

- **Ideal Front-End Filter for European Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**
- **Wide Bandwidth for Multi-Channel Receiver Application**
- **Complies with Directive 2002/95/EC (RoHS)**

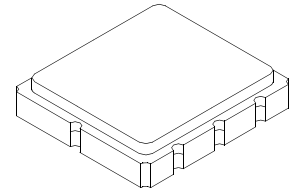


The RF1400D is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 433.92 MHz receivers. Receiver designs using this filter include superhet with 10.7 MHz or 500 kHz IF, direct conversion and superregen. Wider bandwidth for channelized receiver applications.

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.

## RF1400D

## 433.92 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	$f_c$	1, 2, 3		433.92		MHz
Insertion Loss	IL	1, 3		2.0	3.0	dB
3 dB Bandwidth	BW <sub>3</sub>	1, 2, 3	1000	1150		kHz
Rejection						
10 - 414 MHz		1, 3	40	50		dB
414 - 425 MHz			30	40		
426 - 432 MHz			16	20		
435 - 442 MHz			10	15		
442 - 550 MHz			26	30		
550 - 1000 MHz			45	50		
Frequency Temperature Coefficient	FTC			0.032		ppm/°C <sup>2</sup>
Frequency Aging Absolute Value during the First Year	fA	5		≤10		ppm/yr
Impedance @ $f_c$	Input $Z_{IN} = R_{IN}    C_{IN}$ Output $Z_{OUT} = R_{OUT}    C_{OUT}$	$Z_{IN}$ $Z_{OUT}$	1	279Ω    4.1pf 279Ω    4.1pf		
Lid Symbolization (Y=year WW=week D=day of week)				490 // YWWS		
Standard Reel Quantity	Reel Size 7 Inch Reel Size 13 Inch		9	500 Pieces/Reel 3000 Pieces/Reel		

**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

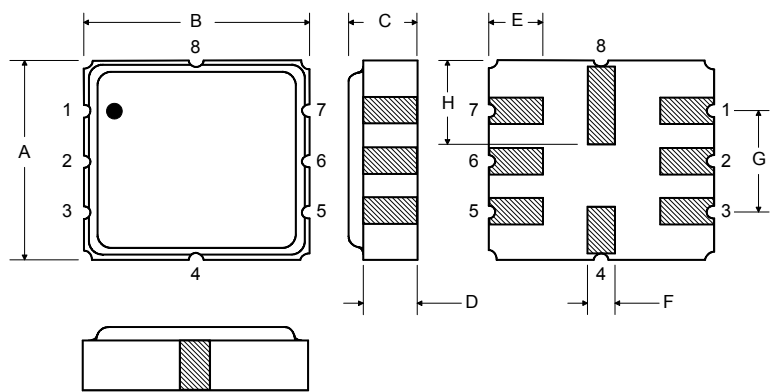
**NOTES:**

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.

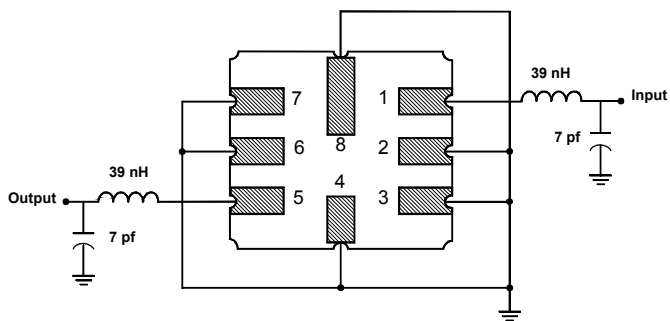
Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +125	°C
Operable Temperature	-40 to +125	°C
Soldering Temperature	(10 seconds / 5 cycles max.)	260 °C

### Electrical Connections

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

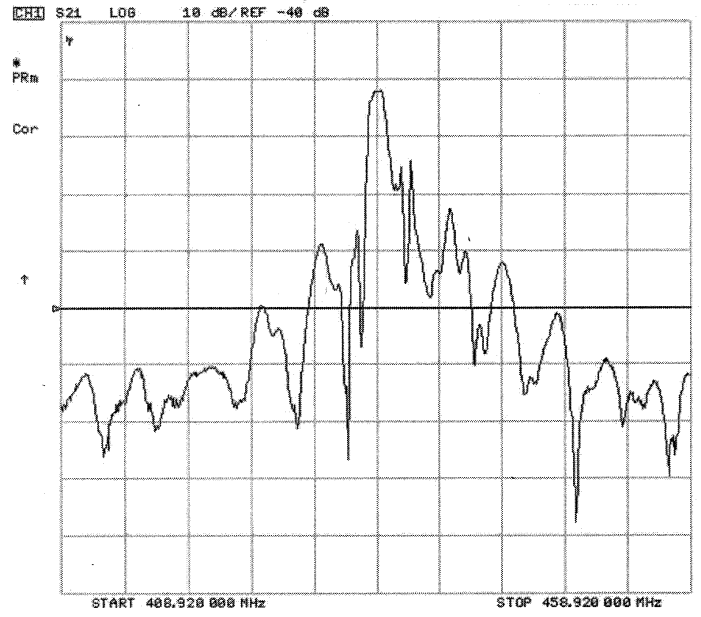


### Matching Circuit to 50Ω



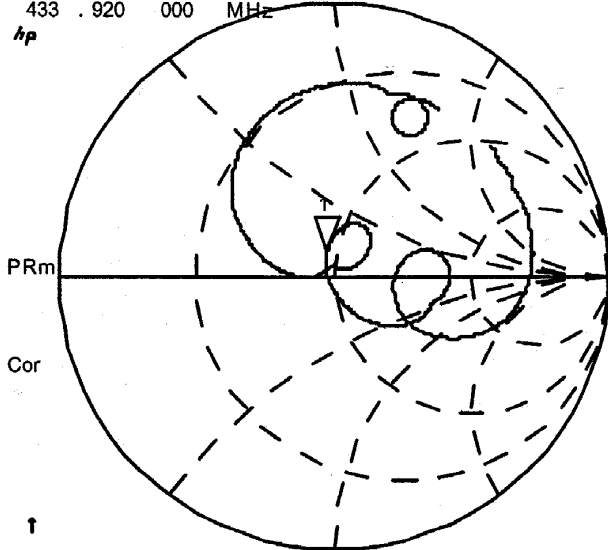
### Case Dimensions

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



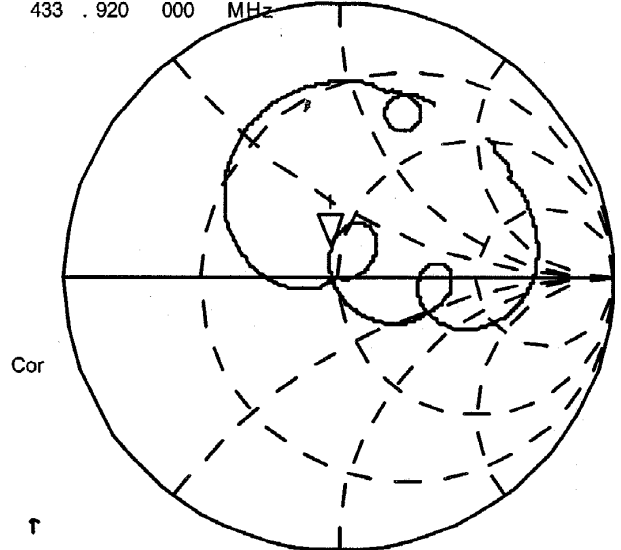
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CH1 S11 1 UFS  
1: 46 . 521 9. 5156 3. 4902 nH  
433 . 920 000 MHz  
hp



CENTR 433 . 920 MHz SPAN 5. 000 MHz

CH3 S22 1 UFS  
1: 46 . 305 10 . 367 3. 8025 nH  
433 . 920 000 MHz



CENTR 433 . 920 MHz SPAN 5. 000 MHz