



# RF1336E

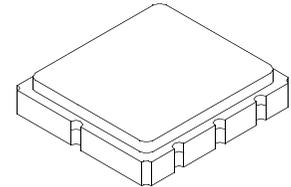
- Ideal Front-End Filter for European Wireless Receivers
- Low-Loss, Coupled-Resonator Quartz Design
- Simple External Impedance Matching
- Complies with Directive 2002/95/EC (RoHS)



## 868.35 MHz SAW Filter

The RF1336E 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.



SM3030-6 Case  
3.0 x 3.0

### Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency @ 25°C Absolute Frequency	$f_c$	1, 2, 3		868.35		MHz
Insertion Loss	IL	1, 3		2.5	4.0	dB
3 dB Bandwidth	$BW_3$	1, 2, 3	500	650	900	kHz
Attenuation: (relative to ILmin)		1, 3	10 - 700 MHz	50	55	dB
			700 - 830 MHz	40	45	
			830 - 850 MHz	35	40	
			850 - 864.4 MHz	20	25	
			870.4 - 877.4 MHz	21	26	
			877.4 - 882.4 MHz	15	19	
			882.4 - 900 MHz	28	35	
900 - 1000 MHz	40	45				
Temperature Freq. Temp. Coefficient	FTC	3, 4		0.032		ppm/°C <sup>2</sup>
Frequency Aging Absolute Value during the First Year	fA	5		<±10		ppm/yr
Impedance @ $f_c$	Input $Z_{IN} = R_{IN}/C_{IN}$	1	55Ω // 23.9pF			
	Output $Z_{OUT} = R_{OUT}/C_{OUT}$		53Ω // 20.2pF			
Lid Symbolization (in addition to Lot and/or Date Codes)	555 // YWWS					
Standard Reel Quantity	Reel Size 7 Inch	9	500 Pieces/Reel			
	Reel Size 13 Inch		3000 Pieces/Reel			



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

#### Notes:

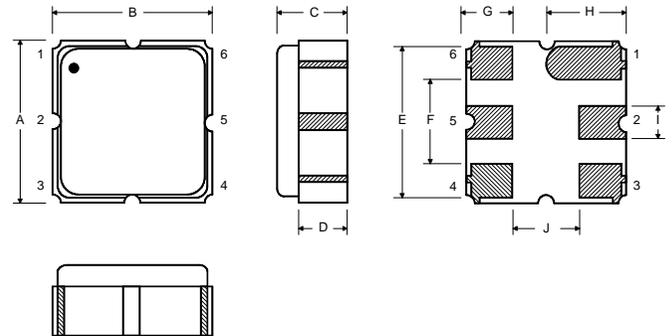
1. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture which is connected to a 50 Ω test system with VSWR ≤ 1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency,  $f_c$ . Note that insertion loss and 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 of -40 to 90°C.
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.
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.
9. Tape and Reel Standard for ANSI / EIA 481.

## Absolute Maximum Ratings

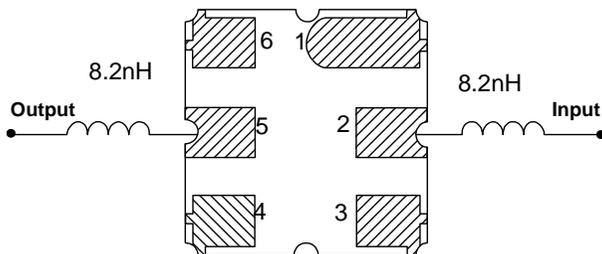
Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +125	°C
Operable Temperature Range	-40 to +125	°C
Soldering Temperature (10 seconds / 5 cycles Max.)	260	°C

## Electrical Connections

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



## Matching Circuit to 50Ω



## Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.0	3.13	0.113	0.118	0.123
B	2.87	3.0	3.13	0.113	0.118	0.123
C	1.12	1.25	1.38	0.044	0.049	0.054
D	0.77	0.90	1.03	0.030	0.035	0.040
E	2.67	2.80	2.93	0.105	0.110	0.115
F	1.47	1.6	1.73	0.058	0.063	0.068
G	0.72	0.85	0.98	0.028	0.033	0.038
H	1.37	1.5	1.63	0.054	0.059	0.064
I	0.47	0.60	0.73	0.019	0.024	0.029
J	1.17	1.30	1.43	0.046	0.051	0.056

## Optional

### Electrical Connections

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

### Matching Circuit to 50Ω

