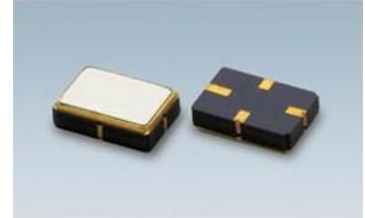


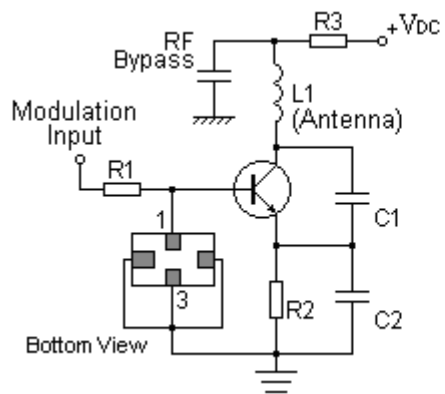
**Features**

- Ceramic Package for **Surface Mounted Technology (SMT)**
- **RoHS** compatible
- Package size 5.00x3.50x1.50mm<sup>3</sup>
- Package Code QCC4A

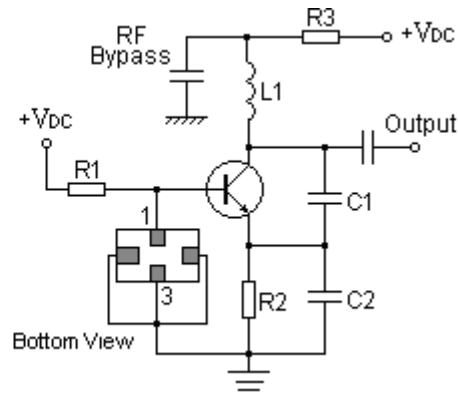


**Application**

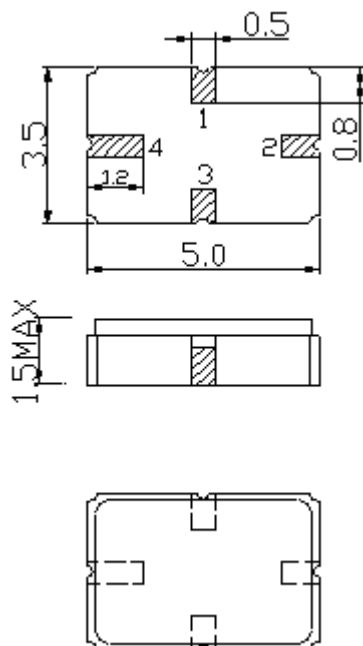
Typical Low-Power Transmitter Application



Typical Local Oscillator Application



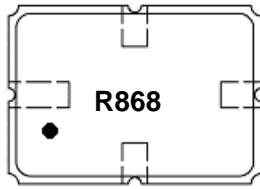
**Package Dimensions (QCC4A)**



**Pin Configuration**

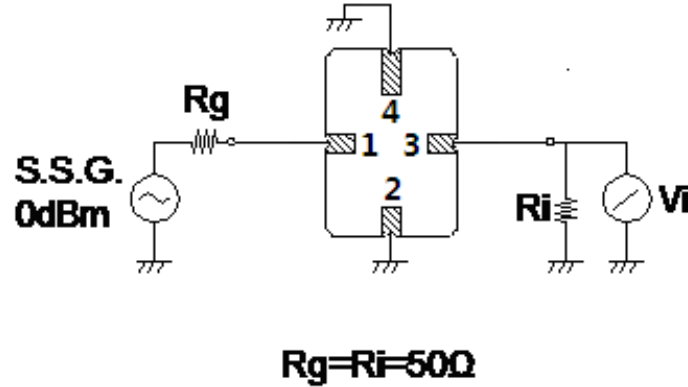
Pin No.	Description
1	Input/Output
3	Output/Input
2,4	Case Ground

Marking Description

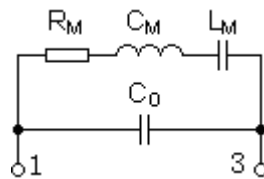


●	Pin 4
R	SAW Resonator
868	Part Number

Test Circuit



Equivalent LC Model



Performance

Maximum Rating

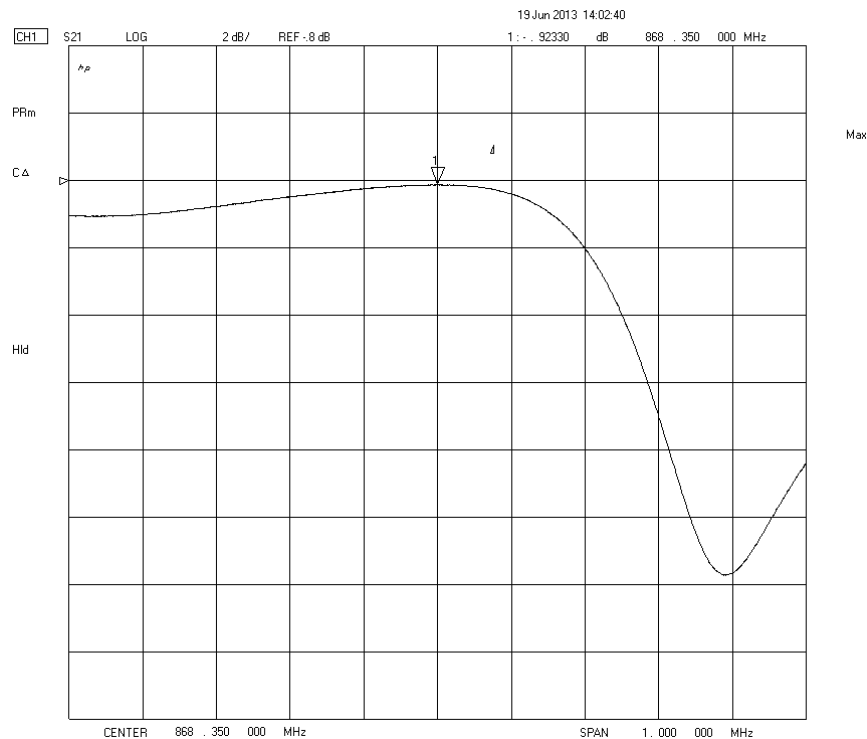
Item		Value	Unit
DC Voltage	$V_{DC}$	$\pm 30$	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +85	°C
RF Power Dissipation	P	15	dBm

**Electronic Characteristics**

Test Temperature: 25°C±2°C  
 Terminating source impedance: 50Ω  
 Terminating load impedance: 50Ω

Item			Minimum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	$f_c$		868.35		MHz
	Tolerance from 868.35MHz	$\Delta f_c$		±150		KHz
Insertion Loss(min)		IL		1.1	1.6	dB
Quality Factor	Unloaded Q	$Q_U$		9500		
	50Ω Loaded Q	$Q_L$		1565		
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	$R_M$		12.0	22.0	Ω
	Motional Inductance	$L_M$		32.4		μH
	Motional Capacitance	$C_M$		1.03		fF
	Static Capacitance	$C_0$	2.1	2.4	2.7	pF

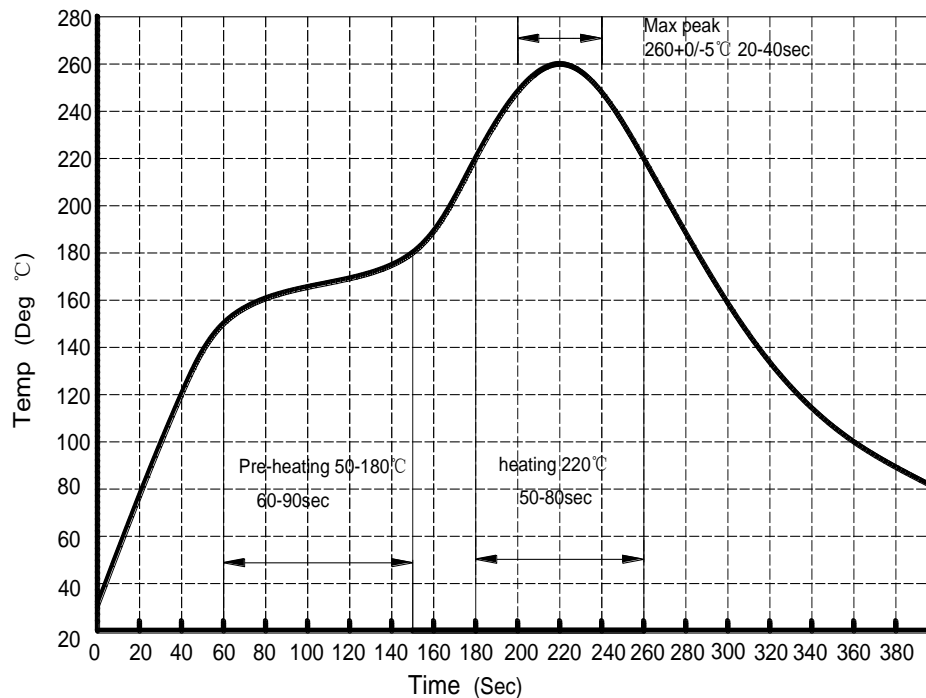
**Frequency Response**



**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: $\text{TA}=-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ , $\text{TB}=85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ , $\text{t1}=\text{t2}=30\text{min}$ , 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 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.