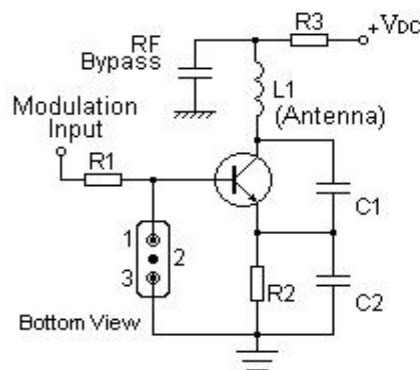


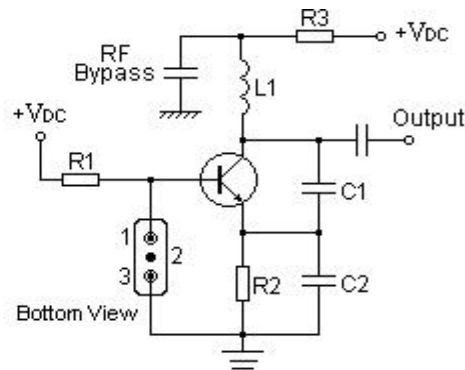
- 1-port Resonator
- Metal Case for **D11**
- Package size 8.36x3.45x3.00 mm<sup>3</sup>
- **RoHS** compatible
- **Electrostatic Sensitive Device(ESD)**

Application

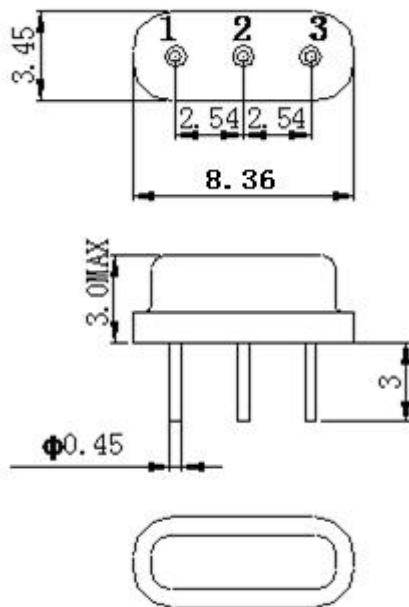
Typical Low-Power Transmitter Application



Typical Local Oscillator Application



Package Dimensions (D11)



Pin Configuration

1	Input/output
3	Output/Input
2	Case Ground

R	SAW Resonator
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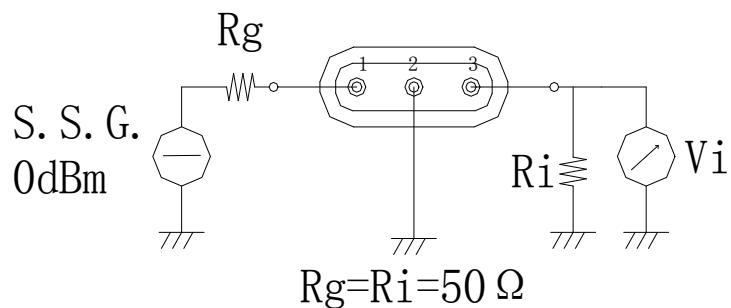
## Marking

433

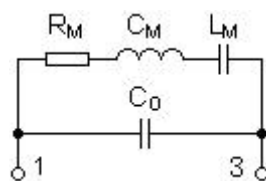
Part number

R433

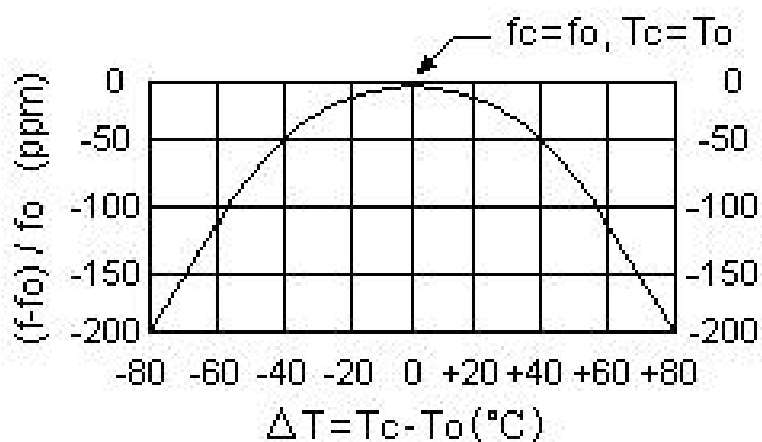
## Test Circuit



## Equivalent LC Model



## Temperature Characteristics



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

**Performance****Maximum Rating**

Item		Value	Unit
DC Voltage	$V_{DC}$	$\pm 30$	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-55 ~ +125	°C
RF Power Dissipation	P	10	dBm

**Electronic Characteristics**

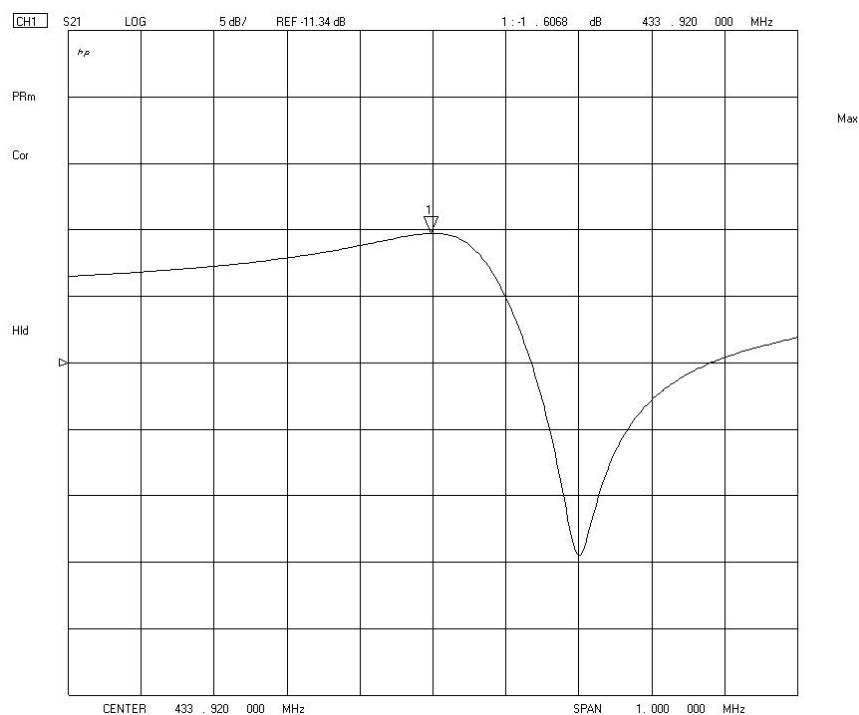
Test Temperature:  $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$

Terminating source impedance:  $50\Omega$

Terminating load impedance:  $50\Omega$

Item			Minimum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	$f_c$		433.92		MHz
	Tolerance from 433.92MHz	$\Delta f_c$		$\pm 75$		KHz
Insertion Loss(min)		IL		1.4	2.0	dB
Quality Factor	Unloaded Q	$Q_U$		14215		
	50 $\Omega$ Loaded Q	$Q_L$		1791		
Temperature Stability	Turnover Temperature	$T_0$	10	25	40	°C
	Turnover Frequency	$f_0$		$f_c$		KHz
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
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	$R_M$		15	26	$\Omega$
	Motional Inductance	$L_M$		98.9		$\mu\text{H}$
	Motional Capacitance	$C_M$		2.35		fF
	Static Capacitance	$C_0$	2.8	3.1	3.4	pF

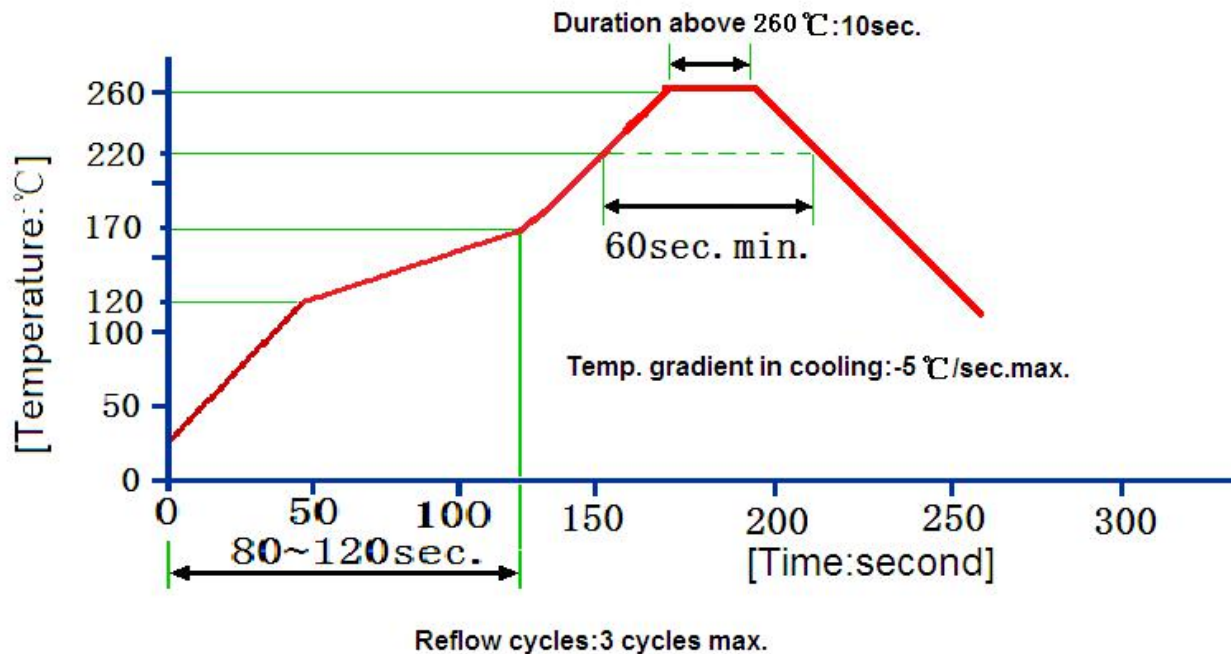
## Frequency Response



## Reliability (The SAW components shall remain electrical performance after tests)

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , Duration: 250h , Recovery time: $2\text{h} \pm 0.5\text{h}$ (2) Temperature: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , Duration: 250h ,Recovery time: $2\text{h} \pm 0.5\text{h}$
2	Humidity Test	Conditions: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , 90~95% RH                      Duration: 250h
3	Thermal Shock	Heat cycle conditions: $\text{TA} = -40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , $\text{TB} = 85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , $t_1 = t_2 = 30\text{min}$ , Switch time: $\leq 3\text{min}$ , Cycle time: 100 times , Recovery time : $2\text{h} \pm 0.5\text{h}$ .
4	Vibration Fatigue	Frequency of vibration: 10~55Hz                      Amplitude: 1.5mm Directions: X,Y and Z                                      Duration: 2h
5	Drop Test	Cycle time: 10 times                                      Height: 1.0m
6	Solder Ability Test	Temperature: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Duration: 3.0s--5.0s Depth: DIP--2/3 , SMD--1/5
7	Resistance to Soldering Heat	(1) Thickness of PCB: 1mm , Solder condition: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , Duration: $10 \pm 1\text{s}$ (2) Temperature of Soldering Iron: $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ , Duration: 3~4s , Recovery time : $2 \pm 0.5\text{h}$

## Recommended Reflow Soldering Diagram



## Notes

1. As a result of the particularity of inner structure of SAW products, it is easy to be breakdown by electrostatic, so we should pay attention to **ESD protect** in the test.
2. **Static voltage** between signal load and ground may cause deterioration and destruction of the component. Please avoid static voltage.
3. **Ultrasonic cleaning** may cause deterioration and destruction of the component. Please avoid ultrasonic cleaning.
4. Only leads of component may **be soldered**. Please avoid soldering another part of component.
5. There is a close relationship between the device's performance and **matching network**. The specifications of this device are based on the test circuit shown above. L and C values may change depending on board layout. Values shown are intended as a guide only.