

- **Ideal for 318 MHz Automotive-Keyless-Entry Transmitters**
- **Very Low Series Resistance**
- **Quartz Stability**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Tape and Reel Standard per ANSI/EIA-481**
- **Moisture Sensitivity Level: 1**

The RO3118E-1 is a true one-port, surface-acoustic-wave (SAW) resonator in a surface-mount, ceramic case. It provides reliable, fundamental-mode, quartz frequency stabilization of local oscillators operating at approximately 318 MHz.

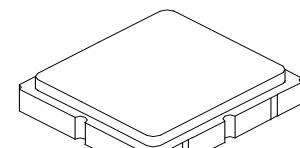
Absolute Maximum Ratings

Rating	Value	Units
Input Power Level	0	dBm
DC Voltage	12	VDC
Storage Temperature Range	-40 to +125	°C
Operating Temperature Range	-40 to +105	°C
Soldering Temperature (10 seconds / 5 cycles max.)	260	°C

RO3118E-1

318.0 MHz

SAW Resonator



SM3030-6 Case
3.0 X 3.0

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Frequency (+25 °C)	f_C		317.950		318.050	MHz
	Δf_C				±50	kHz
Insertion Loss	IL			1.6	2.2	dB
Quality Factor	Q_U		9000			
	Q_L		1500			
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			21		Ω
	L_M		93			μH
	C_M		2.7			fF
	C_O		2.8			pF
Test Fixture Shunt Inductance	L_{TEST}			89		nH
Lid Symbolization: Y = Year, WW = Week, S = Shift						
Standard Reel Quantity	Reel Size 7 Inch			500 Pieces / Reel		
	Reel Size 13 Inch			3000 Pieces / Reel		

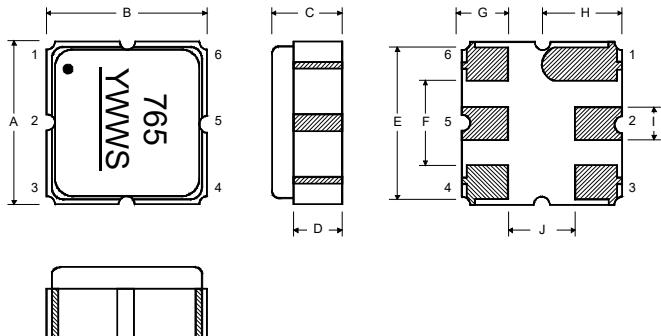


1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

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.

Pin	Connection
1	NC
2	Terminal
3	NC
4	NC
5	Terminal
6	NC



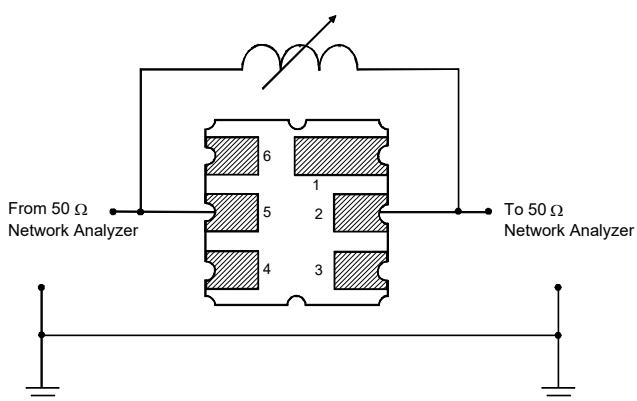
Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.0	3.13	0.113	0.118	0.123
B	2.87	3.0	3.13	0.113	0.118	0.123
C	1.12	1.25	1.38	0.044	0.049	0.054
D	0.77	0.90	1.03	0.030	0.035	0.040
E	2.67	2.80	2.93	0.105	0.110	0.115
F	1.47	1.6	1.73	0.058	0.063	0.068
G	0.72	0.85	0.98	0.028	0.033	0.038
H	1.37	1.5	1.63	0.054	0.059	0.064
I	0.47	0.60	0.73	0.019	0.024	0.029
J	1.17	1.30	1.43	0.046	0.051	0.056

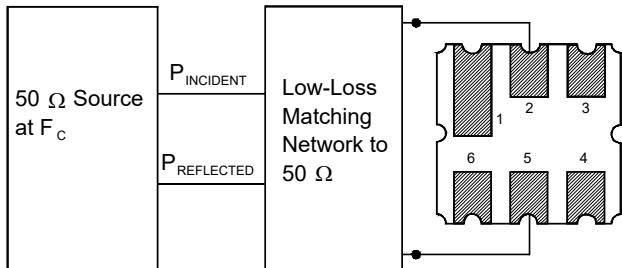
Typical Test Circuit

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

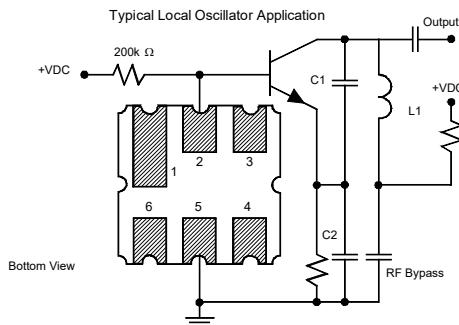
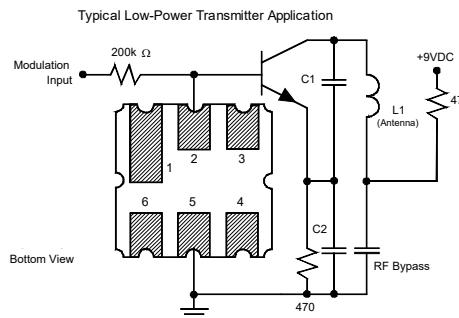
Electrical Test



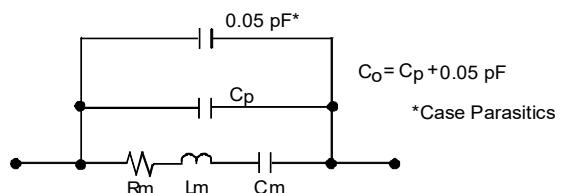
Power Test



Typical Application Circuits

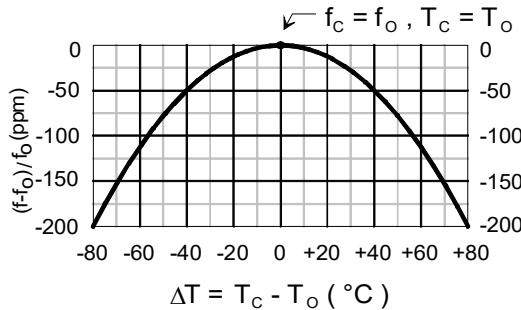


Equivalent LC Model



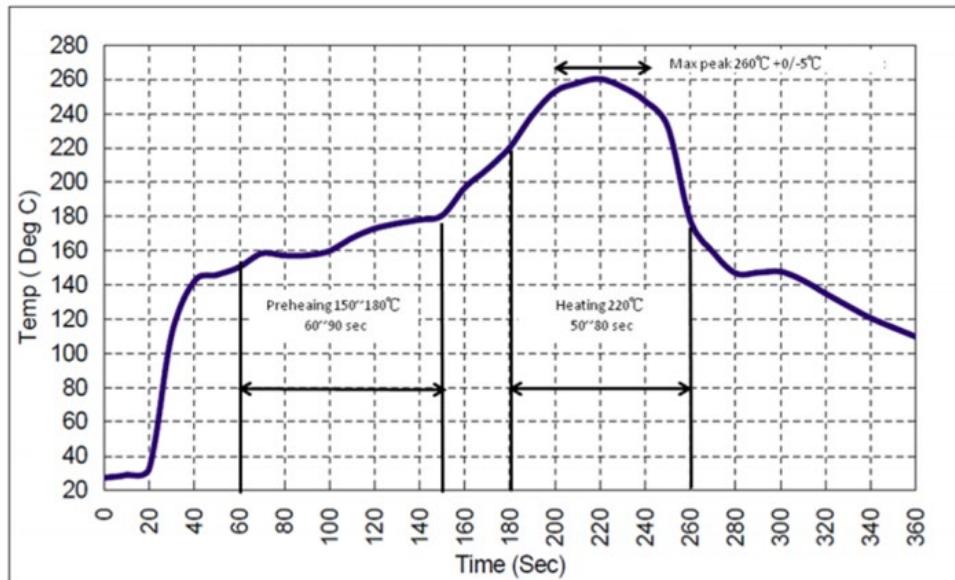
Temperature Characteristics

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



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

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