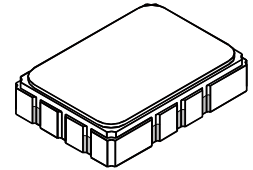


**SF2133E**

**248.6 MHz  
SAW Filter**



**SMP-03**

- **Small Size**
- **Hermetic 7 X 5 mm Surface Mount Case**
- **No Matching Required**

Input power Level	maximum 20 dBm for <= 100 hours maximum 10 dBm for <= 15 years
Input: unsymmetrical Output: symmetrical	
Terminating source impedance:	Zs = 50 ohm (no matching network)
Terminating load impedance:	Zl = 200 ohm (no matching network)
Low-Impedance Input: near 50 ohm	
Low-Impedance Output: near 200 ohm	
Operating Temperature	T = -20 to 80 [°C]

**Electrical Characteristics**

Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	f <sub>N</sub>	1		248.6		MHz
Minimal insertion attenuation	a <sub>min</sub>			3.0	4	dB
3 dB Band Width			5.0	6.5		MHz
Amplitude ripple (p - p) [fn ±120 kHz]				0.3	0.5	dB
Group Delay ripple (p - p) [fn ±120 kHz]					0.3	µs
Relative attenuation (relative to amin)	a <sub>rel</sub>					
10 MHz ....	(fn - 29,2 MHz)		45.0	50		dB
	fn + 22,8 MHz		45.0	50		dB
	fn + 52,0 MHz		45.0	50		dB
	fn + 74,8 MHz		45.0	50		dB
	fn + 104,0 MHz		45.0	50		dB
	fn + 126,8 MHz		45.0	50		dB

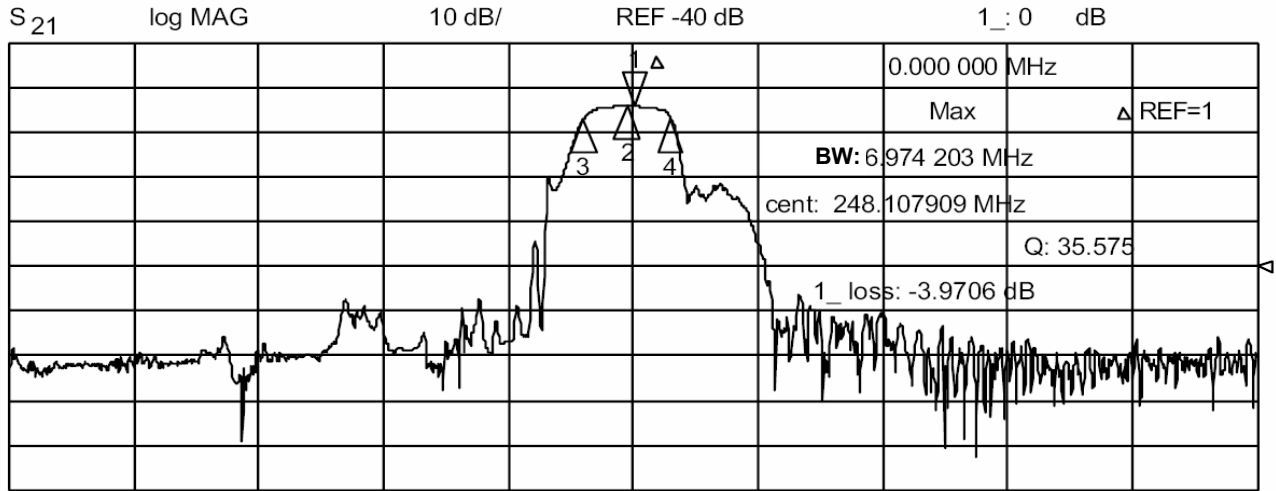
Case Style	SMP-03 7 X 5 mm Nominal Footprint
Lid Symbolization (Y=year, WW=week, S=shift) See note 3	RFM SF1197B YWWS

 **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. A dB offset exists for Murata because of the loss introduced by using transformers on the Input and Output.
2. 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.
3. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
4. The design, manufacturing process, and specifications of this filter are subject to change.
5. 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.
6. US and international patents may apply.
7. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd

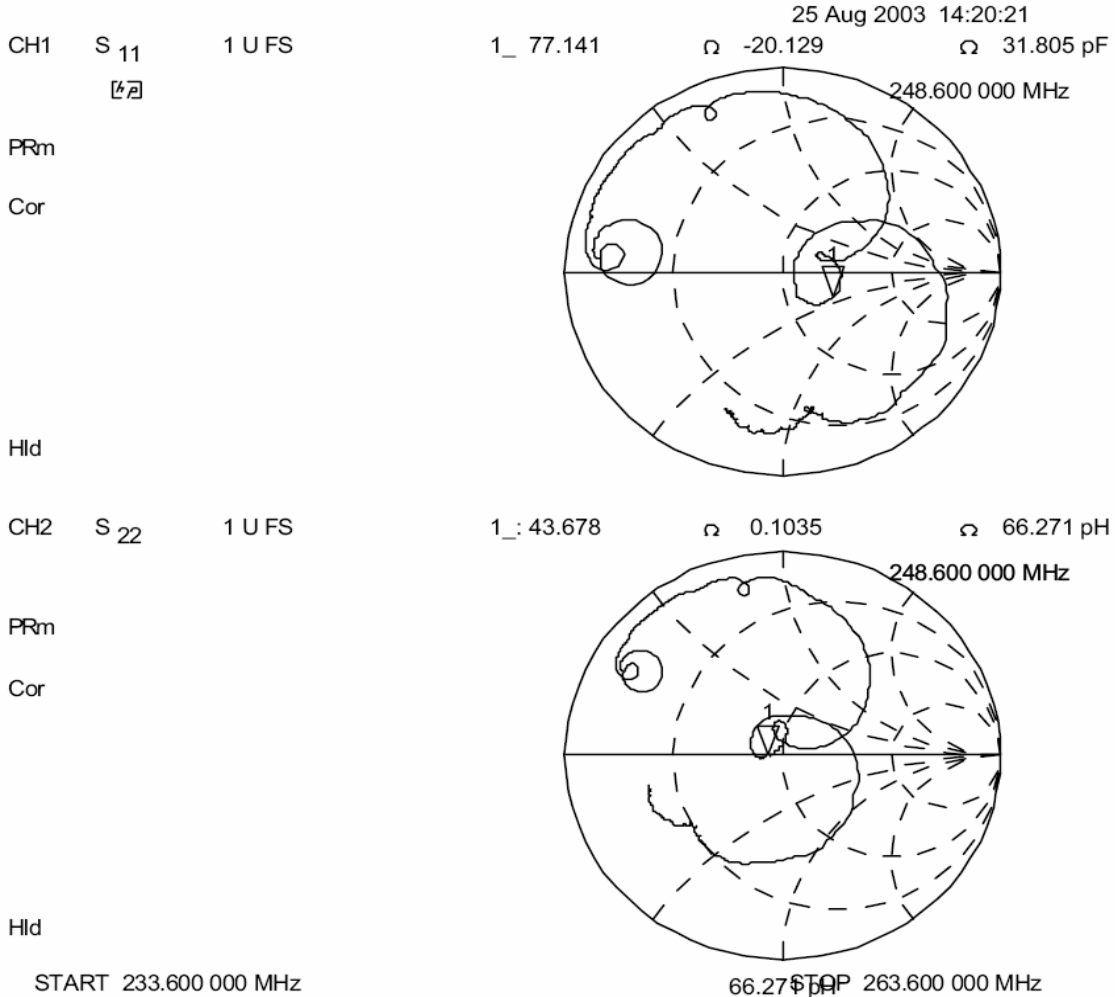
# SF1197B Filter Response



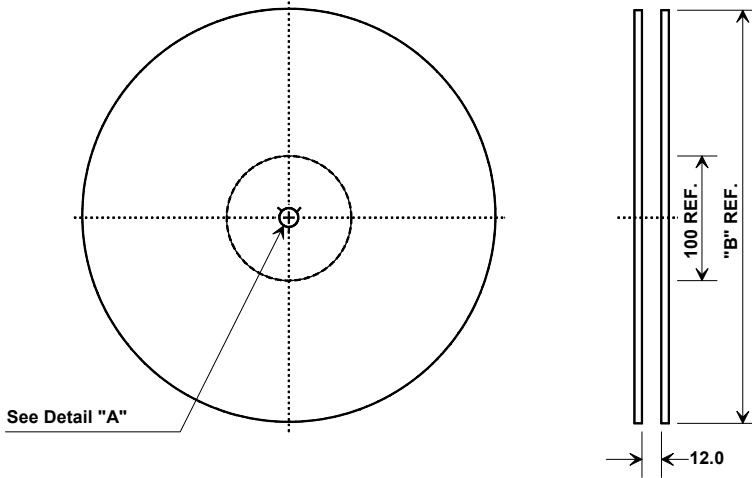
CENTER 248.600 000 MHz

SPAN 100.000 000 MHz

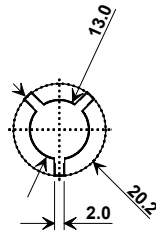
# SF1197B S<sub>11</sub> and S<sub>22</sub> Plots



## Tape and Reel Specifications

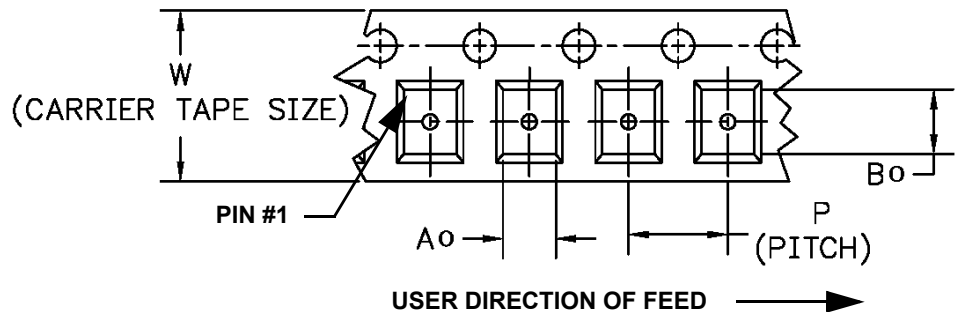
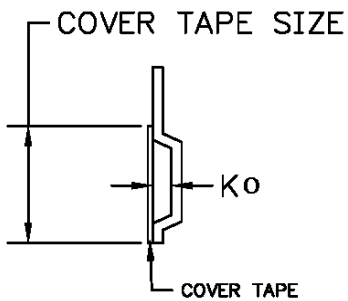


"B" Nominal Size		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	2000



### COMPONENT ORIENTATION and DIMENSIONS

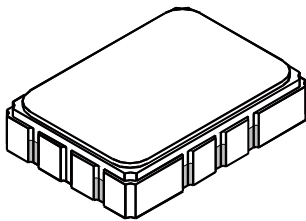
Carrier Tape Dimensions	
Ao	9.4 mm
Bo	7.4 mm
Ko	2.0 mm
Pitch	8.0 mm
W	16.0 mm



# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case

### 7 x 5 mm Nominal Footprint

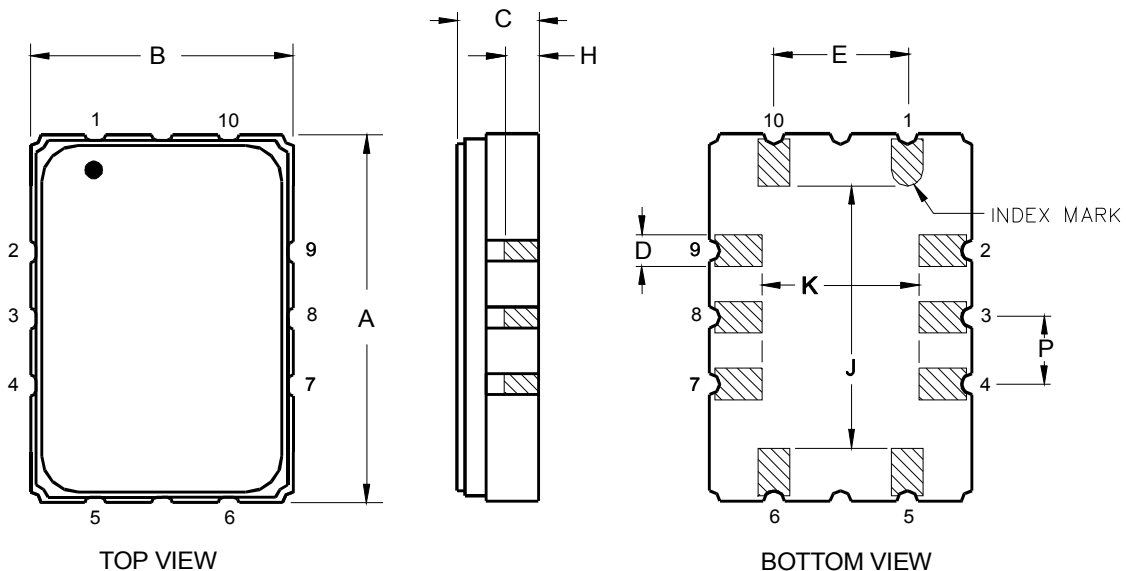


#### Case Dimensions

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



## Solder Temperature Profile

The following figure shows the recommended temperature profile for reflow soldering SMP-03 and SMP53-S packages. The package consists of a ceramic base with a metal lid that is attached with high-temperature solder. The filter package is hermetically sealed and the solder seal must not be compromised with excessive heat in assembly. It is critical that the filter package is never heated above 250°C. It is recommended that the package be heated no higher than 240°C for no more than 10 seconds.

