



**THE DATASHEET OF
RO3144D-2**



- **Ideal for 916.5 MHz Remote Control and Data Telemetry 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**
- **AEC-Q200 Qualified**

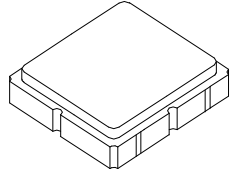
The RO3144D-2 is a true one-port, surface-acoustic-wave (SAW) resonator in a surface-mount ceramic case. It provides reliable, fundamental-mode stabilization of fixed-frequency transmitters operating at 916.5 MHz. This SAW resonator is designed specifically for use in remote control and data telemetry transmitters operating in the USA under FCC Part 15 regulations and in Canada under DoC RSS-210.

Absolute Maximum Ratings

Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +85	°C
Soldering Temperature (10 seconds / 5 cycles maximum)	260	°C

RO3144D-2

**916.5 MHz
SAW
Resonator**



**SM3838-6 Case
3.8 X 3.8**

Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units	
Frequency, +25 °C	f _C		916.400		916.600	MHz	
Tolerance from 916.5 MHz					±100		kHz
Insertion Loss	IL			1.20	2.5	dB	
Quality Factor	Q _U	Unloaded Q		6800			
			50Ω Loaded Q		700		
Temperature Stability	T _O	Turnover Temperature	10	25	40	°C	
			Turnover Frequency		f _C		MHz
				Frequency Temperature Coefficient	FTC	0.032	
Frequency Aging	fA	Absolute Value during the First Year		10		ppm	
DC Insulation Resistance between Any Two Terminals			1.0			MΩ	
RF Equivalent RLC Model	R _M	Motional Resistance		11.8		Ω	
	L _M	Motional Inductance		14		μH	
	C _M	Motional Capacitance		2.1		fF	
	C _O	Transducer Static Capacitance		2.1		pF	
Test Fixture Shunt Inductance	L _{TEST}			14.3		nH	
Lid Symbolization: Y = Year, WW = Week, S = Shift	768, YWWS						
Standard Reel Quantity	Reel Size 7 Inch		500 Pieces / Reel				
	Reel Size 13 Inch		3000 Pieces / Reel				

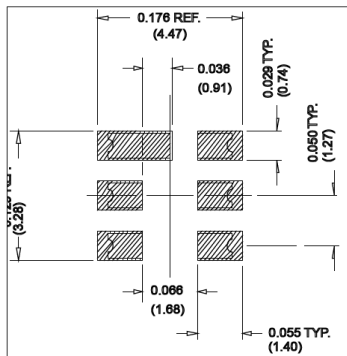
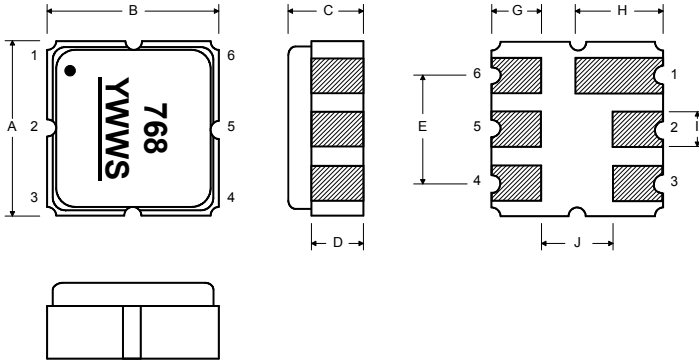
 **CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**
NOTES:

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.

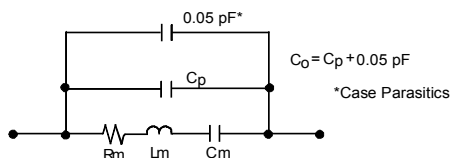
Pin	Connection
1	NC
2	Terminal
3	NC
4	NC
5	NC
6	Terminal
7	NC
8	NC



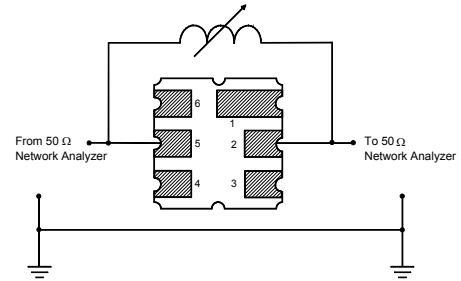
Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.60	3.80	4.00	0.142	0.150	0.157
B	3.60	3.80	4.00	0.142	0.150	0.157
C	1.10	1.30	1.50	0.043	0.050	0.060
D	0.95	1.10	1.25	0.037	0.043	0.049
E	2.39	2.54	2.69	0.094	0.100	0.106
G	0.90	1.00	1.10	0.035	0.040	0.043
H	1.90	2.00	2.10	0.748	0.079	0.083
I	0.50	0.60	0.70	0.020	0.024	0.028
J	1.70	1.80	1.90	0.067	0.071	0.075

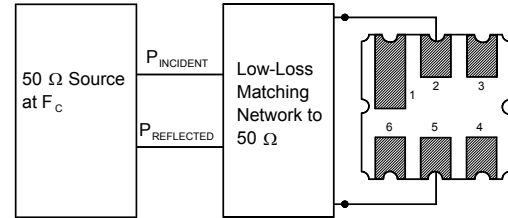
Equivalent RLC Model



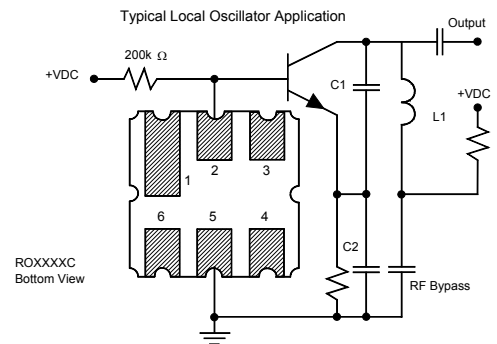
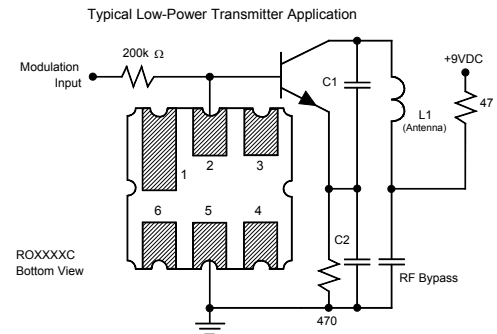
Parameter Test Circuit



Power Test Circuit

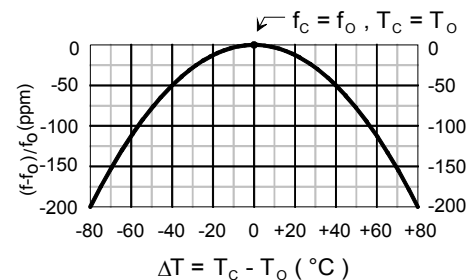


Example Application Circuits



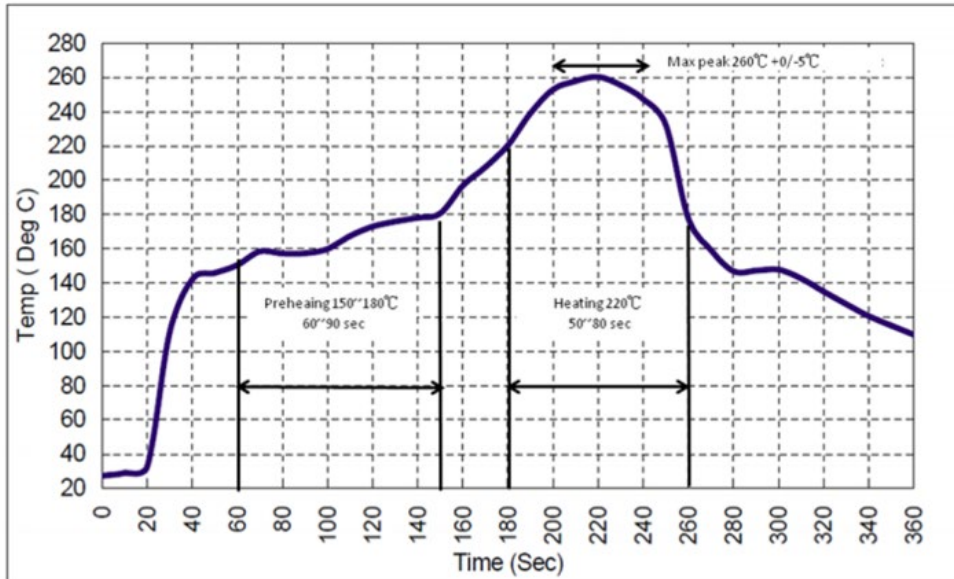
Temperature Characteristics

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.



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