
Approved by:

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SPECIFICATION

PRODUCT: SAW RESONATOR

MODEL: HDR433MS3(SM-3)

MARKING: HD451



SHOULDER ELECTRONICS LIMITED

1. SCOPE

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

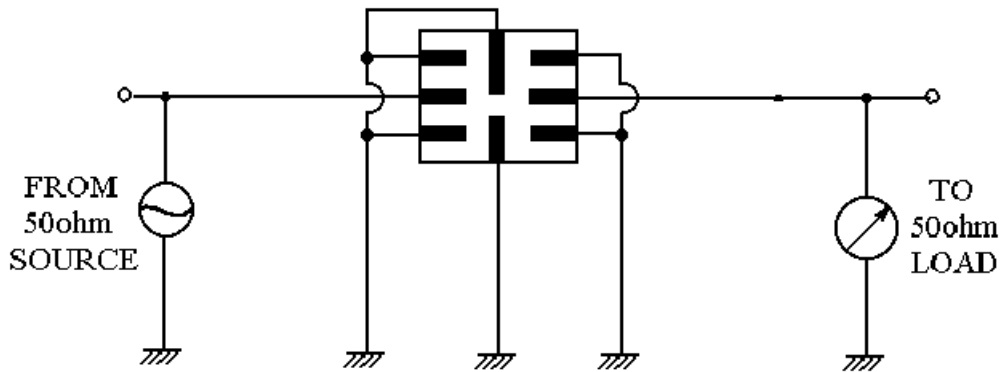
2. ELECTRICAL SPECIFICATION

| | |
|-----------------------|----------------|
| DC Voltage VDC | 10V |
| AC Voltage Vpp | 10V 50Hz/60Hz |
| Operation temperature | -20°C to +85°C |
| Storage temperature | -45°C to +85°C |
| RF Power Dissipation | 0dBm |

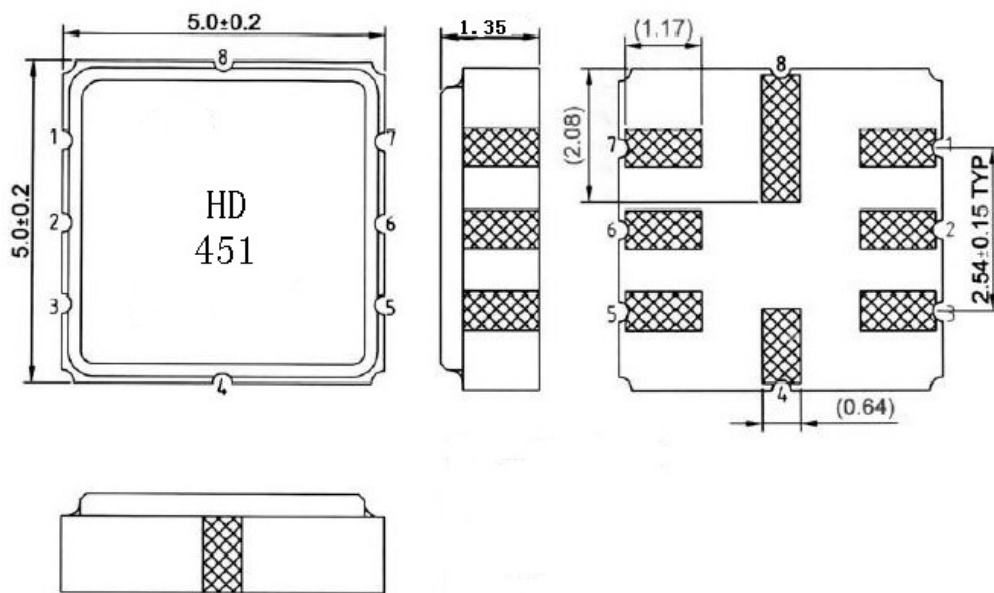
Electronic Characteristics

| Item | Unites | Minimum | Typical | Maximum | | |
|--------------------------------------|---------------------|---------|---------|---------|-----|--|
| Center Frequency | MHz | 433.770 | 433.920 | 434.070 | | |
| Insertion Loss | dB | | 1.5 | 2.5 | | |
| Quality Factor Unload Q | | | 12,800 | | | |
| 50Ω Loaded Q | | | 1,000 | | | |
| Temperature Turnover Temperature | °C | | 10 | 25 | 40 | |
| Stability Turnover Frequency | KHz | | | fo | | |
| Freq.temp.Coefficient | ppm/°C ² | | 0,032 | | | |
| Frequency Aging | ppm/yr | | <±10 | | | |
| DC. Insulation Resistance | MΩ | | 1.0 | | | |
| Motional Resistance R1 | Ω | | 18 | 26 | | |
| RF Equivalent Motional Inductance L1 | μH | | | 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



- 2.Input
- 6.Output
- 1.3.5.7.Gound
- 4.8 Ground

5. ENVIRONMENTAL CHARACTERISTICS

5-1 Temperature cycling

Subject the device to a low temperature of -40°C for 30 minutes. Following by a high temperature of $+25^{\circ}\text{C}$ for 5 Minutes and a higher

temperature of +85°C 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 260°C ±5°C 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°C ±5°C 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.