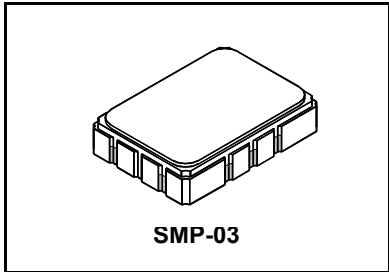


**SF2138B-1**

**144.132 MHz  
SAW Filter**



- **Designed for SDARS IF Receiver**
- **Low Insertion Loss**
- **5.0 x 7.0 mm Surface-mount Case**
- **Differential or Single-ended Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**



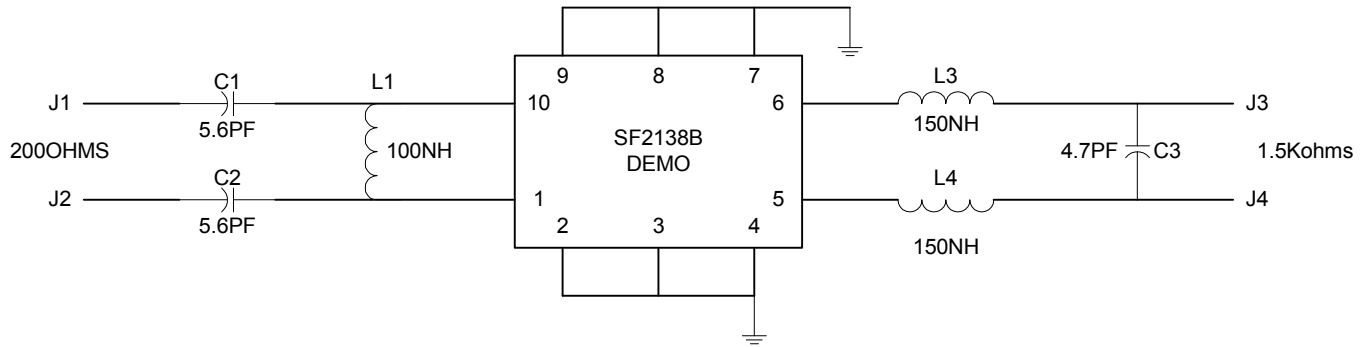
**Absolute Maximum Ratings**

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage Between any Two Terminals	30	VDC
Storage Temperature Range	-40 to +85	°C
Operable Temperature Range	-45 to +125	°C
Max Soldering Profile	265 °C for 10 s	

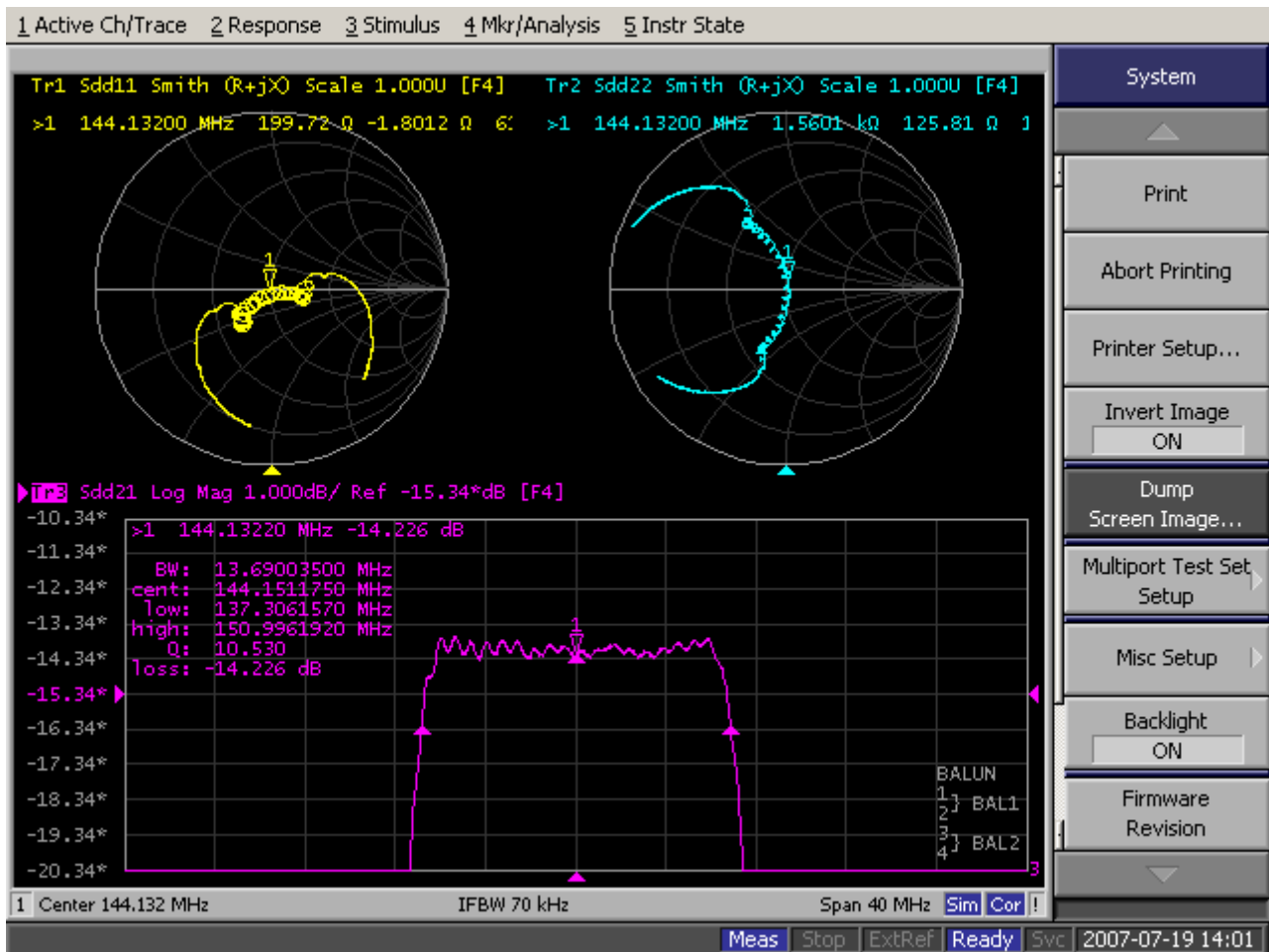
Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	$f_C$	1	144.132			MHz
Passband Width @ +25 °C			137.882		150.382	dB
B 1dB	BW <sub>1</sub>	1	12.5	13.3		MHz
B 15dB	BW <sub>15</sub>			15.9	16.2	MHz
B 30dB	BW <sub>30</sub>			16.9	18.2	MHz
Minimum Insertion Loss, including the Matching Network	IL <sub>MIN</sub>			13.7	16.5	dB
Terminating source impedance			ZS = 200 ohms (differential)			
Terminating load impedance			ZL = 1.5K ohms (differential)			
Amplitude Ripple						
TDM1 (137.882 - 142.382 MHz)				1	1.7	dB <sub>P-P</sub>
COFDM (141.882 - 146.182 MHz)				0.5	1.5	
TDM2 (145.882 - 150.382 MHz)				1	1.7	
Attenuation Relative to the Insertion Loss at Center Frequency:		1, 3				dBc
122.882 ..... 127.882 MHz			45	50		
127.882 ..... 132.882 MHz			43	47		
154.137 ..... 159.137 MHz			38	42		
159.137 ..... 162.882 MHz			43	47		
162.882 ..... 177.882 MHz			48	53		
Group Delay Ripple:						ns <sub>P-P</sub>
TDM1 (137.882 - 142.382 MHz)				30	150	
COFDM (141.882 - 146.182 MHz)				28	100	
TDM2 (145.882 - 150.382 MHz)				30	150	
Specification Temperature Range	T <sub>A</sub>	1	-40		+105	°C
Case Style			SMP-03 7 x 5 mm Nominal Footprint			
Lid Symbolization, YY=year, WW=week, S=shift		6	RFM SF2138B-1    YYWWSS			

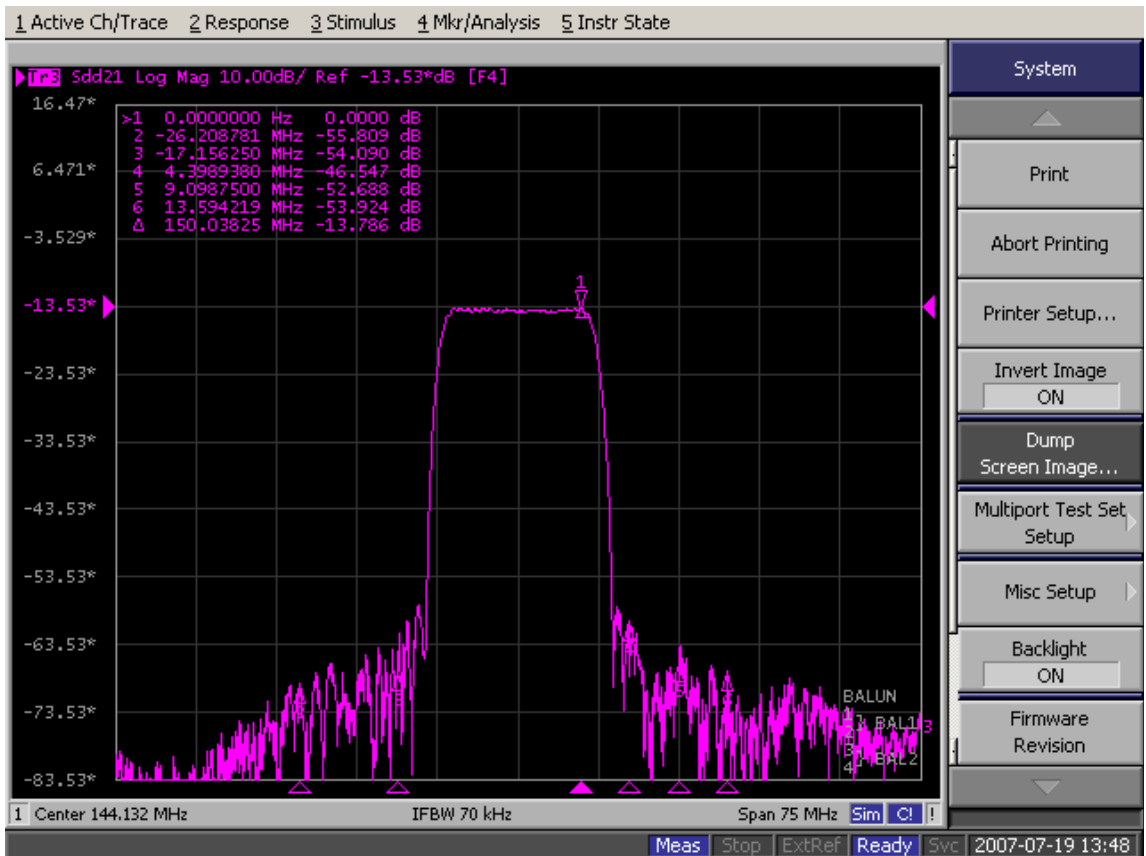
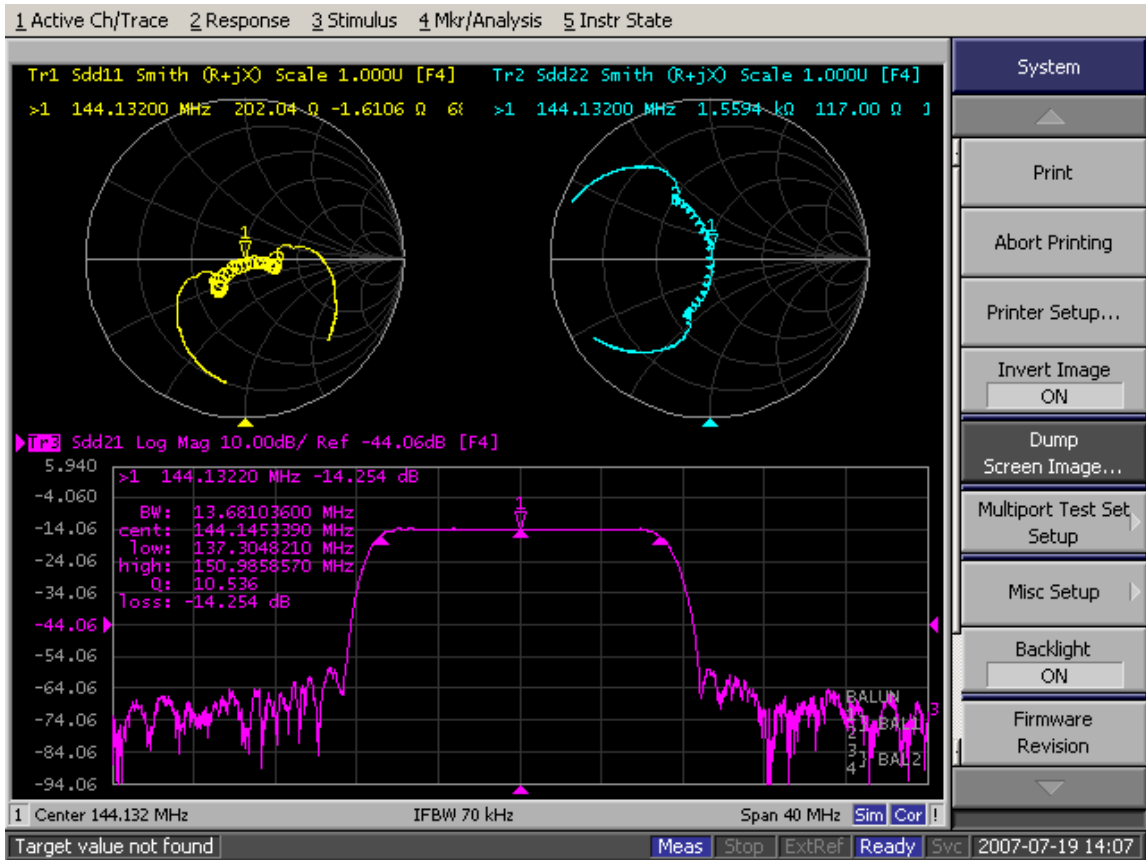
**Notes:**

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,  $f_C$ .
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. 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.
9. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.
10. Electrostatic Sensitive Device. Observe precautions for handling.



- |              |                        |        |
|--------------|------------------------|--------|
| 400-1749-001 |                        |        |
| 501-0782-101 | 0805 COIL CRAFT, 100NH | L1     |
| 501-0782-151 | 0805 COIL CRAFT, 150NH | L2, L3 |
| 501-1275-056 | 0805, 5.6PF            | C1, C2 |
| 501-1275-047 | 0805, 4.7PF            | C3     |

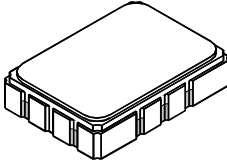




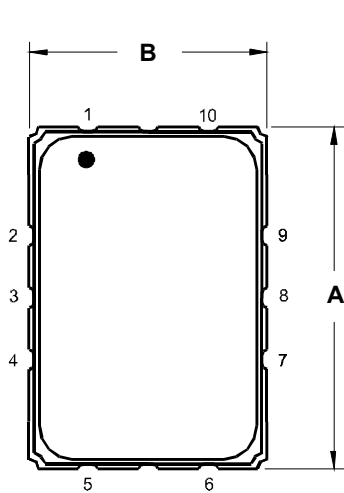
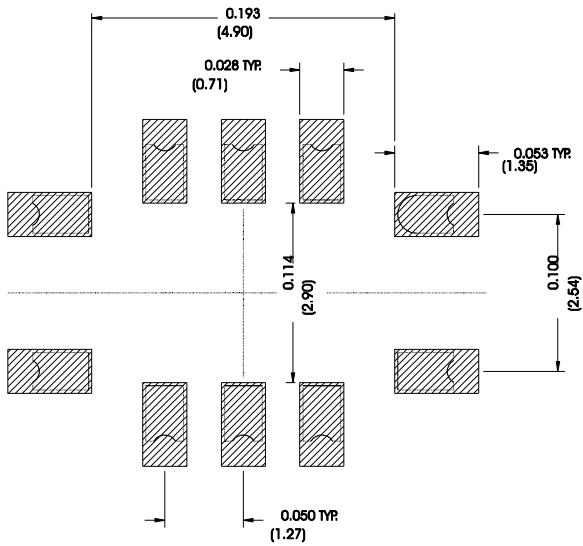
# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case

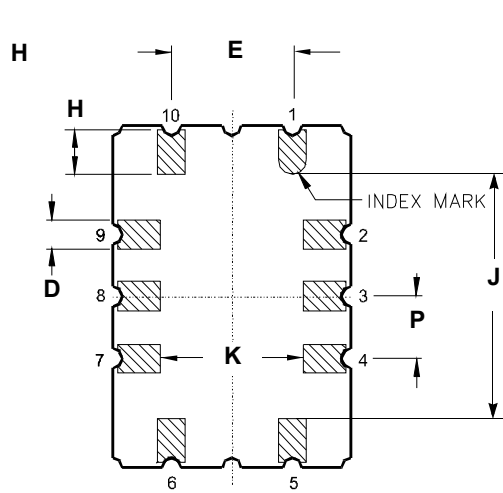
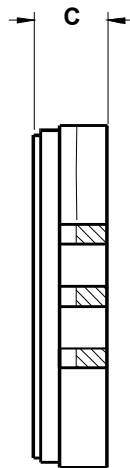
### 7 x 5 mm Nominal Footprint



#### Recommended PCB Footprint



TOP VIEW



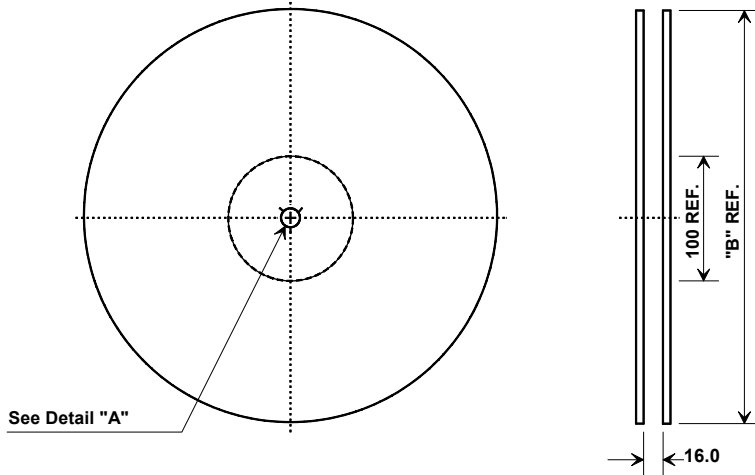
BOTTOM VIEW

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	.47	0.60	.73	0.019	0.024	0.029
E	2.41	2.54	2.67	0.095	0.100	0.105
H	0.87	1.0	1.13	0.034	0.039	0.044
J	4.87	5.00	5.13	0.192	0.197	0.202
K	2.87	3.00	3.13	0.113	0.118	0.123
P	1.14	1.27	1.40	0.045	0.050	0.055

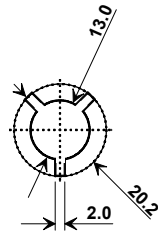
Electrical Connections		
Connection		Terminals
Port 1	Input or Return	10
	Return or Input	1
Port 2	Output or Return	5
	Return or Output	6
	Ground	All others
Single-ended Operation		Return is ground
Differential Operation		Return is hot

Materials	
Solder Pad 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	

## 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

