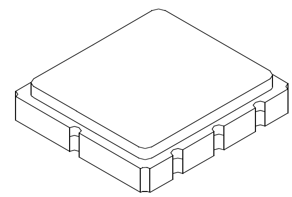
RF3210D

303.825 MHz SAW Filter

- ***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)***

The RF3210D 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 superheterodyne with 10.7 MHz or lower IF frequencies, direct conversion receivers and superregenerative receivers.

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.



SM3838-8 Case
3.8 x 3.8

Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency @ 25°C	f_C	1, 2, 3		303.825		MHz
Minimum Insertion Loss, 303.620 to 303.980 MHz	IL_{MIN}	1, 3		1.6	2.5	dB
Passband Loss Relative to IL_{MIN}:						
303.595 to 304.025 MHz		1		1.0	3.0	dB
303.535 to 304.085 MHz				1.5	6.0	
3 dB Bandwidth	BW_3	1, 3	500	650	800	kHz
Attenuation Relative to IL_{MIN}:						
10 to 260 MHz		1	45	55		dB
260 to 297 MHz			35	45		
297 to 302.5 MHz			11.5	15		
304.8 to 320 MHz			14	20		
320 to 400 MHz			37	40		
400 to 1000 MHz			45	55		
Frequency Temperature Coefficient	FTC			0.032		ppm/°C^2
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		11.7 KΩ ll 1.8 pF		
Output $Z_{OUT}=R_{OUT} \| C_{OUT}$	Z_{OUT}			6.63 KΩ ll 2.2 pF		
Lid Symbolization (Y=year WW=week D=day of week)				675 // 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:

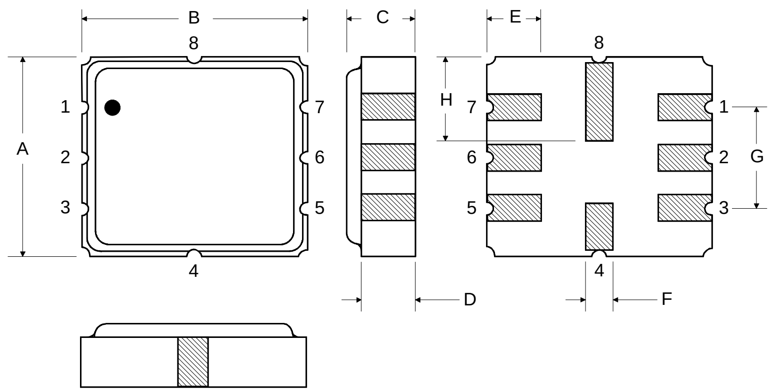
1. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture which is connected to a 50 Ω test system with VSWR < 1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency, f_c. Note that insertion loss and bandwidth 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 3 dB 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 fc 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 Parlament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Absolute Maximum Ratings

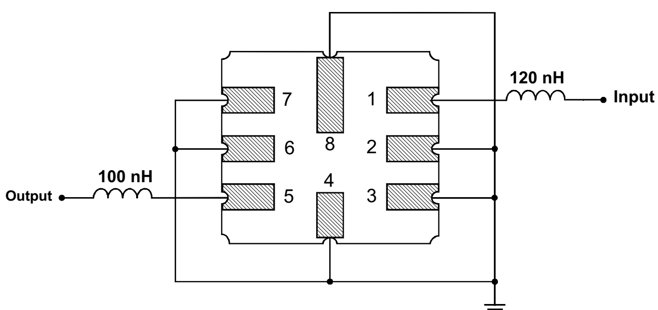
Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +125	°C
Operable Temperature Range	-40 to +125	°C
Soldering Temperature, 10 seconds / 5 cycles maximum	260	°C

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 50 Ω



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	0.033	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

Optional Matching Circuit to 50 Ω