muRata
INNOVATOR IN ELECTRONICS

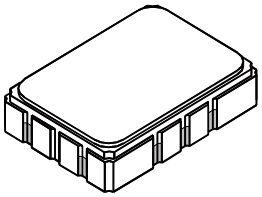
Discontinued

RFM products are now Murata products.

# SF1120B

## 298.74 MHz SAW Filter

- ***Designed for GPS Applications***
- ***Quartz Temperature Stability***
- ***Small Size***
- ***Hermetic 7 x 5 mm Surface-mount Case***
- ***Complies with Directive 2002/95/EC (RoHS)***



SMP-03

### Absolute Maximum Ratings

| Rating | Value | Units |
|---|---|---|
| Maximum Incident Power in Passband | +10 | dBm |
| Max. DC voltage between any 2 terminals | 30 | VDC |
| Storage Temperature Range | -40 to +85 | °C |
| Suitable for lead-free soldering - Max. Soldering Profile | 260°C for 30 s | |

### Electrical Characteristics

| Characteristic | | Sym | Notes | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|---|
| Nominal Center Frequency | | $f_C$ | 1 | | 298.740 | | MHz |
| Passband | Insertion Loss at fc | IL | | | | 12.0 | dB |
| | 1 db Passband | $BW_1$ | 1, 2 | ±750 | | | kHz |
| | 3 db Passband | $BW_3$ | | ±1100 | ±1150 | ±1300 | |
| | Amplitude Ripple over fc±1.0 MHz | | | | | 1.0 | $dB_{P-P}$ |
| | Group Delay Variation over fc ±1.0 MHz | GDV | | | | 250 | $ns_{P-P}$ |
| Rejection | fc-25 to fc-5.0 and fc+5.0 to fc+25 MHz | | 1, 2, 3 | | | | dB |
| Operating Temperature Range | | $T_A$ | 1 | -20 | | +75 | °C |

| | | |
|---|---|---|
| Matching to Unbalanced Impedance | | External L-C to 1kΩ (Port 1) and 200 Ω (Port 2) |
| Case Style | 6 | SMP-03 7 x 5 mm Nominal Footprint |
| Lid Symbolization (YY = year, WW = week) | | RFM SF1120B YYWW |

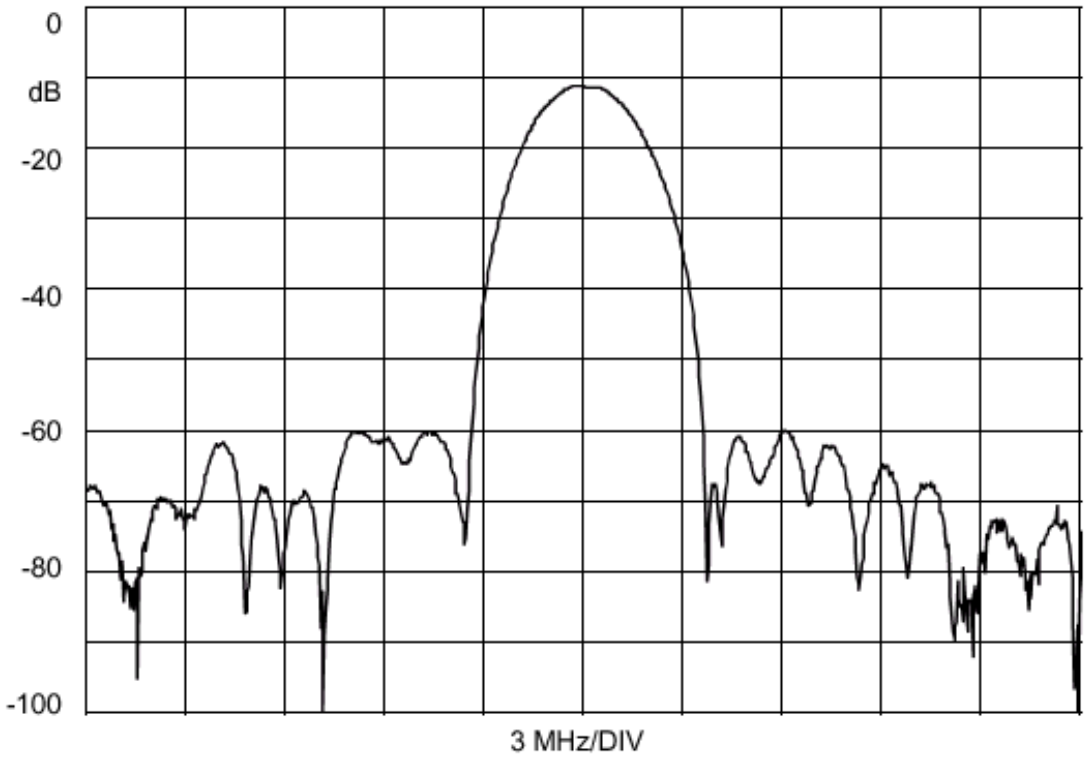
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

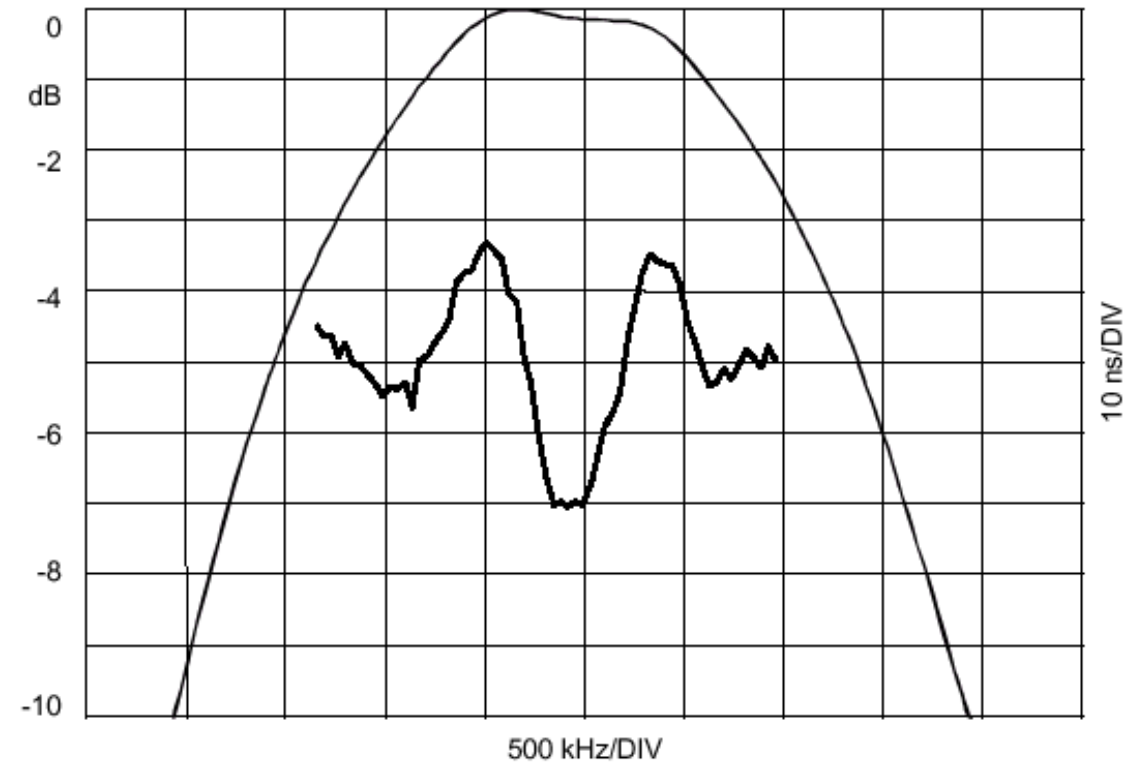
**NOTES:**

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 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. Tape and Reel Standard ANSI / EIA 481.
7. 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.
8. US and international patents may apply.

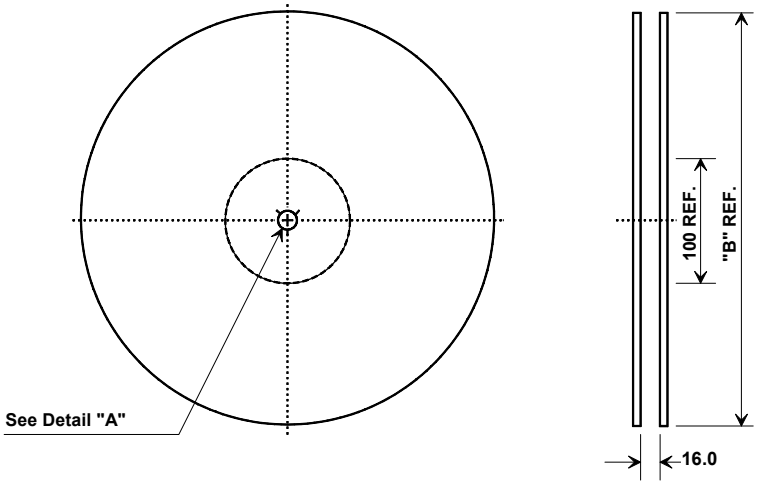
### Electrical Connections

| Connection | Terminals |
|---|---|
| Port 1 | 1, 10 |
| Port 2 | 5, 6 |
| Case Ground | All others |

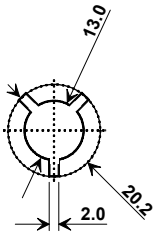


**Tape and Reel Specifications**

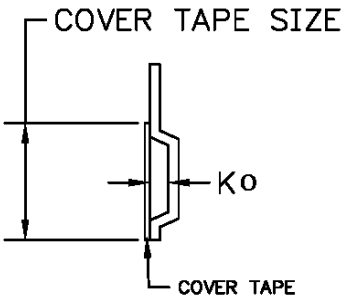


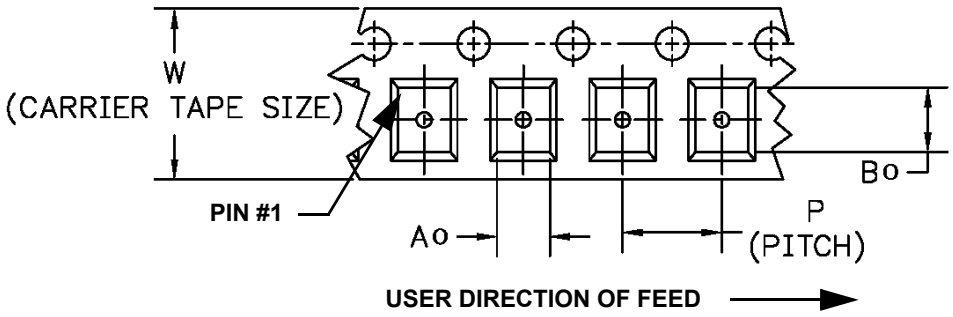

| "B " Nominal Size | | Quantity Per Reel |
|---|---|---|
| Inches | millimeters | |
| 7 | 178 | 500 |
| 13 | 330 | 2000 |




**COMPONENT ORIENTATION and DIMENSIONS**

| Carrier Tape Dimensions | |
|---|---|
| **Ao** | 5.5 mm |
| **Bo** | 7.5 mm |
| **Ko** | 2.0 mm |
| **Pitch** | 8.0 mm |
| **W** | 16.0 mm |

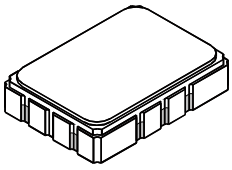


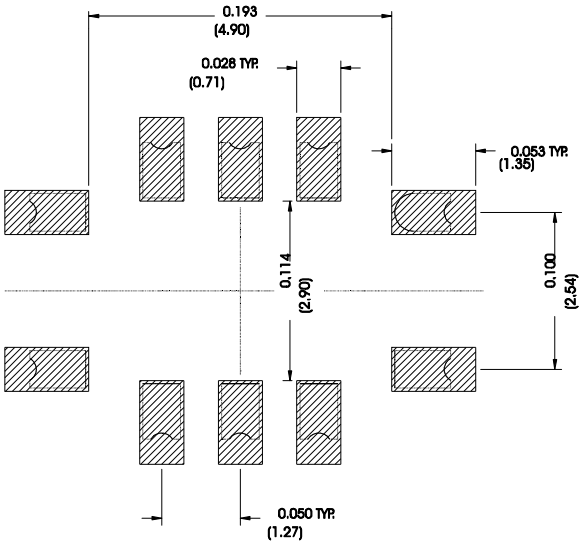
# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case

## 7 x 5 mm Nominal Footprint



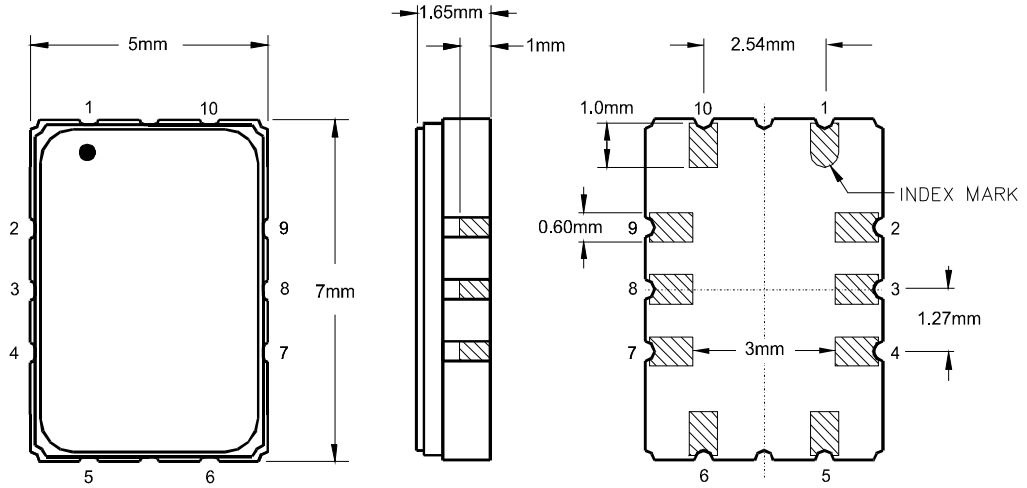
**Recommended PCB Footprint**




| Case Dimensions | | | | | | |
|---|---|---|---|---|---|---|
| **Dimension** | **mm** | | | **Inches** | | |
| | **Min** | **Nom** | **Max** | **Min** | **Nom** | **Max** |
| **A** | 6.80 | 7.00 | 7.20 | 0.268 | 0.276 | 0.283 |
| **B** | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| **C** | | 1.65 | 2.00 | | 0.065 | 0.079 |
| **D** | | 0.60 | | | 0.024 | |
| **E** | | 2.54 | | | 0.100 | |
| **H** | | 1.0 | | | 0.039 | |
| **J** | | 5.00 | | | 0.197 | |
| **K** | | 3.00 | | | 0.118 | |
| **P** | | 1.27 | | | 0.050 | |

| Electrical Connections | | |
|---|---|---|
| **Connection** | | **Terminals** |
| Port 1 | Input or Return | 10 |
| | Return or Input | 1 |
| Port 2 | Output or Return | 5 |
| | Return or Output | 6 |
| Ground | | All others |
| **Single Ended Operation** | | **Return is ground** |
| **Differential Operation** | | **Return is hot** |

| Materials | |
|---|---|
| Solder Pad Termination | Au plating 30 - 60 uInches (76.2-152 uM) over 80-200 uInches (203-508 uM) Ni. |
| Lid | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 uInches Thick |
| Body | $Al_2O_3$ Ceramic |
| Pb Free | |




TOP VIEW

BOTTOM VIEW