

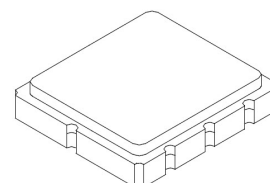
- **Ideal Front-End Filter for Domestic Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**

The RF1415D is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 315.0 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

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. Murata's advanced SAW design and fabrication technology is utilized to achieve high performance and very low loss with simple external impedance matching.

**RF1415D**

**315.0 MHz  
SAW Filter**



**SM3838-8 Case  
3.8 x 3.8**

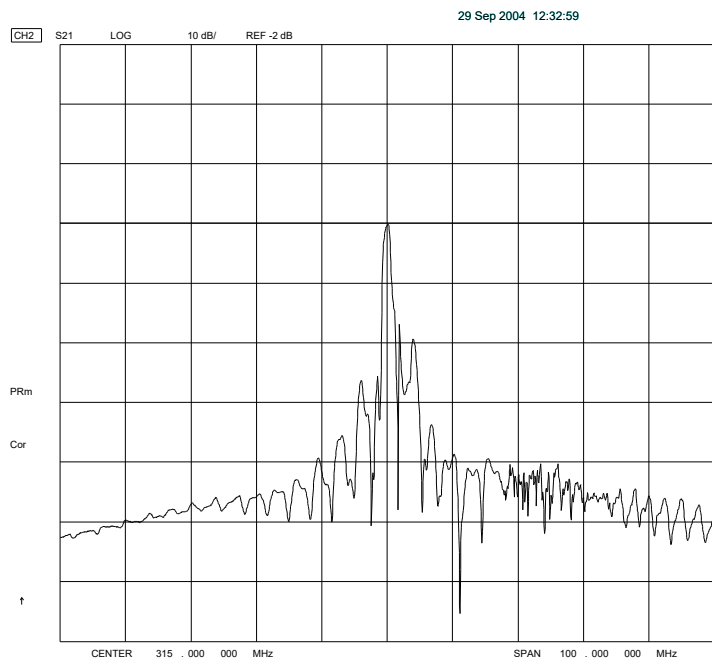
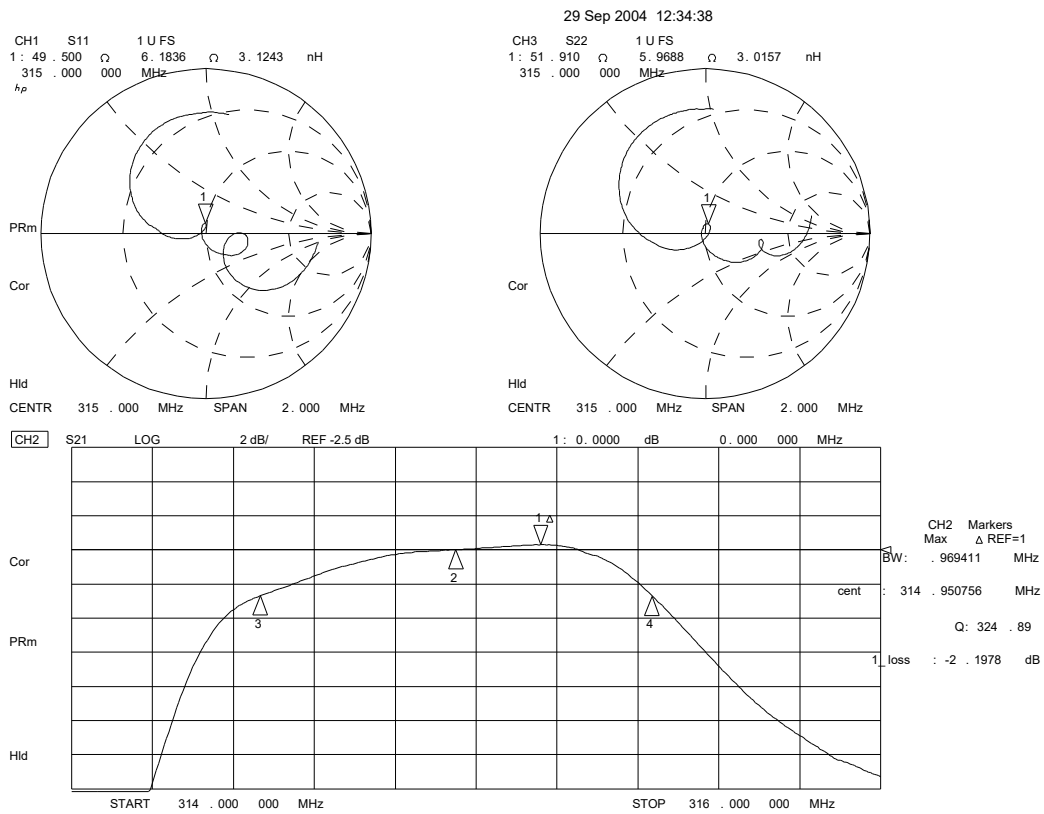
Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C      Absolute Frequency		f <sub>c</sub>	1, 2, 3	314.840	315.00	315.170	MHz
Insertion Loss		IL <sub>MIN</sub>	1, 3		2.10	3.50	dB
3 dB Bandwidth		BW <sub>3</sub>	1, 3	800	950	1200	kHz
Rejection Attenuation: (relative to ILmin)			1, 3	10 - 285 MHz	42	44	dB
				285 - 305 MHz	32	34	
				305 - 309 MHz	30	32	
				309 - 313.9 MHz	15	17	
				316 - 327 MHz	10	12	
				327 - 335 MHz	33	35	
				335 - 450 MHz	35	37	
				450 - 1000 MHz	45	47	
Temperature      Freq. Temp. Coefficient		FTC			0.032		ppm/ °C <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	fA	5		≤10		ppm/yr
Impedance @ f <sub>c</sub>	Input Z <sub>IN</sub> =R <sub>IN</sub>   C <sub>IN</sub>	Z <sub>IN</sub>	1	19Ω // 3.08pf			
	Output Z <sub>OUT</sub> =R <sub>OUT</sub>   C <sub>OUT</sub>	Z <sub>OUT</sub>		20.3Ω // 3.14pf			
Lid Symbolization (Y=year WW=week S=shift)		538 // 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:**

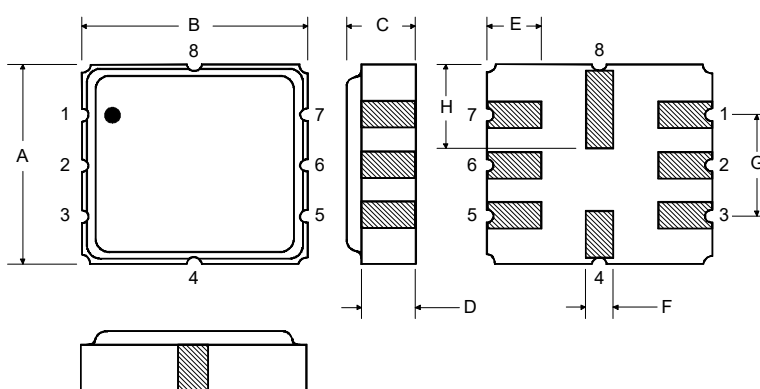
1. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture which is connected to a 50 Ω test system with VSWR ≤ 1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency,  $f_c$ . Note that insertion loss and 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°C to +105°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 Per ANSI / EIA 481.



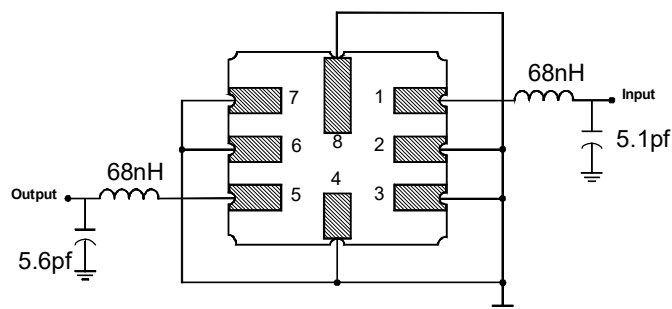
Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +125	°C
Operable Temperature Range	-40 to +125	°C
Soldering Temperature (10 seconds / 5 cycles max.)	260	°C

#### 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	0.033	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	Input Ground
4	Case Ground
5	Output Ground
6	Output
7	Output Ground
8	Case Ground

#### Matching Circuit to 50Ω

