RF1199

297.4 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***
- ***Complies with Directive 2002/95/EC (RoHS)***

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
Max. DC voltage between any 2 terminals	±30	VDC
Case Temperature	-45 to +85	°C
Max. 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

Electrical Specifications

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

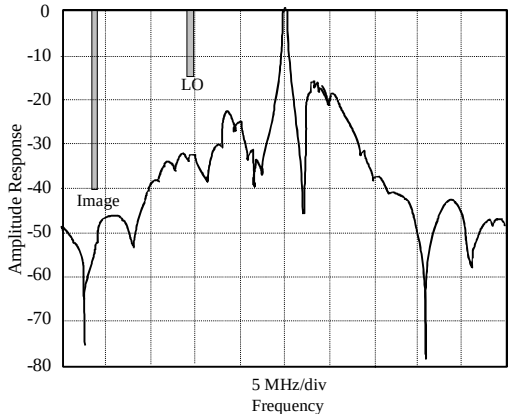
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

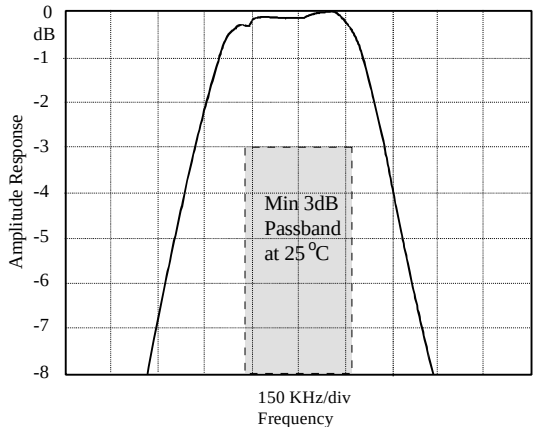
Notes:

1. 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 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.

Typical Filter Response

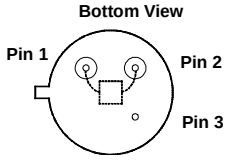
Typical filter responses are shown below. The actual response is dependent on external impedance matching and circuit layout. Illustrated frequencies and minimum rejection for LO and IMAGE are shown only for superhet receivers with 10.7 MHz IF.



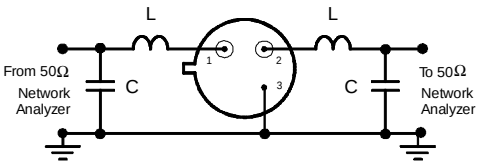


Electrical Connections

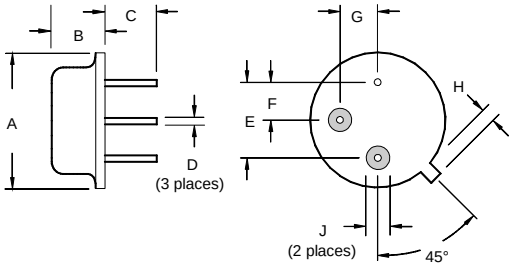
Pin	Connection
1	Input or Output
2	Output or Input
3	Case Ground



Typical Demonstration Circuit



Case Design



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	