



深圳市凯越翔电子有限公司

声表谐振器规格书

产品名称:	声表谐振器
产品型号:	F11/433.92M
产品参数:	± 75KHZ
原厂型号:	KF143392
凯越翔技术部:	董宗全

客户确认栏

认证印章 年 月 日	负责人印章 年 月 日
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- Ideal for 433.92 MHz Transmitters
- Very Low Series Resistance
- Quartz Stability
- Rugged, Hermetic, Low-Profile TO39 or F11 Case

The YRR433.92 is a true one-port, surface-acoustic-wave (SAW) resonator in a low-profile TO39 or F11 case. It provides reliable, fundamental-mode, quartz stabilization of fixed-frequency transmitters operating at 433.92 MHz. The YRR433.92 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.

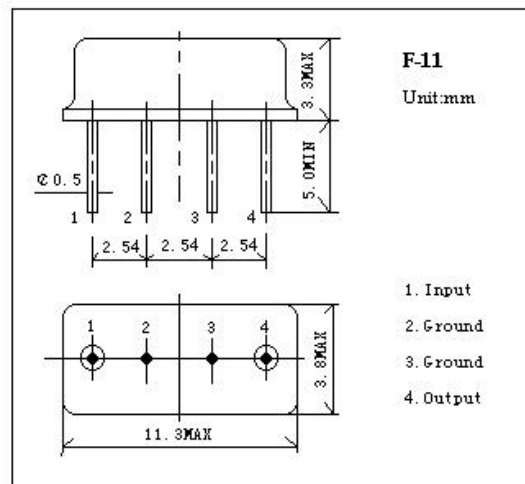
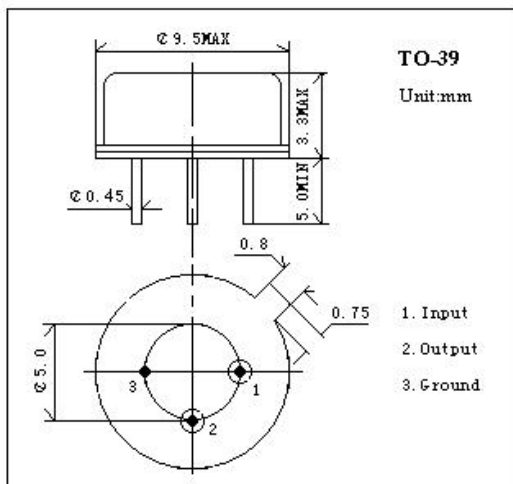
1. Marking

R433

Color: Black or Blue

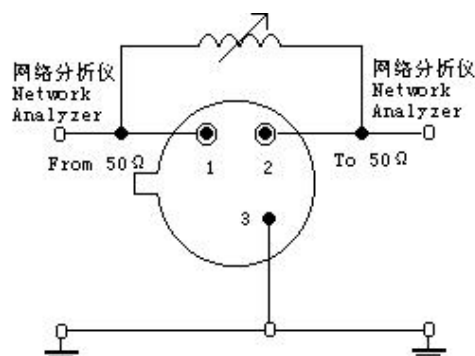
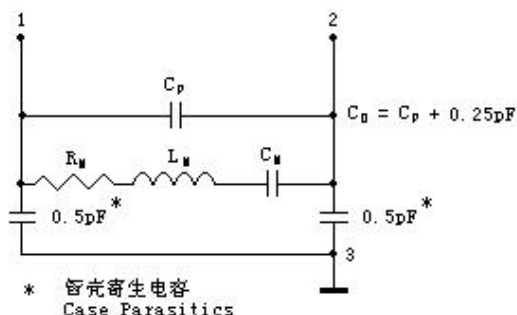
Center Frequency: 433.92 MHz

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 (Observe ESD Precautions)	± 30	VDC
Storage Temperature	-40 to ± 85	° C
Operation Temperature	-20 to ± 70	° C

6. Electrical Characteristics

Characteristic		Syc	Min	Typical	Max	Units
Center Frequency(+25°C)	Absolute Frequency	f_c	433.845	433.920	433.995	MHz
	Tolerance from 433.920MHz	Δf_c			± 75	kHz
Insertion Loss		IL		1.5	2.0	dB
Quality Factor	Unloaded Q	Q_U		12,800		
	50 Ω Loaded Q	Q_L		2,000		
Temperature Stability	Turnover Temperature	T_O	24	39	54	°C
	Turnover Frequency	f_O		$f_c + 2.7$		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		MΩ
RF Equivalent RLC Model	Motional Resistance	R_M		18	26	Ω
	Motional Inductance	L_M		86.0075		μH
	Motional Capacitance	C_M		1.56417		fF
	Pin 1 to 2 Static Capacitance	C_0	1.7	2.0	2.3	pF
Transducer Static Capacitance		C_p		1.7		pF
Test Fixture Shunt Inductance		L_{TEST}		78		nH

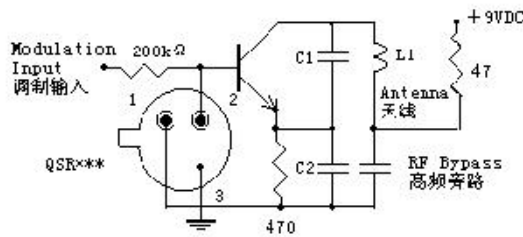
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

Notes:

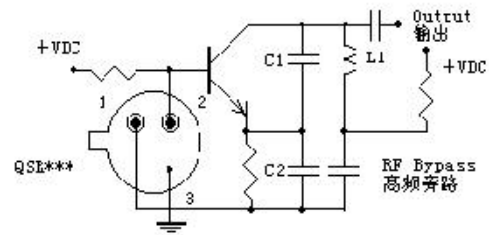
- Frequency aging is the change in f_c with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
- The center frequency, f_c , is measured at the 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_0 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 Pin 1 and Pin 2 measured at low frequency (10 MHz) 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 .

7. Application Circuits

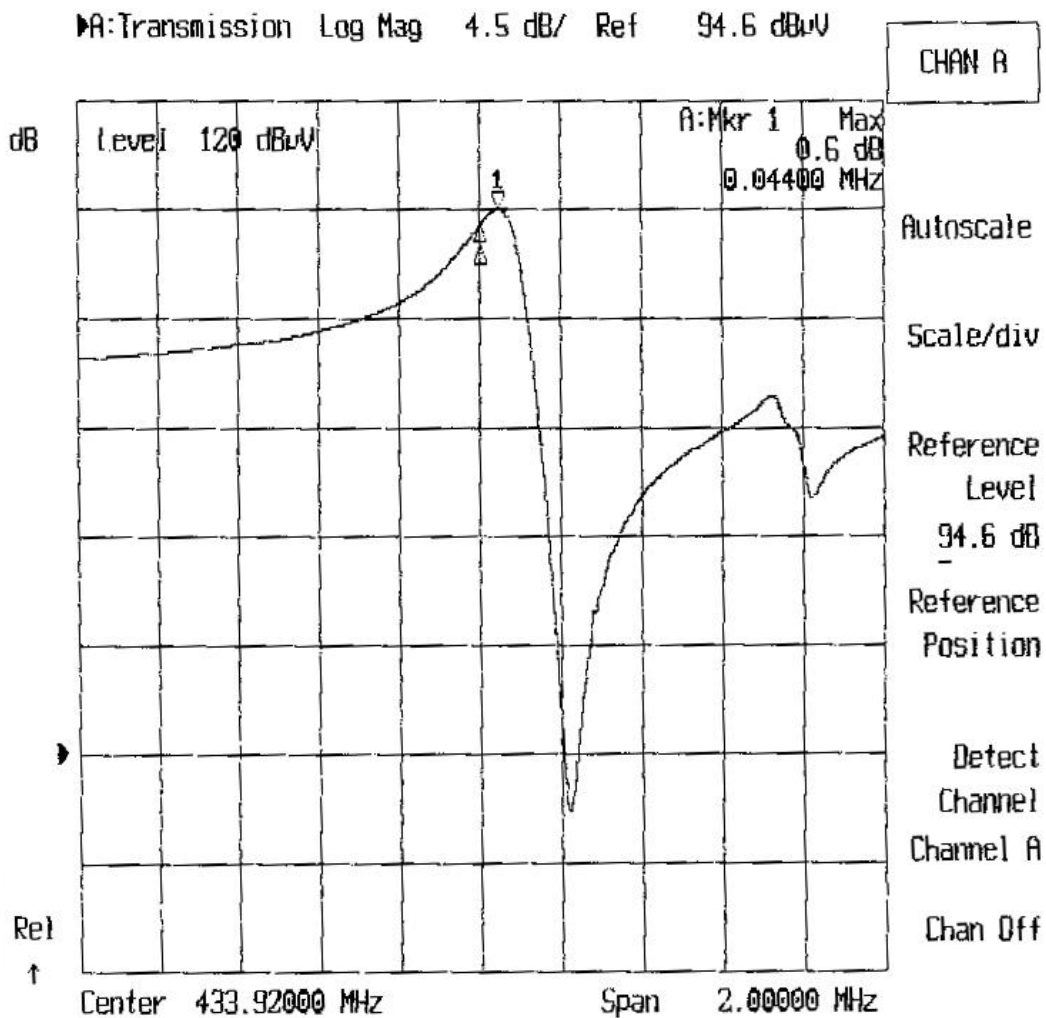


Low-Power Transmitter Application



Local Oscillator Application

8. Typical Frequency Response



9. Reliability

- Mechanical Shocks: The components shall remain within the electrical specifications after 1000 shocks, acceleration 392m/s^2 duration 6 milliseconds.
- Vibration Fatigue: The components shall remain within the electrical specifications after loaded vibration at 20 Hz, amplitude 1.5 mm, for 2 hours.
- Terminal Strength: The components shall remain within the electrical specifications after pulled 2 Kgs weight for 10 seconds towards an axis of each terminal.
- 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.
- 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.
- 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°C for 5 minutes \rightarrow -25°C for 30 minutes) then kept at room temperature for 2 hours.
- 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).
- Solderability: Solderability 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 seconds.

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