



Approved by:

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SPECIFICATION

P/N: TO39-SR868.3AGJM

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One-Port SAW Resonator

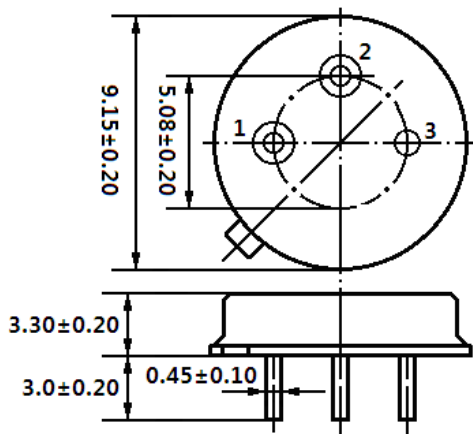
- I Ideal for 868.30MHz Remote Control Transmitters
- I Very Low Series Resistance
- I Rugged, Hermetic, Low-Profile TO39 or F11 Case

The SR868.3AGJM is a true one-port, surface-acoustic-wave (SAW) resonator in a low-profile TO39 or F11 or QCC8C case. It provides reliable, fundamental-mode, quartz frequency stabilization of fixed-frequency transmitters operating at 868.30MHz. The SR868.3AGJM is designed specifically for wireless remote control and security transmitters, Typically for Automotive-keyless-entry, Operating in the USA under FCC Part 15, in Canada under DoC RSS-210, and in Italy .

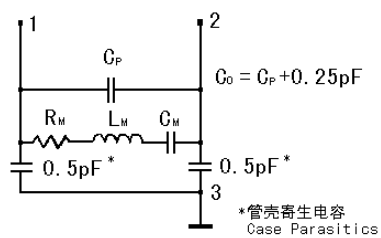
1. Marking

SJK/868.30

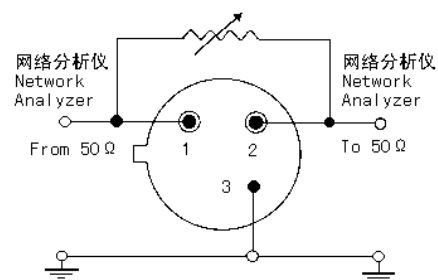
2. Package Dimension



3. Equivalent LC Model



4. Test Circuit



5. Absolute Maximum Ratings

Rating	Value	Units
CW RF Power Dissipation	+0	dBm
DC Voltage Between Any Two Pins	0	VDC
Case Temperature	-40 to +85	$^{\circ}\text{C}$

6. Electrical Characteristics

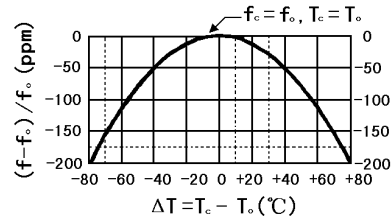
Characteristic		Sym	Min	Typical	Max	Units
Center Frequency (+25 °C)	Absolute Frequency	f_C	868.225	868.300	868.375	MHz
	Tolerance from 330.00MHz	Δf_C			± 75	kHz
Insertion Loss		IL		1.2	2.2	dB
Quality Factor	Unloaded Q	Q_U		14600		
	50 Ω Loaded Q	Q_L		2000		
Temperature Stability	Turnover Temperature	T_O	23	38	53	°C
	Turnover Frequency	f_O		$f_C + 2$		kHz
	Freq. Temp. Coefficient	FTC		0.037		ppm/°C ²
Frequency Aging Absolute Value during the First Year		$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			M Ω
RF Equivalent RLC Model	Motional Resistance	R_M		15	29	Ω
	Motional Inductance	L_M		109		μH
	Motional Capacitance	C_M		2.2		fF
	Pin 1 to Pin 2 Static Capacitance	C_O	2.3	2.6	2.9	pF
Transducer Static Capacitance		C_P		2.3		pF
Test Fixture Shunt Inductance		L_{TEST}		93		nH

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

Notes:

- Frequency aging is the change in f_C with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
- The center frequency, f_C , is measured at the minimum insertion loss point, IL_{MIN} , with the resonator in the 50 Ω test system ($VSWR \leq 1.2:1$). The shunt inductance, L_{TEST} , is tuned for parallel resonance with C_O at f_C .
- Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
- Unless noted otherwise, case temperature $T_C = +25^\circ C \pm 2^\circ C$.
- Derived mathematically from one or more of the following directly measured parameters: f_C , IL, 3dB bandwidth, f_C versus T_C , and C_O .
- Turnover temperature, T_O , is the temperature of maximum (or turnover) frequency, f_O . The nominal frequency at any case temperature, T_C , may be calculated from: $f = f_O [1 - FTC(T_O - T_C)^2]$. Typically, *oscillator* T_O is 20°C less than the specified *resonator* T_O .
- This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C_O is the static (nonmotional) capacitance between Pin1 and Pin 2 measured at low frequency (10MHz) with a capacitance meter. The measurement includes parasitic capacitance with floating case. For usual grounded case applications (with ground connected to either pin 1 or pin 2 and to the case), add approximately 0.25pF to C_O .

8. Temperature Characteristic



Modulation Input

200K Ω

1

2

3

NMR***

470 Ω

C1

L1

Antenna 天线

C2

RF Bypass 高频旁路

+9VDC

47

Local Oscillator Application

- 1 Mechanical Shock: The components shall remain within the electrical specifications after 1000 shocks, acceleration 392m/s^2 duration 6 milliseconds.
- 1 Vibration Fatigue: The components shall remain within the electrical specifications after loaded vibration at 20 Hz, amplitude 1.5 mm, for 2 hours.
- 1 Terminal Strength: The components shall remain within the electrical specifications after pulled 2 Kgs weight for 10 seconds towards an axis of each terminal.
- 1 High Temperature Storage: The components shall remain within the electrical specifications after being kept at the $85^\circ\text{C} \pm 2^\circ\text{C}$ for 48 hours, then kept at room temperature for 2 hours.
- 1 Low Temperature Storage: The components shall remain within the electrical specifications after being kept at the $-25^\circ\text{C} \pm 2^\circ\text{C}$ for 48 hours, then kept at room temperature for 2 hours.
- 1 Temperature Cycle: The components shall remain within the electrical specifications after 5 Cycles of high and low temperature testing (one cycle: 80°C for 30 minutes $\rightarrow 25^\circ\text{C}$ for 5 minutes $\rightarrow -25^\circ\text{C}$ for 30 minutes) than kept at room temperature for 2 hours.
- 1 Solder-heat Resistance: The components shall remain within the electrical specifications after dipped in the solder at 260°C for 10 ± 1 seconds, then kept at room temperature for 2 hours. (Terminal must be dipped leaving 1.5 mm from the case).
- 1 Solder ability: Solder ability of terminal shall be kept at more than 80% after dipped in the solder flux at $230^\circ\text{C} \pm 5^\circ\text{C}$ for 5 ± 1 second.

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