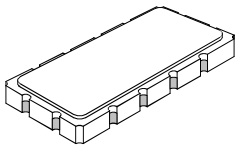
Preliminary

RFM®

SF2140A

140.0 MHz SAW Filter

- ***Excellent Size-to-Performance Ratio***
- ***Hermetic 13.3 X 6.5 mm Surface-Mount Case***
- ***Complies with Directive 2002/95/EC (RoHS)***



SMP-53

Absolute Maximum Ratings

Rating	Value	Units
Input Power Level	+10	dBm
Storage Temperature Range	-40 to +85	°C
Operating 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		140.0		MHz
Maximum Insertion loss	IL			9.2	10.5	dB
1dB Bandwidth			18.4	20.8		MHz
3dB Bandwidth			20.0	21.8		MHz
35dB Bandwidth				25.5	26.4	MHz
Passband Ripple (within 130.9~149.1 MHz)				0.75	1.0	dB
Group Delay Ripple (within 130.9~149.1 MHz)				115	150	ns
Absolute Group Delay				1.05		µs
Input VSWR (within 130.9~149.1 MHz)				2.0	2.5	dB
Output VSWR (within 130.9~149.1 MHz)				1.7	2.3	dB
Temp Coefficient				-93		ppm/° C
Attenuation: (Reference level from minimum insertion loss)						
10 ~ 90 MHz			35	62		dB
190 ~ 120 MHz			40	54		dB
120 ~ 126.8 MHz			35	42		dB
154.7 ~ 160 MHz			35	45		dB
160 ~ 190 MHz			40	43		dB
190 ~ 800 MHz			35	62		dB

Case Style	SMP-53 13.3 X 6.5 mm Nominal Footprint
Lid Symbolization (YY=year, WW=week) See note 4	RFM SF2140A 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. 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. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.
9. ©Copyright 1999, RF Monolithics Inc.
10. Electrostatic Sensitive Device. Observe precautions for handling

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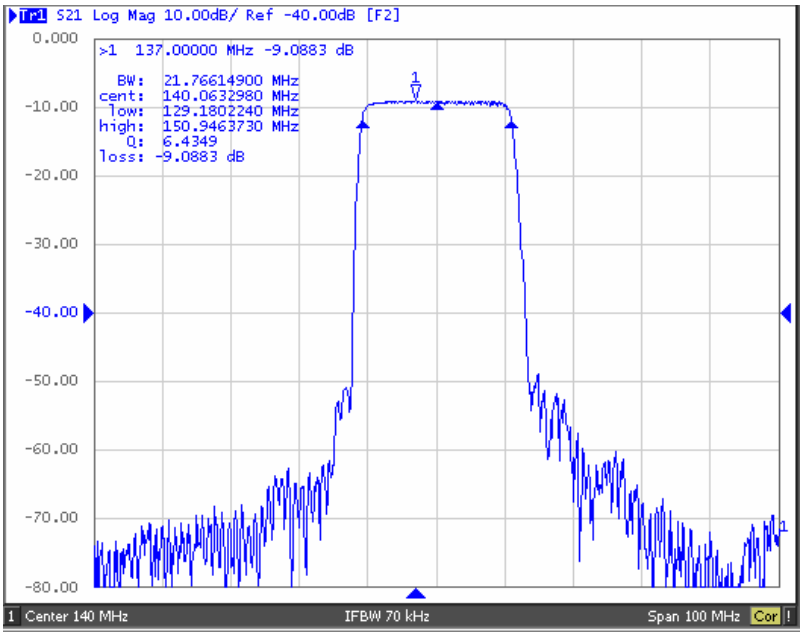
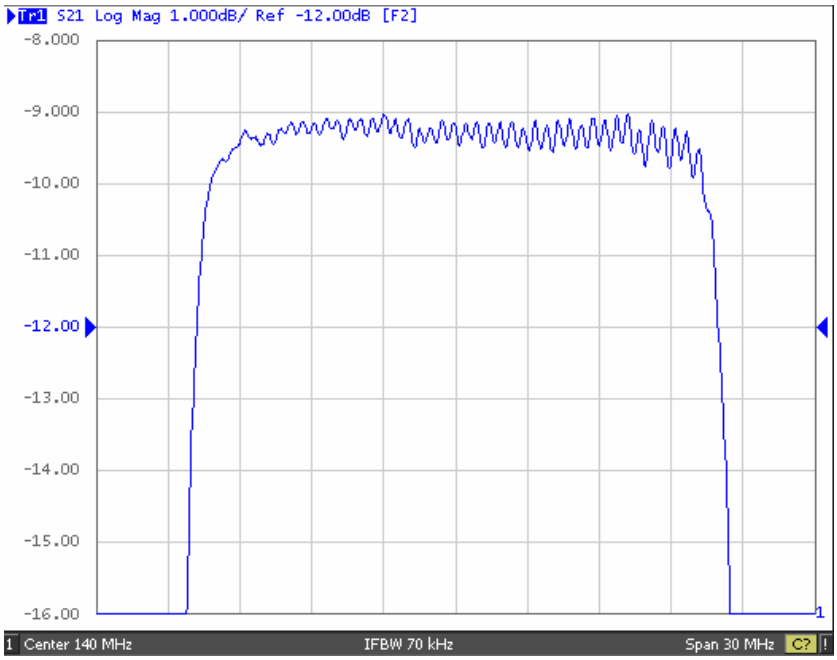
Frequency Characteristics:

1. S21 Response



S21 Response Horizontal: 10 MHz/Div Vertical: 10 dB/Div

2. Pass band Ripple



Inband ripple Horizontal: 3 MHz/Div Vertical: 1 dB/Div

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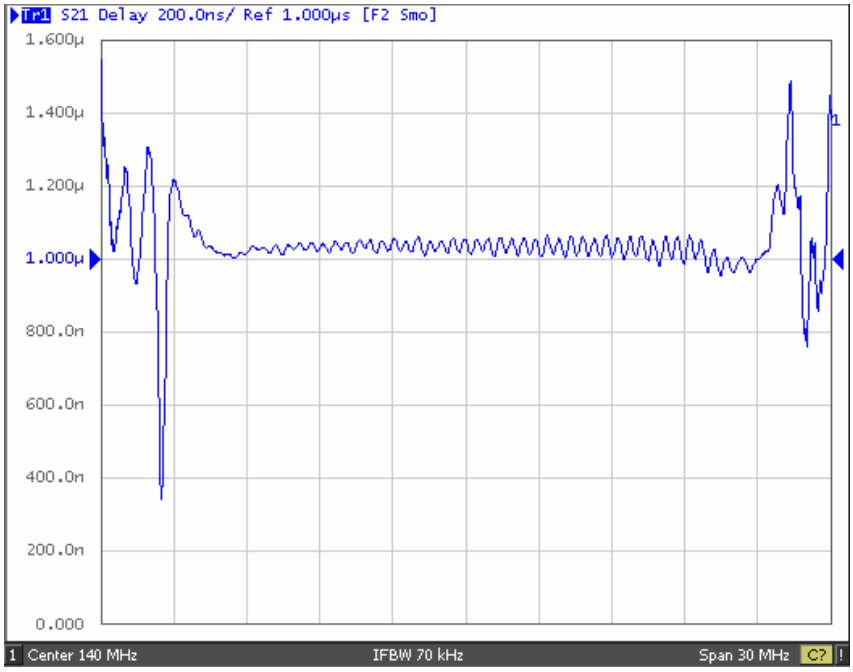
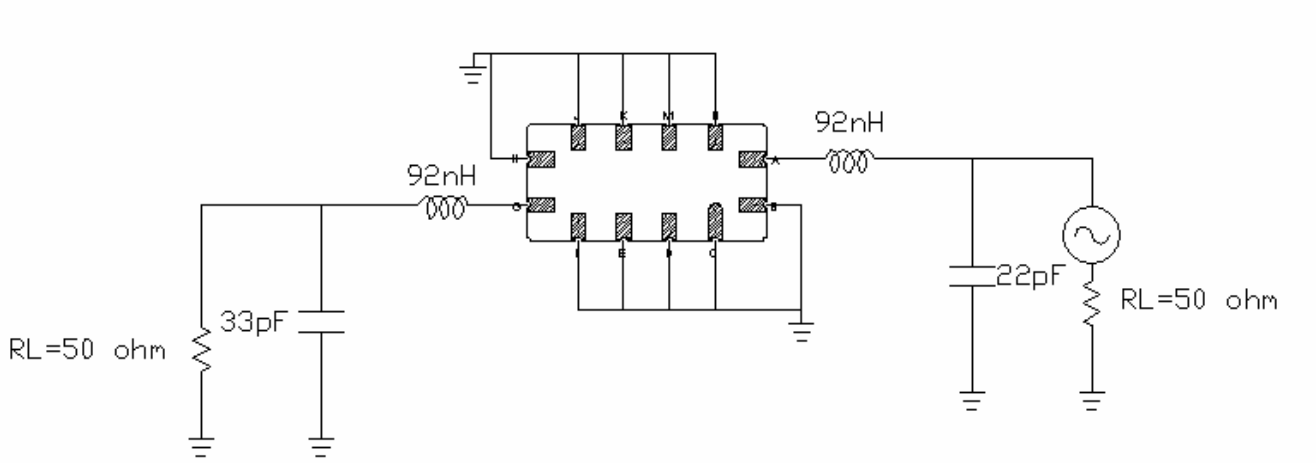
3. Group Delay Ripple

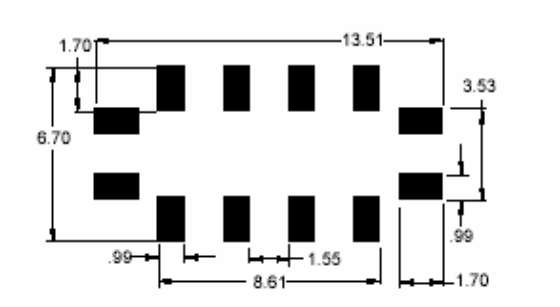


Horizontal: 3 MHz/Div Vertical: 200 nS/Div

Measurement Circuits:



PCB Footprint:



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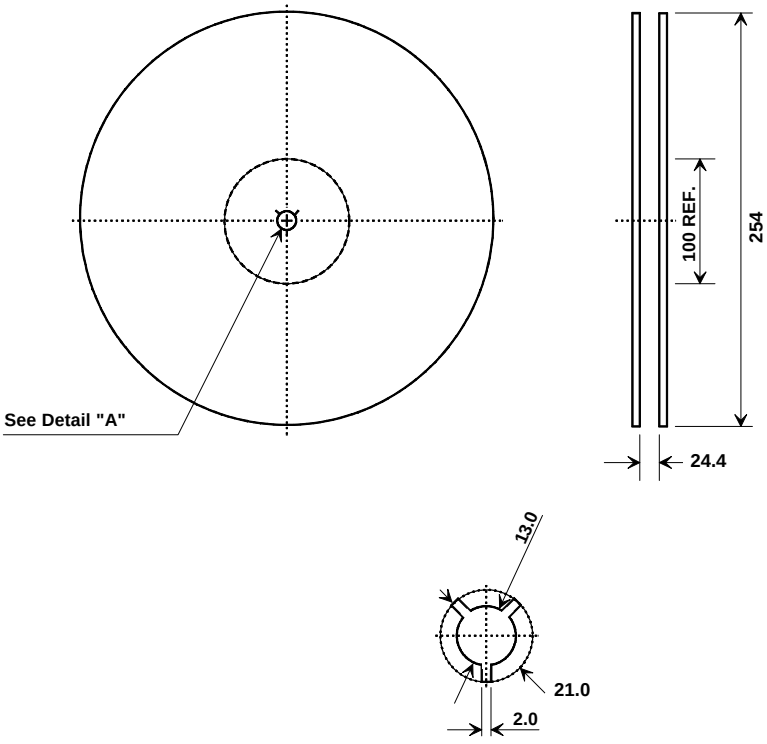
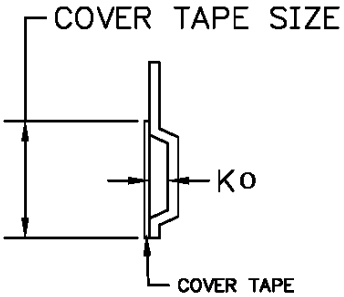
Tape and Reel Specifications

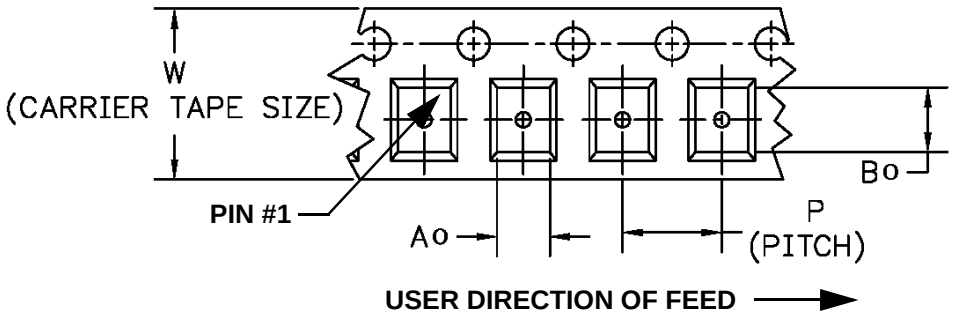


Quantity Per Reel
100 Min
1000 Max

COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
Ao	7.0 mm
Bo	13.8 mm
Ko	2.0 mm
Pitch	12.0 mm
W	24.0 mm





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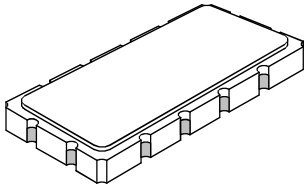
SMP-53 Case

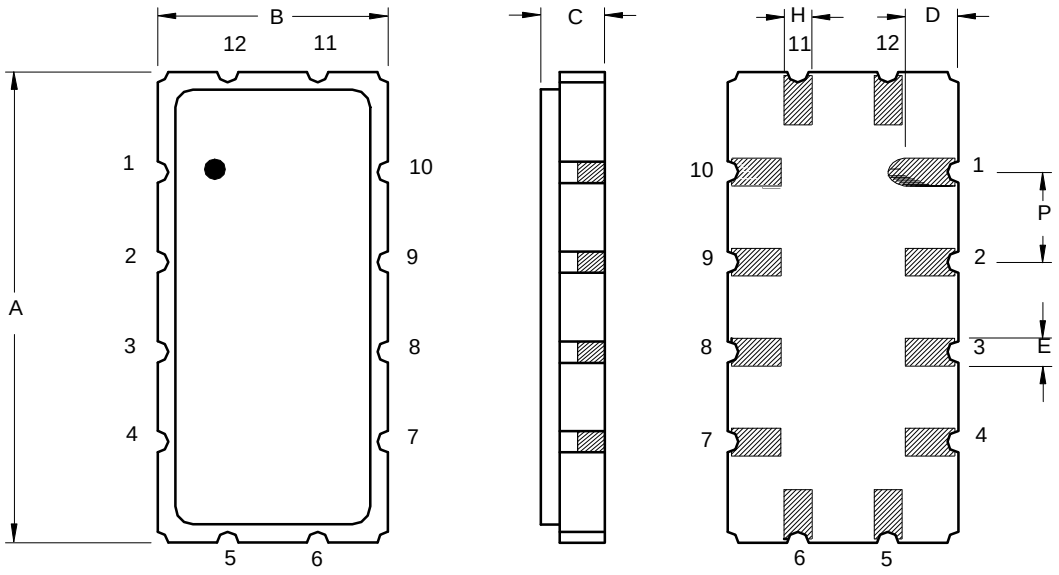
12-Terminal Ceramic Surface-Mount Case
13.3 x 6.5 mm Nominal Footprint



Case Dimensions						
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	13.08	13.3	13.6	0.515	0.524	0.535
B	6.27	6.5	6.80	0.247	0.256	0.268
C			1.6			
D		1.5				
E		0.80				
H		0.60				
P		2.54				

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

Electrical Connections	
Connection	Terminals
RF Input	11
RF Input Ground	12
RF Output	5
RF Output Ground	6
Ground	All others



TOP VIEW BOTTOM VIEW

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