

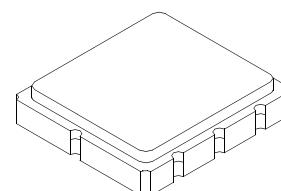
- **Ideal Front-End Filter for 916.5 MHz Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Tape and Reel Standard per ANSI/EIA-481**
- **Moisture Sensitivity Level: 1**

The RF3181D 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).

**RF3181D**

**916.5 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>			916.5		MHz
	Tolerance from 916.50 MHz	Δf <sub>c</sub>					kHz
Insertion Loss		IL			2.5	4.0	dB
3 dB Bandwidth		BW <sub>3</sub>		500	600	900	kHz
Rejection (Attenuation: relative to Min IL:)	10 to 895 MHz			40	50		dB
	895 to 906 MHz			30	35		
	906 to 910 MHz			25	30		
	922 to 925 MHz			35	40		
	925 to 933 MHz			14	18		
	933 to 940 MHz			30	35		
	940 to 1100 MHz			40	45		
Temperature	Freq. Temp. Coefficient	FTC			0.032		ppm/ °C <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	fA			≤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>		37Ω // 1.6pF			
	Output Z <sub>OUT</sub> = R <sub>OUT</sub> /C <sub>OUT</sub>	Z <sub>OUT</sub>		25Ω // 1.8pF			
Lid Symbolization (in addition to Lot and/or Date Codes)		671, <u>YWWS</u>					
Standard Reel Quantity	7 Inch Reel			500 Pieces/Reel			
Standard Reel Quantity	13 Inch Reel			3000 Pieces/Reel			



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

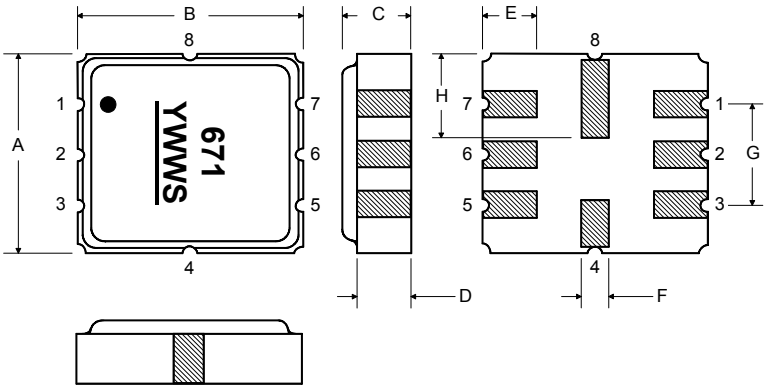
**NOTES:**

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

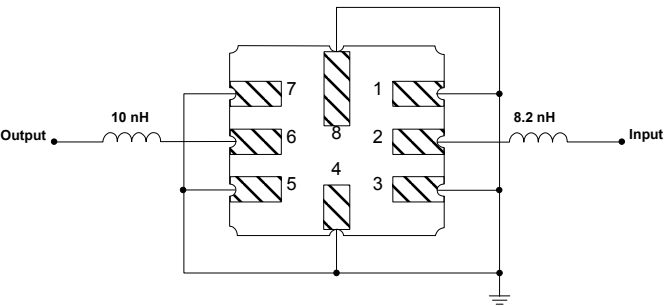
Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +125	°C
Operable Temperature Range	-40 to +125	°C
Soldering Temperature	(10 seconds / 5 cycles max.)	260 °C

### 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 50Ω



### Case Dimensions

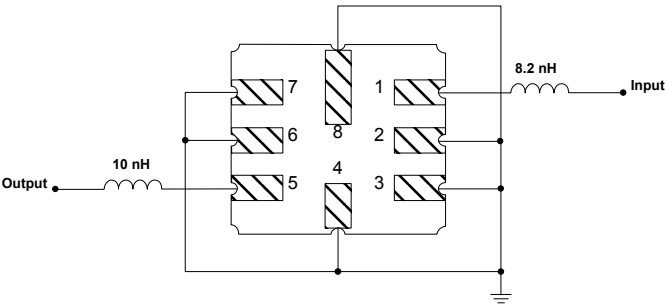
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.6	3.8	4.0	0.14	0.15	0.16
B	3.6	3.8	4.0	0.14	0.15	0.16
C	1.00	1.20	1.40	0.04	0.05	0.055
D	0.95	1.10	1.25	0.033	0.043	0.05
E	0.90	1.0	1.10	0.035	0.04	0.043
F	0.50	0.6	0.70	0.020	0.024	0.028
G	2.39	2.54	2.69	0.090	0.100	0.110
H	1.40	1.75	2.05	0.055	0.069	0.080

### OPTIONAL

### Electrical Connections

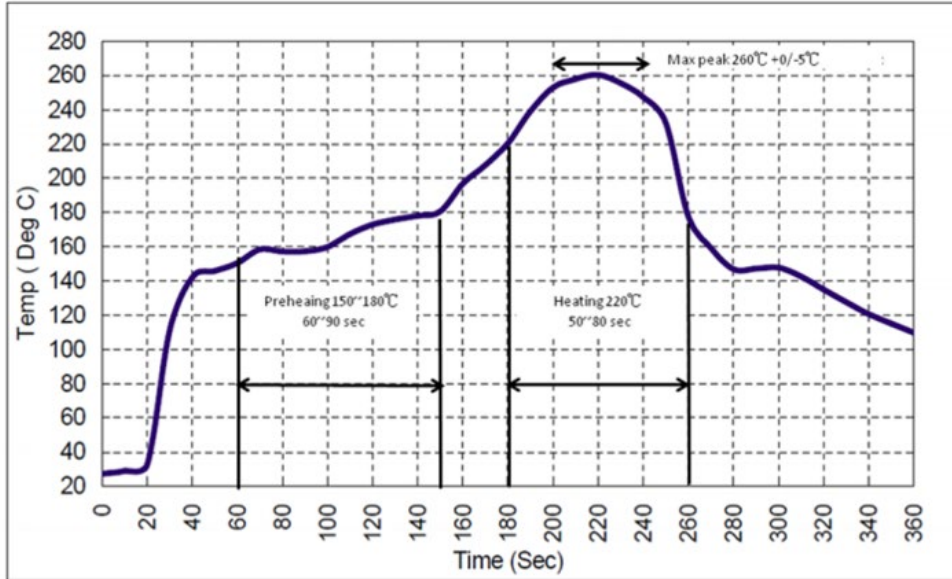
Pin	Connection
1	Input
2	Input Ground
3	Ground
4	Case Ground
5	Output
6	Output Ground
7	Ground
8	Case Ground

### Matching Circuit to 50Ω



## Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C +0/-5°C peak (10 seconds).
4. Time: 5 times maximum.



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