

SPEC NO :

SPECIFICATION

CUSTOMER _____
PRODUCT SAW RESONATOR
MODEL NO HDR433MS3
PREPARED CHECKED
APPROVED DATE 2006-5-11

CUSTOMER RECEIVED:		
CHECKED	APPROVED	DATE

Shoulder Electronics Limited

History Record

Date	Spec. No.	Part No.	Customer No.	Modify Content	Remark

1. SCOPE

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

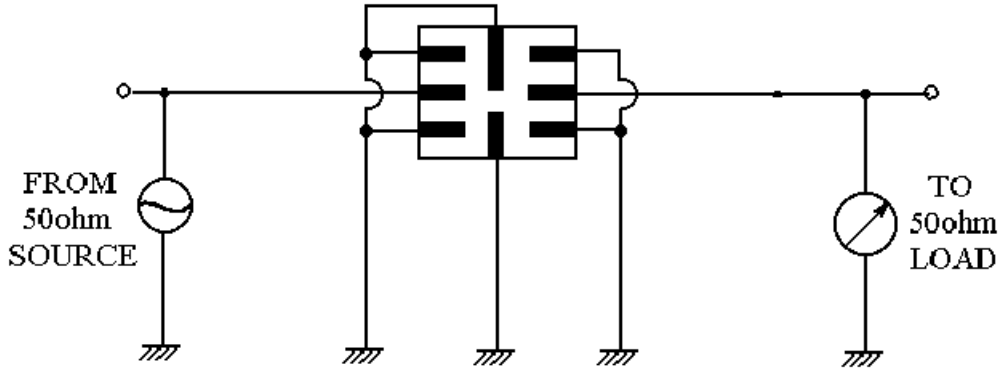
2. ELECTRICAL SPECIFICATION

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

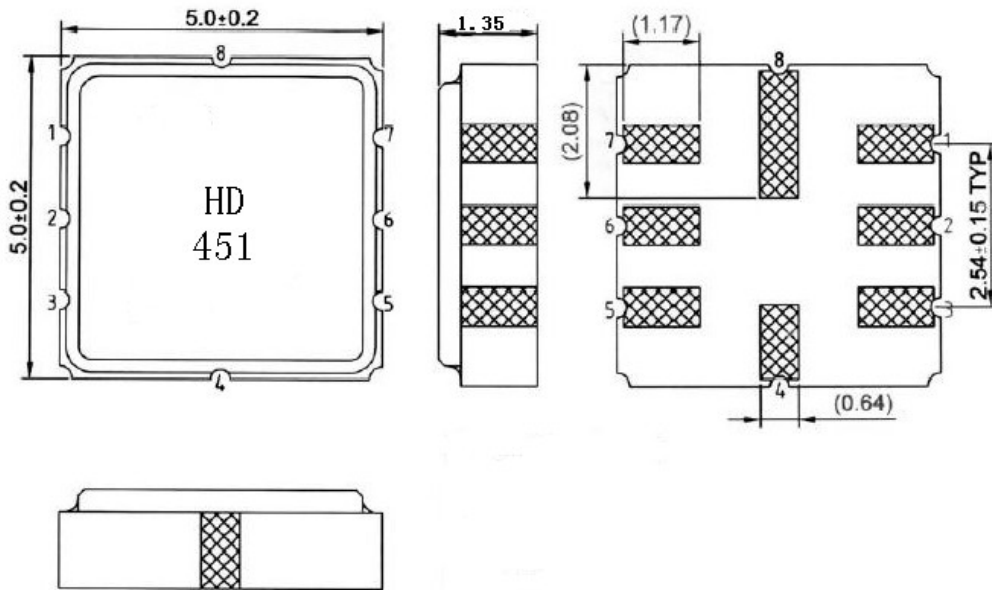
2.2 Electronic Characteristics

Item	Unites	Minimum	Typical	Maximum	
Center Frequency	MHz	433.845	433.920	433.995	
Insertion Loss	dB		1.5	2.5	
Quality Factor Unload Q		8000	12800		
50Ω Loaded Q		1000	2000		
Temperature Stability	Turnover Temperature	°C	10	25	40
	Freq.temp.Coefficient	ppm/°C ²		0.032	
Frequency Aging	ppm/yr		<±10		
DC. Insulation Resistance	MΩ	1.0			
RF Equivalent RLC Model	Motional Resistance R1	Ω	16	26	
	Motional Inductance L1	μH	81.06		
	Motional Capacitance C1	fF	1.6596		
Transducer Static Capacitance	pF		1.96		

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 $+85^{\circ}\text{C}$ 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 2.2.

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 ± 1 sec. Then release the device into the room conditions for 4 hours. It shall meet the specifications in 2.2.

5-3 Solderability

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 Mechanical shock

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

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 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.

7. Packing

7.1 Dimensions

(1) Carrier Tape: Figure 1

(2) Reel: Figure 2

(3) The product shall be packed properly not to be damaged during transportation and storage.

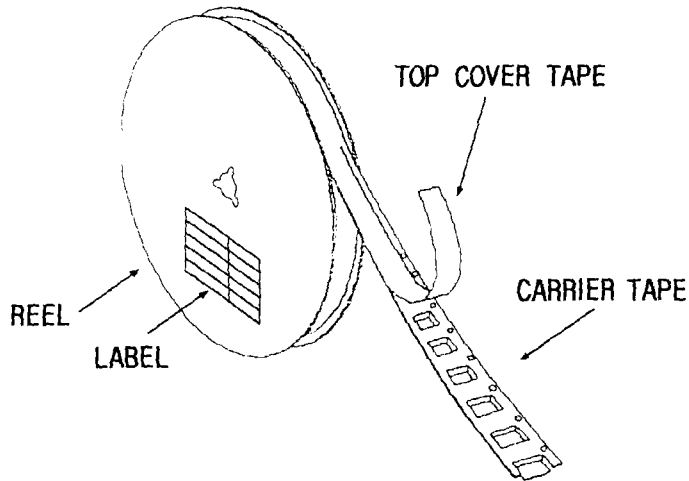
7.2 Reeling Quantity

1000 pcs/reel 7''

3000 pcs/reel 13''

7.3 Taping Structure

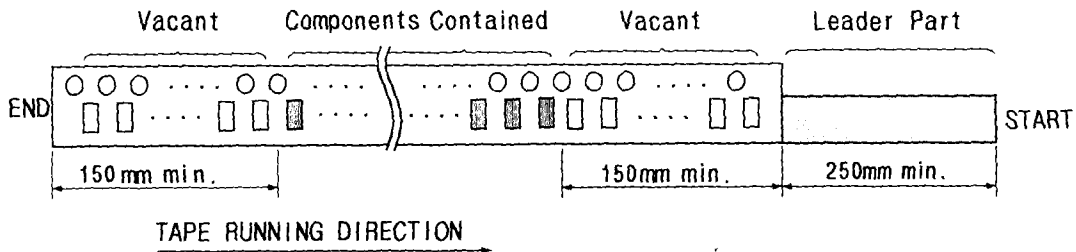
(1) The tape shall be wound around the reel in the direction shown below.



(2) Label

Device Name	
User Product Name	
Quantity	
Lot No.	

(3) Leader part and vacant position specifications.

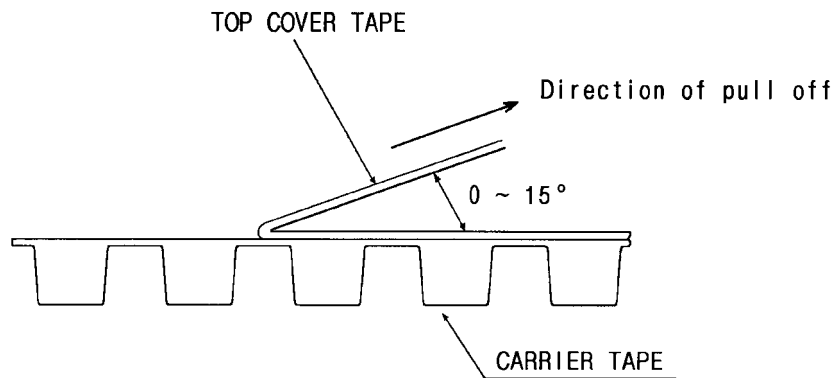


8. TAPE SPECIFICATIONS

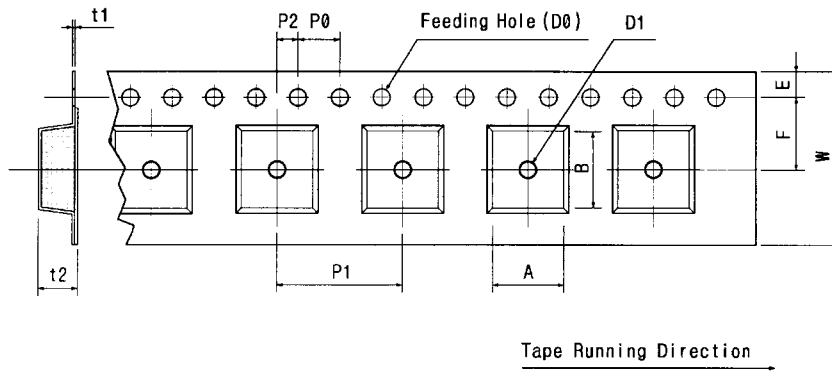
8.1 Tensile Strength of Carrier Tape: 4.4N/mm width

8.2 Top Cover Tape Adhesion (See the below figure)

- (1) pull off angle: 0~15°
- (2) speed: 300mm/min.
- (3) force: 20~70g



[Figure 1] Carrier Tape Dimensions

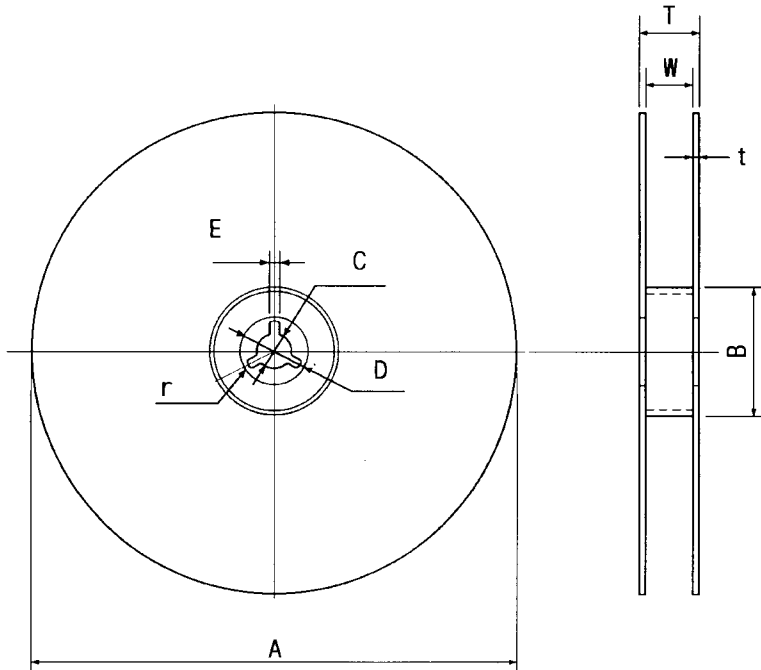


[Unit:mm]

W	F	E	P0	P1	P2	D0	D1	t1	t2	A	B
12.0±0.3	5.5±0.05	1.75±0.1	4.0±0.1	8.0±0.1	2.0±0.05	Ø1.5±0.1	Ø1.0±0.25	0.3±0.05	2.10±0.1	6.40±0.1	5.20±0.1

[Figure 2]

[Unit:mm]



A	B	C	D	E	W	t	r
Ø330	Ø100	Ø13	Ø21	2	13	3	1.0
±1.0	±0.5	±0.5	±0.8	±0.5	±0.3	max.	max.