



- Ideal for European 433.92 MHz Transmitters**
- Very Low Series Resistance**
- Quartz Stability**
- Complies with Directive 2002/95/EC (RoHS)**



The RO3101E-1 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 433.92 MHz. This SAW is designed specifically for remote-control and wireless security transmitters operating in Europe under ETSI I-ETS 300 220 and in Germany under FTZ 17 TR 2100.

Absolute Maximum Ratings

Rating	Value	Units
Input Power Level	0	dBm
DC voltage	12	VDC
Storage Temperature Range	-40 to +125	°C
Operating Temperature Range	-40 to +105	°C
Soldering Temperature (10 seconds / 5 cycles max.)	260	°C

Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency (+25 °C) Tolerance from 433.920 MHz	f_C	2,3,4,5	433.870		433.970	MHz
	Δf_C				±50	kHz
Insertion Loss	IL	2,5,6		1.4	2.2	dB
Quality Factor Unloaded Q 50 Ω Loaded Q	Q_U	5,6,7	8280			
	Q_L		1228			
Temperature Stability Turnover Temperature Turnover Frequency Frequency Temperature Coefficient	T_O	6,7,8	10	25	35	°C
	f_O			f_C		
	FTC			0.032		ppm/°C ²
Frequency Aging	$ f_A $	1		≤10		ppm/yr
DC Insulation Resistance between Any Two Terminals		5	1.0			MΩ
RF Equivalent RLC Model Motional Resistance Motional Inductance Motional Capacitance Shunt Static Capacitance	R_M	5, 7, 9		17.5		Ω
	L_M			53.5		μH
	C_M			2.5		fF
	C_O		5, 6, 9	2.5		pF
Test Fixture Shunt Inductance	L_{TEST}	2, 7		53.2		nH
Lid Symbolization (in addition to Lot and/or Date Codes)				750 // YWWS		
Standard Reel Quantity	Reel Size 7 Inch	10		500 Pieces/Reel		
				3000 Pieces/Reel		

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

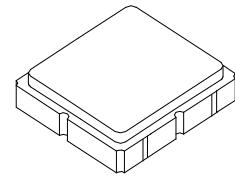


Notes:

- 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, $f_{OSCILLATOR}$ or $f_{TRANSMITTER}$ is approximately equal to the resonator f_C .
- One or more of the following United States patents apply: 4,454,488 and 4,616,197.
- Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
- Unless noted otherwise, case temperature $T_C = +25^\circ\text{C} \pm 2^\circ\text{C}$.
- The design, manufacturing process, and specifications of this device are subject to change without notice.
- Derived mathematically from one or more of the following directly measured parameters: f_C , IL , 3 dB 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 approximately equal to 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 the two terminals measured at low frequency (10 MHz) with a capacitance meter. The measurement includes parasitic capacitance with "NC" pads unconnected. Case parasitic capacitance is approximately 0.05 pF. Transducer parallel capacitance can be calculated as: $C_P \approx C_O - 0.05 \text{ pF}$.
- Tape and Reel Standard Per ANSI / EIA 481.

RO3101E-1

**433.92 MHz
SAW
Resonator**

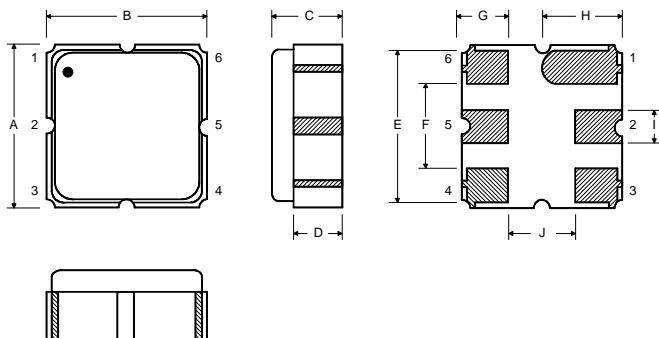


**SM3030-6 Case
3.0 X 3.0**

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



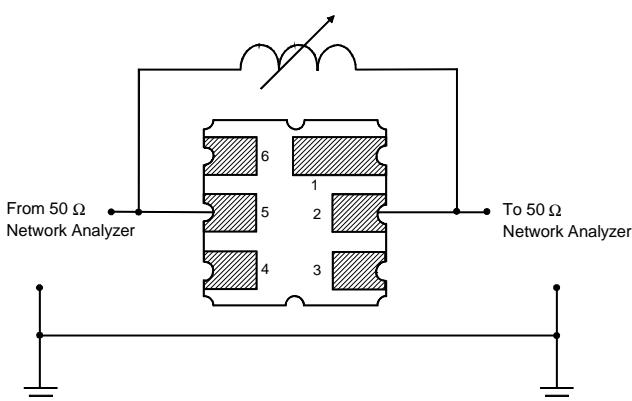
Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.0	3.13	0.113	0.118	0.123
B	2.87	3.0	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	1.6	1.73	0.058	0.063	0.068
G	0.72	0.85	0.98	0.028	0.033	0.038
H	1.37	1.5	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

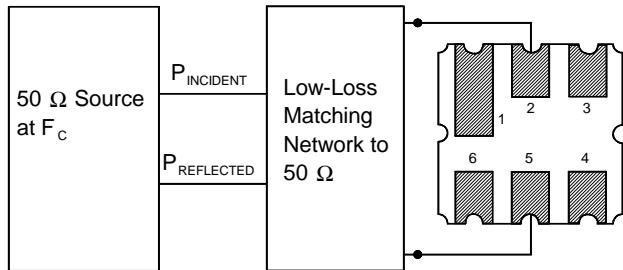
Typical Test Circuit

The test circuit inductor, L_{TEST} , is tuned to resonate with the static capacitance, C_O , at F_C .

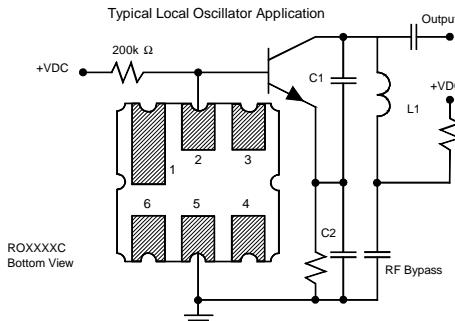
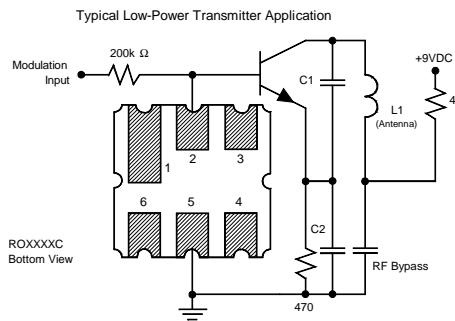
Electrical Test



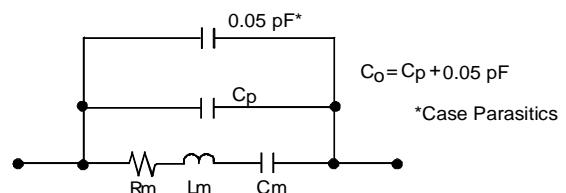
Power Test



Typical Application Circuits

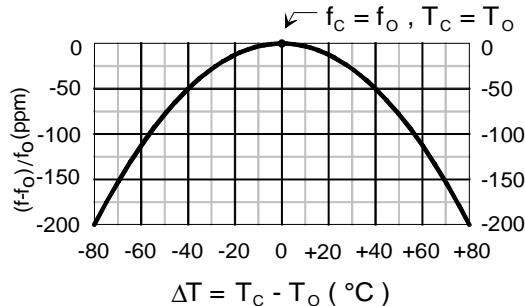


Equivalent LC Model



Temperature Characteristics

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



ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибуторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибуторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помочь разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru