

规格书编号

**SPEC NO: HDR433MTO39SP01**

# 产品规格书

# SPECIFICATION

CUSTOMER 客 户: \_\_\_\_\_

PRODUCT 产 品: \_\_\_\_\_ SAW RESONATOR

MODEL NO 型 号: \_\_\_\_\_ HDR433M-TO39

PREPARED 编 制: \_\_\_\_\_ CHECKED 审 核: \_\_\_\_\_

APPROVED 批 准: \_\_\_\_\_ D A T E 日 期: \_\_\_\_\_ 2013-12-12

客户确认 CUSTOMER RECEIVED:		
审核 CHECKED	批准 APPROVED	日期 DATE

无锡市好达电子有限公司  
Shoulder Electronics Limited

## 更改历史记录 History Record

更改日期 Date	规格书编号 Spec. No.	产品型号 Part No.	客户产品型号 Customer No.	更改内容描述 Modify Content	备注 Remark
2013-12-12	HDR433MTO 39SP01	HDR433M-T O39		修改后的新规格书。	

## 1. Scope

This specification shall cover the characteristics of 1-port SAW resonator with R433M used for remote-control security.

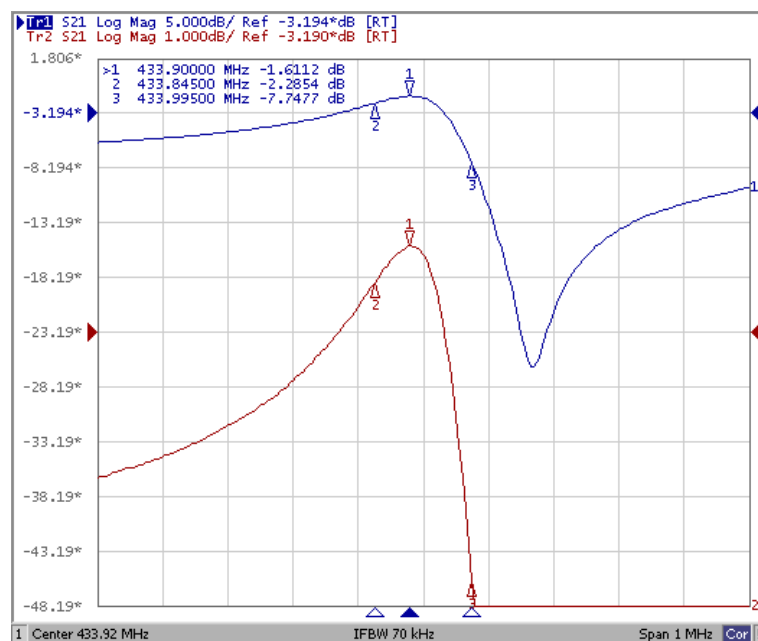
## 2. Electrical Specification

### 2.1 Maximum Rating

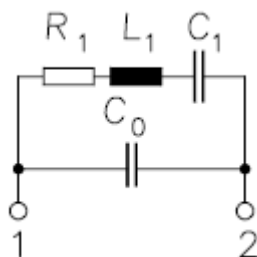
DC Voltage VDC	10V
AC Voltage Vpp	10V 50Hz/60Hz
Operation temperature	-40℃ to +85℃
Storage temperature	-45℃ to +85℃
Source Power	0dBm

### 2.2 Electronic Characteristics

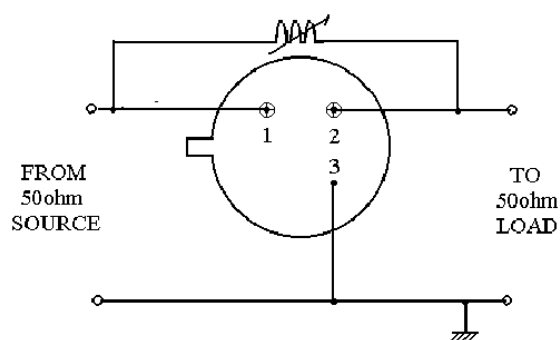
Item		Unites	Minimum	Typical	Maximum
Center Frequency		MHz	433.845	433.920	433.995
Insertion Loss		dB		1.6	2.2
Quality Factor	Unload Q		8300	12000	
	50Ω Loaded Q		850	1500	
Temperature	Turnover Temperature	℃	10	25	40
Stability	Freq.temp.Coefficient	ppm/℃		0.032	
Frequency Aging		ppm/yr		<±10	
DC. Insulation Resistance		MΩ	1.0		
RF Equivalent RLC Model	Motional Resistance R1	Ω		18	26
	Motional Inductance L1	μH		79.82	
	Motional Capacitance C1	fF		1.685	
Transducer Static Capacitance C0		pF		2.3	



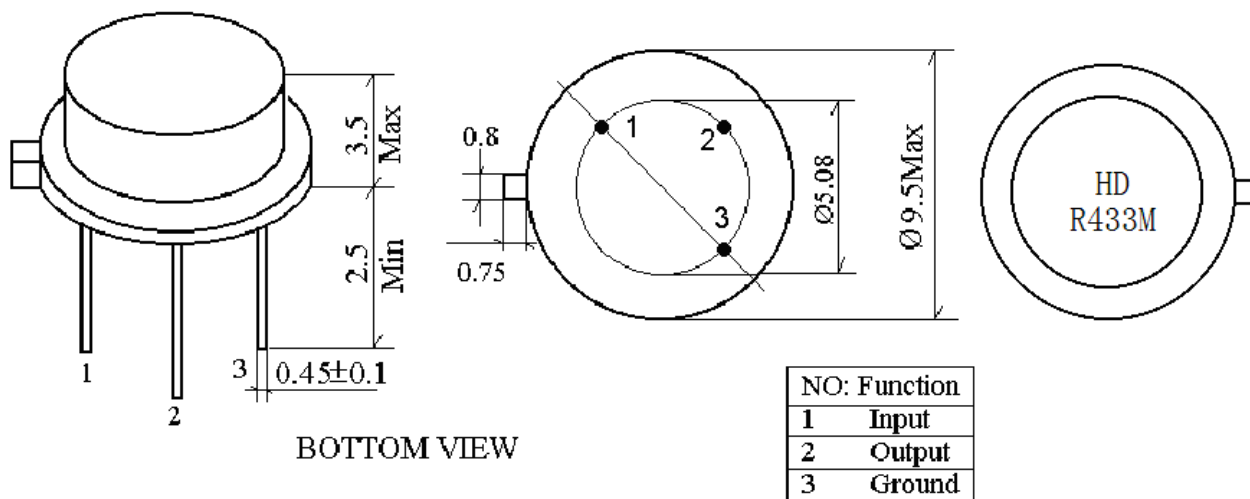
### 2.3 Equivalent LC Model



### 3. Test Circuit



### 4. Dimension



## 5. Environment Characteristic

### 5-1 Thermal Shock:

The components shall remain within the electrical specifications after being kept at the condition of heat cycle conditions:  $T_A = -40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ,  $T_B = 85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ,  $t_1 = t_2 = 30\text{min}$ , switch time  $\leq 3\text{min}$  & cycle time : 100 times, recovery time:  $2\text{h} \pm 0.5\text{h}$ .

### 5-2 Resistance to solder heat

Submerge the device terminals into the solder bath at  $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for  $10 \pm 1$  sec. Then release the device into the room conditions for 4 hours. It shall meet the specifications in 2.2.

### 5-3 Solder ability

Submerge the device terminals into the solder bath at  $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for 5s, More than 95% area of the soldering pad must be covered with new solder. It shall meet the specifications in 2.2

### 5-4 The Temperature Storage:

5.4.1 High Temperature Storage: The components shall remain within the electrical specifications after being kept at the  $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for  $96\text{h} \pm 4\text{h}$ , recovery time :  $2\text{h} \pm 0.5\text{h}$ .

5.4.2 Low Temperature Storage: The components shall remain within the electrical specifications after being kept at the  $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$  for  $96\text{h} \pm 4\text{h}$ , recovery time :  $2\text{h} \pm 0.5\text{h}$ .

### 5-5 Humidity test:

The components shall remain within the electrical specifications after being kept at the condition of ambient temperature  $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , and 90~96% RH for  $96\text{h} \pm 4\text{h}$ .

### 5-6 Mechanical shock

Drop the device randomly onto the concrete floor from the height of 1m for 3 times. The resonator shall fulfill the specifications in 2.2.

### 5-7 Vibration

Subject the device to the vibration for 2 hour each in X, Y and Z axes with the amplitude of 1.5 mm at 10 to 55 Hz. The resonator shall fulfill the specifications in 2.2.

## 6. Remark

### 6.1 Static voltage

Static voltage between signal load & ground may cause deterioration & destruction of the component. Please avoid static voltage.

### 6.2 Ultrasonic cleaning

Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning

### 6.3 Soldering

Only leads of component may be soldered. Please avoid soldering another part of component.