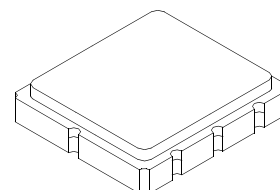


- **High Performance SAW Filter**
- **5.0 x 5.0 mm Surface-mount Package**
- **Complies with Directive 2002/95/EC (RoHS)**



**SF2296C**

**312.00 MHz  
SAW Filter**



**SM5050-8**

#### Absolute Maximum Ratings

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage Between any Two Active Terminals	6	VDC
Storage Temperature Range in Tape and Reel	-40 to +85	°C
Specification Temperature Range	-10 to +55	°C
Operable Temperature Range	-45 to +125	°C
Suitable for Lead-free Soldering - Maximum Soldering Profile	260 °C for 30 s	

#### Electrical Characteristics

Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	$f_C$			312.00		MHz
Minimum Insertion Loss	$IL_{MIN}$			1.8	2.0	dB
Passband Ripple, $f_C \pm 12.5$ kHz					1.0	dB <sub>P-P</sub>
3 dB Bandwidth	$BW_3$		25	300		kHz
20 dB Bandwidth	$BW_{20}$			750	900	
30 dB Bandwidth	$BW_{30}$			1050	1200	
Attenuation, referenced to $IL_{MIN}$						dB
297.0 to 311.2 MHz			15	25		
312.8 to 327.0 MHz			15	25		
Input Impedance		50 $\Omega$				
Output Impedance		50 $\Omega$				

Case Style	SM5050-8 5.0 x 5.0 mm Nominal Footprint					
Lid Symbolization, Y=year, WW=week, S=shift, Dot=pin 1 indicator	A48, <u>YWWS</u>					
Standard Reel Quantity	Reel Size 7 Inch	500 Pieces/Reel				
	Reel Size 13 Inch	3000 Pieces/Reel				

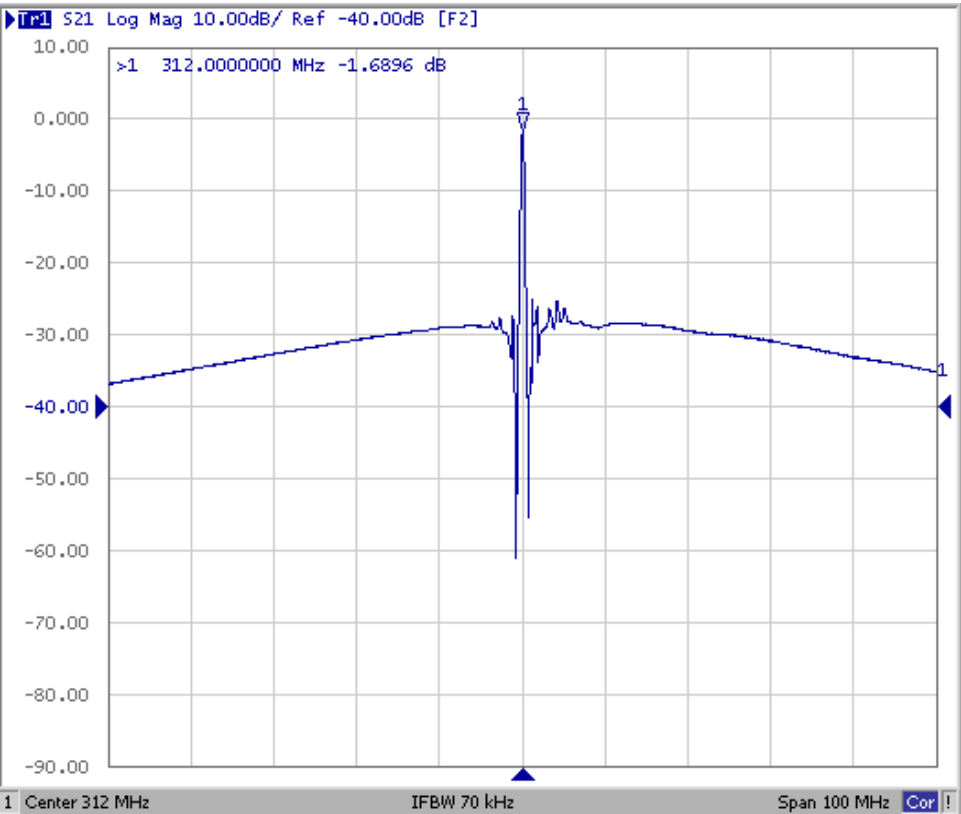
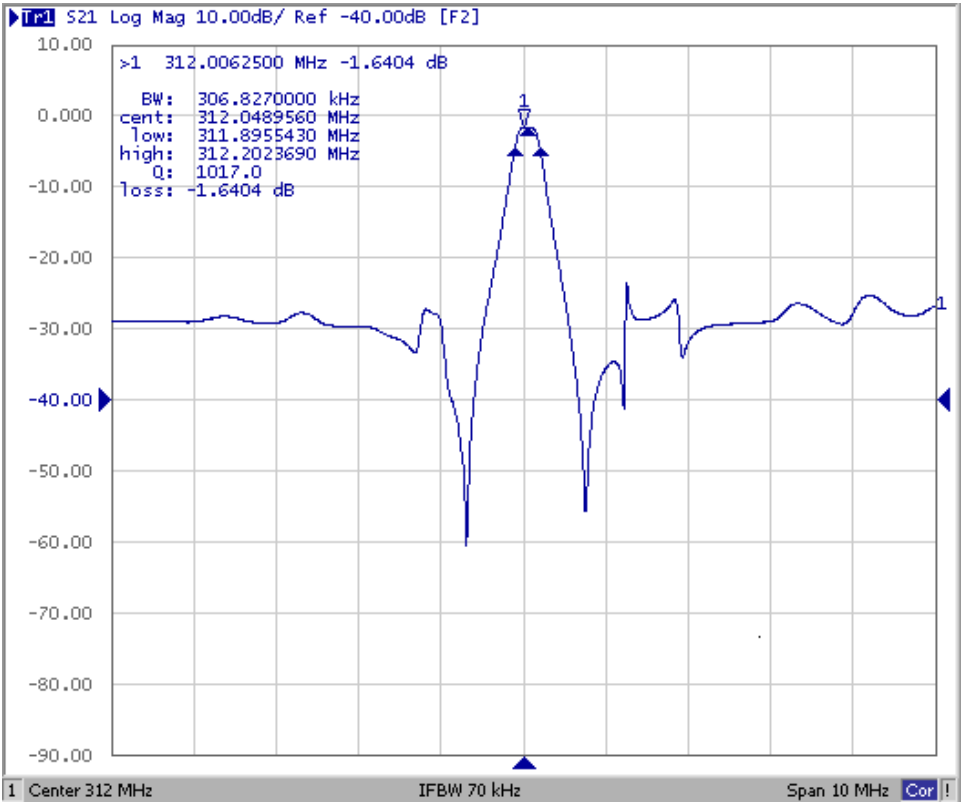


**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

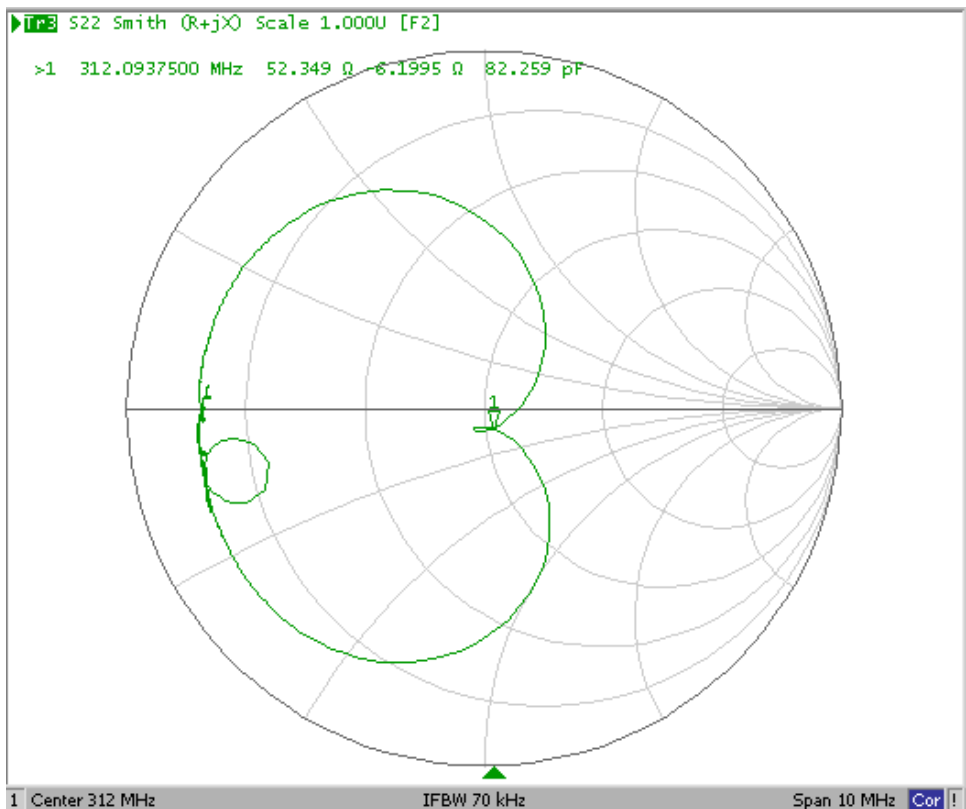
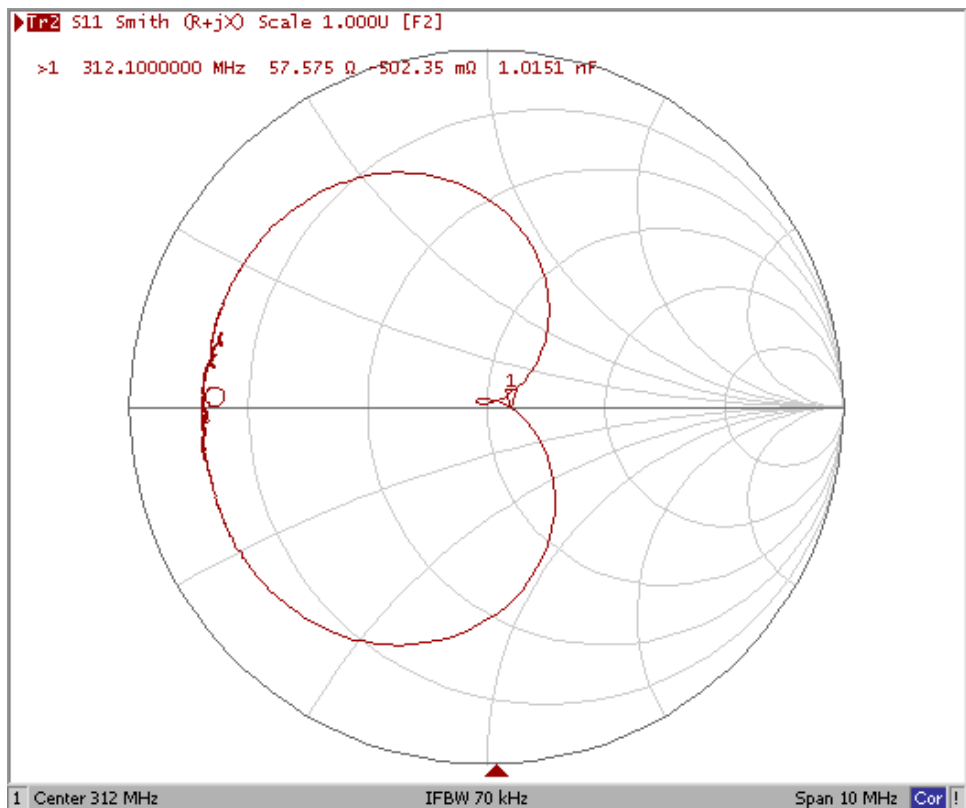
#### Notes:

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.
8. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

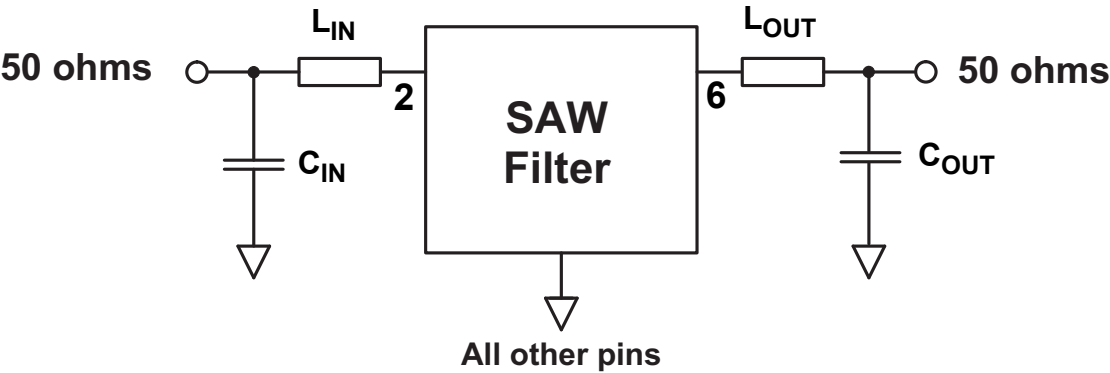
Filter Response Plots



Input/Output Impedance Plots



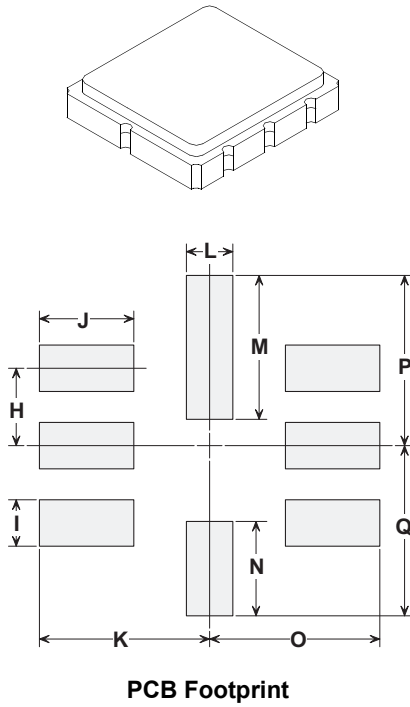
Filter Tuning Network Topology



$L_{IN} = L_{OUT} = 100 \text{ nH}$   
 $C_{IN}, C_{OUT}$  not required

# SM5050-8 Surface-Mount 8-Terminal Ceramic Case

## 5.0 X 5.0 mm Nominal Footprint



### Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	4.80	5.00	5.20	0.189	0.197	0.205
B	4.80	5.00	5.20	0.189	0.197	0.205
C	1.30	1.50	1.70	0.050	0.060	0.067
D	1.98	2.08	2.18	0.078	0.082	0.086
E	1.07	1.17	1.27	0.042	0.046	0.050
F	0.50	0.64	0.70	0.020	0.025	0.028
G	2.39	2.54	2.69	0.094	0.100	0.106
H		1.27			0.050	
I		0.76			0.030	
J		1.55			0.061	
K		2.79			0.110	
L		0.76			0.030	
M		2.36			0.093	
N		1.55			0.061	
O		2.79			0.110	
P		2.79			0.110	
Q		2.79			0.110	

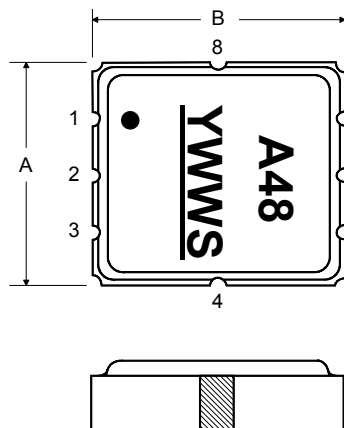
### Case Materials

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	

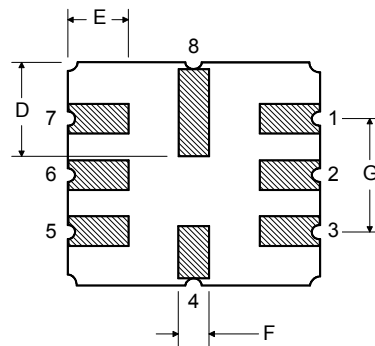
### Electrical Connections

Connection		Terminals
Port 1	Input	2
Port 2	Output	6
	Ground	All others
Dot indicates Pin 1		

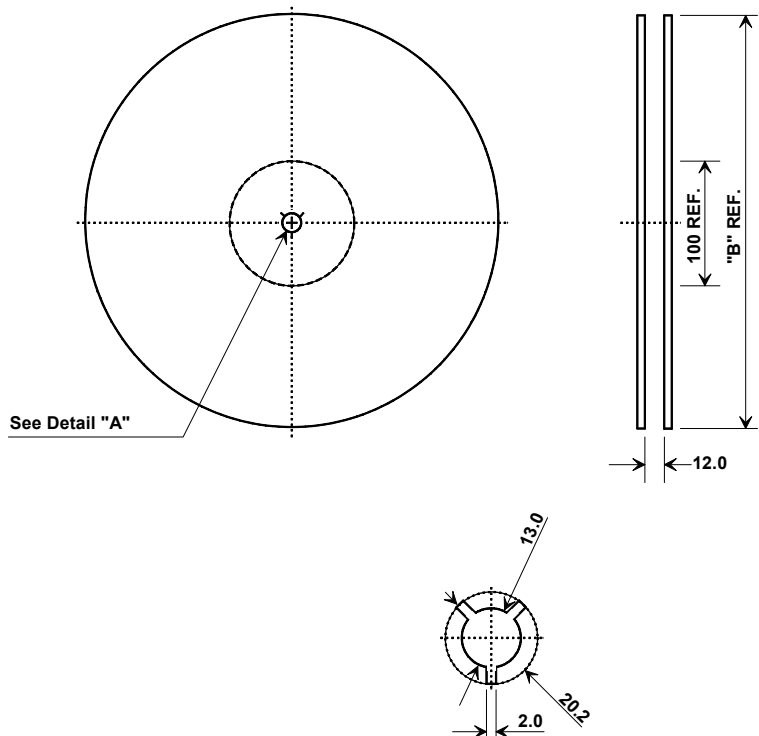
### TOP VIEW



### BOTTOM VIEW



## Tape and Reel Specifications



"B"		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	3000

## COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
Ao	5.3 mm
Bo	5.3 mm
Ko	2.0 mm
Pitch	8.0 mm
W	12.0 mm

COVER TAPE SIZE

