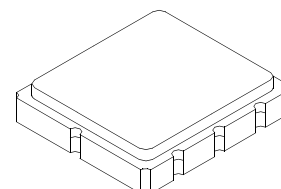


## RF1404C

### 433.92 MHz SAW Filter



**SM5050-8 Case  
5 x 5**

- **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 RF1404C is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 433.92 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.

This coupled-resonator filter (CRF) uses selective null placement to provide suppression, typically greater than 40 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.

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25 °C Absolute Frequency	$f_C$	1, 2		433.920		MHz
Minimum Insertion Loss, 433.800 - 434.120 MHz	$IL_{min}$	1		2.4	4.0	dB
Passband (relative to $IL_{min}$ )		1			3.0	dB
433.740 - 434.010 MHz					6.0	dB
433.680 - 434.160 MHz						dB
Passband (relative to $IL_{min}$ )	$BW_3$	1	650	700		kHz
Attenuation: (relative to $IL_{min}$ )		1				dB
10 - 414 MHz			45	48		
414 - 427.5 MHz			40	43		
427.5 - 432.92 MHz			15	19		
434.92 - 442 MHz			10	14		
442 - 550 MHz			35	38		
550 - 1000 MHz			45	50		
Impedance at $f_C$ : $Z_{IN} = R_{IN} \parallel C_{IN}$		1		227 $\Omega \parallel 3.3$ pF		
$Z_{OUT} = R_{OUT} \parallel C_{OUT}$		1		227 $\Omega \parallel 3.3$ pF		
Turnover To		3, 4		25		°C
Frequency Aging Absolute Value During the First Year		3, 4		$\leq 10$ ppm/yr Typical		
Lid Symbolization (in addition to Lot and/or Date Codes)				499		
Standard Reel Quantity				500 Pieces/Reel		
Reel Size 7 Inch				3000 Pieces/Reel		
Reel Size 13 Inch						

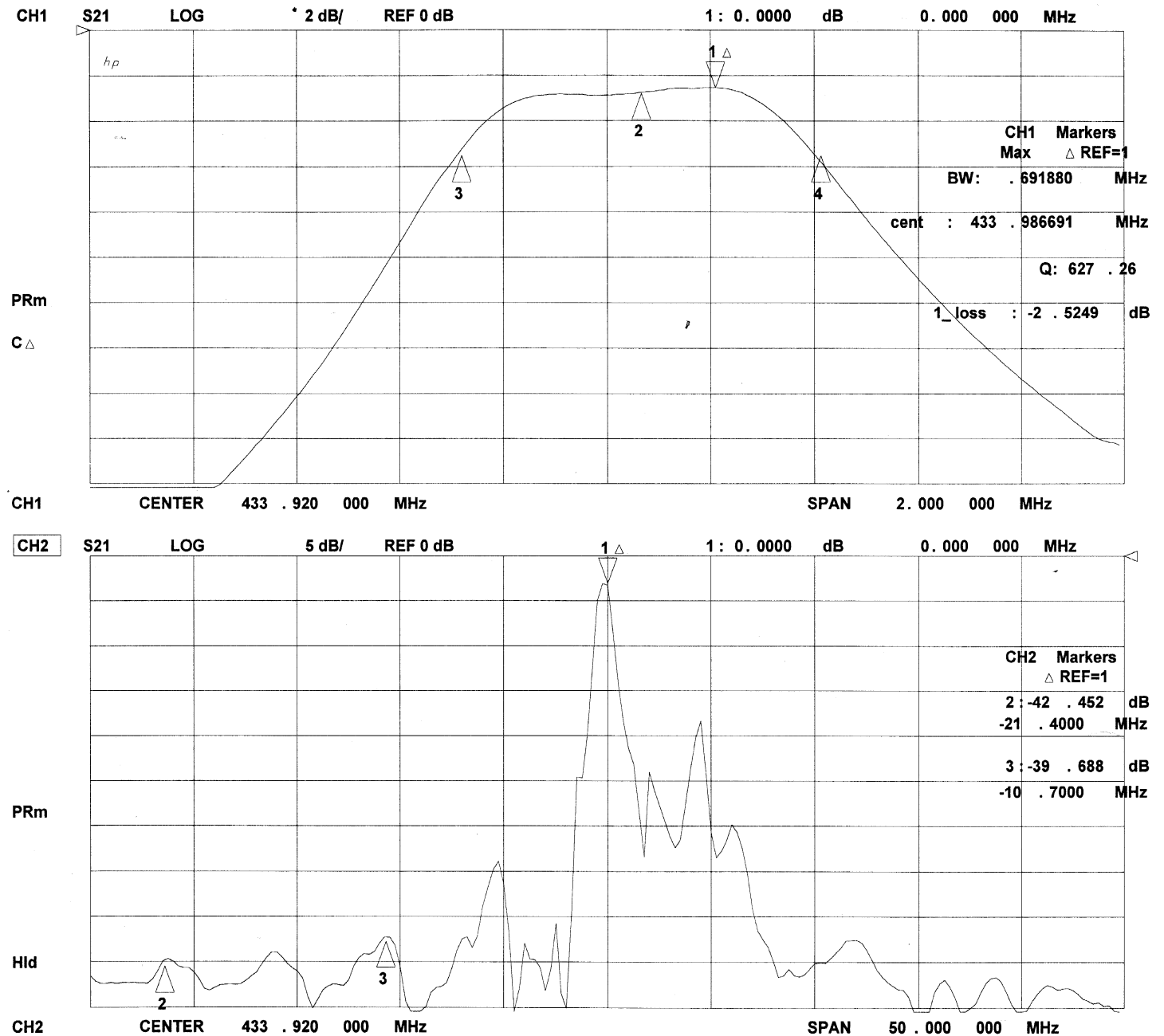
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### 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 3 dB 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.

## Typical Filter Response

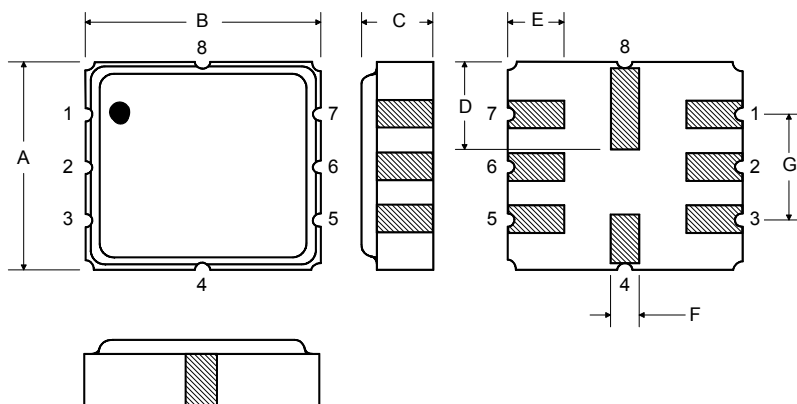
Typical filter responses are shown below. The actual response is dependent on external impedance matching and circuit layout.



Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +120	°C
Operating Temperature	-40 to +105	°C
Soldering Temperature, 10 seconds/5 cycles maximum	260	°C

## Electrical Connections

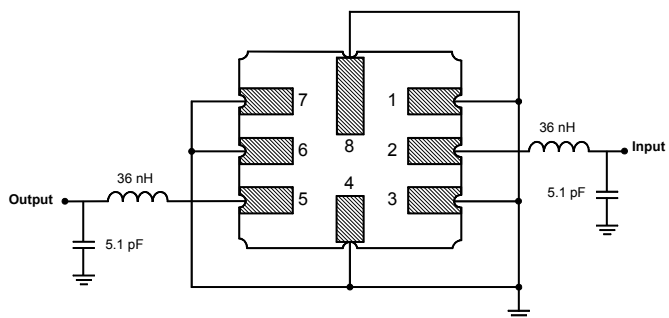
Pin	Connection
1	Input Ground
2	Input
3	to be Grounded
4	Case Ground
5	Output
6	Output Ground
7	to be Grounded
8	Case Ground



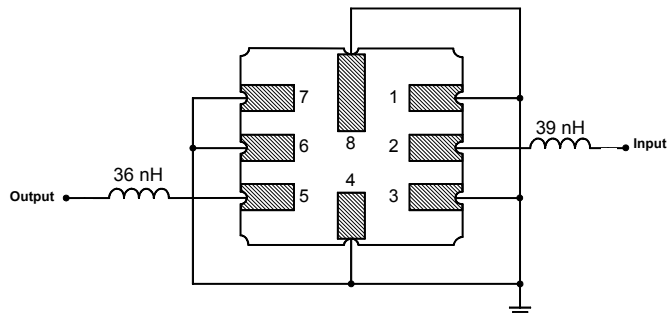
## Case Dimensions

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

## Matching Circuit to 50Ω



## Alternate Matching Circuit to 50Ω



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