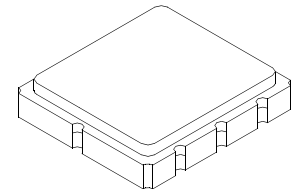


RF3181E

916.5 MHz SAW Filter



SM3030-6 Case
3.0 x 3.0

- **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**
- **AEC-Q200 Qualified**

The RF3181E 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. RFMi's advanced SAW design and fabrication technology is utilized to achieve high performance and very low loss with simple external impedance matching (not included).

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C	Absolute Frequency	f_c		916.5		MHz
	Tolerance from 916.50 MHz	Δf_c				kHz
Insertion Loss	IL			2.7	4.0	dB
3 dB Bandwidth	BW ₃		500	750	900	kHz
Rejection 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		40	50		
	925 to 933 MHz		15	20		
	933 to 940 MHz		30	35		
940 to 1100 MHz		35	40			
Temperature	Freq. Temp. Coefficient	FTC		0.032		ppm/ °C ²
Frequency Aging	Absolute Value during the First Year	fA		≤10		ppm/yr
Impedance @ f_c	Input $Z_{IN} = R_{IN}/C_{IN}$	Z_{IN}	54.2kΩ 1.44pF			
	Output $Z_{OUT} = R_{OUT}/C_{OUT}$	Z_{OUT}	52.8kΩ 1.30pF			
Lid Symbolization (in addition to Lot and/or Date Codes)			698, YVWS			
Standard Reel Quantity	7 Inch Reel		500 Pieces/Reel			
Standard Reel Quantity	13 Inch Reel		3000 Pieces/Reel			

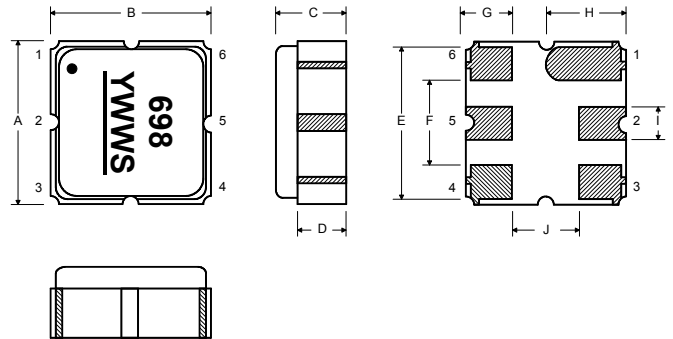
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.
NOTES:

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	14	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +125	°C
Operable Temperature Range	-40 to +125	°C
Soldering Temperature, 10 seconds / 5 cycles Maximum	260	°C

Electrical Connections

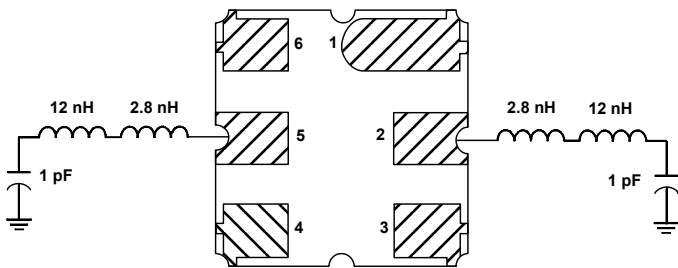
Pin	Connection
1	Ground
2	Input
3	Ground
4	Ground
5	Output
6	Ground



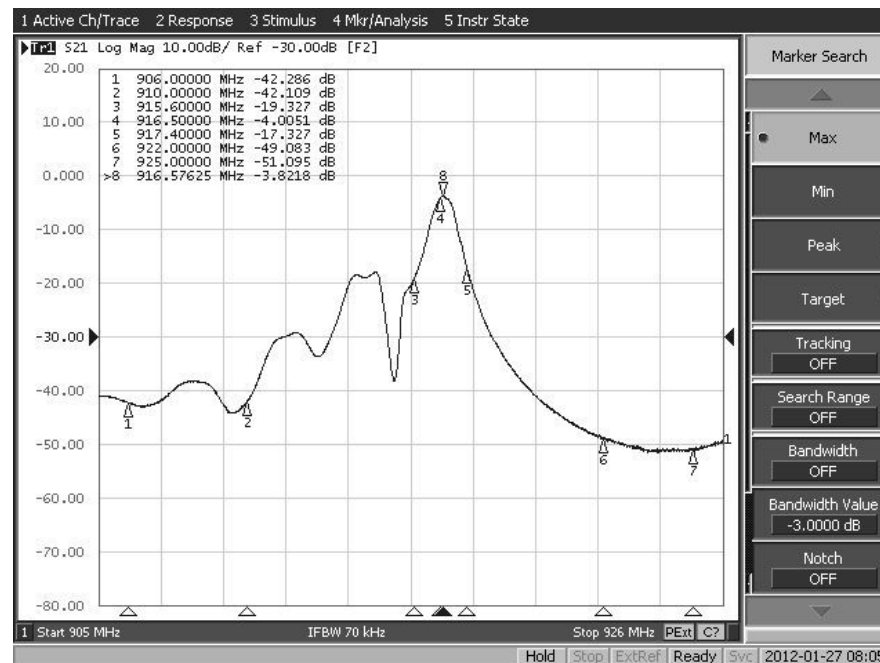
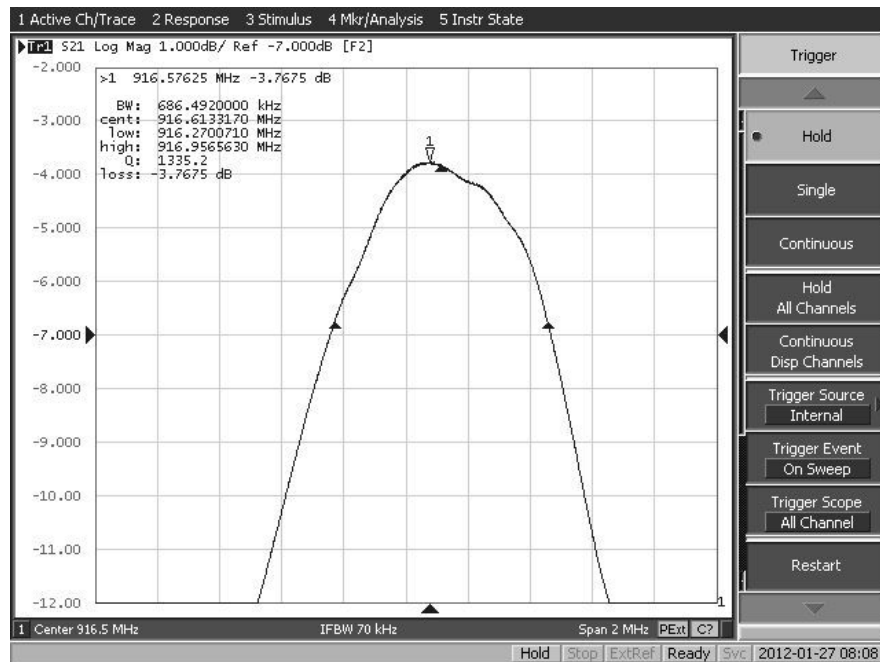
Case Dimensions

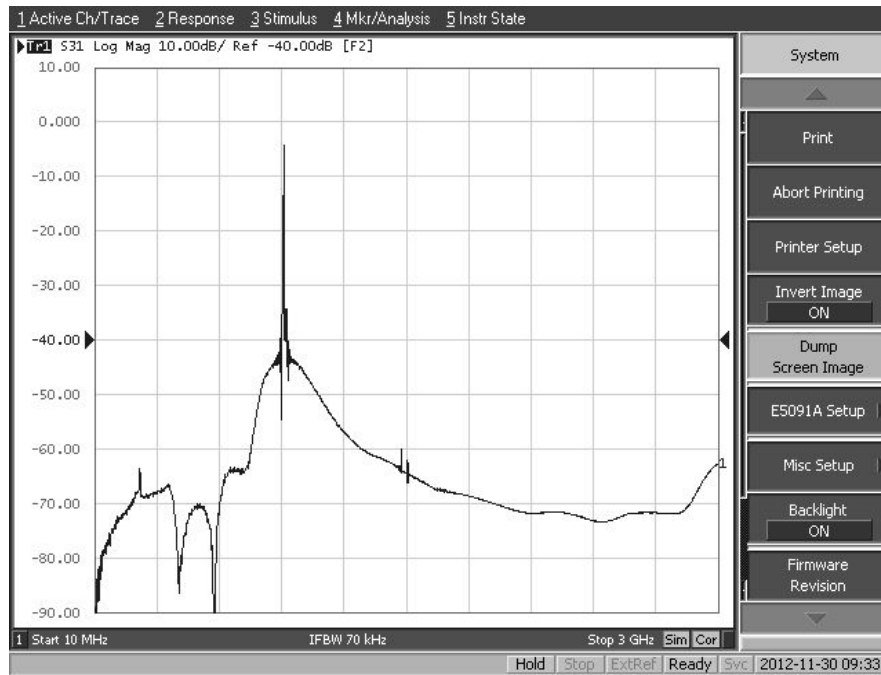
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.0	3.13	0.113	0.118	0.123
B	2.87	3.0	3.13	0.113	0.118	0.123
C	1.12	1.25	1.38	0.044	0.049	0.054
D	0.77	0.90	1.03	0.030	0.035	0.040
E	2.67	2.80	2.93	0.105	0.110	0.115
F	1.47	1.6	1.73	0.058	0.063	0.068
G	0.72	0.85	0.98	0.028	0.033	0.038
H	1.37	1.5	1.63	0.054	0.059	0.064
I	0.47	0.60	0.73	0.019	0.024	0.029
J	1.17	1.30	1.43	0.046	0.051	0.056

Matching Circuit to 50Ω

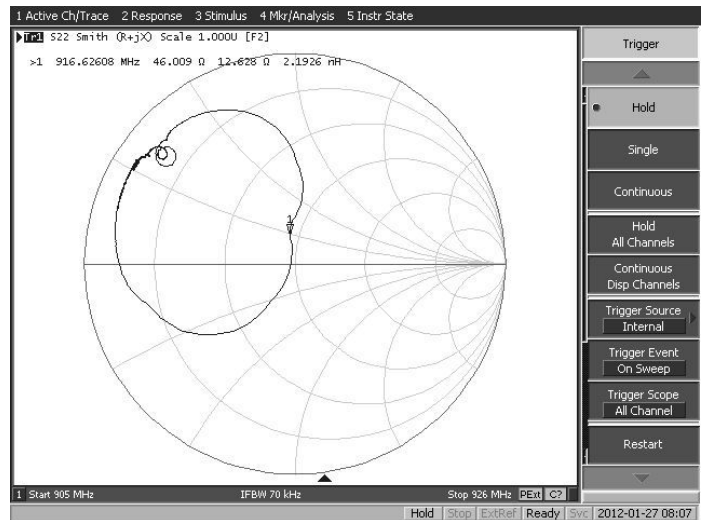
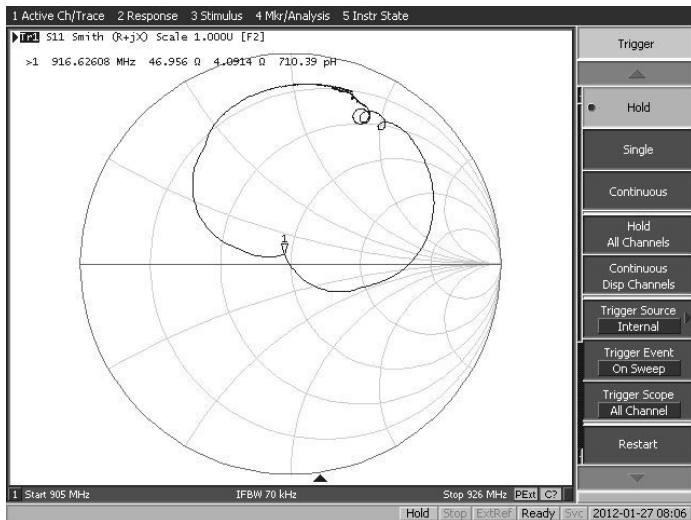


Filter Response Plots





Filter Impedance Plots



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.

