

- **Precision SAW Filter**
- **Excellent Size-to-Performance Ratio**
- **Hermetic 13.3 x 6.5 mm Surface-mount Case**
- **Complies with Directive 2002/95/EC (RoHS)**

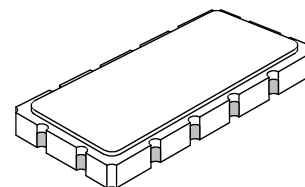


## Absolute Maximum Ratings

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage Between any Two Terminals	30	VDC
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-40 to +85	°C
Suitable for Lead-free Soldering - Maximum Soldering Profile	260 °C for 30 s	

## SF2111A

## 140 MHz SAW Filter



**SMP-53**

## Electrical Characteristics

Characteristic	Sym	Notes	Min	Typ	Max	Units
Center Frequency	$f_c$	1	138.85	140	141.15	MHz
Insertion Loss				9	11	dB
1 dB Bandwidth	$BW_1$		15.0	16.2		MHz
3 dB Bandwidth	$BW_3$		16.0	17.0		MHz
35 dB Bandwidth	$BW_{35}$			20	22	MHz
Passband Ripple, 133.6 - 146.4 MHz				0.4	1	dB <sub>P-P</sub>
Phase Linearity, 133.6 - 146.4 MHz				2.5	6	deg
Group Delay Variation, 133.6 - 146.4 MHz				15	50	ns <sub>P-P</sub>
Absolute Group Delay				0.928		μs
Temperature Shift				-94		ppm/K
Source Impedance				50		Ω
Load Impedance				50		Ω
Rejection Relative to Attenuation at $f_c$						dB
100 to 128.7 MHz			40	49		
128.7 to 129 MHz			40	55		
151 to 152.3 MHz			28	40		
152.3 to 180 MHz			37	42		

Case Style	SMP-53 13.3 x 6.5 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week)	RFM SF2111A YYWW

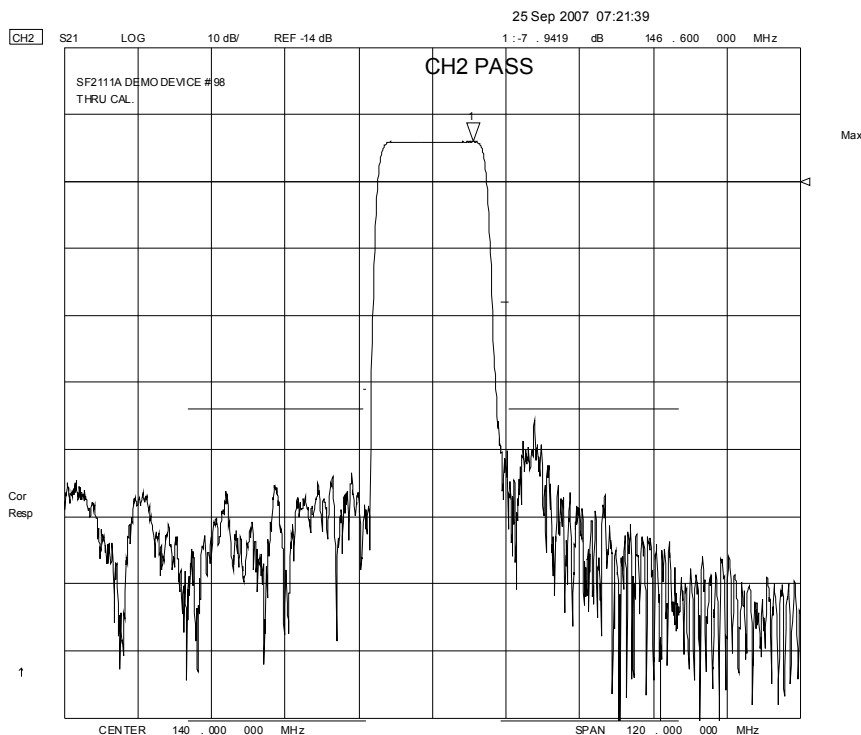
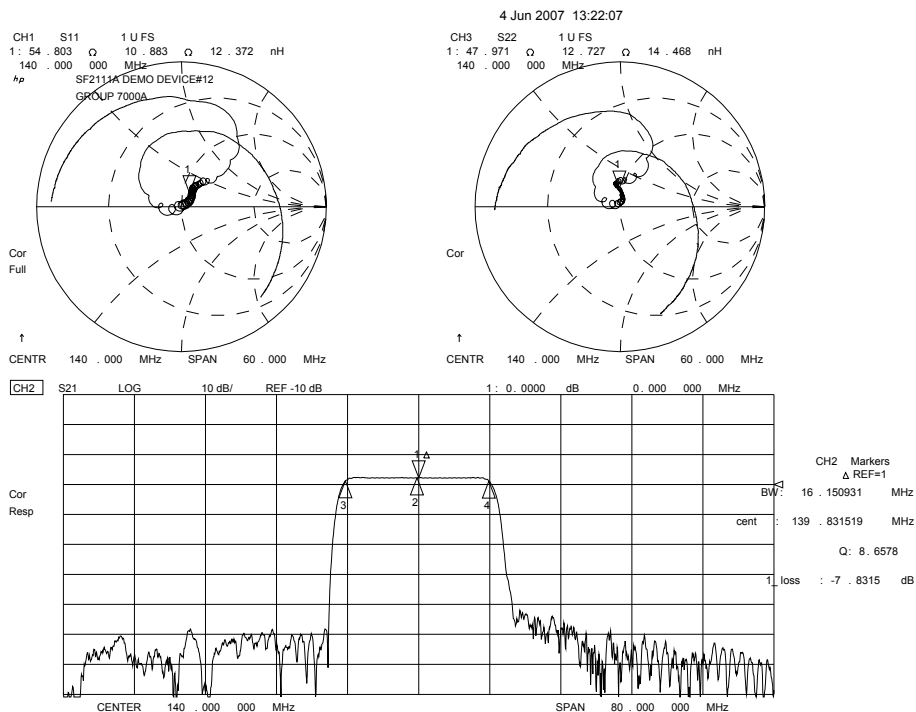


**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

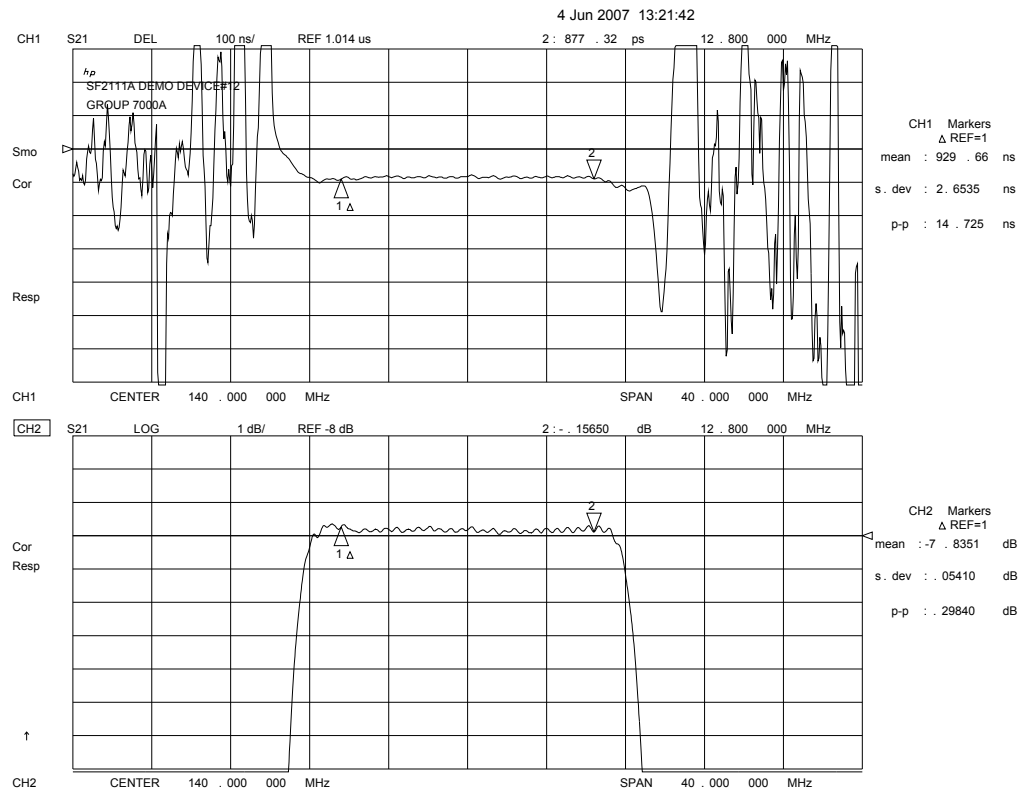
### Notes:

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,  $f_c$ .
3. The design, manufacturing process, and specifications of this filter are subject to change.
4. US and international patents may apply.

# S<sub>11</sub>, S<sub>22</sub> and S<sub>21</sub> Filter Plots

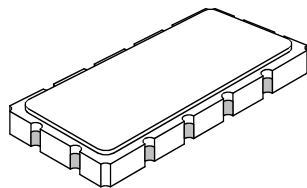


# Filter Group Delay and Amplitude Ripple



# SMP-53 Case

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



Case Dimensions

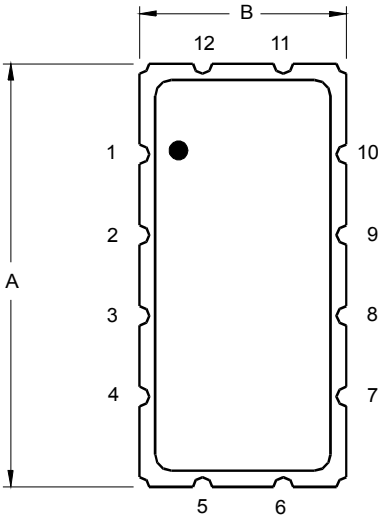
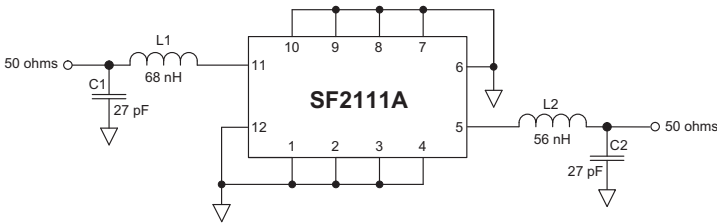
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	13.08	13.31	13.60	0.515	0.524	0.535
B	6.27	6.50	6.80	0.247	0.256	0.268
C		1.91	2.00		0.075	0.079
D		1.50			0.059	
E		0.79			0.031	
H		1.0			0.039	
P		2.54			0.100	

Electrical Connections

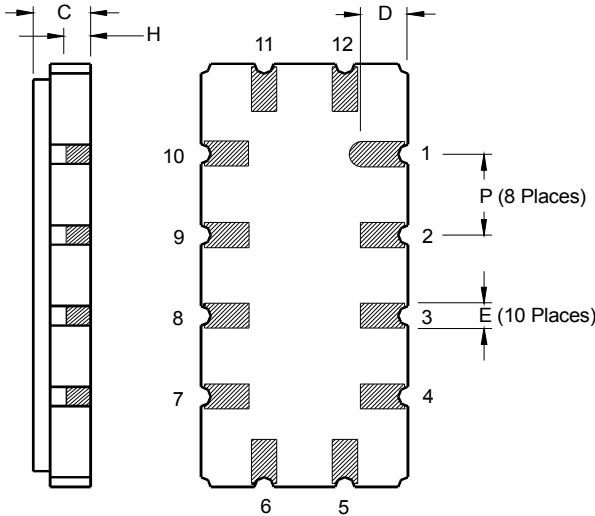
Connection		Terminals
Port 1	Input or Return	11
	Return or Input	12
Port 2	Output or Return	5
	Return or Output	6
	Ground	All others
Single-ended Operation		Return is ground
Differential Operation		Return is hot

Materials	
Solder Pad Plating	0.3 to 1.0 $\mu$ m Gold over 1.27 to 8.89 $\mu$ m Nickel
Lid Plating	2.0 to 3.0 $\mu$ m Nickel
Body	Al <sub>2</sub> O <sub>3</sub> Ceramic
Pb Free	

SF2111A Tuning Network



TOP VIEW



BOTTOM VIEW