Approved by:
Checked by:
Issued by:

SPECIFICATION

PRODUCT: SAW RESONATOR

MODEL: HDR433MS20(SM-20)

MARKING: HD2401

SHOULDER ELECTRONICS LIMITED

1.SCOPE

This specification shall cover the characteristics of 1-port SAW resonator with 433.92M used for remote-control security.

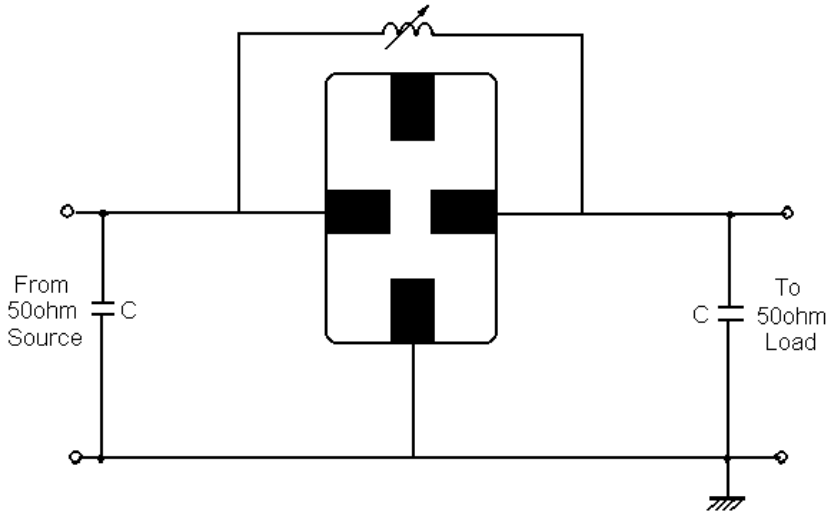
2. ELECTRICAL SPECIFICATION

DC Voltage VDC	10V
AC Voltage Vpp	10V50Hz/60Hz
Operation temperature	-40℃ to +85℃
Storage temperature	-45℃ to +85℃
RF Power Dissipation	0dBm

Electronic Characteristics

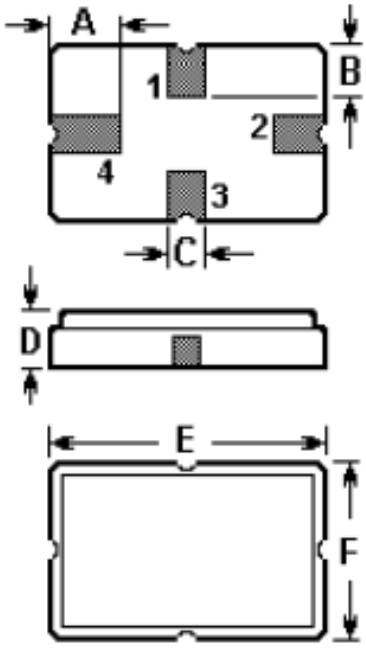
Item		Unites	Minimum	Typical	Maximum
Center Frequency		MHz	433.770	433.920	434.070
Insertion Loss		dB		1.5	2.5
Quality Factor Unload Q				12,800	
50Ω Loaded Q				1,000	
Temperature Stability	Turnover Temperature	℃	10	25	40
	Turnover Frequency	KHz		fo	
	Freq.temp.Coefficient	ppm/℃2		0.032	
Frequency Aging		ppm/yr		<±10	
DC. Insulation Resistance		MΩ	1.0		
RF Equivalent RLC Model	Motional Resistance R1	Ω		18	26
	Motional Inductance L1	μH		86	
	Motional Capacitance C1	pF		1.5	
Pin 1 to Pin 2 Staic Capacitance		pF	1.7	2.0	2.3
Transducer Static Capacitance		pF		1.9	

3. TEST CIRCUIT



4. DIMENSION

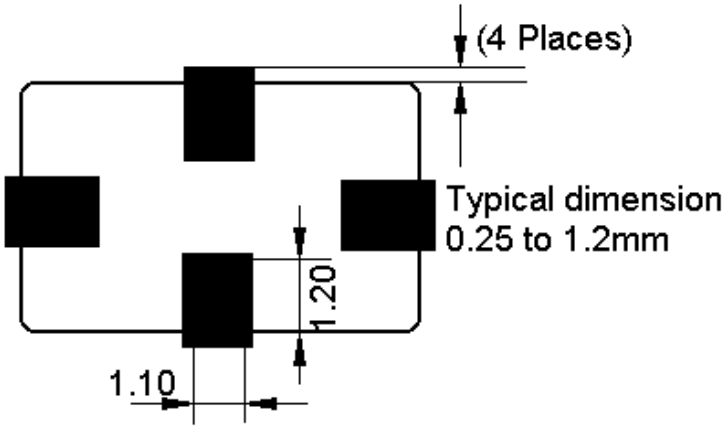
4-1 Typical dimension(unit: mm)



Sign	Data (unit: mm)	Sign	Data (unit: mm)
A	1.2±0.1	D	1.4±0.1
B	0.8±0.1	E	5.0±0.1
C	0.5	F	3.5±0.1

Pin	Configuration
1	Input / Output
3	Output / Input
2/4	Case Ground

4-2 Typical circuit board land patter



5. ENVIRONMENTAL CHARACTERISTICS

5-1 Temperature cycling

Subject the device to a low temperature of -40℃for 30 minutes. Following by a high temperature of +25℃ for 5 Minutes and a higher temperature of +85℃ for 30 Minutes. Then release the device into the room conditions for 1 to 2 hours prior to the measurement. It shall meet the specifications in table 1.

5-2 Resistance to solder heat

Submerge the device terminals into the solder bath at 240℃ ±5℃ for 10±1 sec. Then release the device into the room conditions for 4 hours. It shall meet the specifications in table 1.

5-3 Solderability

Submerge the device terminals into the solder bath at 245℃ ±5℃ for 5s, More than 95% area of the soldering pad must be covered with new solder. It shall meet the specifications in table 1.

5-4 Mechanical shock

Drop the device randomly onto the concrete floor from the height of 1 m 3 times. the filter shall fulfill the specifications in table 1.

5-5 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 filter shall fulfill the specifications in table 1.

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

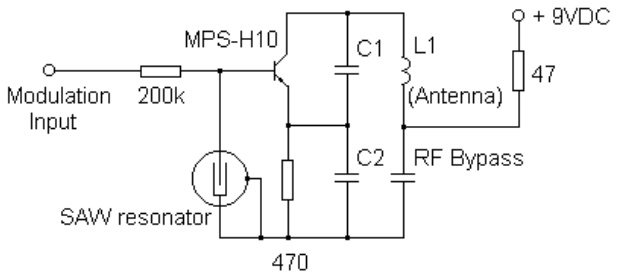
Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning

6.3 Soldering

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

7.Typical Application Circuit

Typical low-power Transmitter Application



Typical Local Oscillator Application