

RF1181D

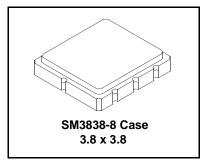
- Ideal Front-End Filter for 916.5 MHz Wireless Receivers
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- Low-Loss, Coupled-Resonator Quartz Design
- Simple External Impedance Matching
- Complies with Directive 2002/95/EC (RoHS)



The RF1181D is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 916.5 MHz receivers. Receiver designs using this filter include superhet with 10.7 MHz IF, direct conversion and superregen. Typical applications of these receivers are wireless remote-control and security, data telemetry, and meter reading devices operating in the USA under FCC Part 15 and in Canada under DoC RSS-210.

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).

916.5 MHz SAW Filter



Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C	Absolute Frequency	f _c	1 2 2		916.5		MHz
	Tolerance from 916.50 MHz	Δf_{C}	1, 2, 3				kHz
Insertion Loss		IL	1, 3		2.5	4.0	dB
3 dB Bandwidth		BW ₃	1, 3	500	600	900	kHz
Rejection (Attenuation: relati	Rejection (Attenuation: relative to Min IL:) 10 to 895 MHz			40	50		
	895 to 906 MHz			30	35		
	906 to 910 MHz			25	30		
	922 to 925 MHz		1, 3	35	40		dB
	925 to 933 MHz			14	18		
	933 to 940 MHz			30	35		
	940 to 1100 MHz			40	45		
Temperature	Freq. Temp. Coefficient	FTC	3, 4		0.032		ppm/°C ²
Frequency Aging	Absolute Value during the First Year	fA	5		≤10		ppm/yr
Input $Z_{IN} = R_{IN}/C_{IN}$		Z _{IN}	1	37Ω // 1.6pF			
Impedance @ f _C	Output $Z_{OUT} = R_{OUT}/C_{OUT}$	Z _{OUT}	'		25Ω //	1.8pF	
Lid Symbolization (in addition to Lot and/or Date Codes)		435 // YWWS					
Standard Reel Quantity 7 Inch Reel			9	500 Pieces/Reel			
Standard Reel Quantity 13 Inch Reel			9	3000 Pieces/Reel			



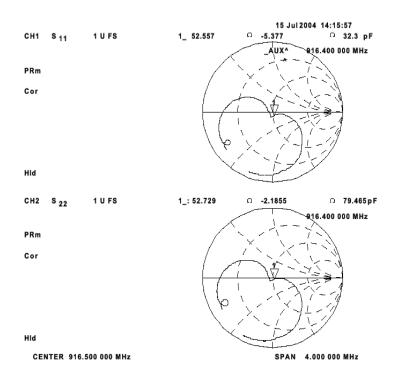
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

Notes:

- 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.
- Where noted specifications apply over the entire specified operating temperature range of -40 to 90°C.
- 4. The turnover temperature, T_0 , is the temperature of maximum (or turnover) frequency, f_0 . The nominal frequency at any case temperature, T_c , may be calculated from: $f = f_0 [1 FTC (T_0 T_c)^2]$.
- 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.
- 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

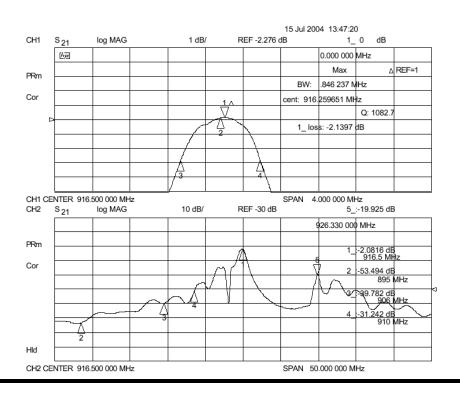
RF1181D_013

HJ 7/15/04 RF1181D demo board



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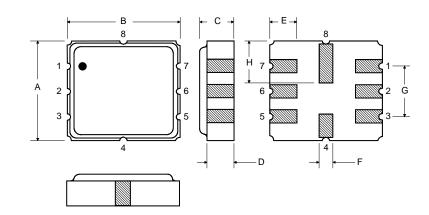


Absolute Maximum Ratings

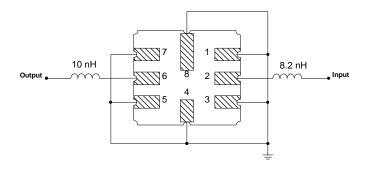
Rating		Value	Units
Input Power Level		10	dBm
DC Voltage		12	VDC
Storage Temperature		-40 to +125	°C
Operable Temperature Range		-40 to +125	°C
Soldering Temperature	(10 seconds / 5 cycles max.)	260	°C

Electrical Connections

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



Matching Circuit to $\mbox{50}\Omega$



Case Dimensions

Dimension	mm			Inches			
	Min	Nom	Ma	Min	Nom	Max	
Α	3.6	3.8	4.0	0.14	0.15	0.16	
В	3.6	3.8	4.0	0.14	0.15	0.16	
С	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	
Н	1.40	1.75	2.05	0.055	0.069	0.080	

OPTIONAL MATCHING

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 $\textbf{50}\Omega$

