
Approved by:

Checked by:

Issued by:

SPECIFICATION

PRODUCT: SAW RESONATOR

MODEL: HDR433AS2(SM-2)

MARKING: HD431



SHOULDER ELECTRONICS LIMITED

1. SCOPE

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

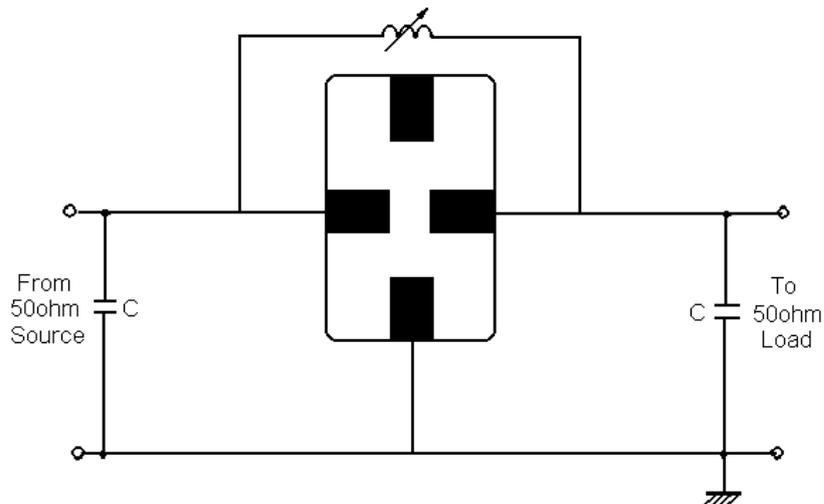
2. ELECTRICAL SPECIFICATION

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

Electronic Characteristics

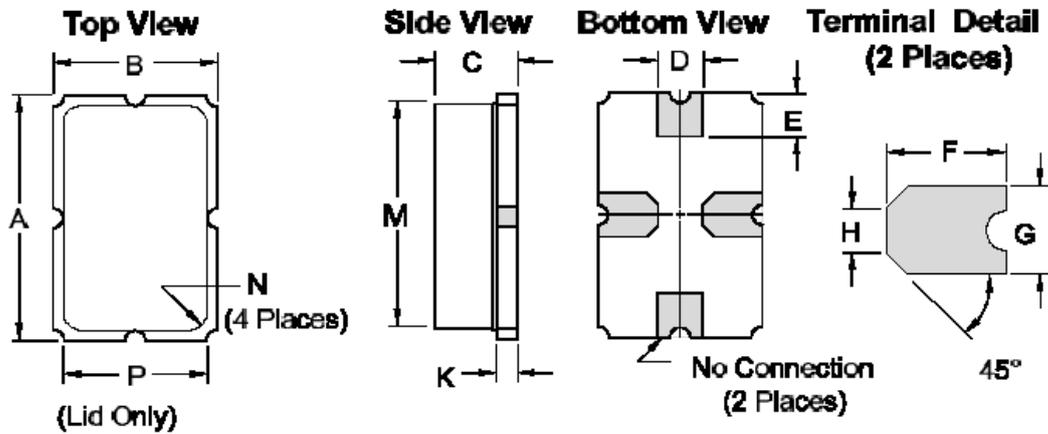
Item	Unites	Minimum	Typical	Maximum	
Center Frequency	MHz	433.770	433.920	434.070	
Insertion Loss	dB		1.5	2.2	
Quality Factor Unload Q			13300		
50 Ω Loaded Q		1000	1,500		
Temperature	Turnover Temperature	°C	20	35	50
Stability	Turnover Frequency	KHz		$f_0 \pm 1.3$	
	Freq.temp.Coefficient	ppm/°C ²		0.032	
Frequency Aging	ppm/yr		≤10		
DC. Insulation Resistance	M Ω	1.0			
RF Equivalent	Motional Resistance R1	Ω		18	26
	Motional Inductance L1	μ H		86	
	RLC Model	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



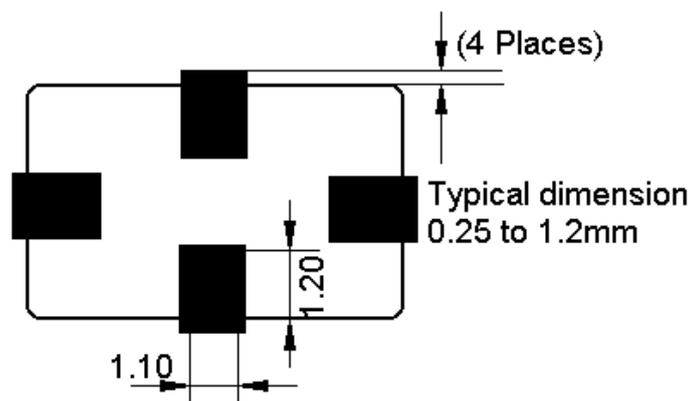
4. DIMENSION

4-1 Typical dimension(unit: mm)



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A		5.97		0.235
B		3.94		0.155
C		2.16		0.085
D	0.94	1.10	0.037	0.043
E	0.83	1.20	0.033	0.047
F	1.16	1.53	0.046	0.060
G	0.94	1.10	0.037	0.043
H	0.43	0.59	0.017	0.023
K	0.43	0.59	0.17	0.023
M		5.31		0.209
N	0.38	0.64	0.015	0.025
P		3.28		0.129

4-2 Typical circuit board land patter



5. ENVIRONMENTAL CHARACTERISTICS

5-1 High temperature exposure

Subject the device to +85°C for 16 hours. Then release the filter into the room conditions for 24 hours prior to the measurement. It shall fulfill the specifications in table 1.

5-2 Low temperature exposure

Subject the device to -20°C for 16 hours. Then release the device into the room conditions for 24 hours prior to the measurement. It shall fulfill the specifications in table 1.

5-3 Temperature cycling

Subject the device to a low temperature of -40°C for 30 minutes. Following by a high temperature of +80°C for 30 Minutes. Then release the device into the room conditions for 24 hours prior to the measurement. It shall meet the specifications in table 1.

5-4 Resistance to solder heat

Dip the device terminals no closer than 1.5mm into the solder bath at 260°C \pm 10°C for 10 \pm 1 sec. Then release the device into the room conditions for 4 hours. The device shall meet the specifications in table 1.

5-5 Solderability

Subject the device terminals into the solder bath at 245°C \pm 5°C for 5s, More than 95% area of the terminals must be covered with new solder. It shall meet the specifications in table 1.

5-6 Mechanical shock

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

5-7 Vibration

Subject the device to the vibration for 1 hour each in x,y and z axes with the amplitude of 1.5 mm at 10 to 55 Hz. The device 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

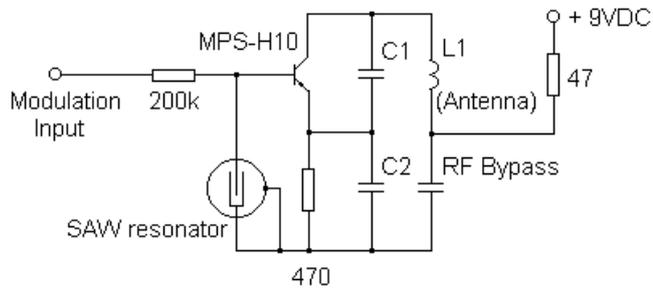
Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning

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

