



AEC-Q200

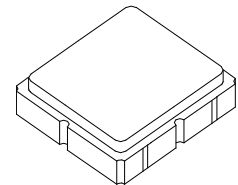
This component was always RoHS compliant from the first date of manufacture.

- 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



RO3144D

**916.5 MHz
SAW
Resonator**



**SM3838-6 Case
3.8 X 3.8**

The RO3144D 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		916.300		916.700	MHz	
Tolerance from 916.5 MHz							±200
	Δf _C						
Insertion Loss	IL			1.20	2.5	dB	
Quality Factor	Unloaded Q	Q _U		6800			
	50Ω Loaded Q	Q _L		700			
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	692, 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.

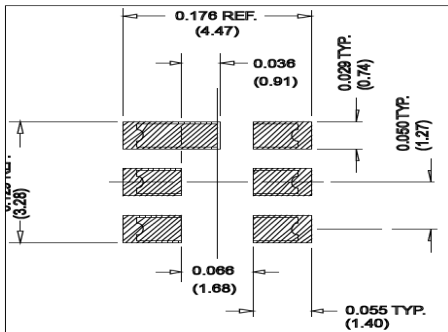
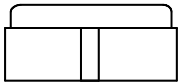
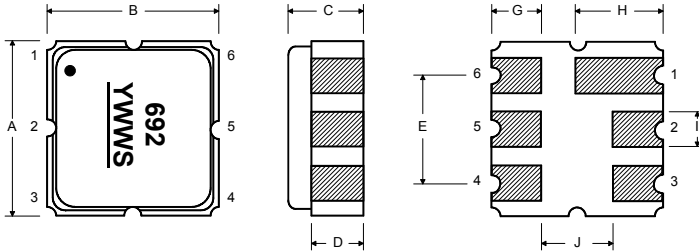
NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.

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.

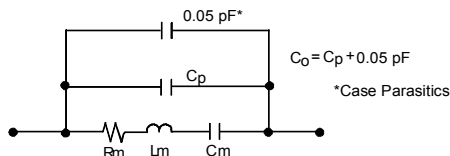
Pin	Connection
1	NC
2	Terminal
3	NC
4	NC
5	NC
6	Terminal
7	NC
8	NC



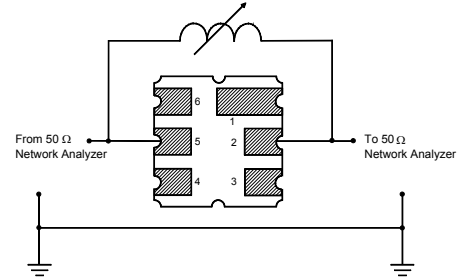
Case Dimensions

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

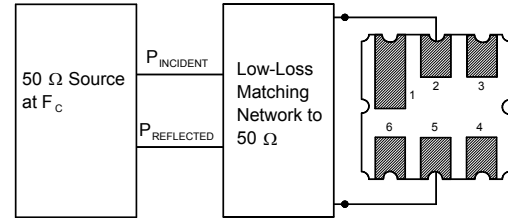
Equivalent RLC Model



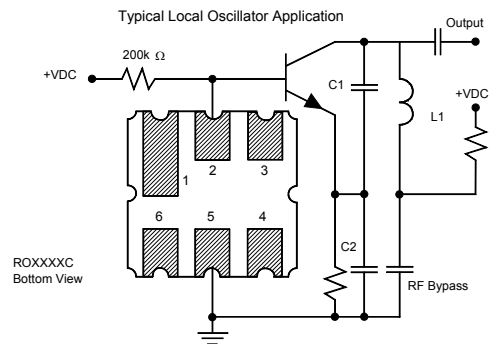
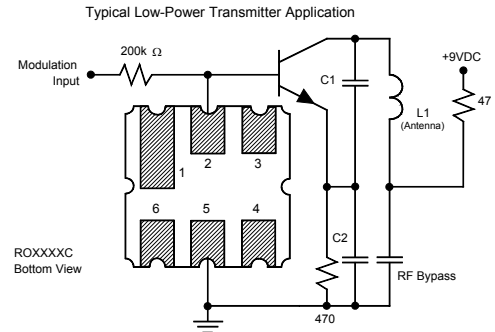
Parameter Test Circuit



Power Test Circuit

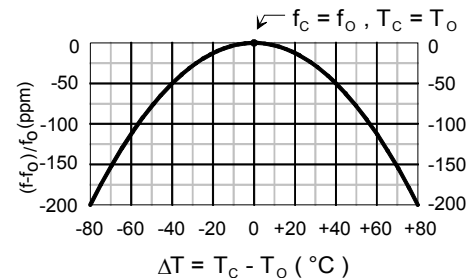


Example Application Circuits



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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