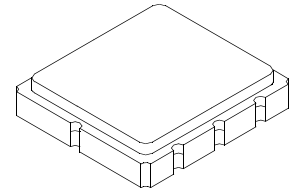




# RF1336C

## 868.35 MHz SAW Filter



**SM5050-8 Case**  
5 x 5

- **Ideal Front-End Filter for European Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**
- **Complies with Directive 2002/95/EC (RoHS)** 

The RF1336C is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 868.35 MHz receivers. Receiver designs using this filter include superhet with 10.7 MHz or 500 kHz IF, direct conversion and superregen. Typical applications of these receivers are wireless remote-control and security devices operating in Europe under ETSI I-ETS 300 220, in Germany under FTZ 17 TR 2100, in the United Kingdom under DTI MPT 1340 (for automotive only), in France under PTT Specifications ST/PAA/TPA/AGH/1542, and in Scandinavia.

This coupled-resonator filter (CRF) uses selective null placement to provide suppression, typically greater than 30 dB, of the LO and image spurious responses of superhet receivers with 10.7 MHz IF. RFM's advanced SAW design and fabrication technology is utilized to achieve high performance and very low loss with simple external impedance matching.

### Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units	
Center Frequency @ 25°C	Absolute Frequency	$f_c$	1, 2		868.35		MHz	
	Tolerance from 868.35 MHz	$\Delta f_c$				$\pm 125$	kHz	
Insertion Loss		IL	1		5.0	8.5	dB	
3 dB Bandwidth		BW <sub>3</sub>	1, 2	500	600	800	kHz	
Rejection	at $f_c - 21.4$ MHz (Image)		1	30	40		dB	
	at $f_c - 10.7$ MHz (LO)			15	30			
	Ultimate				80			
Temperature	Operating Case Temp.	$T_C$	3, 4	-40		+85	°C	
	Turnover Temperature	$T_O$		15	25	40	°C	
	Turnover Frequency	$f_O$			$f_c$		MHz	
	Freq. Temp. Coefficient	FTC			0.032		ppm/°C <sup>2</sup>	
Frequency Aging	Absolute Value during the First Year	fA	5		< $\pm 10$		ppm/yr	
External Impedance	Input Series Inductance	$L_1$	1		3.3		nH	
	Input Shunt Inductance	$L_2$			15		nH	
	Output Series Inductance	$L_3$			10		nH	
	Output Shunt Inductance	$C_1$			5.1		pF	
Standard Reel Quantity	Reel Size 7 inch	500 Pieces/Reel						
	Reel Size 13 inch	3000 Pieces/Reel						
Lid Symbolization (Y=year, WW=week, S=shift)						419/YWWS		



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

### Notes:

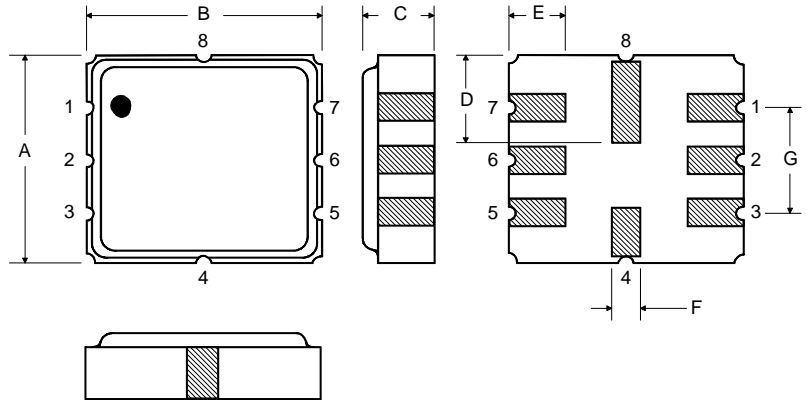
1. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture which is connected to a 50  $\Omega$  test system with VSWR  $\leq 1.2:1$ . The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency,  $f_c$ . Note that insertion loss and bandwidth and passband shape are dependent on the impedance matching component values and quality.
2. The frequency  $f_c$  is defined as the midpoint between the 3dB frequencies.
3. Where noted specifications apply over the entire specified operating temperature range.
4. The turnover temperature,  $T_O$ , is the temperature of maximum (or turnover) frequency,  $f_O$ . The nominal frequency at any case temperature,  $T_C$ , may be calculated from:  $f = f_O [1 - FTC (T_O - T_C)^2]$ .
5. Frequency aging is the change in  $f_c$  with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing significantly in subsequent years.
6. The design, manufacturing process, and specifications of this device are subject to change without notice.
7. One or more of the following U.S. Patents apply: 4,54,488, 4,616,197, and others pending.
8. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.

### Absolute Maximum Ratings

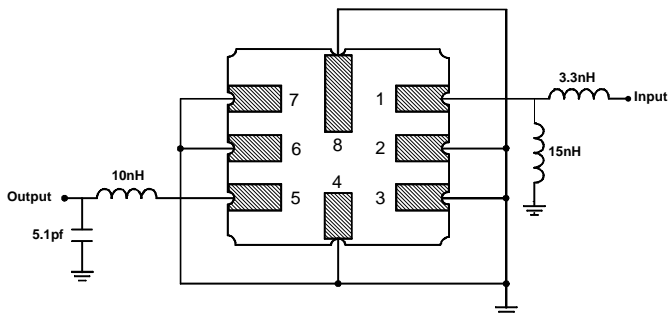
Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +85	°C
Soldering Temperature	(10 seconds / 5 cycles max.)	°C

### Electrical Connections

Pin	Connection
1	Input
2	Ground
3	Output Return
4	Case Ground
5	Output
6	Ground
7	Input Return
8	Case Ground



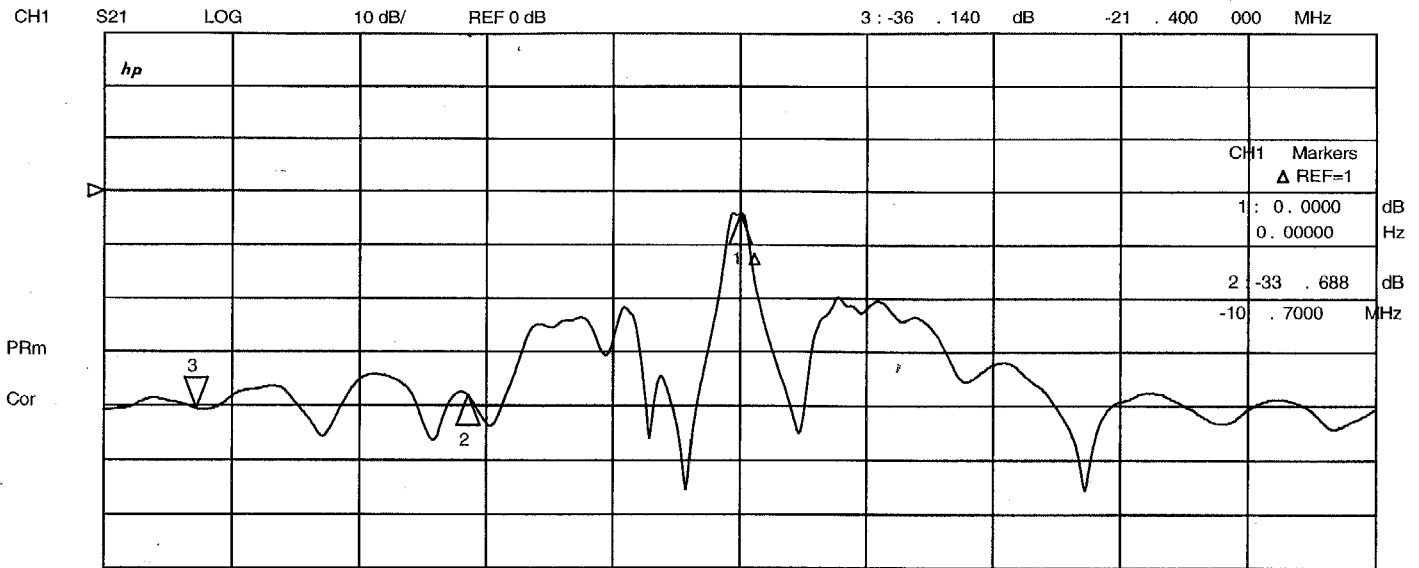
### Matching Circuit to 50Ω



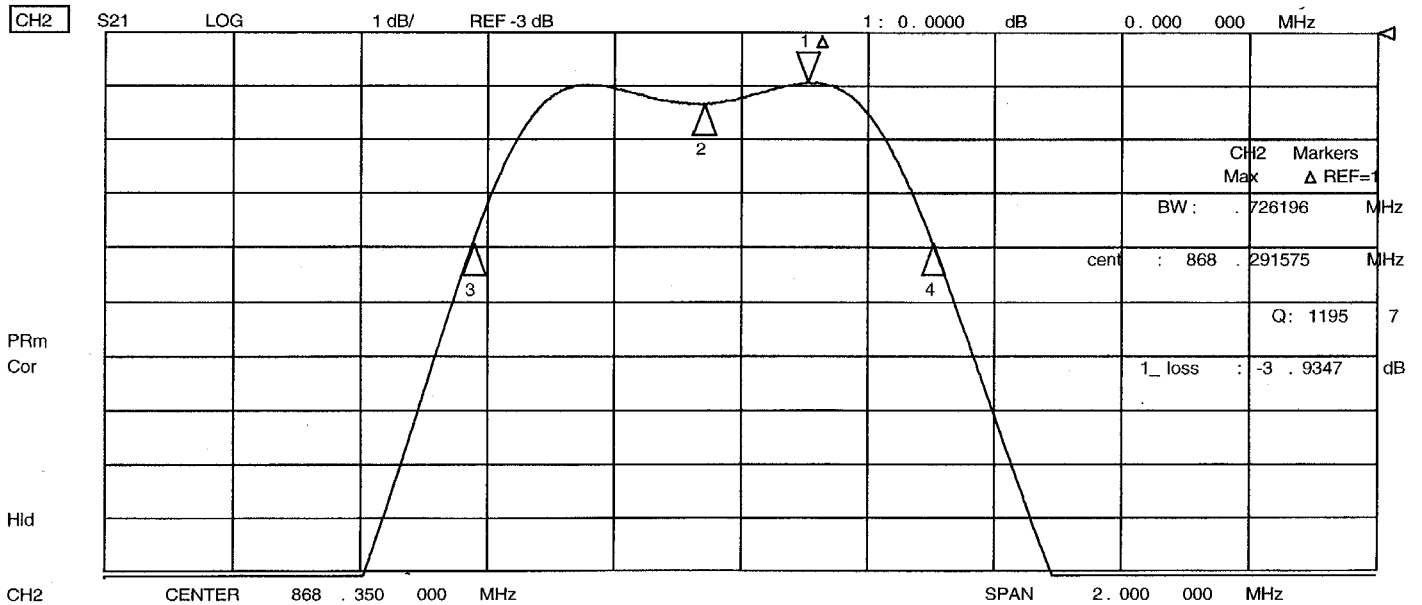
### Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	4.8	5.0	5.2	0.189	0.197	0.205
B	4.8	5.0	5.2	0.189	0.197	0.205
C			1.7			0.067
D		2.08			0.082	
E		1.17			0.046	
F		0.64			0.025	
G	2.39	2.54	2.69	0.094	0.100	0.106

8 Nov 2002 14:28:52



CH1 CENTER 868.35000 MHz SPAN 50.00000 MHz



8 Nov 2002 14:30:59

CH1 S11 1 UFS

1: 22.673  $\Omega$  4.6221  $\Omega$  847.15 pF

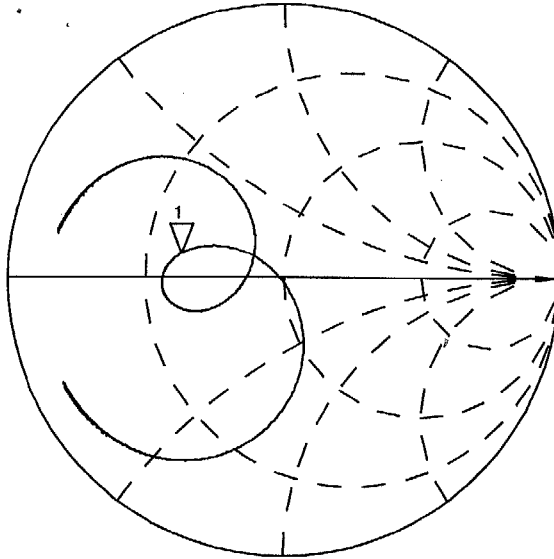
868.350 000 MHz

*hp*

PRm

Cor

Hld



CH2 S22 1 UFS

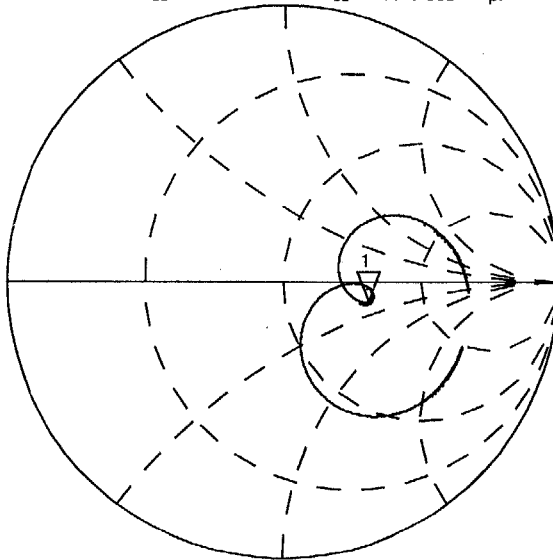
1: 93.020  $\Omega$  -15.398  $\Omega$  11.903 pF

868.350 000 MHz

PRm

Cor

Hld



CENTER 868.350 000 MHz

SPAN 2.000 000 MHz