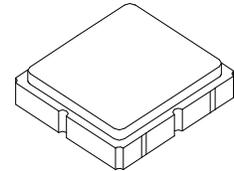


- **Ideal for 916.5 MHz Remote Control and Data Telemetry Transmitters**
- **Very Low Series Resistance**
- **Quartz Stability**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Tape and Reel Standard per ANSI/EIA-481**
- **Moisture Sensitivity Level: 1**
- **AEC-Q200 Qualified**

RO3144D-2

**916.5 MHz
SAW
Resonator**



**SM3838-6 Case
3.8 X 3.8**

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

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	Unloaded Q	Q_U		6800			
							50Ω Loaded Q
Temperature Stability	Turnover Temperature	T_O	10	25	40	°C	
	Turnover Frequency	f_O		f_C		MHz	
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C ²	
Frequency Aging	Absolute Value during the First Year	fA		10		ppm	
DC Insulation Resistance between Any Two Terminals			1.0			MΩ	
RF Equivalent RLC Model	Motional Resistance	R_M		11.8		Ω	
	Motional Inductance	L_M		14		μH	
	Motional Capacitance	C_M		2.1		fF	
	Transducer Static Capacitance	C_O		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				

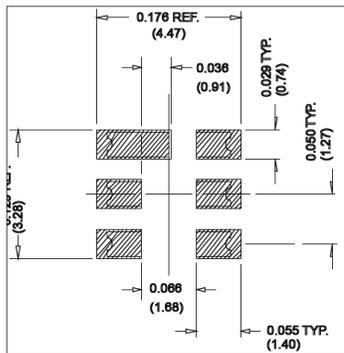
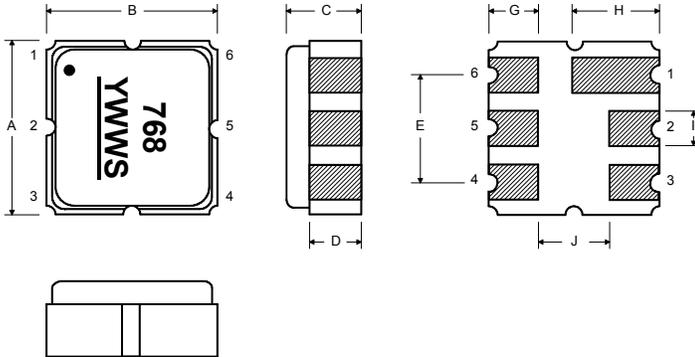
 **CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**
NOTES:

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.

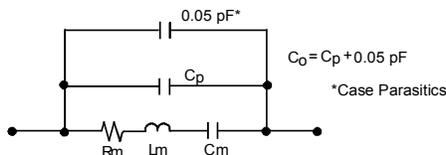
Pin	Connection
1	NC
2	Terminal
3	NC
4	NC
5	NC
6	Terminal
7	NC
8	NC



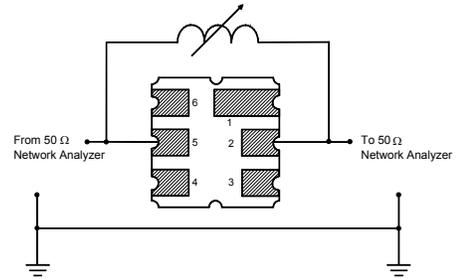
Case Dimensions

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

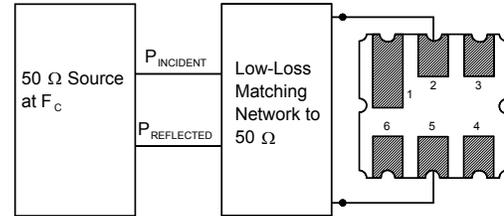
Equivalent RLC Model



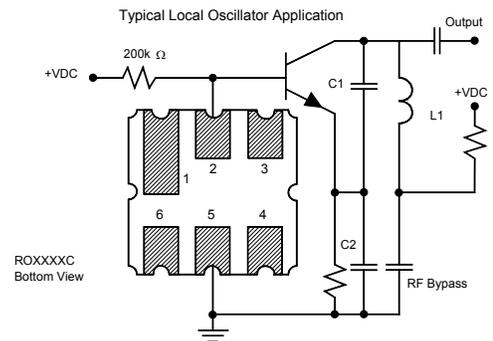
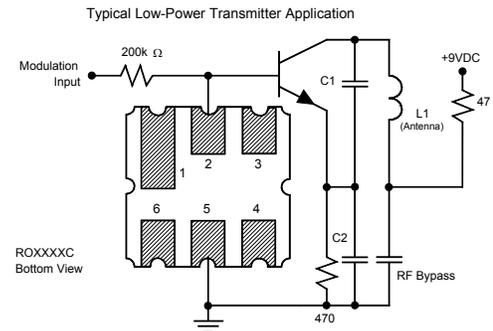
Parameter Test Circuit



Power Test Circuit

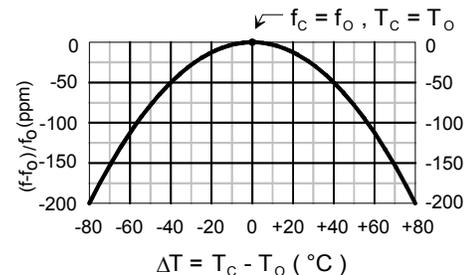


Example Application Circuits



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.

