



# APPROVAL SHEET

Approval Specification	Customer's Approval Certificate
<b>TO:</b>	<b>Checked &amp; Approved by:</b>
<b>Part No.:</b>	<b>Date:</b>
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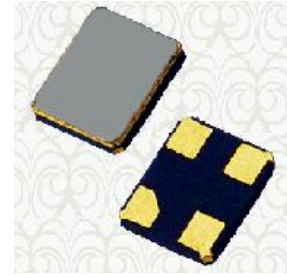
Part No.	:	SFR433K
Pages	:	7
Date	:	2014/09/11
Revision	:	1.0

<b>Prepared by:</b>	
<b>Checked by:</b>	
<b>Approved by:</b>	



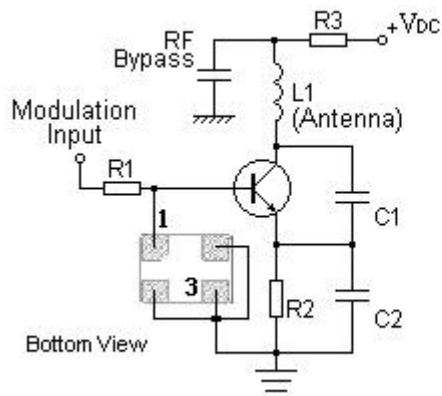
Features

- 1-port Resonator
- Ceramic Package for Surface Mounted Technology (SMT)
- RoHS compatible
- Package size 3.20x2.50x0.70mm<sup>3</sup>
- Electrostatic Sensitive Device(ESD)

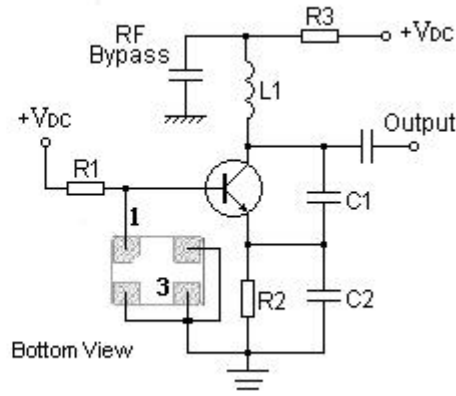


Application

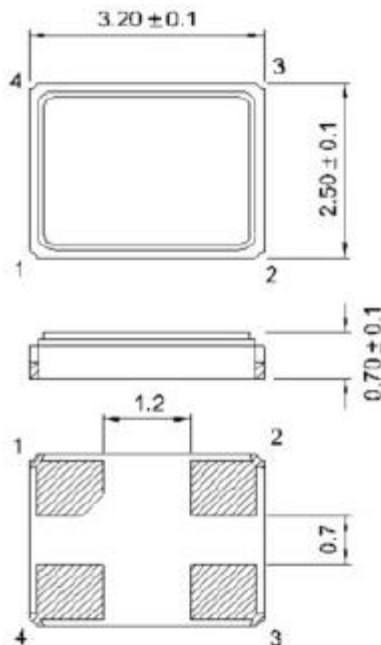
Typical Low-Power Transmitter Application



Typical Local Oscillator Application



Package Dimensions (DCC4C)



Pin Configuration

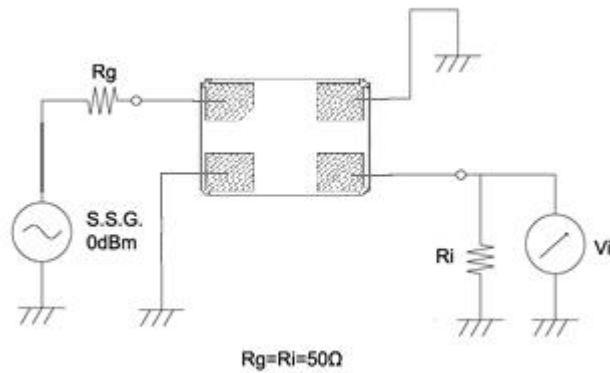
1	Input/ Output
3	Output/ Input
2,4	Ground

## Marki

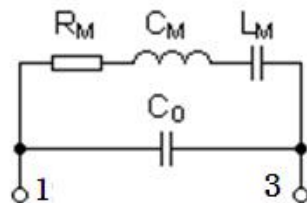


<b>SF</b>	Trademark
<b>R</b>	SAW Resonator
<b>433K</b>	Part number

## Test Circuit



## Equivalent LC Model



## Performance

## Maximum Rating

Item		Value	Unit
DC Voltage	$V_{DC}$	$\pm 30$	V
Operation Temperature	T	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-40 ~ +85	$^{\circ}\text{C}$
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	$f_c$		433.920		MHz
	Tolerance from 433.920MHz	$\Delta f_c$		±75		KHz
Insertion Loss(min)		IL		1.5	2.0	dB
Quality Factor	Unloaded Q	$Q_U$		18362		
	50Ω Loaded Q	$Q_L$		2150		
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	$R_M$		13.2	18.0	Ω
	Motional Inductance	$L_M$		89.4	110.2	μH
	Motional Capacitance	$C_M$		1.5		fF
	Static Capacitance	$C_0$	1.45	1.75	2.05	pF

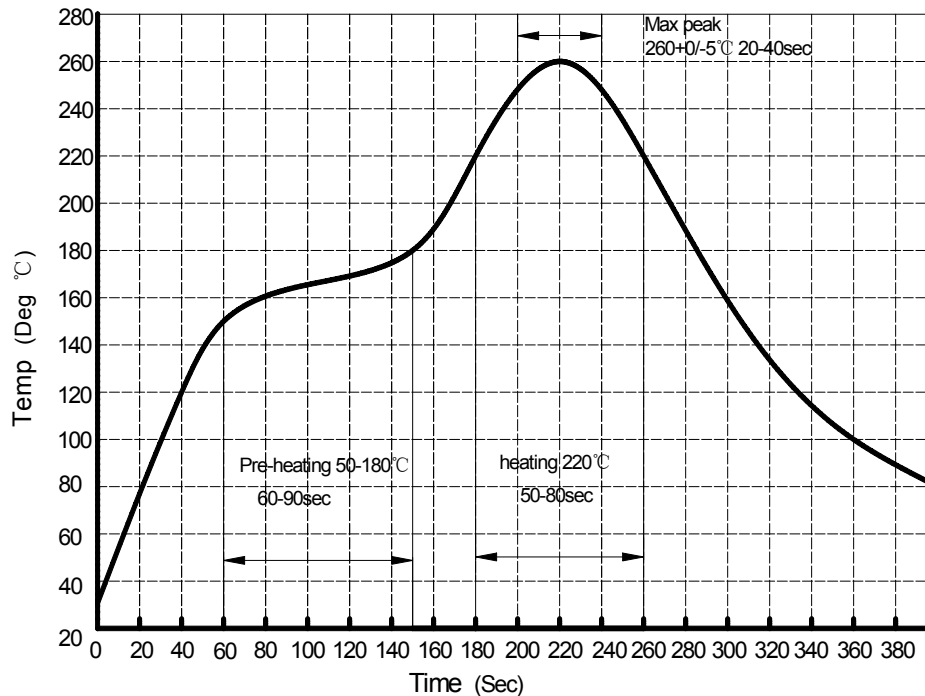
### Frequency Response



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

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: 85°C±2°C , Duration: 250h , Recovery time: 2h±0.5h (2) Temperature: -40°C±3°C , Duration: 250h , Recovery time: 2h±0.5h
2	Humidity Test	Conditions: 60°C±2°C , 90~95% RH                      Duration: 250h
3	Thermal Shock	Heat cycle conditions: TA=-40°C±3°C, TB=85°C±2°C, 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°C±5°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°C±5°C , Duration: 10±1s (2)Temperature of Soldering Iron: 350°C±10°C , 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.

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