

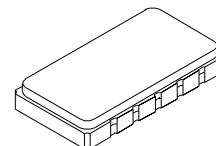
- **Low Insertion Loss**
- **Hermetic 13.3 x 6.5 mm Surface-mount Case**

#### 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
Operating Temperature Range	-40 to +85	°C
Max. Soldering Profile	265°C for 10 s	

**SF2069A-2**

**96.0 MHz  
SAW Filter**



**SMP53-S**

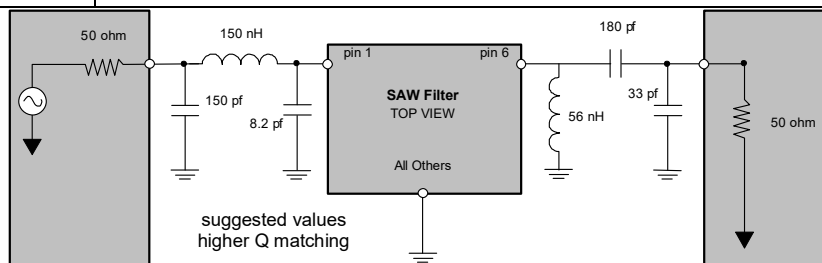
#### Electrical Characteristics

Characteristic	Sym	Notes	Min	Typ	Max	Units
Center Frequency ( @ 25°C )	$f_c$	1	95.9	96.0	96.1	MHz
Minimum Insertion Loss				14	15	dB
1 dB Bandwidth			5.00	5.60		MHz
15 dB Bandwidth				7.50	8.00	MHz
Passband Variation (in 1dB Bandwidth)				0.5	1.0	dB p-p
Phase Linearity ( $f_c \pm 1.92$ MHz)				5.2	8	deg p-p
Group Delay Variation (in 1 dB Bandwidth)				50	80	ns p-p
Absolute Delay				1.4	3	us
Change in Absolute Delay (from unit to unit)			-10	0	10	ns
Absolute Delay Variation (from -40°C to 55°C)				8	15	ns
Rejection (40 to 87 MHz)			43	48		dB
Rejection (111 to 150 MHz)			43	48		dB
Source and Load Impedance				50		$\Omega$
Temperature Coefficient				-20		ppm/°C
Ambient Temperature				25		°C

Case Style	SMP-53-S 13.3 x 6.5 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week, D=day)	RFM SF2069A-2 YYWWDD

#### Electrical Connections

Connection	Terminals
Port 1 Input	1
Port 2 Output	6
Case Ground	2, 3, 4, 5, 7, 8, 9, 10



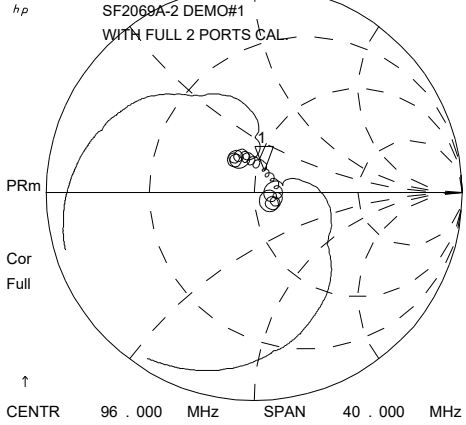
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### NOTES:

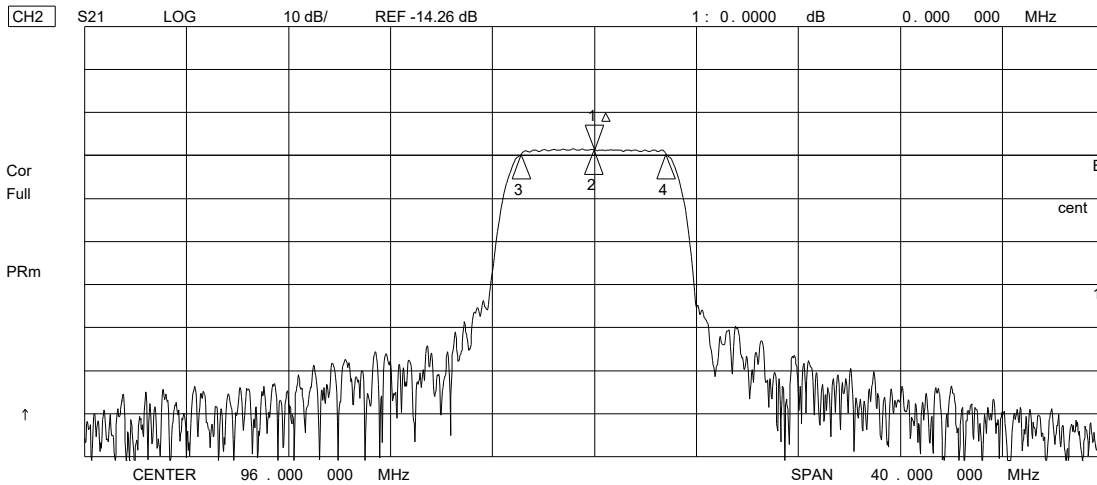
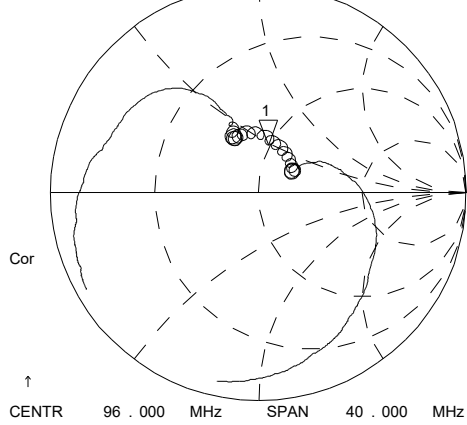
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50  $\Omega$  and measured with 50  $\Omega$  network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency,  $f_c$ .
3. Rejection is measured as attenuation from  $f_c$  IL. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
4. Part to part absolute delay measurement records the absolute delay mean across 2 dB passband.
5. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
6. The design, manufacturing process, and specifications of this filter are subject to change.
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.

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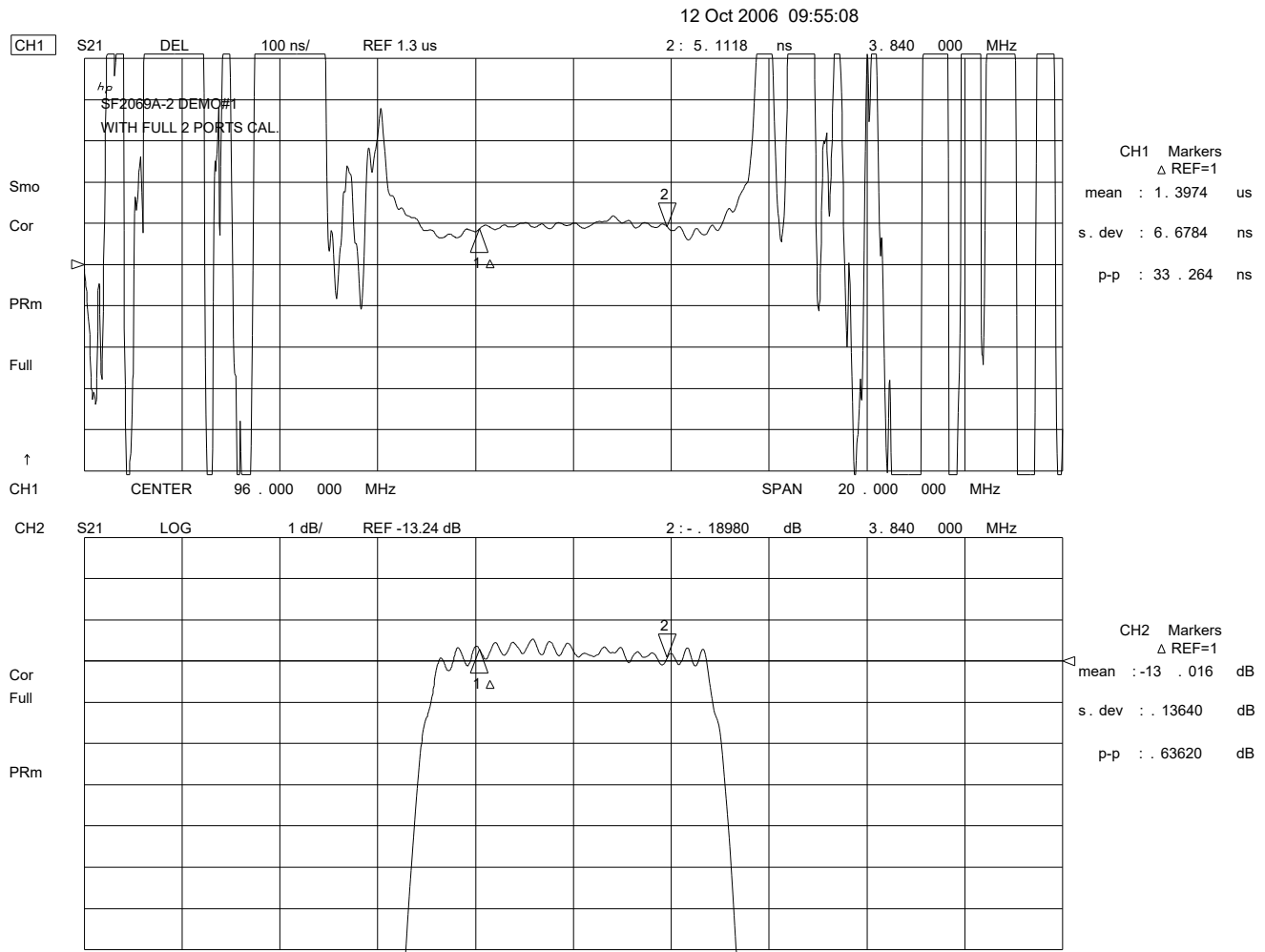
CH1 S11 1 UFS  
1: 53.875 0 11.512 0 19.085 nH  
96.000 000 MHz

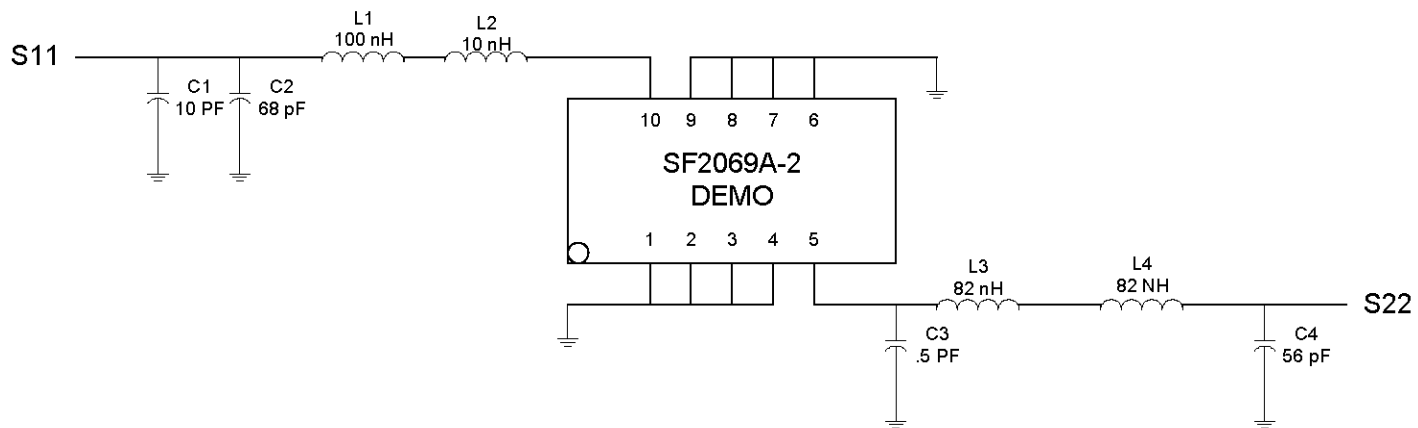


CH3 S22 1 UFS  
1: 49.262 0 24.018 0 39.818 nH  
96.000 000 MHz



CH2 Markers  
Δ REF=1  
BW: 5.688346 MHz  
cent : 95.971530 MHz  
Q: 16.872  
1\_loss : -12.997 dB





SF2069A-2	Filter 96 MHz	1.000	Filter
400-1467-001	PCB, Demo Board, 19mm, MK3	1.000	PCB
500-0248-001	Conn, Coax, Flange Mount, Jack, 4 Holes	2.000	CONN
501-0919-101	IND, 1008CS 100 NH 5%	1.000	L1
501-0919-101	IND, 1008CS 10 NH 5%	1.000	L2
501-0919-820	IND, 1008CS 82 NH 5%	2.000	L3, L4
501-0782-100	CAP, 0805CS 10 PF 5%	1.000	C1
501-0782-680	CAP, 0805CS 68 PF 5%	1.000	C2
501-0782-050	CAP, 0805CS .5 PF 5%	1.000	C3
501-0782-560	CAP, 0805CS 56 PF 5%	1.000	C4

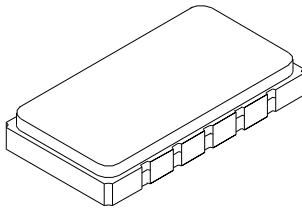
# SMP-53-S Case

## 10-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		13.3			.524	
B		6.5			.256	
C			2.00			.078
D		2.3			.091	
E		1.91			.075	
F		1.02			.040	
G		1.0			0.039	



### Electrical Connections

Connection	Terminals
Port 1 Hot or Return/Gnd	1
Port 1 Return/Gnd or Hot	10
Port 2 Hot or Return/Gnd	6
Port 2 Return/Gnd or Hot	5
Case Ground	All others
Single Ended Operation	Return is ground
Differential Operation	Return is hot

### Typical PCB Land Pattern

