RF1210B

303.825 MHz SAW Filter

- ***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^2 Footprint***
- ***Complies with Directive 2002/95/EC (RoHS)***

The RF1210B 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 operating in the USA under FCC Part 15, Australia, Japan and Korea.

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). Quartz construction provides excellent frequency stability over a wide temperature range. Our new patent pending solder seal process utilizes a Faraday shield lid, which improves out of band rejection.

SM8558-8 Case

Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C	Absolute Frequency	f_c	1, 2	303.745		303.905	MHz
	Tolerance from 303.825 MHz	Δf_c				±80	kHz
Insertion Loss		IL	1		1.7	3.0	dB
3 dB Bandwidth		BW_3	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	40		
	Ultimate				80		
Temperature	Operating Case Temp.	T_C	3, 4	-35		+85	°C
	Turnover Temperature	T_O		22	37	52	
	Turnover Frequency	f_O			f_c		MHz
	Freq. Temp. Coefficient	FTC			0.032		ppm/°C^2
Frequency Aging	Absolute Value during the First Year	|fA|	5		≤10		ppm/yr
External Impedance	Series Inductance	L	1		82		nH
	Shunt Capacitance	C			9		pF
Lid Symbolization (in addition to Lot and/or Date Codes)		RFM RF1210B					

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 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. Unless noted otherwise, 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 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.

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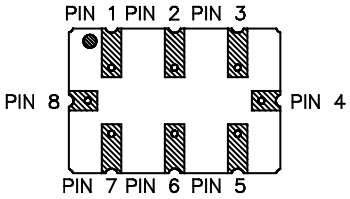
Absolute Maximum Ratings

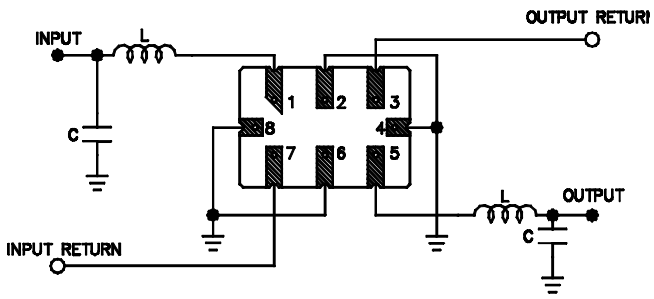
Rating	Value	Units
Incident RF Power	+13	dBm
DC Voltage between any 2 pins (Observe ESD Precautions)	±30	VDC
Case Temperature[5]	-40 to +85	°C
Soldering Temperature (10 seconds / 5 cycles max.)	260	°C

Electrical Connections

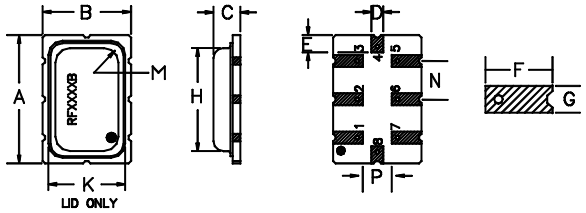
Pin	Connection
1	Input
2	Ground
3	Output Return
4	Case Ground
5	Output
6	Ground
7	Input Return
8	Case Ground



Typical Test Circuit



Case Design



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A		8.71		0.343
B		6.04		0.238
C		2.03		0.080
D	0.79 Nominal		0.031 Nominal	
E	1.14 Nominal		0.045 Nominal	
F	1.98 Nominal		0.078 Nominal	
G	0.79 Nominal		0.031 Nominal	
H		6.91		0.040
K		4.24		0.167
M		0.81		0.032
N	2.54 Nominal		0.100 Nominal	
P	1.91 Nominal		0.075 Nominal	