

• Very Low Series Resistance

Quartz Stability

Rating

Input Power Level

AEC-Q200 This component was always RoHS compliant from the first date of manufacture.

RO3101C • Ideal for European 433.92 MHz Remote Control and Security Transmitters 433.92 MHz SAW Complies with Directive 2002/95/EC (RoHS) • Tape and Reel Standard per ANSI/EIA-481 Resonator The RO3101C is a true one-port, surface-acoustic-wave (SAW) resonator in a surface-mount ceramic case. It provides reliable, fundamental-mode, guartz frequency stabilization of fixed-frequency transmitters operating at 433.92 MHz. This SAW is designed specifically for remote control and wireless security transmitters operating in Europe under ETSI I-ETS 300 220. Units Value SM5050-8 Case 0 dBm 5 X 5 C

Absolute Maximum Ratings

DC Voltage	12	VDC
Storage Temperature	-40 to +85	°C
Operating Temperature	-40 to +85	°C
Soldering Temperature (10 seconds / 5 cycles maximum)	260	°C

Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency, +25 °C	Absolute Frequency	f _C		433.845		433.995	MHz
	Tolerance from 433.920 MHz	Δf_{C}				±75	kHz
Insertion Loss		IL			1.2	2.5	dB
Quality Factor	Unloaded Q	Q _U			9000		
	50Ω Loaded Q	QL			1200		
Temperature Stability	Turnover Temperature	Τ _Ο		10	25	40	°C
	Turnover Frequency	f _O			f _C		
	Frequency Temperature Coefficient	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	R _M			15	33	Ω
	Motional Inductance	L _M			48.6		μH
	Motional Capacitance	C _M			2.8		fF
	Shunt Static Capacitance	CO			2.6		pF
Test Fixture Shunt Inductance		L _{TEST}			52.1		nH
Lid Symbolization (in addition to Lot and/or Date Codes)		703, <u>YWWS</u>					
Standard Reel Quantity	Reel Size 7 Inch	500 Pieces/Reel					
	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		





Dimension		mm			Inches			
	Min	Nom	Max	Min	Nom	Max		
Α	4.80	5.00	5.20	0.189	0.197	0.205		
В	4.80	5.00	5.20	0.189	0.197	0.205		
С	1.30	1.50	1.70	0.050	0.060	0.067		
D	1.98	2.08	2.18	0.078	0.082	0.086		
E	1.07	1.17	1.27	0.042	0.046	0.050		
F	0.50	0.64	0.70	0.020	0.025	0.028		
G	2.39	2.54	2.69	0.094	0.100	0.106		
н		1.27			0.050			
I		0.76			0.030			
J		1.55			0.061			
К		2.79			0.110			
L		0.76			0.030			
м		2.36			0.093			
N		1.55			0.061			
0		2.79			0.110			
Р		2.79			0.110			
Q		2.79			0.110			

Parameter Test Circuit







Example Application Circuits

Typical Low-Power Transmitter Application



Equivalent RLC Model



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.

