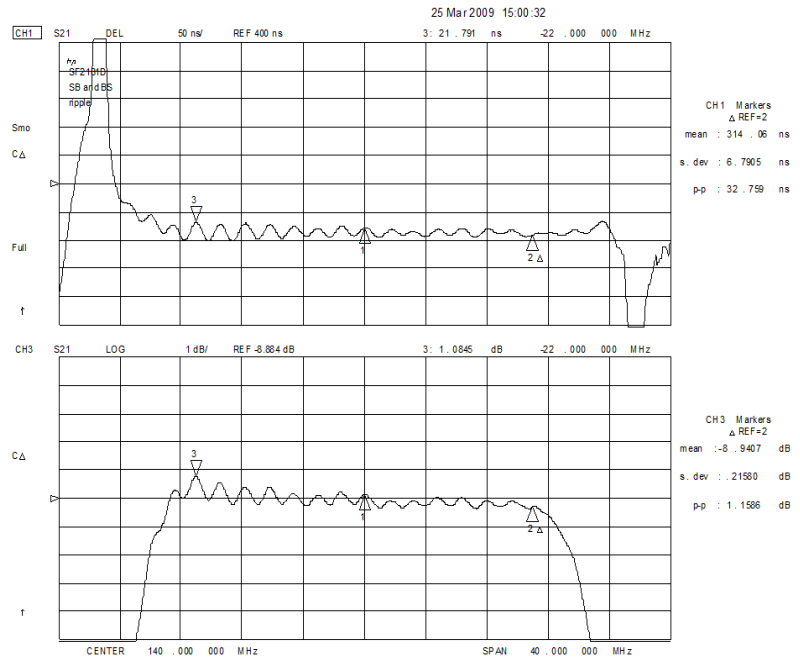
# SF2181D, Using Matching Network A



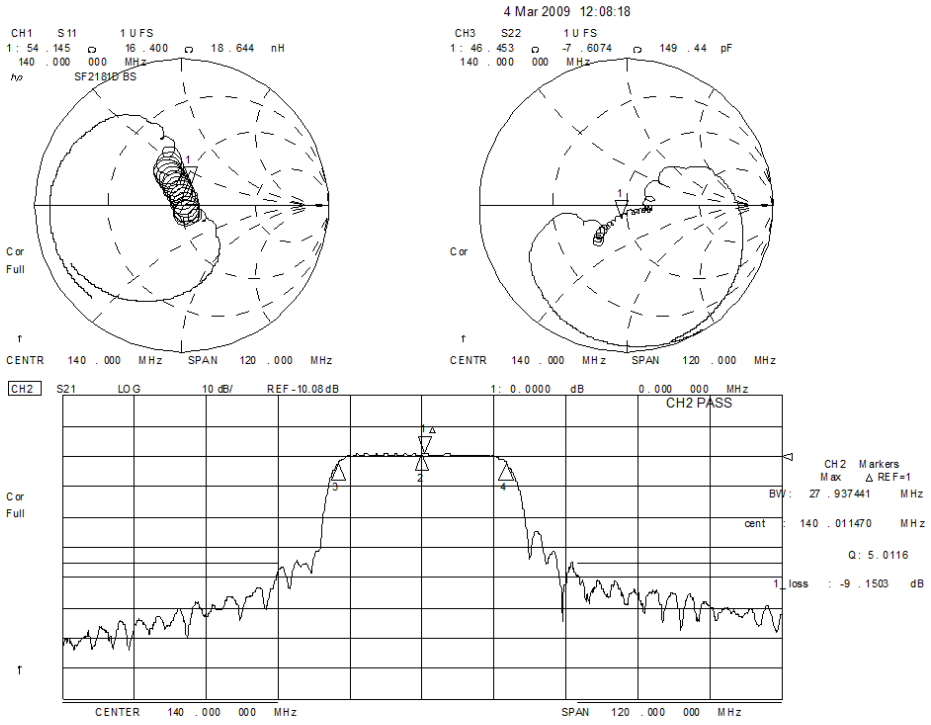



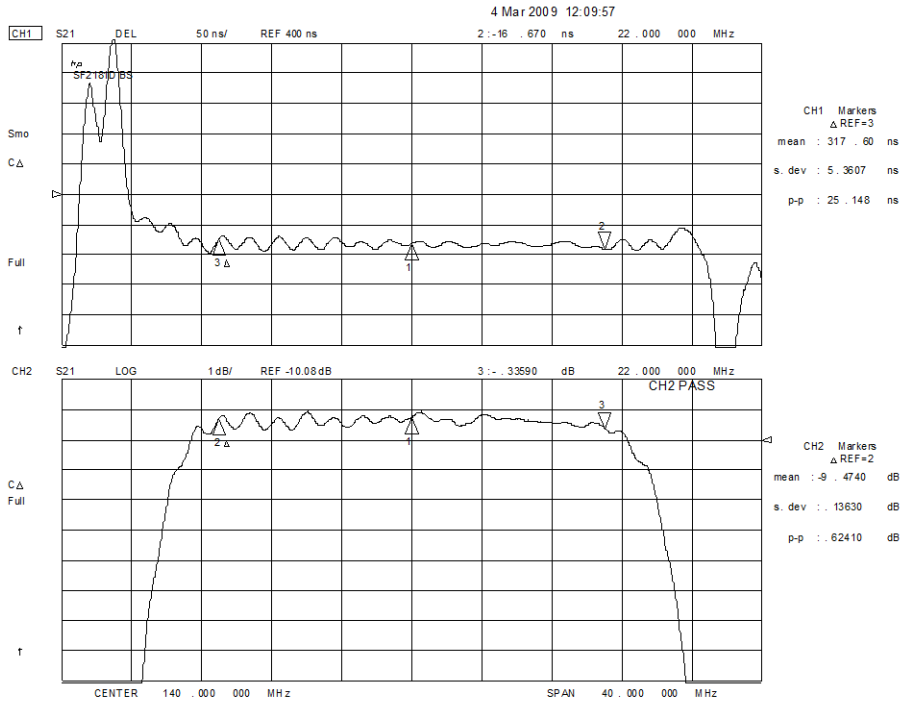
# SF2181D, Using Matching Network A



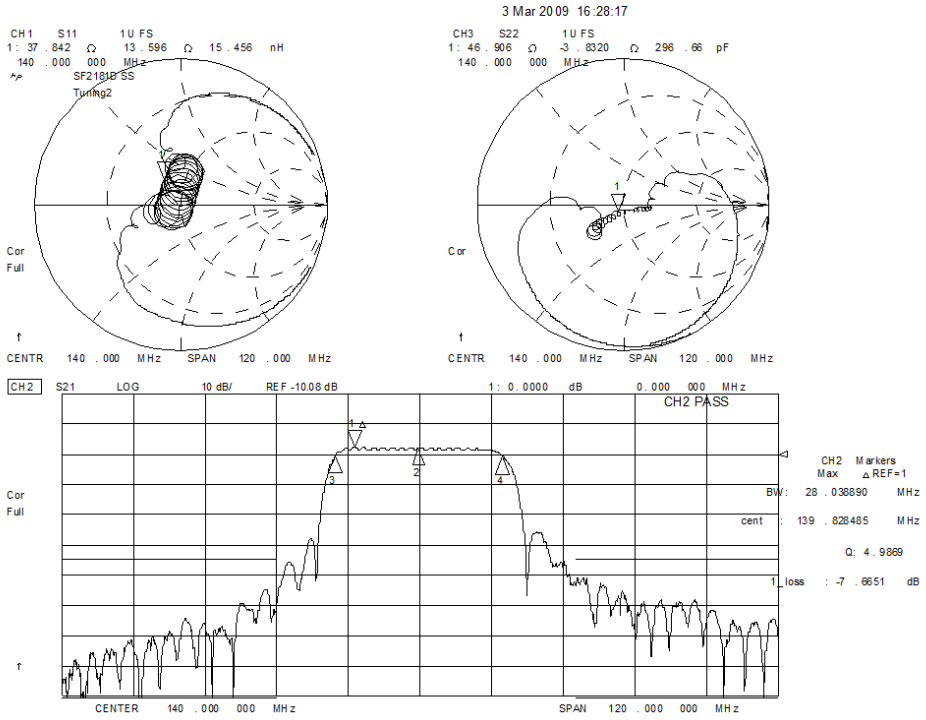



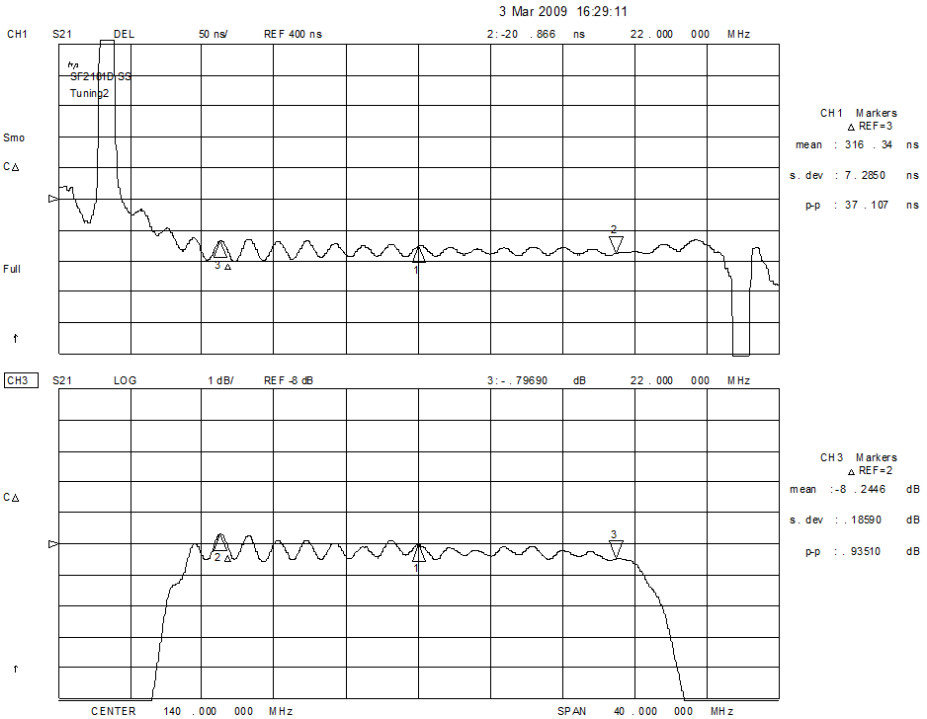
# SF2181D, Using Matching Network B



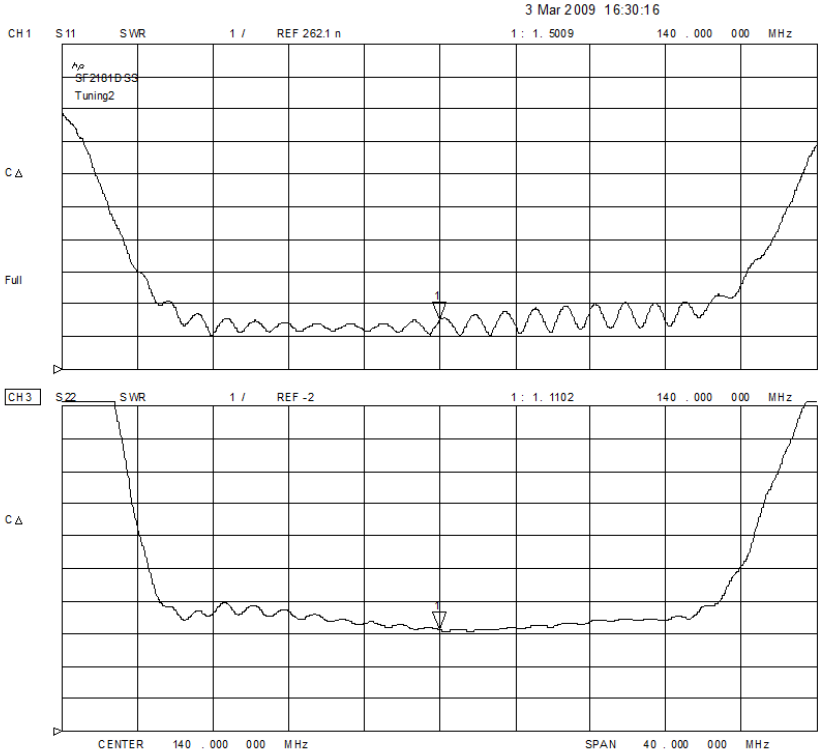



# SF2181D, Using Matching Network C

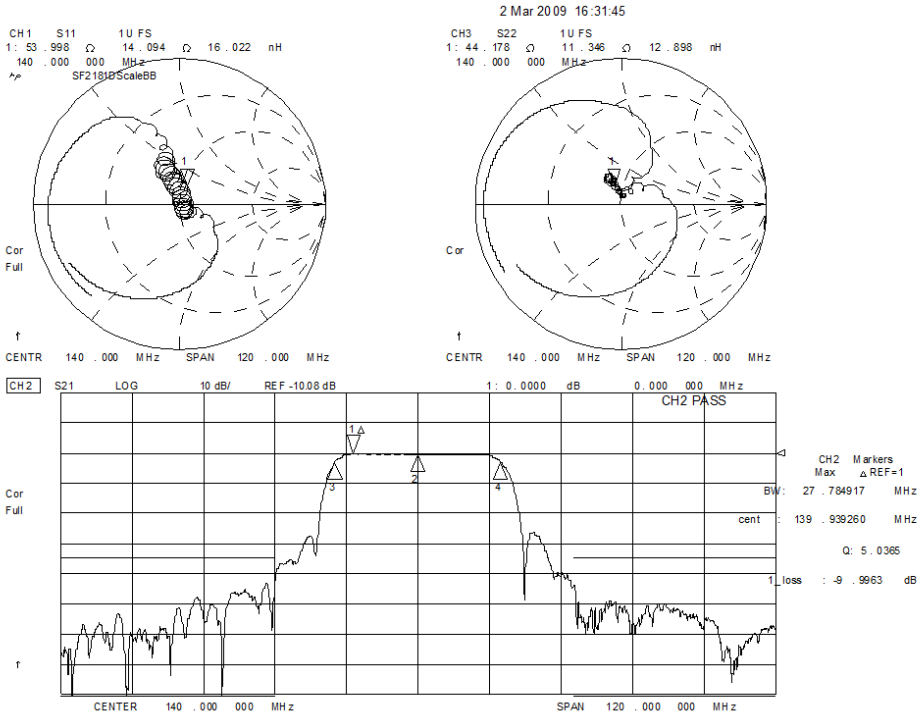


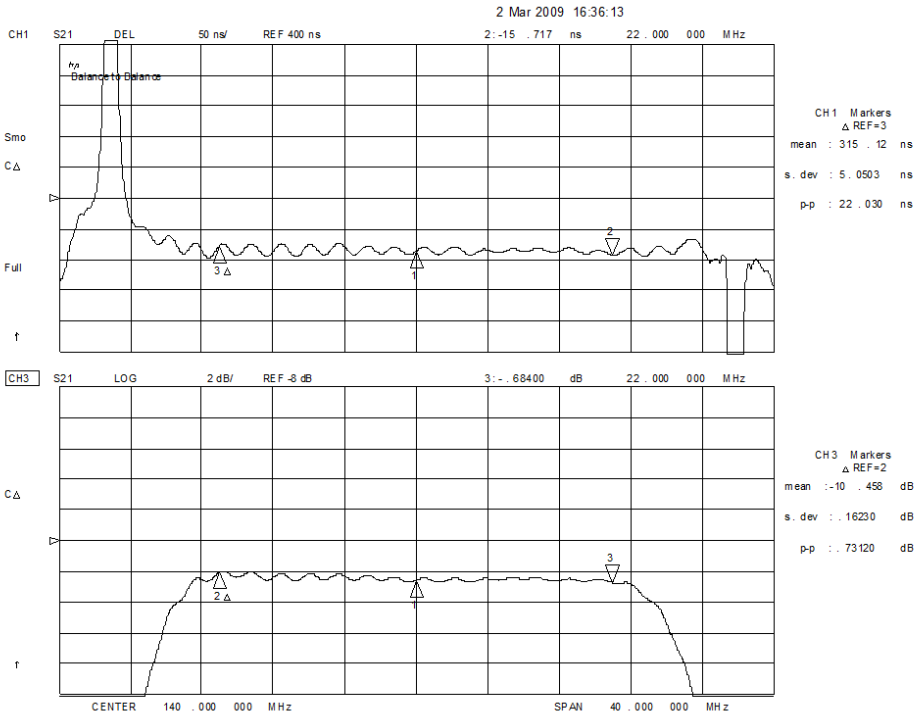



# SF2181D, Using Matching Network C

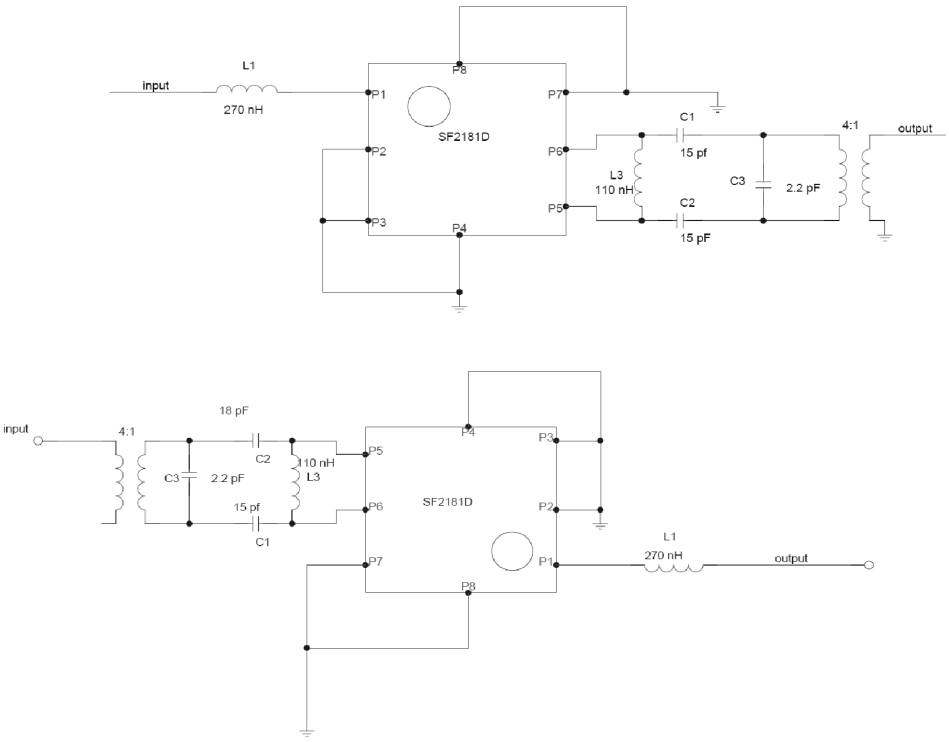


# SF2181D, Using Matching Network D

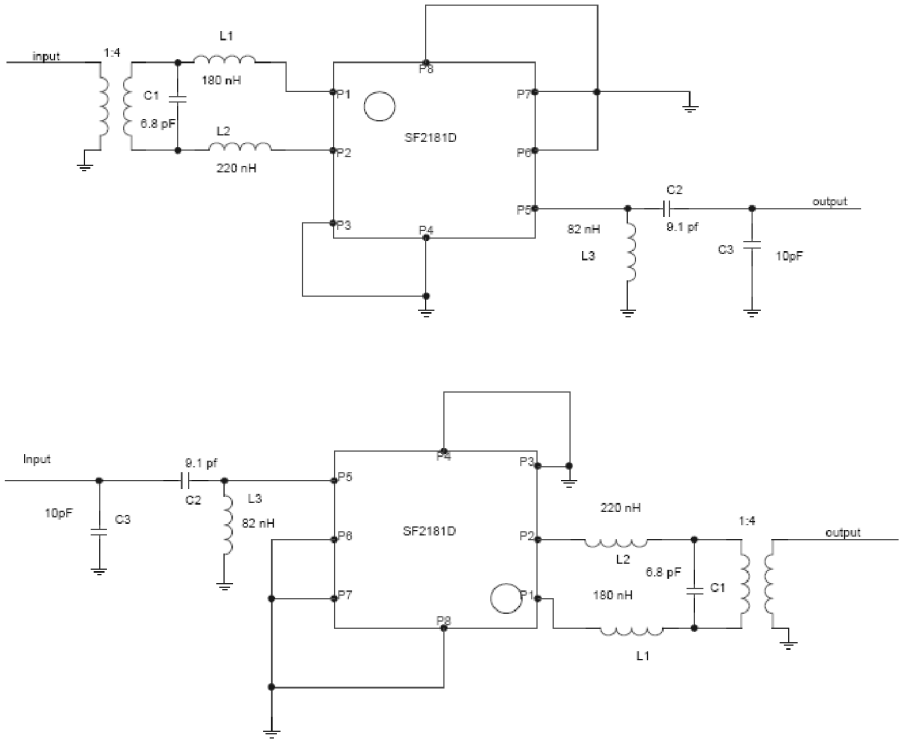


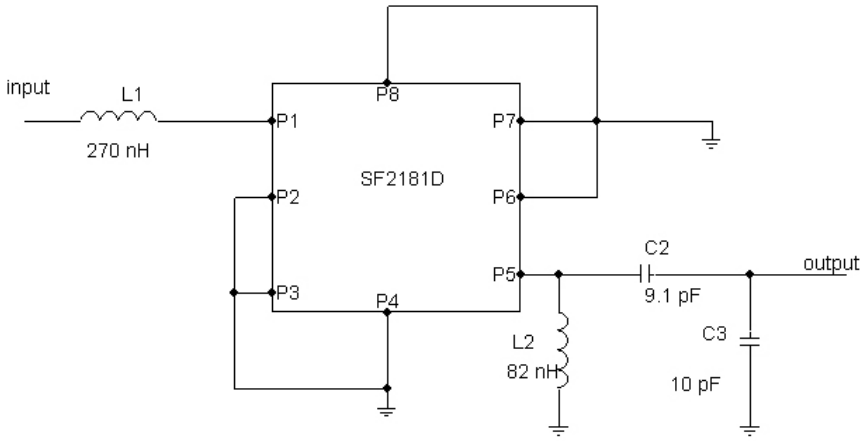
# SF2181D, Matching Network A, Two Options



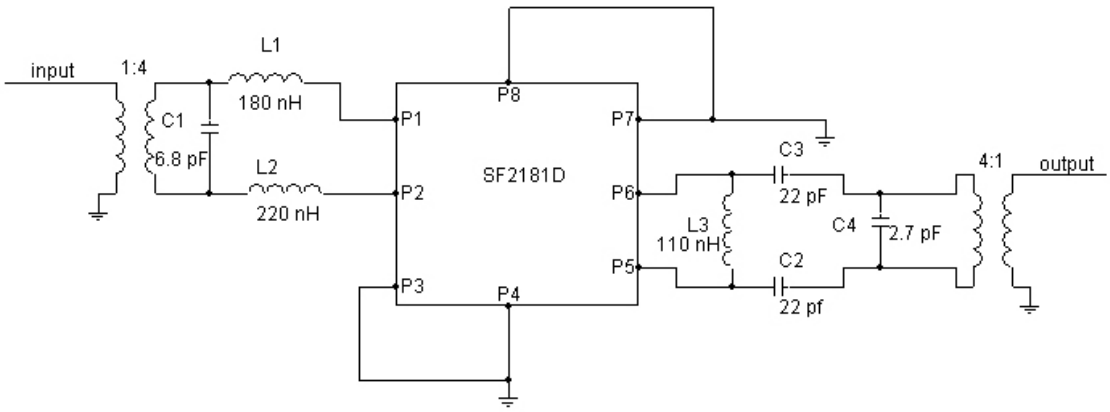

# SF2181D, Matching Network B, Two Options



# SF2181D, Matching Network C

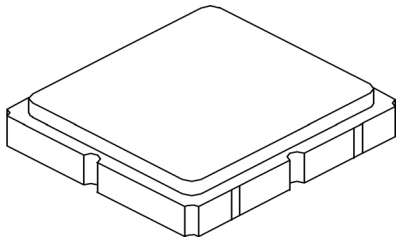



# SF2181D, Matching Network D



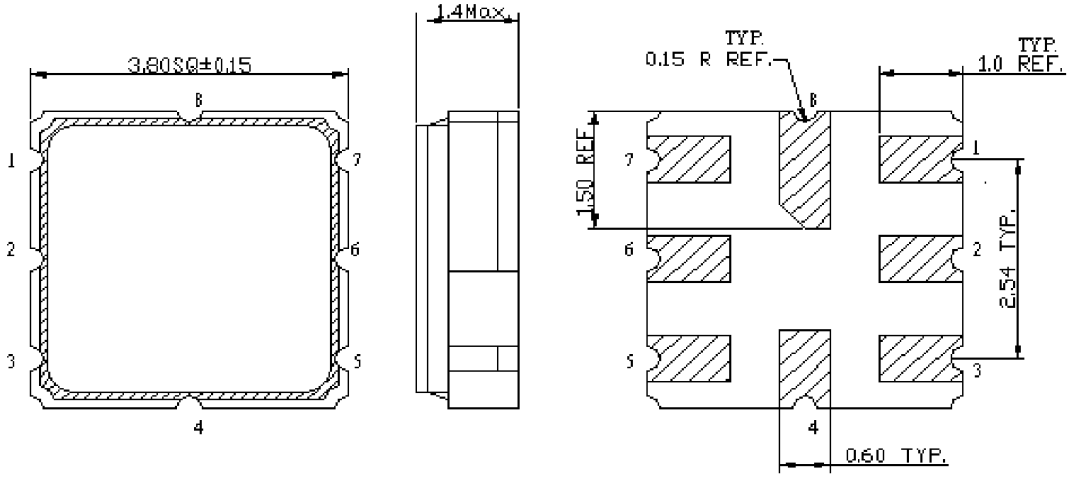
# SM3838-8 Case

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

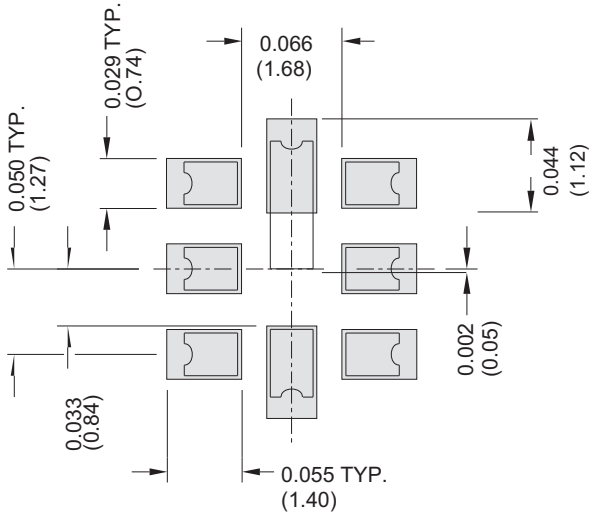


Top View

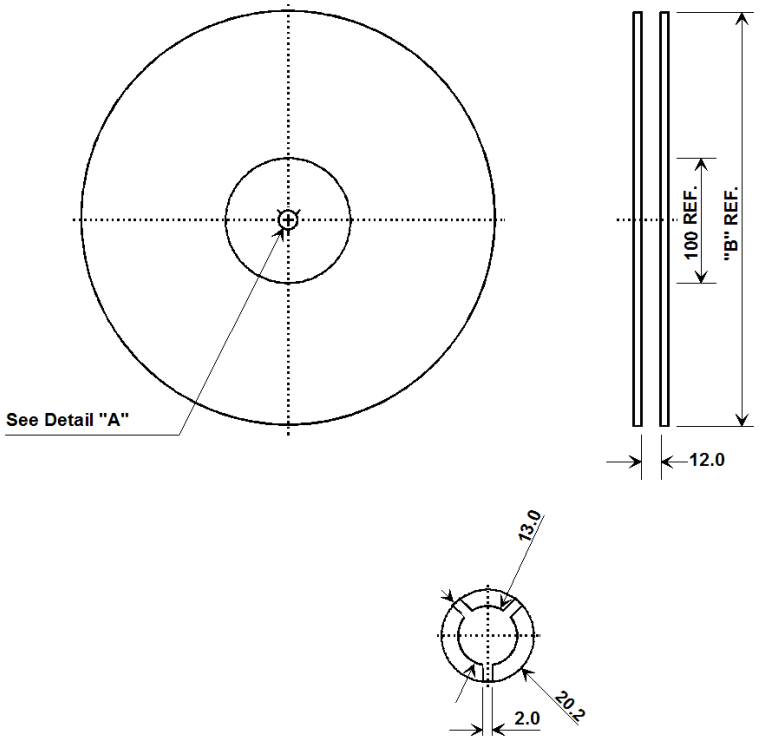
Bottom View




## PCB Footprint for 180 Degree Rotation Option



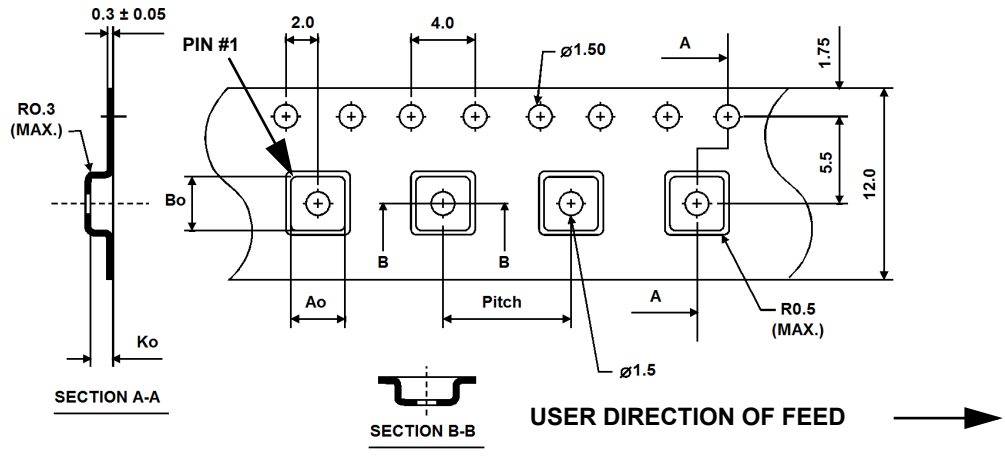
## Tape and Reel Specifications




| "B " Nominal Size | | Quantity Per Reel |
|---|---|---|
| Inches | millimeters | |
| 7 | 178 | 1000 |
| 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 |



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