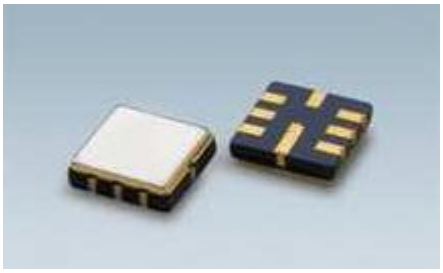
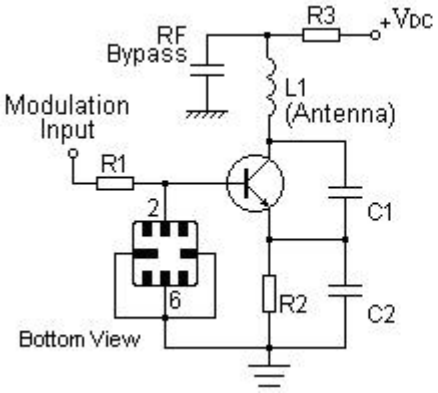
Features



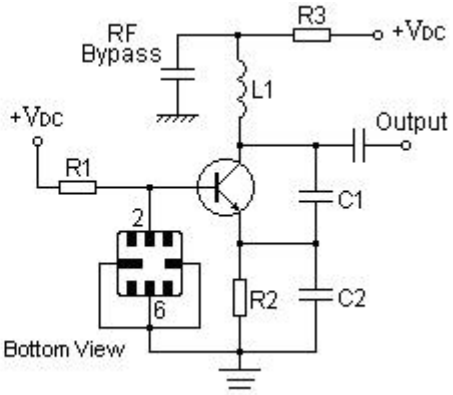
- 1-port Resonator
- Ceramic Package for **S**urface **M**ounted **T**echnology (**SMT**)
- **RoHS** compatible
- Package size 5.00x5.00x1.50mm^3
- Package Code QCC8C
- **E**lectrostatic **S**ensitive **D**evice(**ESD)**

Application

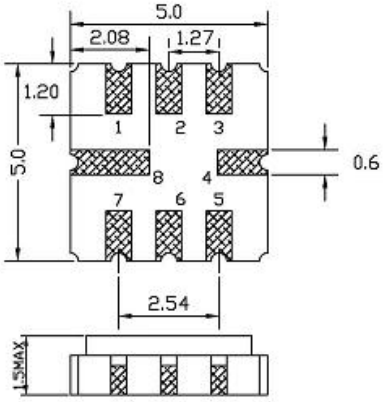
Typical Low-Power Transmitter Application

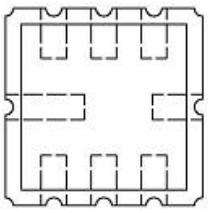


Typical Local Oscillator Application



Package Dimensions (QCC8C)

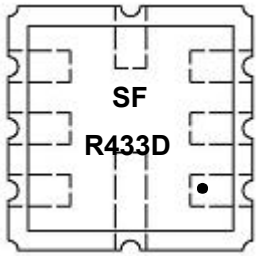




Pin Configuration

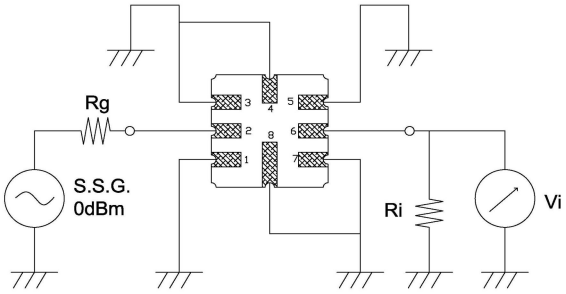
2	Input/ Output
6	Output/ Input
1,3,5,7	To be Grounded
4,8	Case Ground

Marking Description



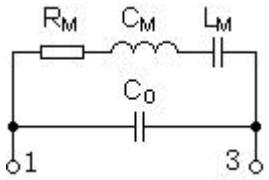
●	Pin 4
R	SAW Resonator
SFR433D	Part Number

Test Circuit



Rg=Ri=50Ω

Equivalent LC Model



Performance

Maximum Rating

Item		Value	Unit
DC Voltage	V_{DC}	±30	V
Operation Temperature	T	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +85	℃
RF Power Dissipation	P	15	dBm

Electronic Characteristics

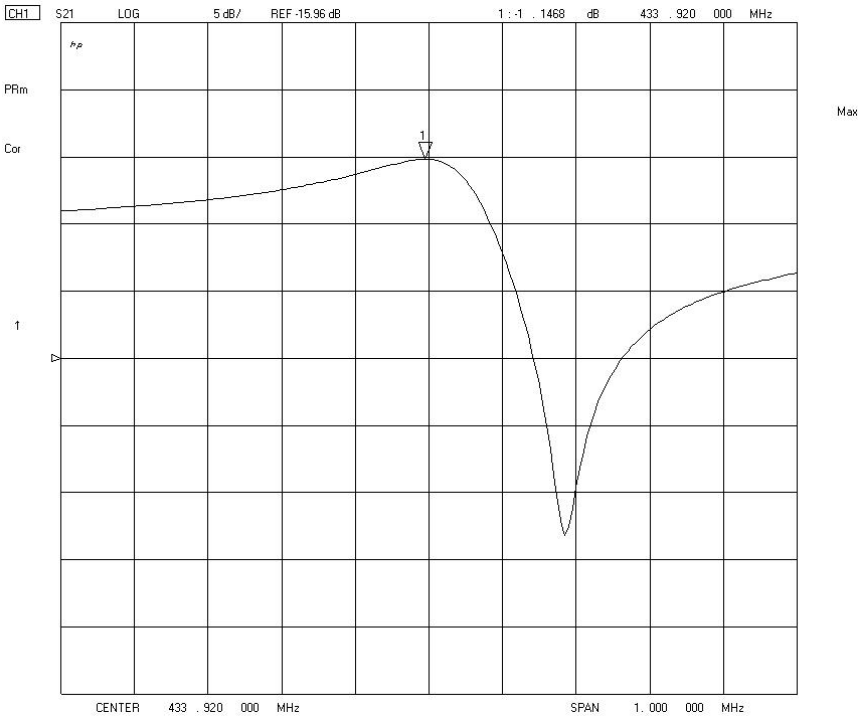
Test Temperature: 25℃±2℃

Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

Item			Minimum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	f_c		433.92		MHz
	Tolerance from 433.92MHz	$\triangle f_c$		±75		KHz
Insertion Loss(min)		IL		1.2	1.7	dB
Quality Factor	Unloaded Q	Q_U		16090		
	50Ω Loaded Q	Q_L		1800		
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		13.0	22.0	Ω
	Motional Inductance	L_M		74.4		μH
	Motional Capacitance	C_M		1.81		fF
	Static Capacitance	C_0	2.3	2.6	2.9	pF

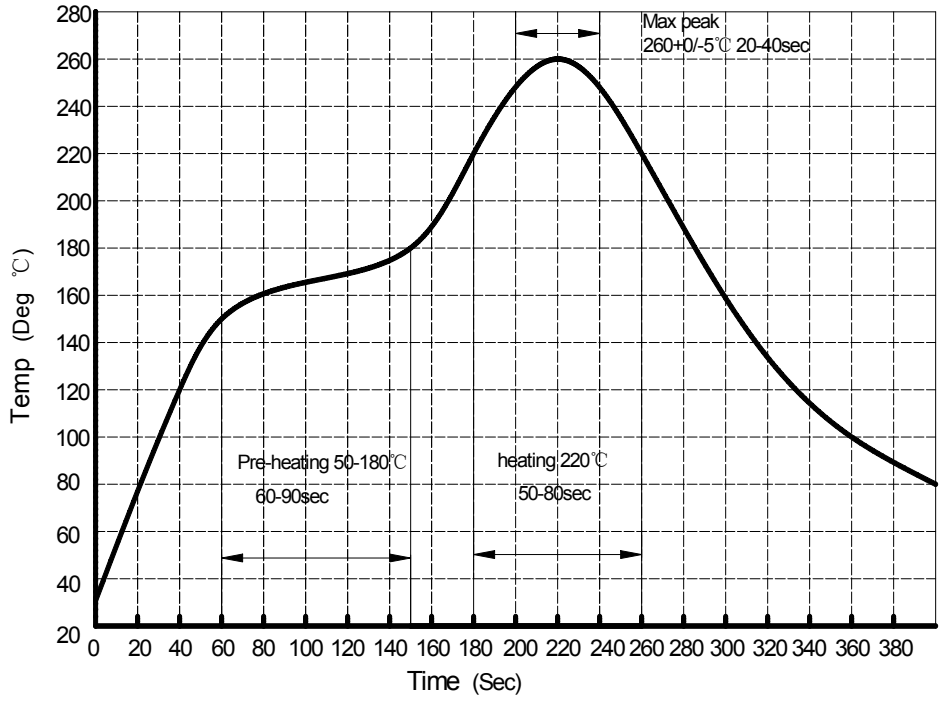
Frequency Response



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

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: 85℃±2℃ , Duration: 250h , Recovery time: 2h±0.5h (2) Temperature: –40℃±3℃ , Duration: 250h ,Recovery time: 2h±0.5h
2	Humidity Test	Conditions: 60℃±2℃ , 90~95% RH Duration: 250h
3	Thermal Shock	Heat cycle conditions: TA=-40℃±3℃, TB=85℃±2℃, t1=t2=30min, Switch time: ≤3min , Cycle time: 100 times , Recovery time : 2h±0.5h.
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℃±5℃ 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℃±5℃ , Duration: 10±1s (2)Temperature of Soldering Iron: 350℃±10℃ , Duration: 3~4s , Recovery time : 2 ± 0.5h

Recommended Reflow Soldering Diagram



Notes

1. As a result of the particularity of inner structure of SAW products, it 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.