

- **Ideal Front-End Filter for 291.4 MHz Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**
- **Rugged TO39 Hermetic Package**
- **Complies with Directive 2002/95/EC (RoHS)**



RF1199

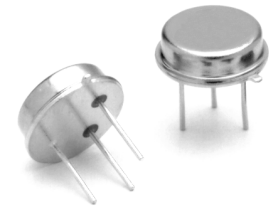
297.4 MHz SAW Filter

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.

Absolute Maximum Ratings

Rating	Value	Units
Incident RF Power	+13	dBm
Maximum DC voltage between any Two terminals	±30	VDC
Case Temperature	-45 to +85	°C
Maximum Soldering Profile	265°C for 10 s	

Rating	Value	Units
Incident RF Power	+13	dBm
DC Voltage Between Any Two Pins (Observe ESD Precautions)	±30	VDC
Case Temperature ⁵	-45 to +85	°C



TO39-3 Case

Electrical Specifications

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at 25°C Absolute Frequency Tolerance from 291.4 MHz	f_c	1, 2	291.300	291.40	291.500	MHz
	Δf_c				±100	kHz
Insertion Loss	IL	1			5.0	dB
3 dB Bandwidth	BW ₃	1, 2	500	600	800	kHz
Rejection at $f_c - 21.4$ MHz (Image) at $f_c - 10.7$ MHz (LO) Ultimate		1	45	50		dB
			15	40		
				80		
Temperature Operating Case Temp. Turnover Temperature Turnover Frequency Freq. Temp. Coefficient	T_C	3, 4	-35		+85	°C
	T_O		24	39	54	°C
	f_O			$f_c + 2$		MHz
	FTC			0.032		ppm/°C ²
Frequency Aging Absolute Value during the First Year	fA	5		≤10		ppm/yr
External Impedance Series Inductance Shunt Capacitance	L	1		85		nH
	C		5		18	pF
Lid Symbolization (in addition to Lot and/or Date Codes)	RFM RF1199					

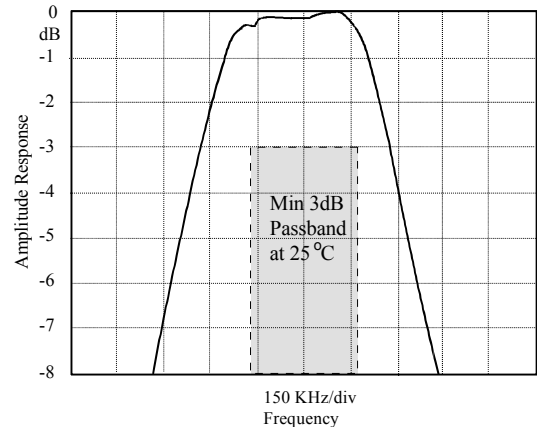
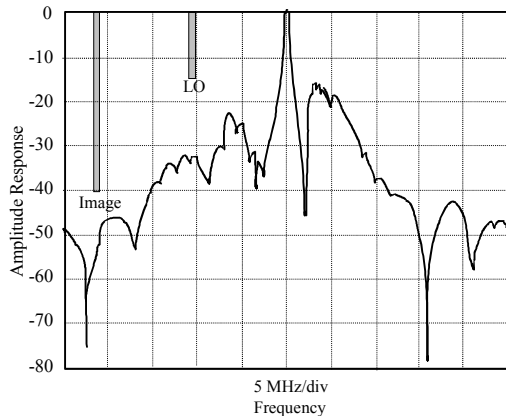
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

1. 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, 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.
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 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.

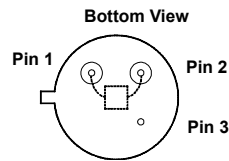
Typical Filter Response

Typical filter responses are shown below. The actual response is dependent on external impedance matching and circuit layout. Illustrated frequencies and minimum rejection for LO and IMAGE are shown only for superhet receivers with 10.7 MHz IF.

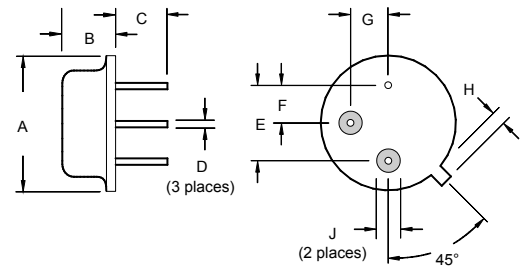


Electrical Connections

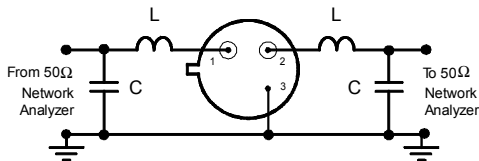
Pin	Connection
1	Input or Output
2	Output or Input
3	Case Ground



Case Design



Typical Demonstration Circuit



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A		9.40		0.370
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	