RF1199

291.4 MHz SAW Filter

- ***Ideal Front-End Filter for 291.4 MHz Wireless Receivers***
- ***Low-Loss, Coupled-Resonator Quartz Design***
- ***Simple External Impedance Matching***
- ***Rugged TO39 Hermetic Package***

The RF1199 is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 291.4 MHz receivers.

TO39-3 Case

Absolute Maximum Ratings

Rating	Value	Units
Incident RF Power	+13	dBm
DC Voltage Between Any Two Pins (Observe ESD Precautions)	±30	VDC
Case Temperature	-45 to +85	°C

Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C	Absolute Frequency	f_C	2, 3, 4, 5, 6	309.020	291.40	310.080	MHz
	Tolerance from 291.4 MHz	Δf_C				±100	kHz
Insertion Loss		IL	2, 4, 7			5.0	dB
3 dB Bandwidth		BW_3	2, 3, 4, 7	500	600	800	kHz
Rejection	at f_C - 21.4 MHz (Image)		2	45	50		dB
	at f_C - 10.7 MHz (LO)			15	40		
	Ultimate				80		
Temperature	Operating Case Temp.	T_C	4, 7, 8	-35		+85	°C
	Turnover Temperature	T_O		24	39	54	°C
	Turnover Frequency	f_O			f_C+2		kHz
	Freq. Temp. Coefficient	FTC			0.032		ppm/°C^2
Frequency Aging	Absolute Value during the First Year	|fA|	1		≤10		ppm/yr
External Impedance	Series Inductance	L	2, 7		85		nH
	Shunt Capacitance	C		5		18	pF
Lid Symbolization (in addition to Lot and/or Date Codes)		RFM RF1199					

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

Notes:

1. 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.
2. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture, which is connected to a 50Ω test system with VSWR ≤ 1.2:1. The test fixture's L and C are adjusted for minimum insertion loss at the filter center frequency, f_C. Note that insertion loss, bandwidth, and passband shape are dependent on the impedance matching component values and quality. The optimum impedance matching component values are dependent on circuit parasitic losses.
3. The frequency f_C is defined as the midpoint between the 3dB frequencies.
4. Unless noted otherwise, specifications apply over the entire specified operating temperature range.
5. One or more of the following U.S. Patents apply: 4,454,488; 4,616,197; and others pending.
6. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.
7. The design, manufacturing process, and specifications of this device are subject to change without notice.
8. The turnover temperature, T_O, is the temperature of maximum (or turnover) frequency, f_O. The nominal center frequency at any case temperature, T_C, may be calculated from: $f = f_O [1 - FTC (T_O - T_C)2]$.

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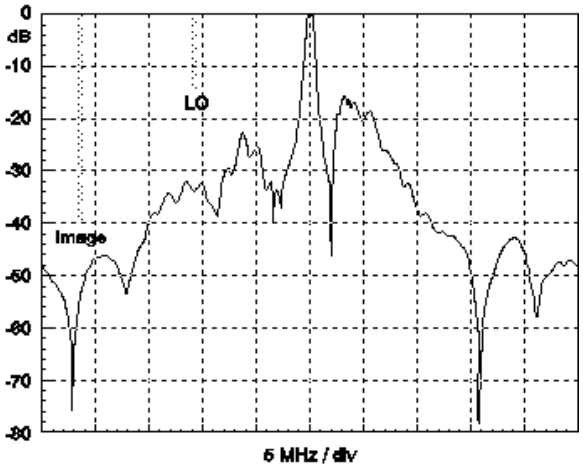
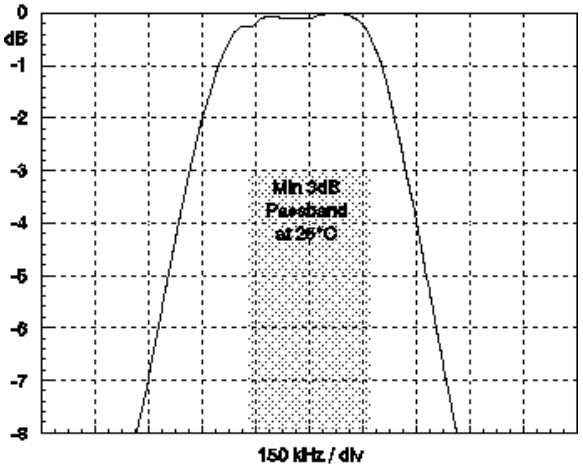
Typical Filter Response

Typical filter responses are shown below. The actual response is dependent on external impedance matching and board layout.

Amplitude Response

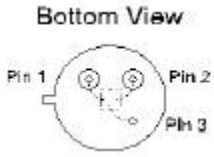


Amplitude Response

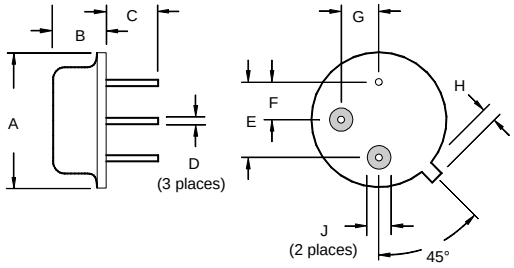


Electrical Connections

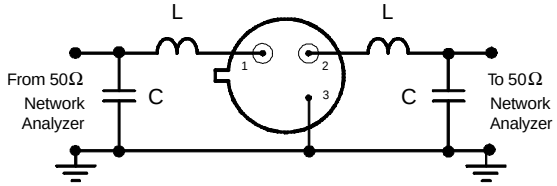
Pin	Connection
1	Input or Output
2	Output or Input
3	Case Ground



Case Design



Typical Test Circuit



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A		9.30		0.366
B		3.18		0.125
C	2.50	3.50	0.098	0.138
D	0.46 Nominal		0.018 Nominal	
E	5.08 Nominal		0.200 Nominal	
F	2.54 Nominal		0.100 Nominal	
G	2.54 Nominal		0.100 Nominal	
H		1.02		0.040
J	1.40		0.055	