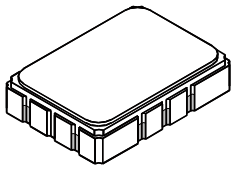
muRata
INNOVATOR IN ELECTRONICS

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)***



SMP-03

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_1	1	12.5	13.3		MHz
B 15dB	BW_{15}			15.9	16.2	MHz
B 30dB	BW_{30}			16.9	18.2	MHz
Minimum Insertion Loss, including the Matching Network	IL_{MIN}			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_{P-P}
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_{P-P}
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_A	1	-40		+105	°C
Case Style		6	SMP-03 7 x 5 mm Nominal Footprint			
Lid Symbolization, YY=year, WW=week, S=shift			RFM SF2138B-1 || YYWWS			

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.
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.

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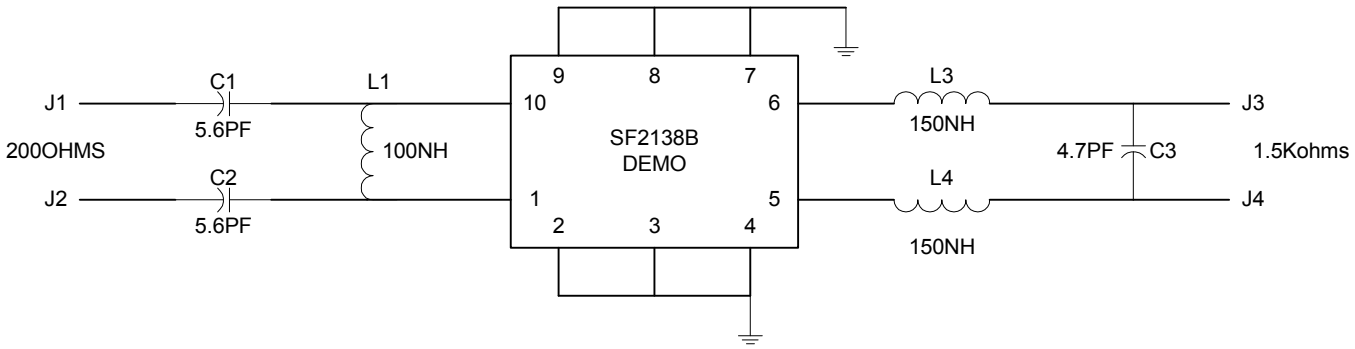
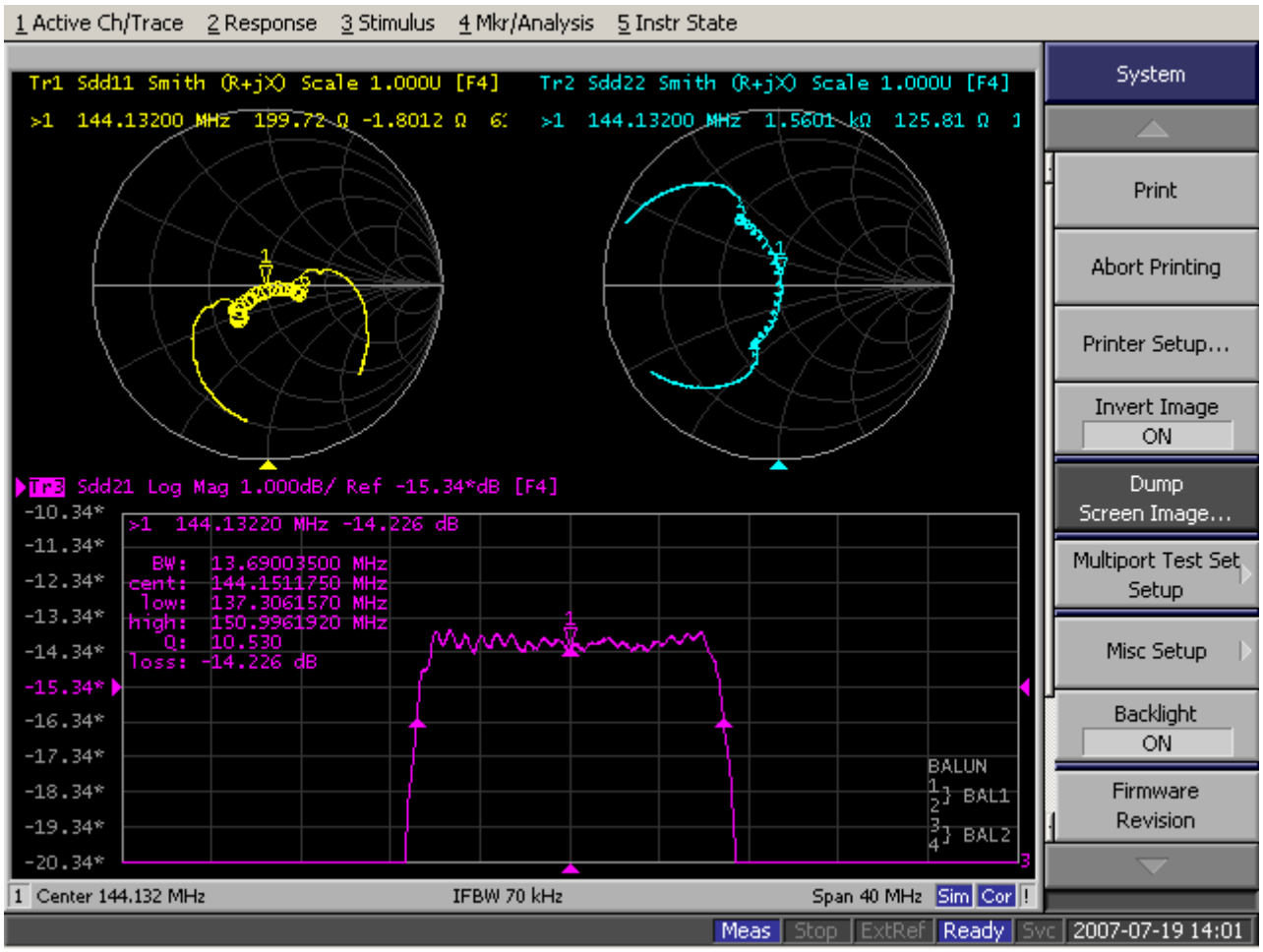


400-1749-001

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



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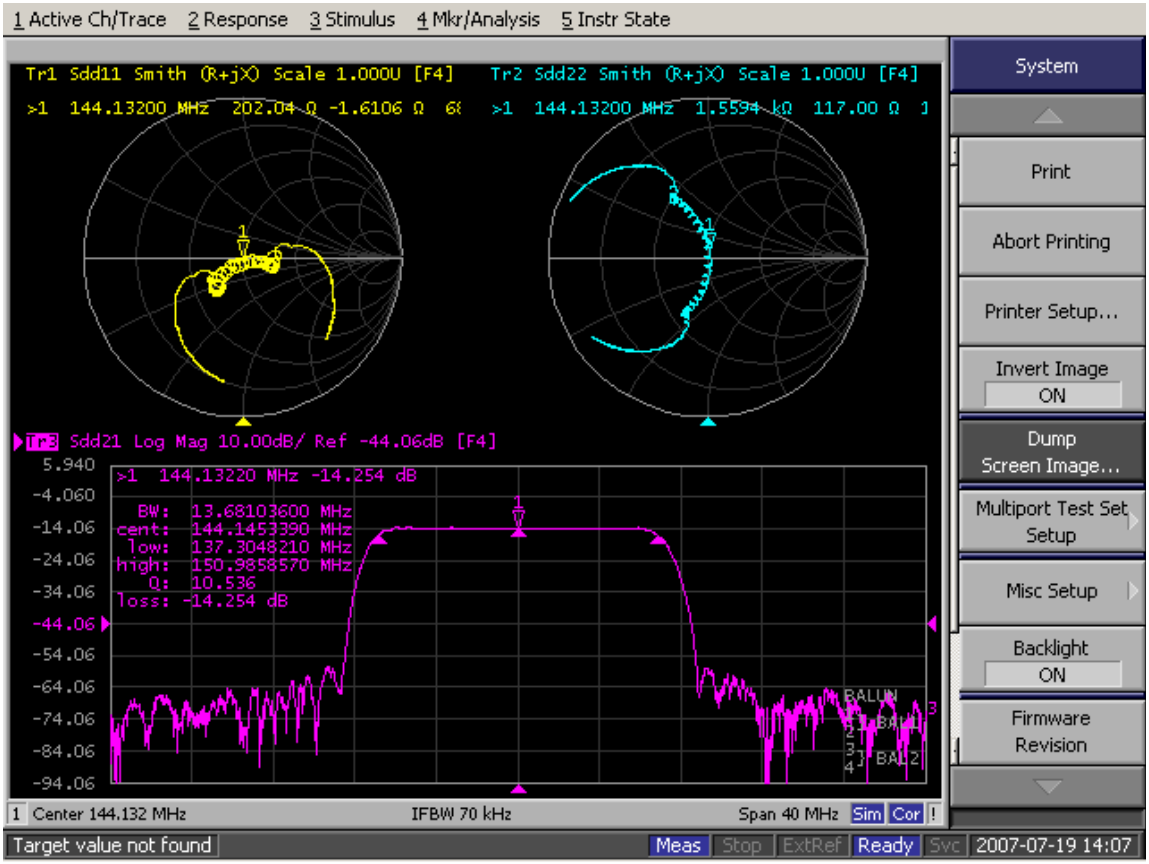

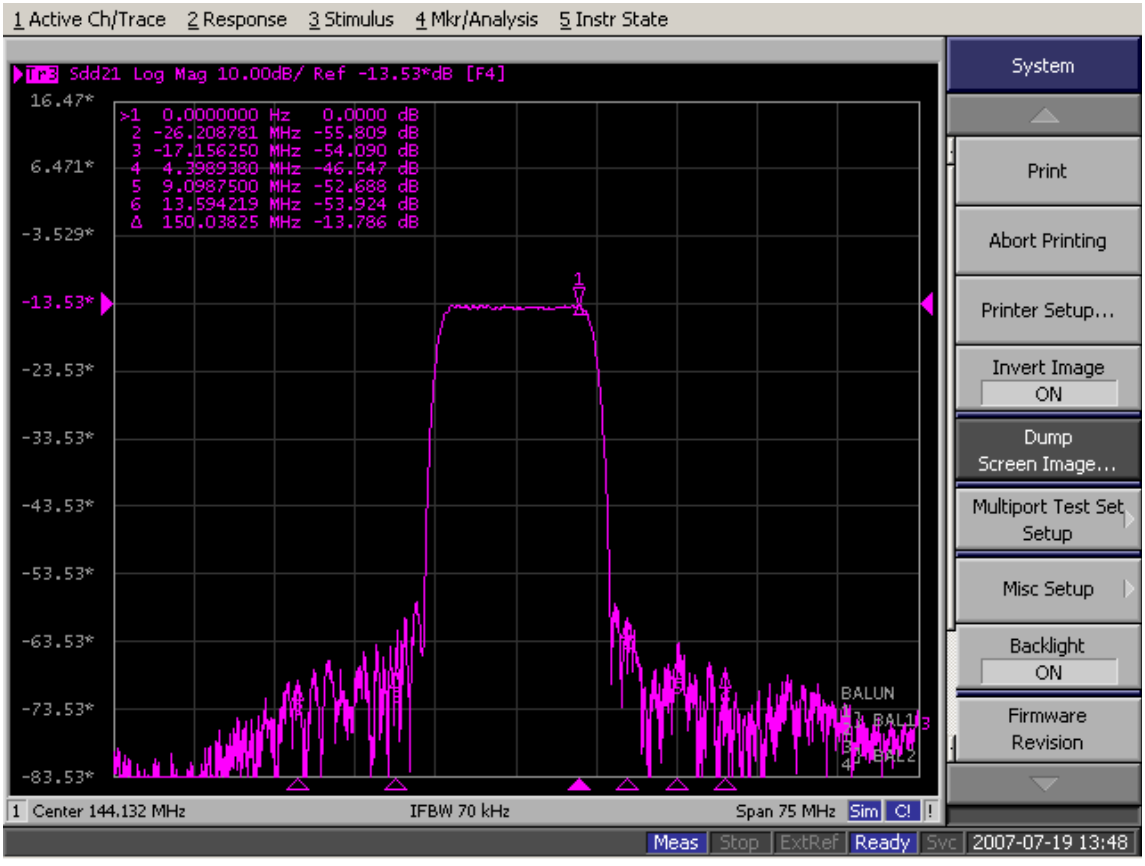

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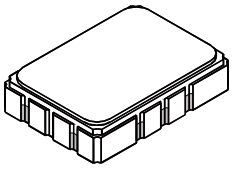
SMP-03 Case

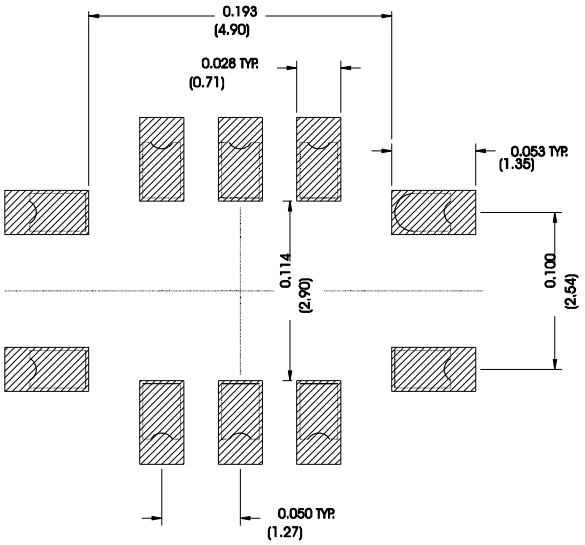
10-Terminal Ceramic Surface-Mount Case
7 x 5 mm Nominal Footprint



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	.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

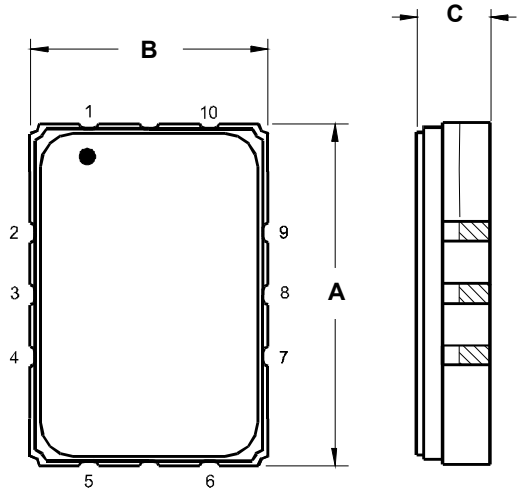
Recommended PCB Footprint



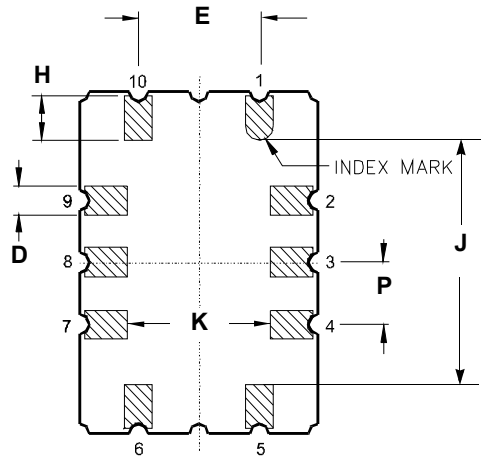
Electrical Connections

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 µm Gold over 1.27 to 8.89 µm Nickel
Lid Plating	2.0 to 3.0 µm Nickel
Body	Al_2O_3 Ceramic
Pb Free	



TOP VIEW



BOTTOM VIEW

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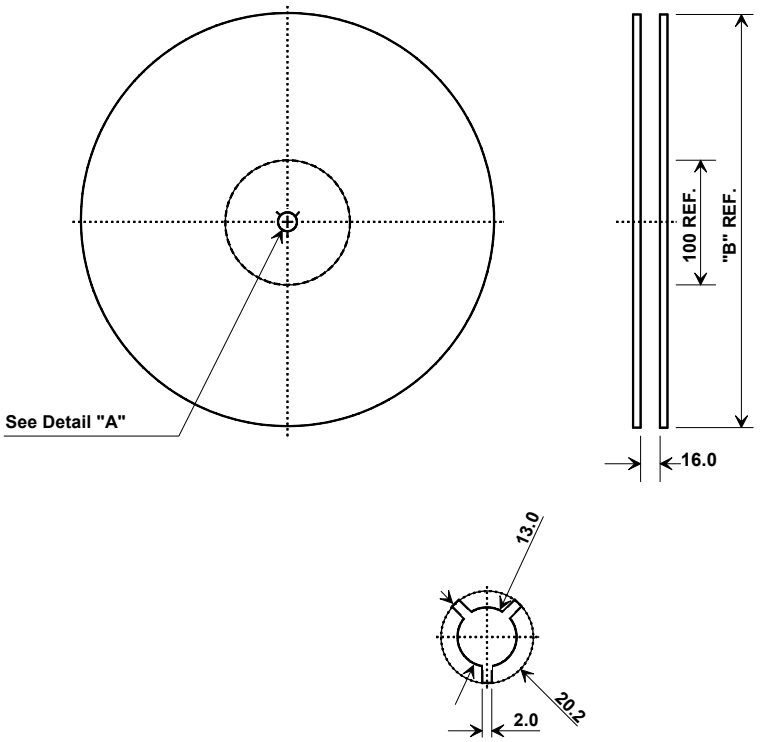
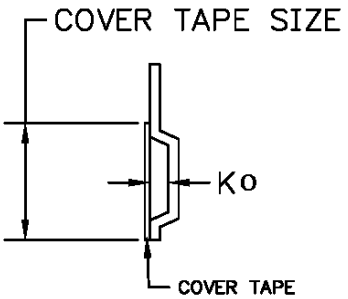
Tape and Reel Specifications

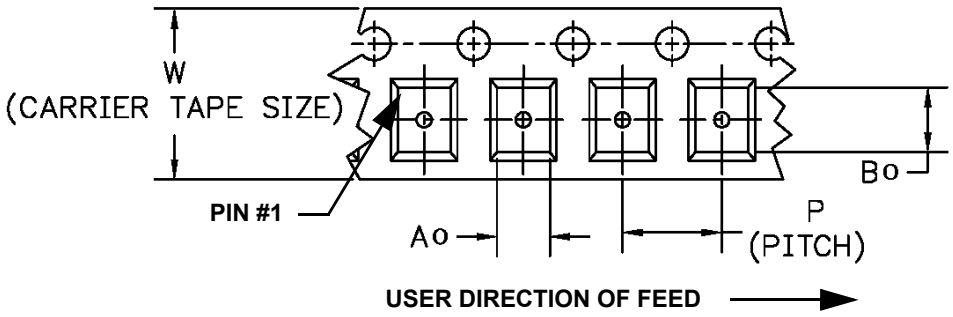


"B" Nominal Size		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	2000

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





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