



AEC-Q200

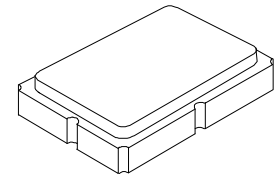
This component was always RoHS compliant from the first date of manufacture.

- **Designed for European 868.95 MHz SRD Transmitters**
- **Very Low Series Resistance**
- **Quartz Stability**
- **Surface-mount Ceramic Case**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Tape and Reel Standard per ANSI/EIA-481**



RO3156A-2

**868.95 MHz
SAW Resonator**



SM5035-4

The RO3156A-2 is a one-port surface-acoustic-wave (SAW) resonator packaged in a surface-mount ceramic case. It provides reliable, fundamental-mode quartz frequency stabilization of fixed-frequency transmitters operating at 868.95 MHz. The RO3156A-2 is designed specifically for SRD transmitters operating in Europe under ETSI EN 300 220-2.

Absolute Maximum Ratings

Rating	Value	Units
CW RF Power Dissipation	+5	dBm
DC Voltage Between Terminals	±30	VDC
Case 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		868.850		869.050	MHz
Tolerance from 868.95 MHz	Δf_C				±100	kHz
Insertion Loss	IL			1.2	2.0	dB
Quality Factor	Unloaded Q 50 Ω Loaded Q	Q_U Q_L		6200 850		
Temperature Stability	Turnover Temperature Turnover Frequency Frequency Temperature Coefficient	T_O f_O FTC	10	25 f_C	40	°C kHz ppm/°C ²
Frequency Aging	Absolute Value during the First Year	fA		<±10		ppm/yr
DC Insulation Resistance between Any Two Terminals			1.0			M Ω
RF Equivalent RLC Model	Motional Resistance Motional Inductance Motional Capacitance Shunt Static Capacitance	R_M L_M C_M C_O		14.5 18.0 2.0 2.1		Ω μ H fF pF
Test Fixture Shunt Inductance		L_{TEST}		15.8		nH
Lid Symbolization		828, YYWWS				

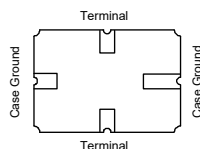
 **CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

NOTES:

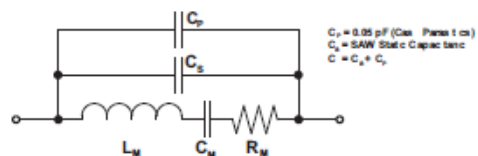
1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.

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.

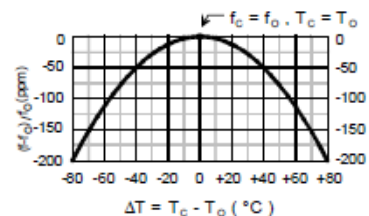


Equivalent RLC Model

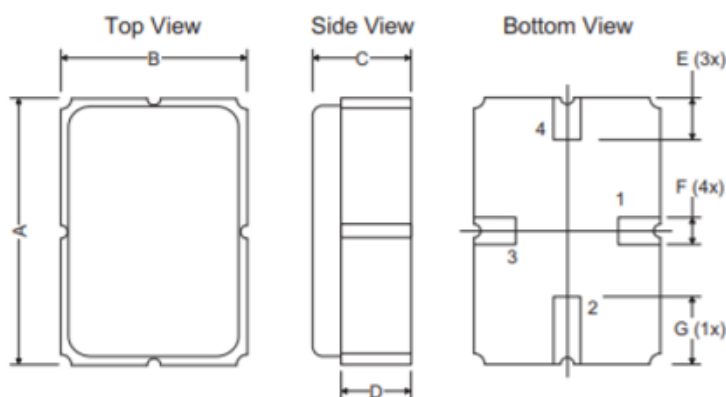


Temperature Characteristics

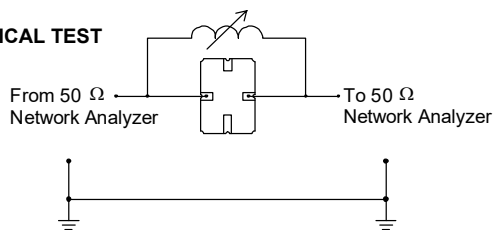
The curve shown on the right accounts for resonator contribution only and does not include LC component temperature contributions.



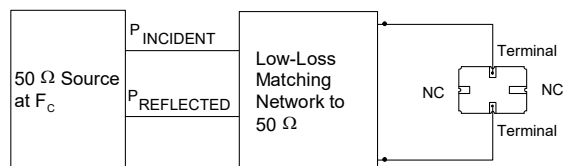
Case



ELECTRICAL TEST



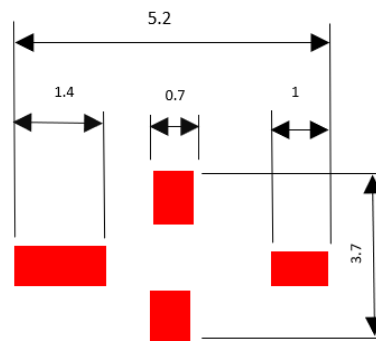
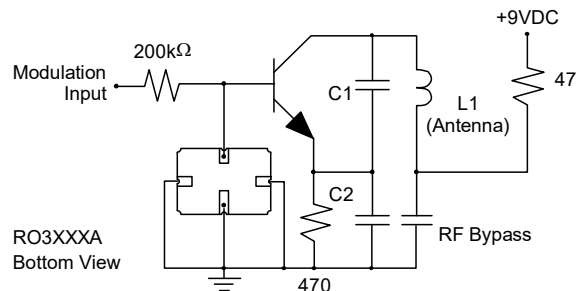
POWER TEST



$$\text{CW RF Power Dissipation} = P_{\text{INCIDENT}} - P_{\text{REFLECTED}}$$

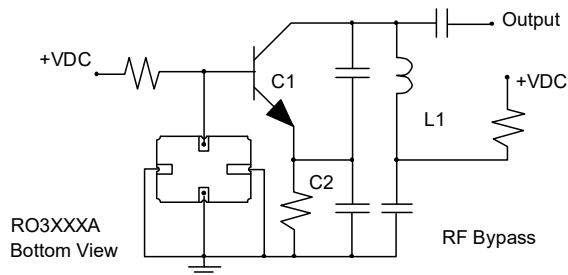
Typical Application Circuits

Typical Low-Power Transmitter Application



PCB Footprint

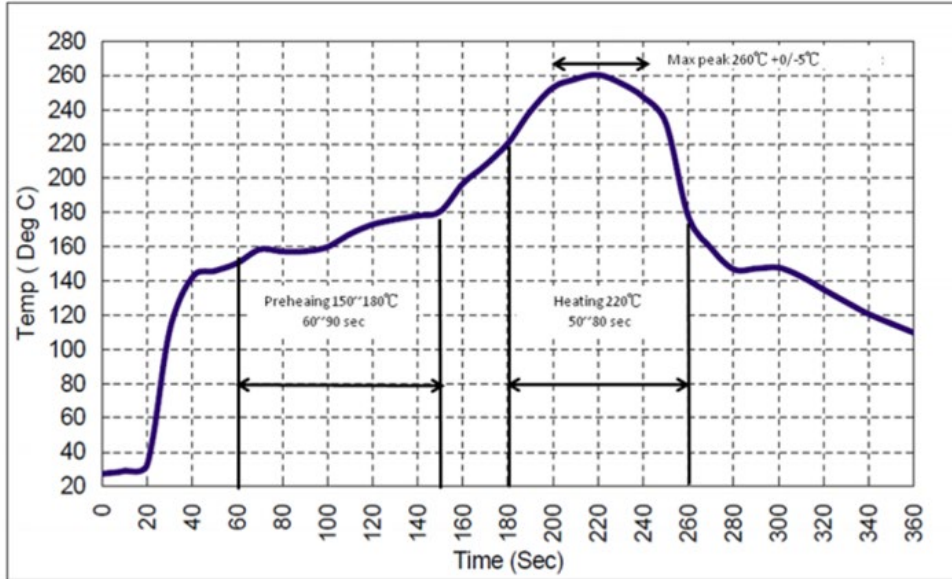
Typical Local Oscillator Applications



Dimensions	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	4.87	5.00	5.13	0.191	0.196	0.201
B	3.37	3.50	3.63	0.132	0.137	0.142
C	1.45	1.53	1.60	0.057	0.060	0.062
D	1.35	1.43	1.50	0.040	0.057	0.059
E	0.67	0.80	0.93	0.026	0.031	0.036
F	0.37	0.50	0.63	0.014	0.019	0.024
G	1.07	1.20	1.33	0.042	0.047	0.052

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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