

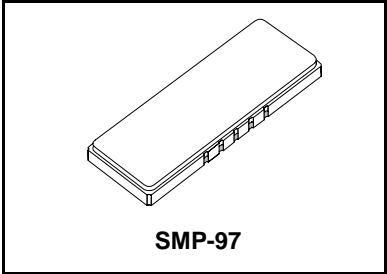


- Designed for CDMA2000 BTS Applications
- Simple External Impedance Matching
- Hermetic SMP-97 Surface-Mount Case
- Unbalanced Input and Output
- Complies with Directive 2002/95/EC (RoHS)



**SF1111A**

**160 MHz  
SAW Filter**



**Absolute Maximum Ratings**

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Max. DC voltage between any 2 terminals	30	VDC
Storage 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	160.000			MHz
Passband Insertion Loss at $f_c$ 1.5 dB Passband 3 dB Passband Amplitude Ripple over $f_c \pm 470$ kHz Phase Linearity over $f_c \pm 590$ kHz	IL	1, 2		9	11.0	dB
	$BW_{1.5}$		$\pm 590$			kHz
	$BW_3$			$\pm 750$		
				0.7	1.0	dB
				10	20	deg <sub>p-p</sub>
Rejection $f_c - 10.0$ to $f_c - 1.25$ and $f_c + 1.25$ to $f_c + 10.0$ MHz $f_c - 20$ to $f_c - 10.0$ and $f_c + 10.0$ to $f_c + 20$ MHz		1, 2, 3	40			dB
			50			
Operating Temperature Range	$T_A$	1	-20		+70	°C

Impedance Matching to 50 $\Omega$ Unbalanced	External L-C
Case Style	SMP-97 24.6 x 9 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week)	RFM SF1111A YYWW



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

**Notes:**

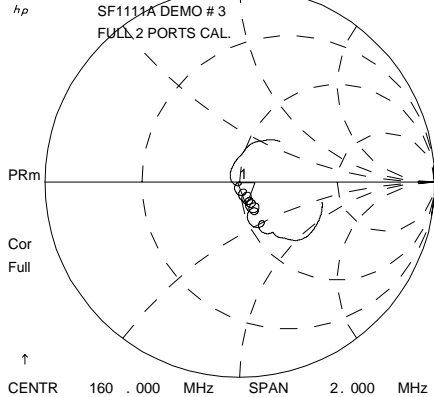
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50  $\Omega$  and measured with 50  $\Omega$  network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced 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. 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.

**Electrical Connections**

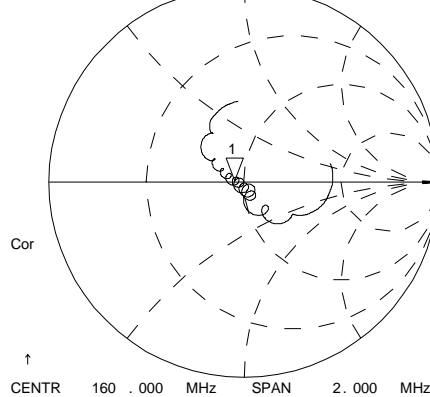
Connection	Terminals
Port 1 Hot	10
Port 1 Gnd Return	1
Port 2 Hot	5
Port 2 Gnd Return	6
Case Ground	All others

7 Dec 2007 13:40:32

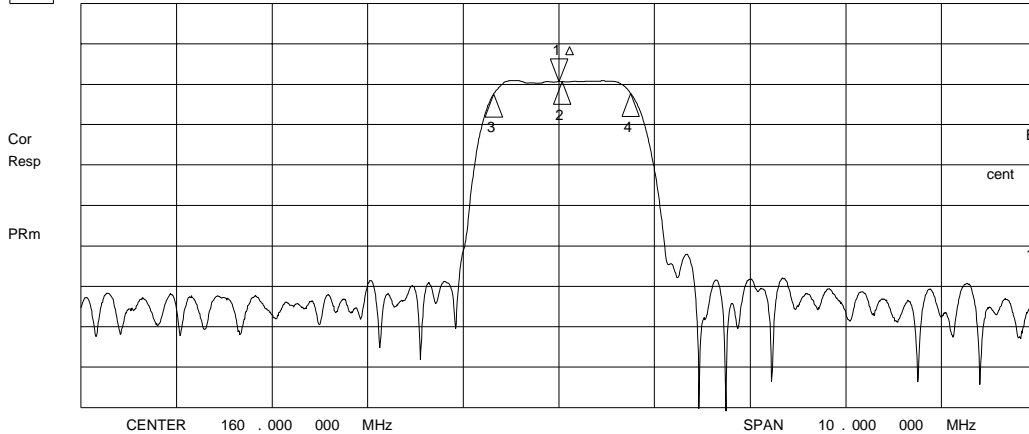
CH1 S11 1 UFS  
1: 52.115 Ω -12.555 Ω 79.231 pF  
160.000 000 MHz



CH3 S22 1 UFS  
1: 45.631 Ω 0.7227 Ω 718.84 pH  
160.000 000 MHz

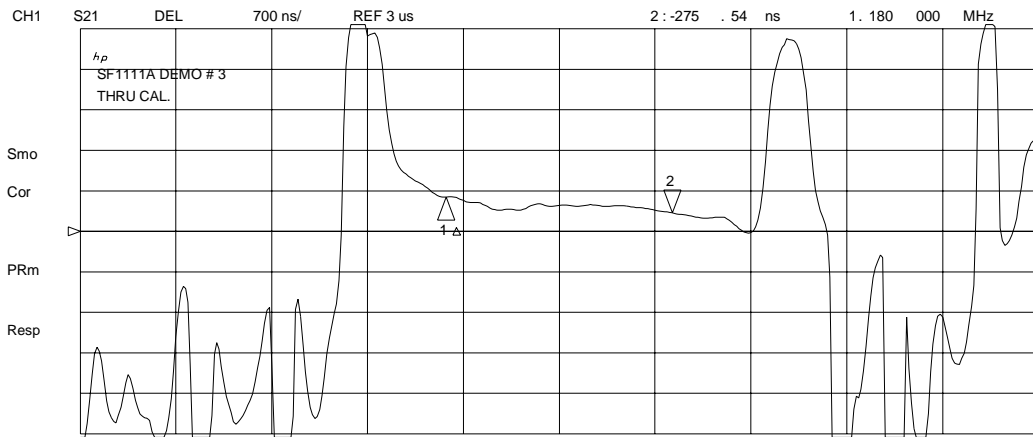


CH2 S21 LOG 10 dB/ REF -20 dB 1: 0.000 dB 0.000 000 MHz

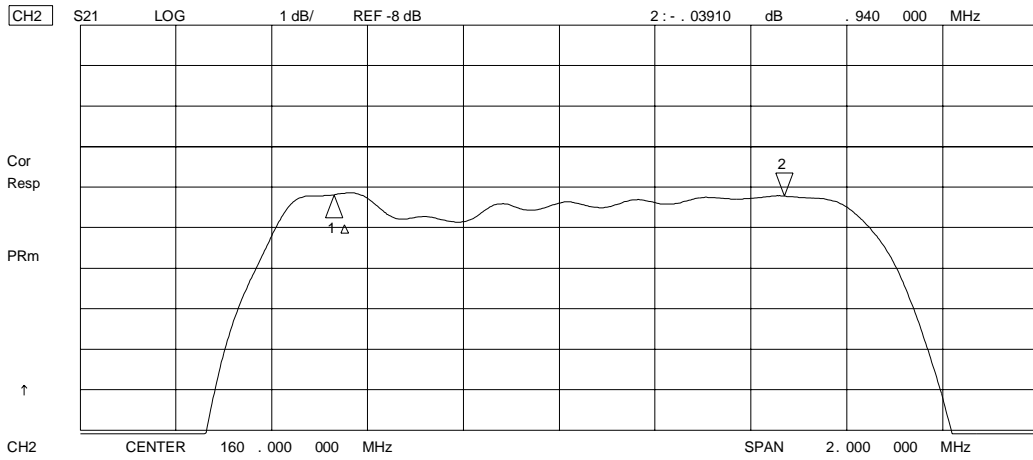


CH2 Markers  
Δ REF=1  
BW: 1.433757 MHz  
cent: 160.034548 MHz  
Q: 111.62  
1\_loss: -9.3580 dB

7 Dec 2007 13:40:04



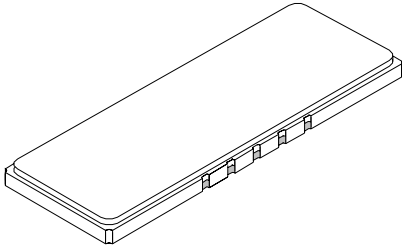
CH1 Markers  
Δ REF=1  
mean : 3.4409 us  
s. dev : 63.113 ns  
p-p : 276.79 ns



CH2 Markers  
Δ REF=1  
mean : -9.4556 dB  
s. dev : .19950 dB  
p-p : .72290 dB

# SMP-97 Case

## 10-Terminal Ceramic Surface-Mount Case 24.6 x 9 mm Nominal Footprint



### Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	24.41	24.64	24.94	0.961	0.970	0.982
B	8.80	8.99	9.30	0.349	0.354	0.366
C		1.75	2.00		0.069	0.079
D		2.29			0.090	
E		1.02			0.040	
H		1.0			0.039	
M		4.83			0.190	
N		3.40			0.134	
P		1.905			0.075	

### 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
<b>Single Ended Operation</b>		<b>Return is ground</b>
<b>Differential Operation</b>		<b>Return is hot</b>

Materials	
Solder Pad Termination	Au plating 30 - 60 ulnches (76.2-152 uM) over 80-200 ulnches (203-508 uM) Ni.
Lid	Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 ulnches Thick
Body	Al <sub>2</sub> O <sub>3</sub> Ceramic
Pb Free	

