



# RF1336B

## 868.35 MHz SAW Filter



SM 8558-8Case

- **Ideal Front-End Filter for European Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**
- **Surface-Mount Ceramic Case with 52 mm<sup>2</sup> Footprint**

The RF1336B 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 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 (not included). Our new patent pending solder seal process utilizes a Faraday shield lid, which improves out of band rejection.

### 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	$\Delta f_c$				$\pm 100$	kHz
Insertion Loss		IL	1		5.0	8.5	dB
3 dB Bandwidth		BW <sub>3</sub>	1, 2	500	700	800	kHz
Rejection	at $f_c - 21.4$ MHz (Image)		1	40	50		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		18		nH
	Input Shunt Inductance	$L_2$			22		nH
	Output Series Inductance	$L_3$	1		12		nH
	Output Shunt Capacitance	$C_1$			3.9		pF
Lid Symbolization (in addition to Lot and/or Date Codes)		RFM RF1336B YYWWL					



**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 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.

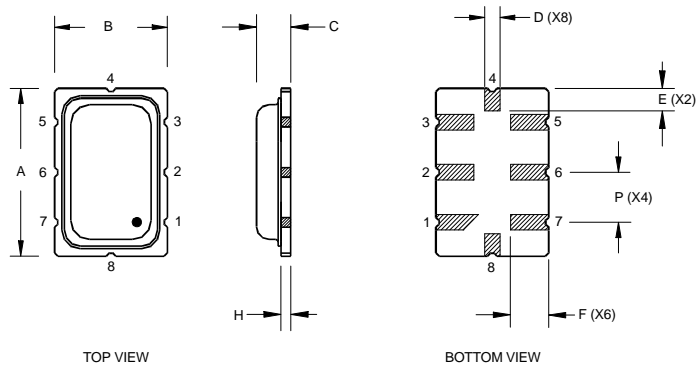
## Absolute Maximum Ratings

Rating	Value	Units
Incident RF Power	+13	dBm
DC Voltage between any 2 pins (Observe ESD Precautions)	±30	VDC
Case Temperature <sup>1</sup>	-40 to +85	°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

## Case Design



## Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	8.26	8.51	8.76	0.325	0.335	0.345
B	5.59	5.84	6.10	0.220	0.230	0.240
C		1.70	2.00		0.067	0.079
D		0.79			0.031	
E		1.14			0.045	
F		1.98			0.078	
H		0.51			0.020	
P		2.54			0.100	

