RP1098

307.3 MHz SAW Resonator

- *Designed for 307.3 MHz Local Oscillators*
- *180° Nominal Insertion Phase at Resonance*
- *Rugged, Hermetic, Low Profile TO-39 Case*

The RP1098 is a 2-port surface acoustic wave (SAW) resonator that provides reliable quartz frequency stabilization of fixed frequency oscillators at or near 307.3 MHz. Typical applications include the local oscillator of 318 MHz superhet recievers for wireless security and remote control systems operating in the USA (FCC Part 15), Canada (RSS-210) and Australia.

TO39-3 Case

ABSOLUTE MAXIMUM RATINGS

Rating	Value	Units
CW RF Power Dissipation	+10	dBm
DC Voltage between any 2 pins (See note 9)	±30	VDC
Case Temperature	-40 to +85	°C

ELECTRICAL CHARACTERISTICS

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency (+25°C)	Absolute Frequency	f_c	1	307.200	—	307.400	MHz
	Relative to 307.300 MHz	Δf_c		—	—	±100	kHz
Insertion Loss		IL	1	—	11	18.0	dB
Quality Factor	Unloaded Q	Q_U	2	—	13,000	—	—
	50 Ω Loaded Q	Q_L		—	9,600	—	
Temperature Stability	Turnover Temperature	T_o	2, 3	33	48	63	°C
	Turnover Frequency	f_o		—	f_c + 6	—	kHz
	Freq. Temp. Coefficient	FTC		—	0.037	—	ppm/°C^2
Frequency Aging			4	—	< ±10	—	ppm/yr
DC Insulation Resistance between any 2 pins			—	1.0	—	—	MΩ
RF Equivalent RLC Model	Motional Resistance	R_m	2, 5	—	256	695	Ω
	Motional Inductance	L_m		—	1.99801	—	mH
	Motional Capacitance	C_m		—	0.134251	—	fF
	Shunt Static Capacitance	C_o	5	1.0	1.3	1.6	pF

Lid Symbolization (in addition to lot and/or date code)	RFM P1098

Notes:
(Unless noted otherwise, case temperature, T_c = +25°C ±2°C.)

1. f_c is the frequency of minimum IL with the resonator in a 50 Ω test system with VSWR ≤ 1.2:1.
2. Derived mathematically from one or more of the following directly measured parameters: f_c, IL, 3 dB bandwidth, f_c vs. T_c, and C_o.
3. 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: $f = f_o [1 - FTC (T_o - T_c)^2]$. (Note that *oscillator* T_o is typically 20°C less than specified *resonator* T_o.)
4. 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 in subsequent years.
5. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. C_o is the measured static (nonmotional) capacitance between pin 1 and ground or pin 2 and ground and includes case parasitic capacitance.
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: 4,454,488 and 4,616,197. RFM® is a registered trademark of RF Monolithics, Inc.
8. Equipment utilitizing this device typically requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
9. CAUTION: ELECTROSTATIC SENSITIVE DEVICE. Observe precautions for handling.

