

- **Designed for 319.508 MHz MICs 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**

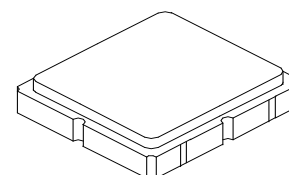
The RO3316E is a true one-port, surface-acoustic-wave (SAW) resonator in a surface-mount, ceramic case. It provides reliable, fundamental-mode, quartz frequency stabilization of fixed-frequency transmitters operating at 319.508 MHz.

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

RO3316E

**319.508 MHz
SAW
Resonator**



**SM3030-6 Case
3.0 X 3.0**

Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency, +25 °C Tolerance from 319.508 MHz	f_C		319.433	319.508	319.583	MHz
	Δf_C				±75	kHz
Insertion Loss	IL			1.6	2.0	dB
Quality Factor 50 Ω Loaded Q	Q_L			3400		
Temperature Stability Turnover Temperature Turnover Frequency Frequency Temperature Coefficient	T_O		15	25	35	°C
	f_O			f_C		
	FTC			0.032		ppm/°C ²
Frequency Aging Absolute Value during the First Year	$ f_A $			≤10		ppm/yr
DC Insulation Resistance between Any Two Terminals			1.0			MΩ
RF Equivalent RLC Model Motional Resistance Motional Inductance Motional Capacitance Shunt Static Capacitance	R_M			20.2	25.9	Ω
	L_M			216.33		μH
	C_M			1.147		fF
	C_O			1.85	2.05	pF
Lid Symbolization (Y = Year, WW = Week, S = Shift)			8B, <u>YWWS</u>			



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

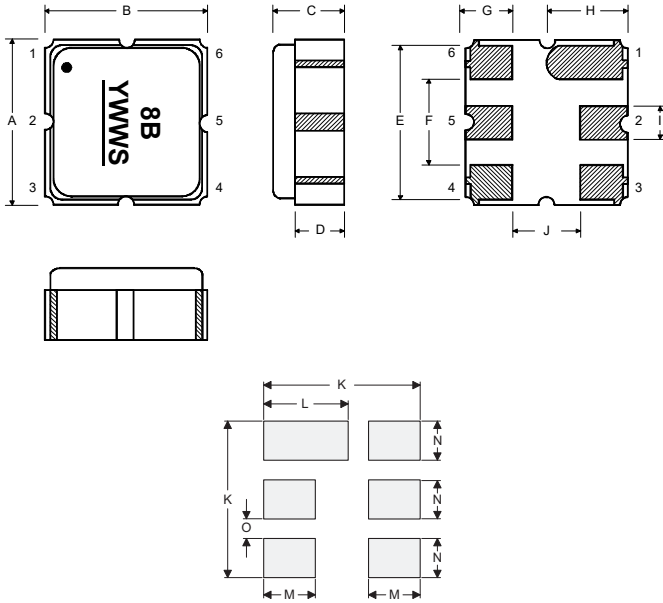
NOTES:

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.

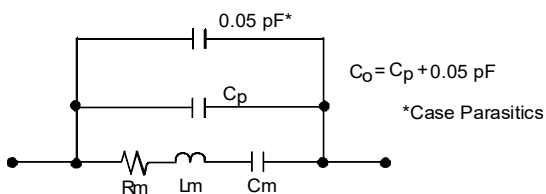
Pin	Connection
1	NC
2	Terminal
3	NC
4	NC
5	Terminal
6	NC



Case and Typical PCB Land Dimensions

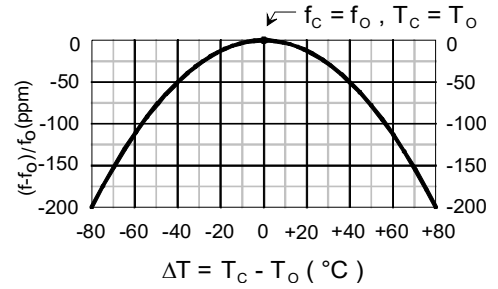
Ref	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.00	3.13	0.113	0.118	0.123
B	2.87	3.00	3.13	0.113	0.118	0.123
C	1.12	1.25	1.38	0.044	0.049	0.054
D	0.77	0.90	1.03	0.030	0.035	0.040
E	2.67	2.80	2.93	0.105	0.110	0.115
F	1.47	1.60	1.73	0.058	0.063	0.068
G	0.72	0.85	0.98	0.028	0.033	0.038
H	1.37	1.50	1.63	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
K		3.20			0.126	
L		1.70			0.067	
M		1.05			0.041	
N		0.81			0.032	
O		0.38			0.015	

Equivalent RLC Model

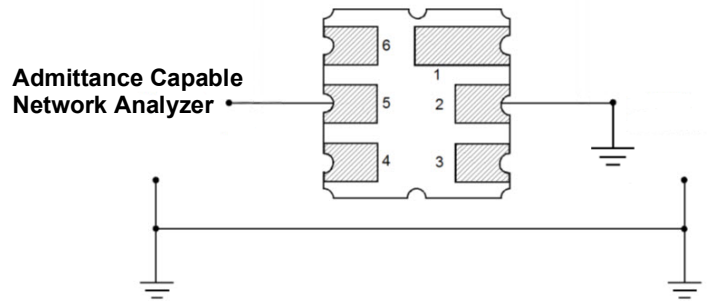


Temperature Characteristics

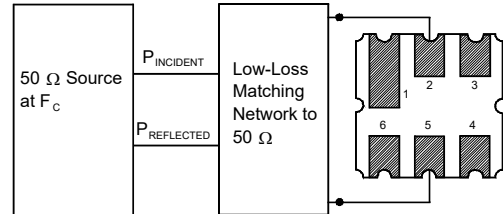
The curve shown accounts for resonator contribution only and does not include external LC component temperature effects.



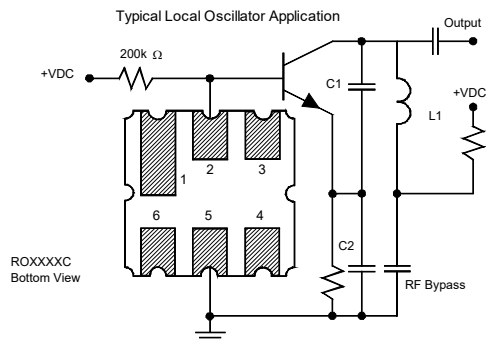
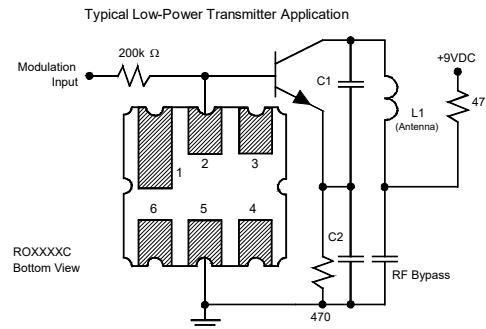
Characterization Test Circuit



Power Dissipation Test



Example Application Circuits



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.

