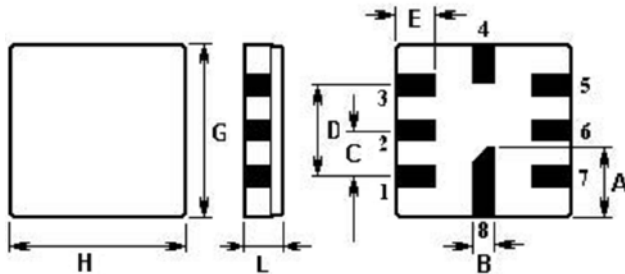


The LGER433A is a true one- port , surface- acoustic- wave( SAW) resonator in a low- profile QCC8C case. It provides reliable , fundamental- mode , quartz frequency stabilization of fixed- frequency transmitters operating at 433.920 MHz.

## 1. Package Dimension (QCC8C)



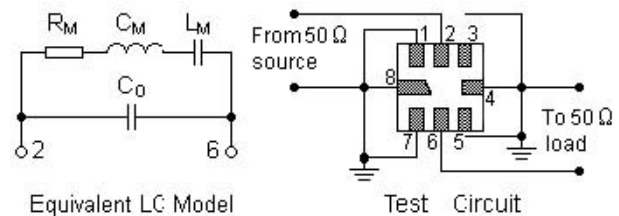
Pin		Configuration	
2		Terminal1	
6		Terminal2	
4,8		Case Ground	
Sign	Data (unit: mm)	Sign	Data (unit: mm)
A	2.08	E	1.2
B	0.6	F	1.35
C	1.27	G	5.0
D	2.54	H	5.0

## 2. Marking

**R433A**

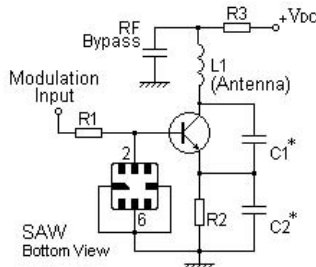
Color: Black or Blue

## 3. Equivalent LC Model and Test Circuit

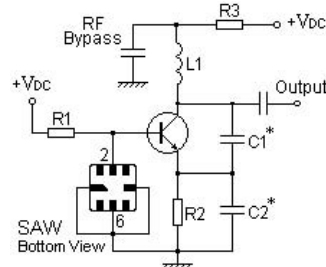


## 4. Typical Application Circuit

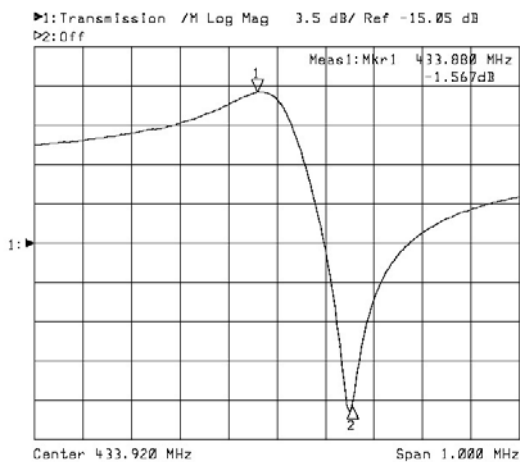
### 1) Typical Low-Power Transmitter Application



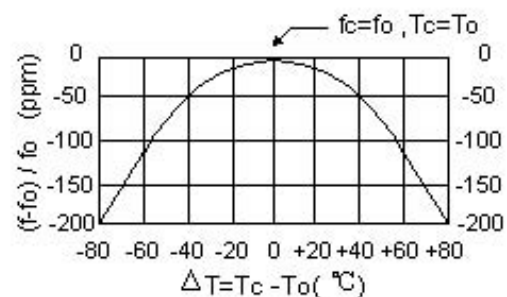
### 2) Typical Local Oscillator Application



## 5. Typical Frequency Response



## 6. Temperature Characteristics



The curve shown above accounts for resonator contribution only and does not include oscillator temperature characteristics.



## 7. Performance

### 7-1.Maximum Rating

Rating	Value	Units
CW RF Power Dissipation	+10	dBm
DC Voltage Between Any Two Pins	$\pm 30V$	VDC
Operating Temperature	-40 to +85	$^{\circ}C$

### 7-2.Electronic Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency (+25 $^{\circ}C$ )	Absolute Frequency	$f_C$	433.845		433.995	MHz
	Tolerance from 433.920 MHz	$\Delta f_C$		$\pm 75$		kHz
Insertion Loss		$I_L$		1.5		dB
Quality Factor	Unloaded Q	$Q_U$		15,974		
	50 $\Omega$ Loaded Q	$Q_L$		1,900		
Temperature Stability	Turnover Temperature	$T_O$	25	40	55	$^{\circ}C$
	Turnover Frequency	$f_O$		$f_C$		kHz
	Frequency Temperature Coefficient	FTC		0.037		ppm/ $^{\circ}C^2$
Frequency Aging Absolute Value during the First Year		$ f_A $		$\leq 10$		ppm/yr
DC Insulation Resistance Between Any Two Pins			1.0			M $\Omega$
RF Equivalent RLC Model	Motional Resistance	$R_M$		19		$\Omega$
	Motional Inductance	$L_M$		79.137		$\mu H$
	Motional Capacitance	$C_M$		1.8019		fF
	Pin 1 to Pin 2 Static Capacitance	$C_O$		1.9		pF



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

### NOTES:

- Frequency aging is the change in  $f_C$  with time and is specified at +65 $^{\circ}C$  or less. Aging may exceed the specification for prolonged temperatures above +65 $^{\circ}C$ . Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
- The center frequency,  $f_C$ , is the frequency of minimum IL with the resonator in the specified test fixture in a 50  $\Omega$  test system with VSWR  $\leq 1.2 : 1$ . Typically,  $f_{oscillator}$  or  $f_{transmitter}$  is less than the resonator  $f_C$ .
- Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
- Unless noted otherwise, case temperature  $T_C = +25^{\circ}C \pm 2^{\circ}C$ .
- 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 center 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 $^{\circ}C$  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 measured static (nonmotional) capacitance between either pin 1 and ground or pin 2 and ground. The measurement includes case parasitic capacitance with a floating case. For usual grounded case applications (with ground connected to either pin 1 or pin 2 and to the case), add approximately 0.25 pF to  $C_O$ .