AEC-Q200

RoHS Compliance
This component is compliant with RoHS directive.
This component was always RoHS compliant from the first date of manufacture.

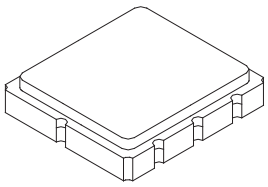
RF3417E-1

314.90 MHz SAW Filter

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

The RF3417E-1 is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 314.90 MHz receivers. Receiver designs using this filter include super-heterodynes with 10.7 MHz or 500 kHz IFs, direct conversions and superregeneratives. Typical applications for these receivers include wireless remote control and security devices.

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 (not included).



SM3030-6 Case
3.0 x 3.0

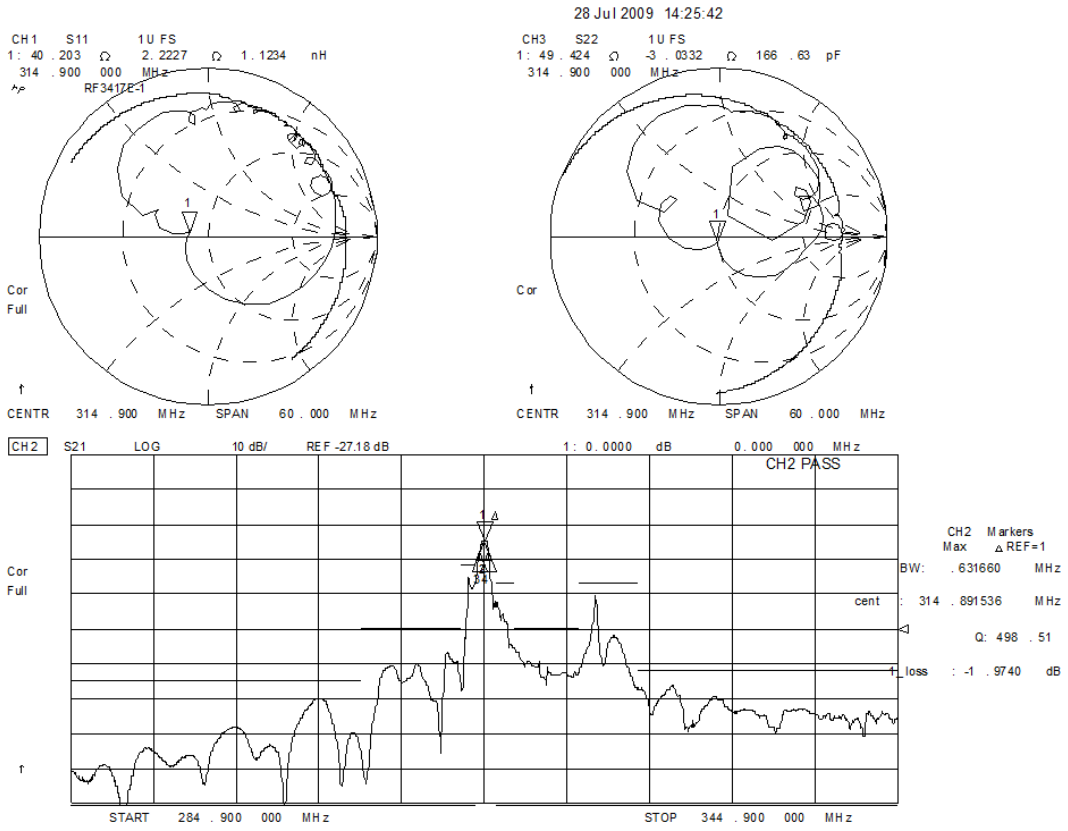
Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency @ 25°C		f_C	1, 2, 3	314.800	314.900	315.000	MHz
Insertion Loss		IL	1		1.8	2.5	dB
3 dB Bandwidth		BW_3	1, 3	525	600	675	kHz
1 dB Bandwidth		BW_1	1, 3		450		kHz
Rejection	10 - 275 MHz		1, 3, 10, 11	40	60		dB
	275 - 306 MHz			40	45		
	306 - 313.2 MHz			25	30		
	313.2 - 314.2 MHz			7	15		
	315.8 - 317 MHz			12	15		
	317 - 321.8 MHz			25	30		
	321.8 - 326 MHz			12	17		
	326 - 355 MHz			37	45		
	355 - 1000 MHz			50	55		
Temperature	Freq. Temp. Coefficient	FTC	3, 4		0.032		ppm/°C^2
Turnover Temperature		To	3, 4	10		40	°C
Frequency Aging	Absolute Value during the First Year	|fA|	5		<±10		ppm/yr
Impedance @ f_C	Input $Z_{IN} = R_{IN}/C_{IN}$	Z_{IN}	1	3.7kΩ // 2.03pF			
	Output $Z_{OUT} = R_{OUT}/C_{OUT}$	Z_{OUT}		5.4kΩ // 2.17pF			
Lid Symbolization (in addition to Lot and/or Date Codes)		922 // YWWS					
Standard Reel Quantity	7 Inch Reel		9	500 Pieces/Reel			
Standard Reel Quantity	13 Inch Reel			3000 Pieces/Reel			

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

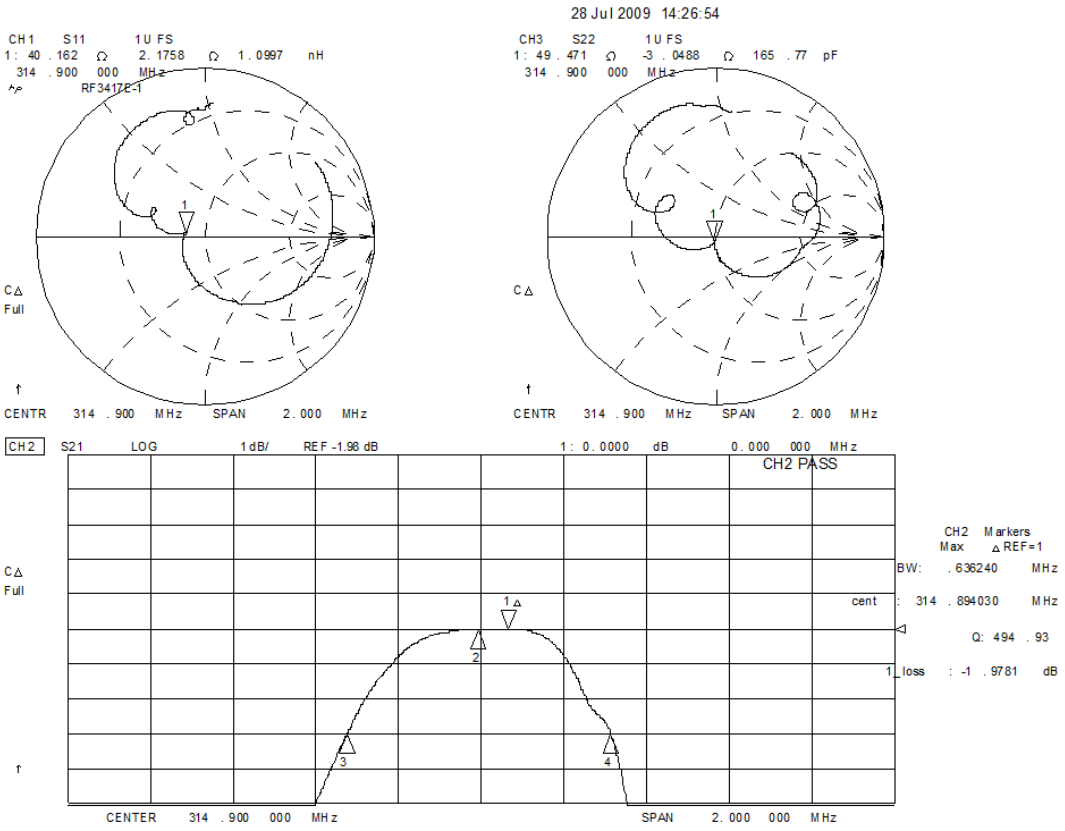
NOTES:

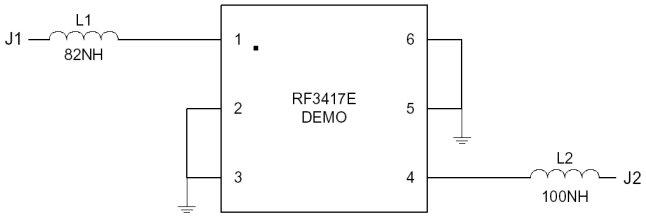
1. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture which is connected to a 50 Ω test system with VSWR ≤ 1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency, f_c. Note that insertion loss and bandwidth 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 to 90°C.
4. The turnover temperature, T_O, is the temperature of maximum (or turnover) frequency, f_C. 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 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 without notice.
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.
10. These values are attainable by using the optional pin out.
11. Typical rejection is defined as the typical rejection at the worst frequency in the band.

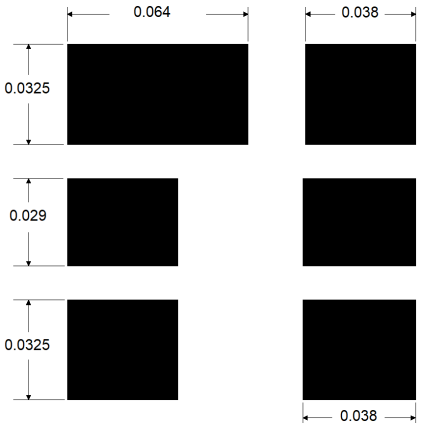
Wideband Filter Plots



Narrowband Filter Plots





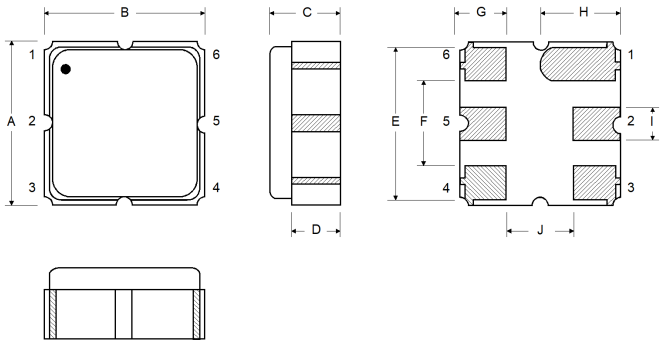


PCB Pad Layout in Inches

Rating		Value	Units
Input Power Level		10	dBm
DC Voltage		12	VDC
Storage Temperature		-55 to +125	°C
Operable Temperature Range		-40 to +125	°C
Soldering Temperature	(10 seconds / 5 cycles maximum)	260	°C

Electrical Connections

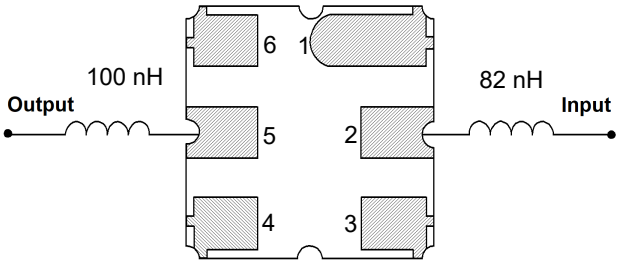
Pin	Connection
1	Input Ground
2	Input
3	Ground
4	Output Ground
5	Output
6	Ground



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



Optional Electrical Connections

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

Matching Circuit to 50Ω