

- **Designed for 318.0 MHz Transmitters**
- **Very Low Series Resistance**
- **Quartz Stability**
- **Surface-mount Ceramic Case**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Tape and Reel Standard per ANSI/EIA-481**

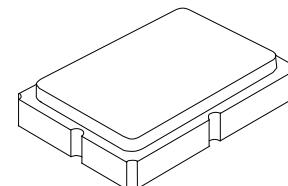
The RO3118A-1 is a one-port surface-acoustic-wave (SAW) resonator packaged in a surface-mount ceramic case. It provides reliable, fundamental-mode quartz frequency stabilization of fixed-frequency transmitters operating at 318.0 MHz.

Absolute Maximum Ratings

Rating	Value	Units
CW RF Power Dissipation (See: Typical Test Circuit)	+0	dBm
DC Voltage Between Terminals (Observe ESD Precautions)	±30	VDC
Case Temperature	-40 to +85	°C
Soldering Temperature (10 seconds / 5 cycles maximum)	260	°C

RO3118A-1

**318.0 MHz
SAW
Resonator**



Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency, +25 °C	f_C		317.950		318.050	MHz
	Δf_C				±50	kHz
Insertion Loss	IL			1.5	2.0	dB
Quality Factor	Q_U			12000		
	Q_L			2000		
Temperature Stability	T_O		10	25	40	°C
	f_O			f_C		
	FTC			0.032		ppm/°C ²
Frequency Aging	$ f_A $			≤10		ppm/yr
DC Insulation Resistance between Any Two Terminals			1.0			MΩ
RF Equivalent RLC Model	R_M			19.8		Ω
	L_M			118		μH
	C_M			2.1		fF
	C_O			2.9		pF
Test Fixture Shunt Inductance	L_{TEST}			79		nH
Lid Symbolization (YY= Year, WW = Week, S = Shift)			763, YYWWs			

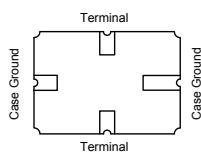
 **CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

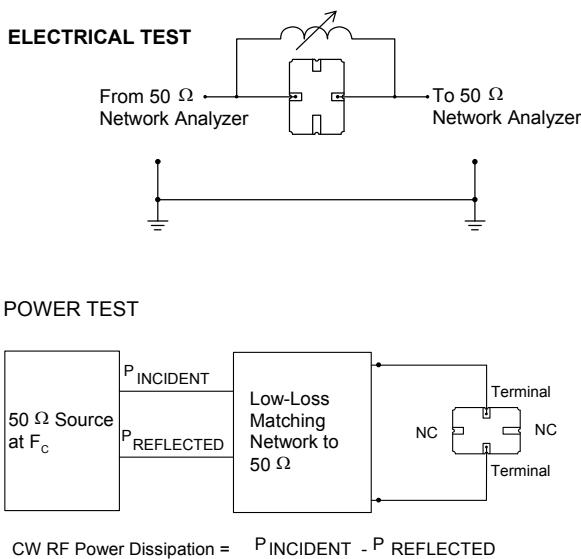
Electrical Connections

The SAW resonator is bidirectional and may be installed with either orientation. The two terminals are interchangeable and unnumbered. The callout NC indicates no internal connection. The NC pads assist with mechanical positioning and stability. External grounding of the NC pads is recommended to help reduce parasitic capacitance in the circuit.



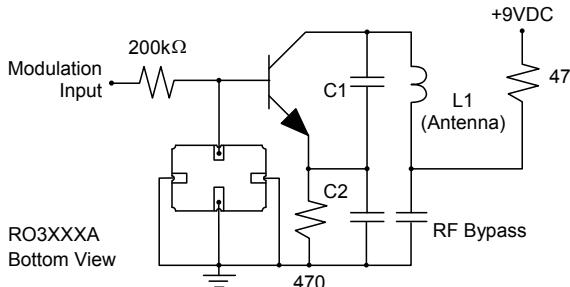
Typical Test Circuit

The test circuit inductor, L_{TEST} , is tuned to resonate with the static capacitance, C_0 , at f_C .

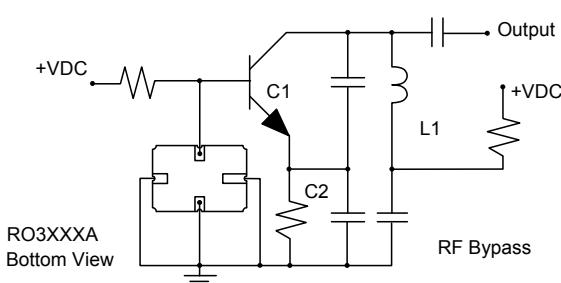


Typical Application Circuits

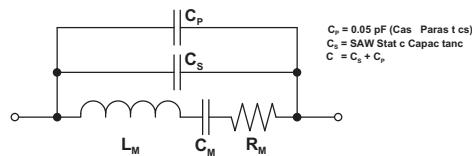
Typical Low-Power Transmitter Application



Typical Local Oscillator Applications

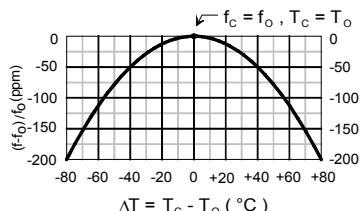


Equivalent RLC Model

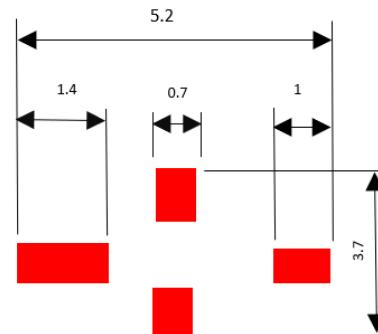
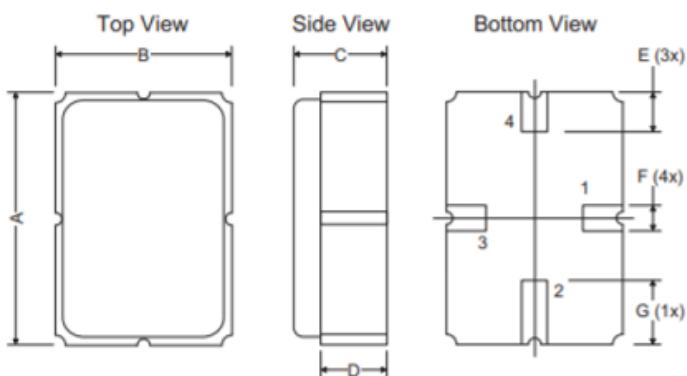


Temperature Characteristics

The curve shown on the right accounts for resonator contribution only and does not include LC component temperature contributions.



Case

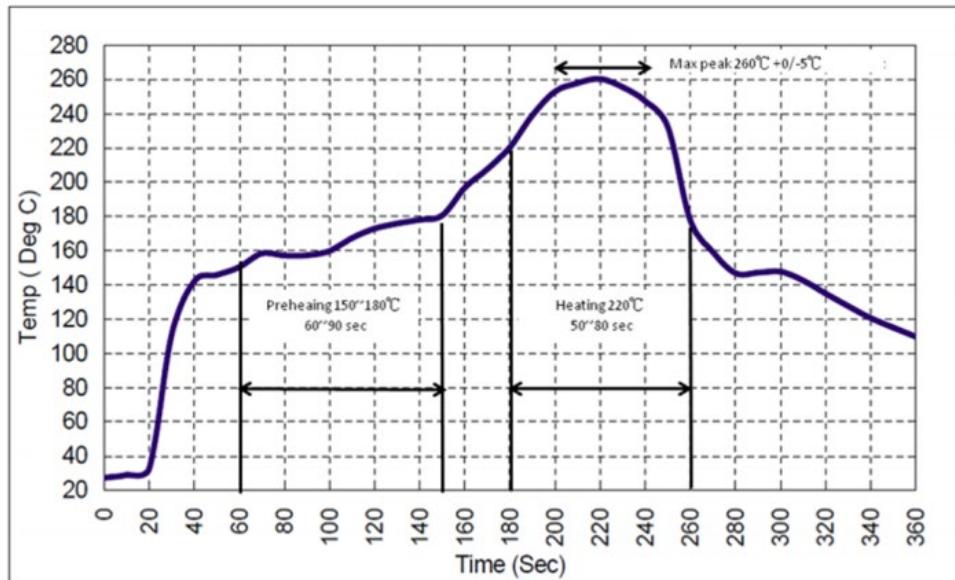


PCB Footprint

Dimensions	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	4.87	5.00	5.13	0.191	0.196	0.201
B	3.37	3.50	3.63	0.132	0.137	0.142
C	1.45	1.53	1.60	0.057	0.060	0.062
D	1.35	1.43	1.50	0.040	0.057	0.059
E	0.67	0.80	0.93	0.026	0.031	0.036
F	0.37	0.50	0.63	0.014	0.019	0.024
G	1.07	1.20	1.33	0.042	0.047	0.052

Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C +0/-5°C peak (10 seconds).
4. Time: 5 times maximum.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[RFMi:](#)

[RO3118A-1](#)