


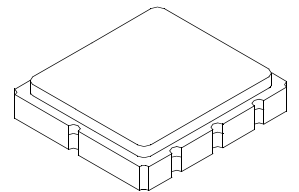


**RF1210D**

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

**303.825 MHz  
SAW Filter**

The RF1210D is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 303.825 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 (especially for automotive keyless entry) operating in the USA under FCC Part 15, in Canada under RSS-210, and in Italy



**SM3838-8 Case  
3.8 x 3.8**

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.

**Electrical Characteristics**

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency @ 25°C	Absolute Frequency	$f_c$	1, 2, 3		303.825		MHz
Minimum I.L. (303.620~303.980 MHz)		$IL_{min}$	1, 3		1.6	2.5	dB
Passband (relative to $IL_{min}$ )	303.595 - 304.025		1		1.0	3.0	dB
	303.535 - 304.085				1.5	6.0	
Pass Bandwidth (relative to $IL_{min}$ )		$BW_3$	1, 3	500	650	800	kHz
Attenuation: (relative to $IL_{min}$ )	10~260 MHz		1	45	50		dB
	260~297 MHz			35	40		
	297~302.5 MHz			11.5	15		
	304.8~320 MHz			14	18		
	320~400 MHz			37	40		
	400~1000 MHz			45	50		
Frequency Temperature Coefficient		FTC			0.032		ppm/°C <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	fA			≤10		ppm/yr
Impedance @ $F_c$	Input $Z_{IN}=R_{IN}  C_{IN}$	$Z_{IN}$	1	22.6Ω    2.6pf			
	Output $Z_{OUT}=R_{OUT}  C_{OUT}$	$Z_{OUT}$		21.5Ω    3.1pf			
Lid Symbolization (Y=year WW=week D=day of week)				488 // YVWWS			
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°C 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 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.
9. Tape and Reel Standard Per ANSI/EIA 481.
10. This product complies with directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

# 303.825 MHz

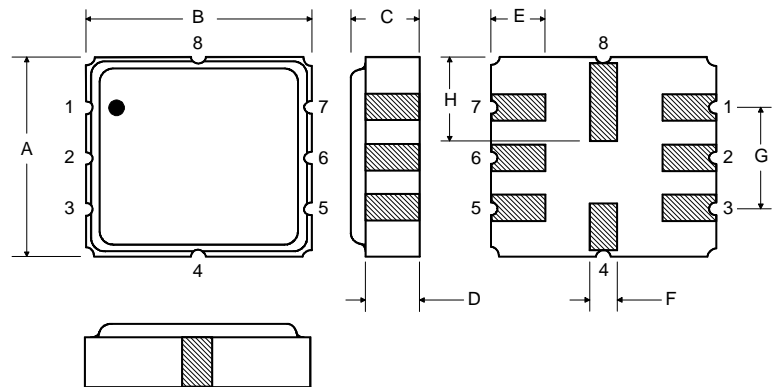
# SAW Filter

## Absolute Maximum Ratings

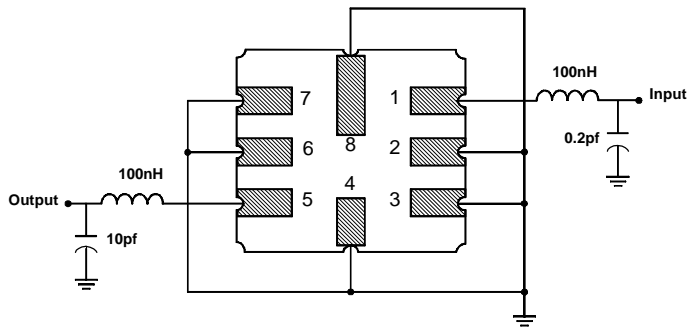
Rating	Value	Units	
Input Power Level	10	dBm	
DC Voltage	12	VDC	
Storage Temperature	-40 to +125	°C	
Operable Temperature Range	-40 to +125	°C	
Soldering Temperature	(10 seconds / 5 cycles max.)	260	°C

## Electrical Connections

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



## Matching Circuit to 50Ω



## Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.6	3.8	4.0	0.14	0.15	0.16
B	3.6	3.8	4.0	0.14	0.15	0.16
C	1.00	1.20	1.40	0.04	0.05	0.055
D	0.95	1.10	1.25	0.037	0.043	0.05
E	0.90	1.0	1.10	0.035	0.04	0.043
F	0.50	0.6	0.70	0.020	0.024	0.028
G	2.39	2.54	2.69	0.090	0.100	0.110
H	1.40	1.75	2.05	0.055	0.069	0.080

## Optional

### Electrical Connections

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

### Matching Circuit to 50Ω

