





**SPECIFICATIONS**

**MODEL NO**  
OBO-45AL1

**PART NAME**  
PAPER CONE SPEAKER

**SHEET**  
2 OF 9

**MODEL NO : OBO-45AL1**

**Features: Conformity Rosh Directive (2002/95/EC) Requests. ※1**

**1. General Specifications**

	Items	Spec	Conditions
1.1	Rated Voltage	3.0 Vo-p	<p>Squarewave 1/2 Duty</p>
1.2	Operating Voltage	2-4 Vo-p	
1.3	Resonant Frequency	2300Hz	
1.4	Sound Pressure Level	Min 83dB	Standard State,Standard Drive circuit,Rate Voltage,Distance at 0.1m(A-weight)2300Hz Squarewave 1/2 Duty.
1.5	Average Current Consumption	Max 80mA	
1.6	Coil Resistance	16±3Ω	
1.7	Operating Temp. Range	-30°C ~+70°C	SPL ≥ 80dB at “1.4”
1.8	Storage Temp. Range	-40°C ~+85°C	
1.9	Housing Material	LCP	
1.10	Weight	0.6g	

## 2. Standard test Conditions :

### 2.1 Standard State

Ordinary Temperature	15°C to 35°C
Ordinary Humidity	25% to 85%
Ordinary air pressure	860 to 1060hPa

In case of doubtful judgment, the test is re-performed under Basic State.

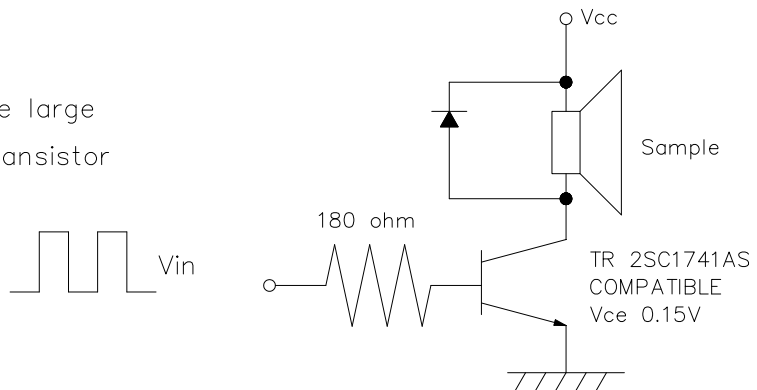
### 2.2 Basic State

Temperature	20±2°C
Humidity	60% to 70%
Ordinary air pressure	860 to 1060

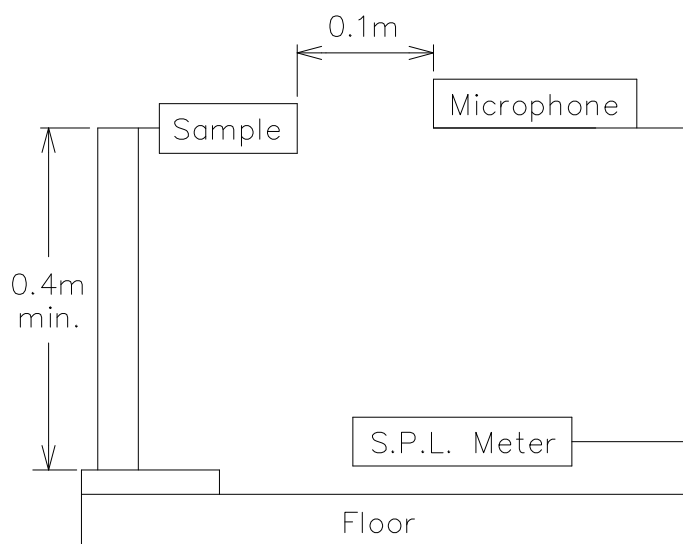
## 3. Test method :

### 3.1 Standard Drive Circuit

Signal amplitude should be large enough to saturate the transistor which drives the buzzer.



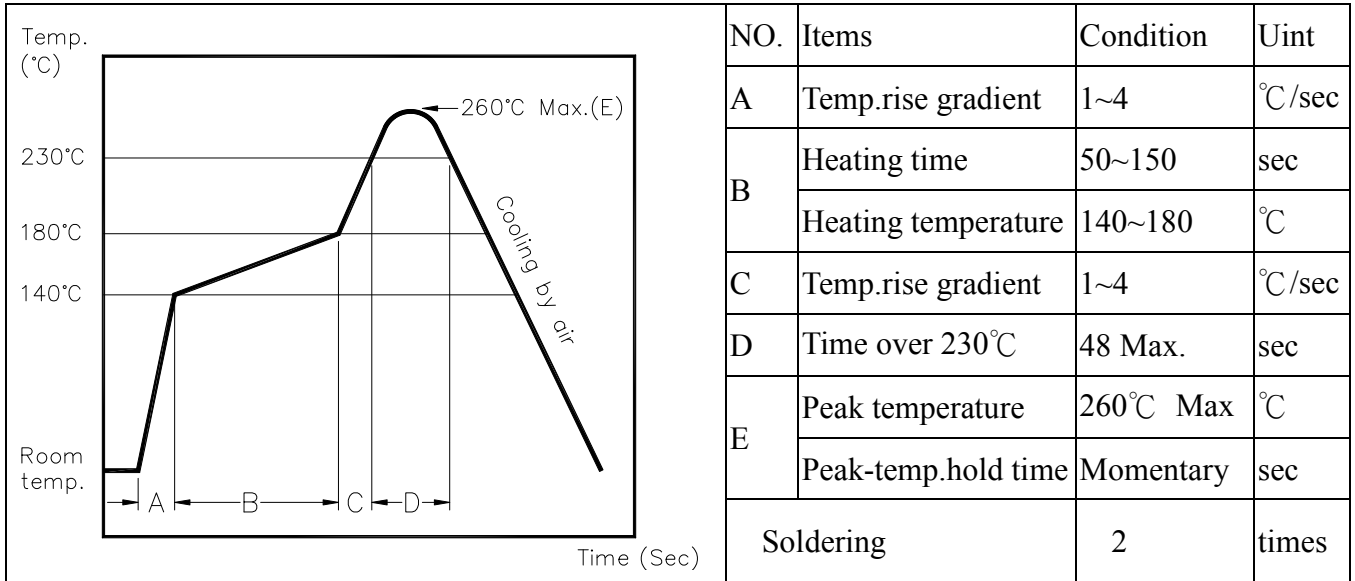
### 3.2 Standard Test Fixture



**4. Soldering Condition :**  
(※1)

**4.1 Reflow Soldering**

Recommendable reflow soldering condition is as follows.



Note :

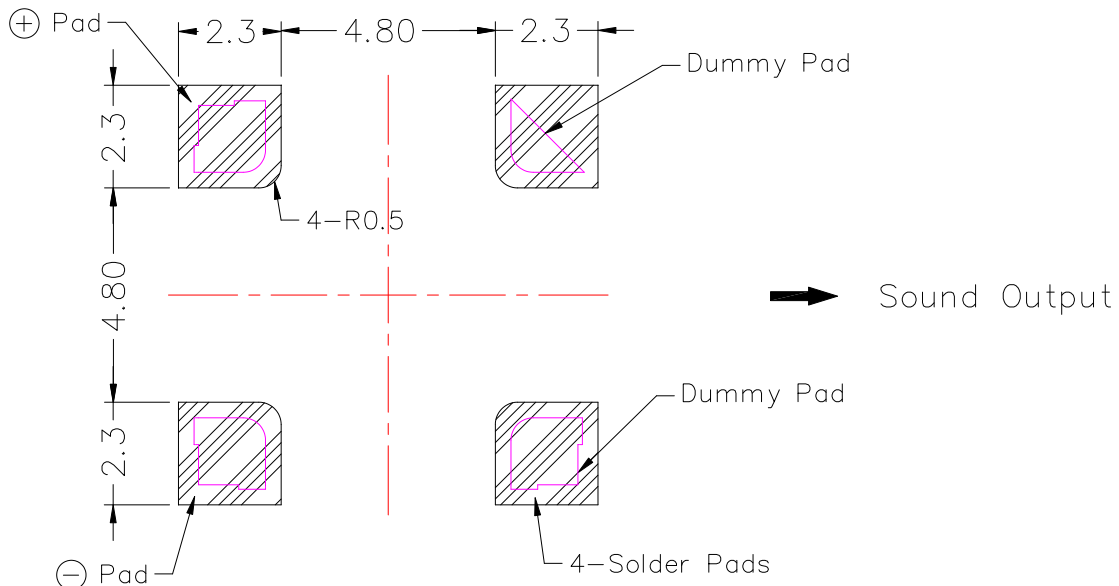
It is requested that second reflow soldering should be executed after heat of product goes down to normal temperature.

(※1)

**4.2 Hand Soldering**

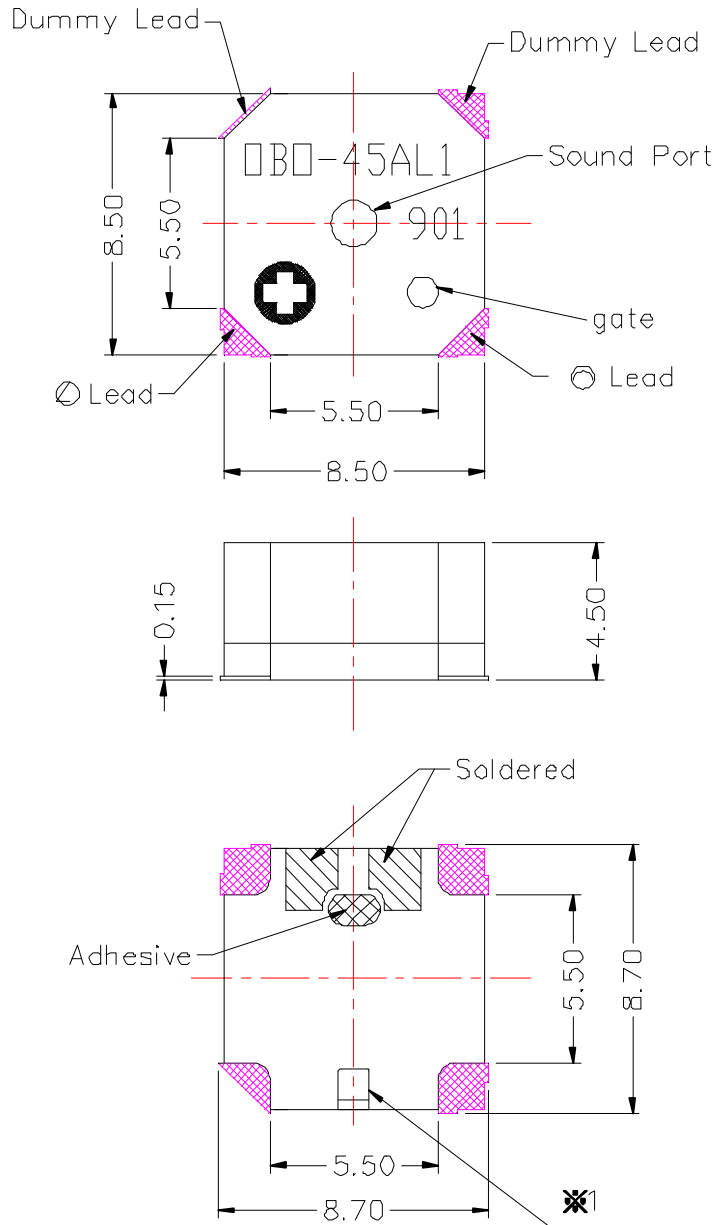
Soldering iron temperature 380°C less than 3 second.

**4.3 Soldering Pattern**



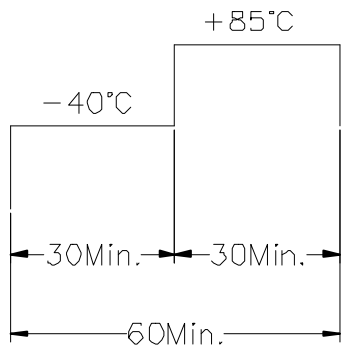
5. Mechanical Layout and Dimensions:

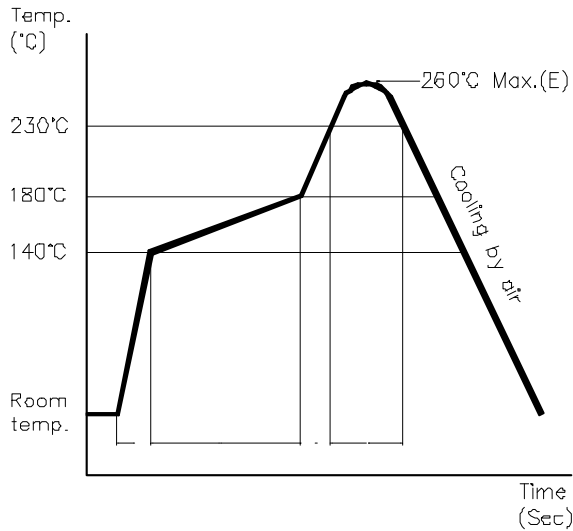
Tolerance:  $\pm 0.2\text{mm}$     Unit: mm



Note : Meaning of Stamp Mark  
 901 : Production Lot No.  
 9 : Year 2009 (last 1 figures of the year)  
 01 : week (01 ~55)  
 OBO-45AL1 : Model No.  
 : Polarity identification mark

**6. Reliability test :**

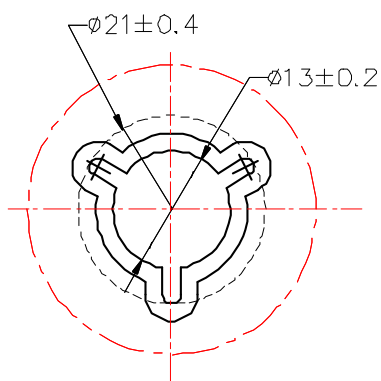
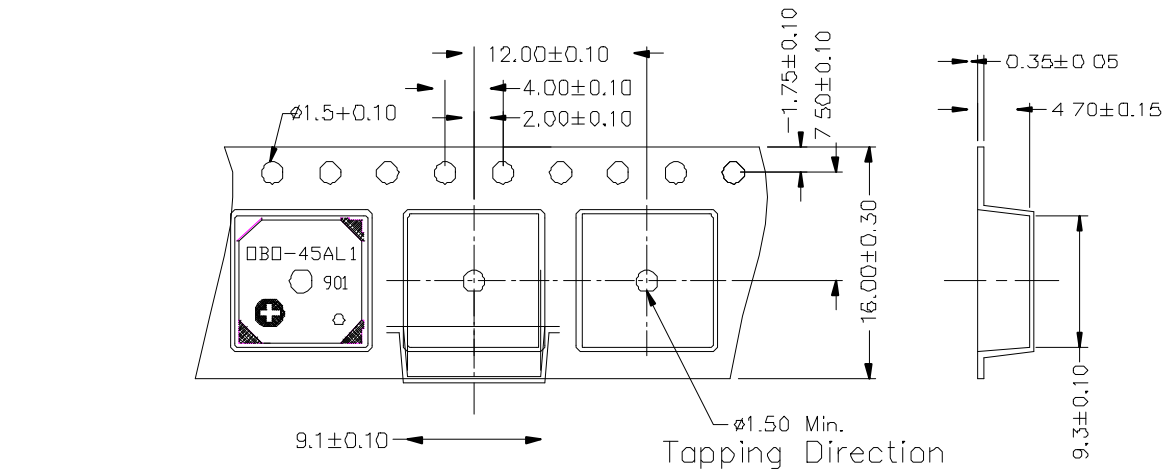
NO.	Items	Test Conditions	Evaluation Criteria
6.1	High Temp. Storage	The part shall be capable of withstanding a storage temperature of +85°C for 240 hours.	After the test the part shall meet specifications without any degradation in appearance and performance except SPL. SPL shall be 80dB or more.
6.2	Low Temp. Storage	The part shall be capable of withstanding a storage temperature of -40°C for 240 hours.	
6.3	Thermal Shock	<p>The part shall be subjected to 50 cycle. One cycle shall consist of :</p> <p>transfer time : 10 minutes</p> 	
6.4	Humidity Test	The part shall be subjected to +60°C, 90% RH for 240 hours, and expose to room temperature for 6 hours.	
6.5	Vibration	10 – 55 – 10Hz, Sinewave Sweep 15 min. X,Y,Z 3 Direction 2 hours each, Total 6 hours.	
6.6	Drop test	Drop on hard wood board of 5cm. thick, any direction, 10 times, at the height of 150cm	

NO.	Items	Test Conditions	Evaluation Criteria
6.7	Ordinary Temp. life	The part shall be subjected to 240 hours at 25±10°C. Input 3.0Vp-p Squarewave 1/2duty 2700Hz	
6.8	High Temp. life	The part shall be subjected to 240 hours at +70°C. Input 3.0Vp-p Squarewave 1/2duty 2700Hz	
6.9	Low Temp. life	The part shall be subjected to 240 hours at -30°C. Input 3.0Vp-p Squarewave 1/2duty 2700Hz	
6.10	Reflow (※1)		<p>a. No abnormality should be found after the test</p> <p>b. Good soldering to meet soldering requirements</p>

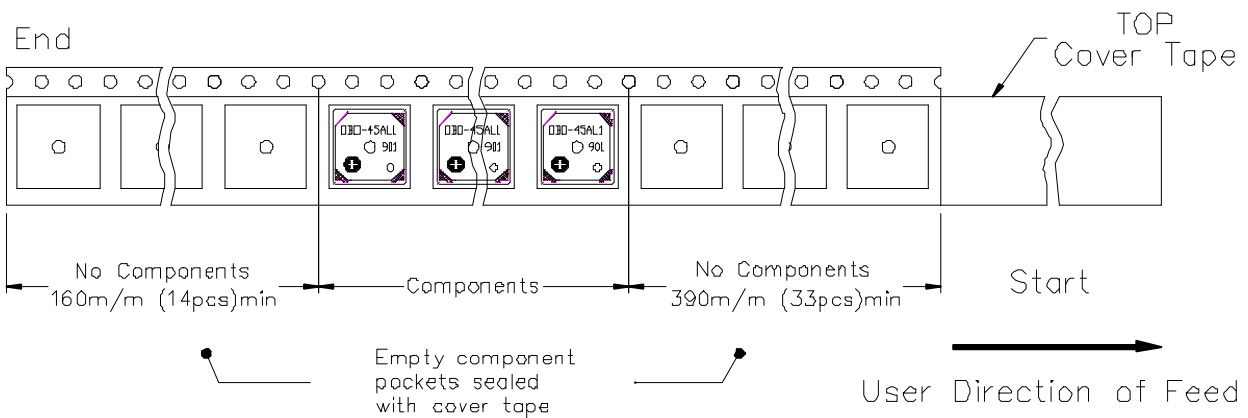
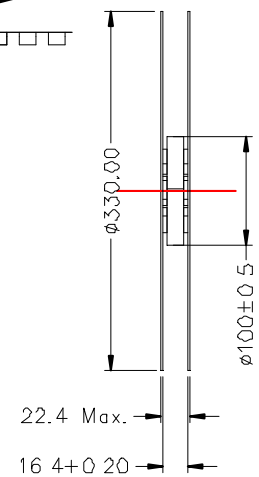
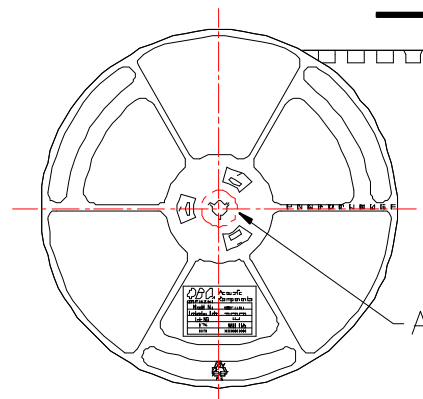
**Notes :**

As this product is not protected from foreign material entering, please make sure that that any foreign materials (e.g. magnetic powder, washing solvent, flux, corrosive gas) do not enter this product in your production processes. The functional degradation (e.g. SPL down ) may occur if foreign material enter it.

### 7.Packing



DETAIL : A  
SCALE 8 : 1







SPECIFICATIONS

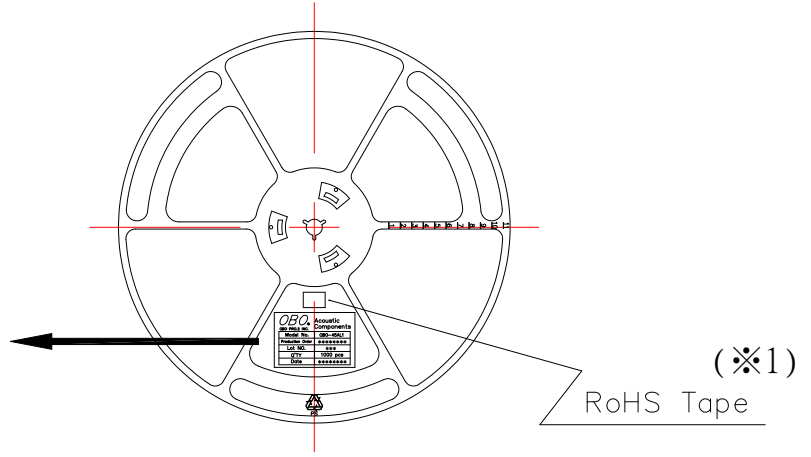
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Label content

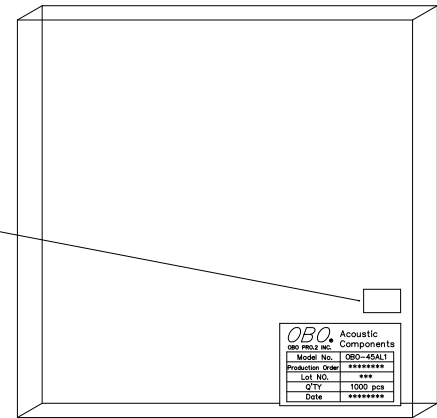
Model No.	OBO-45AL1
Production Order	*****
Lot NO.	***
Q'TY	1000 pcs
Date	*****



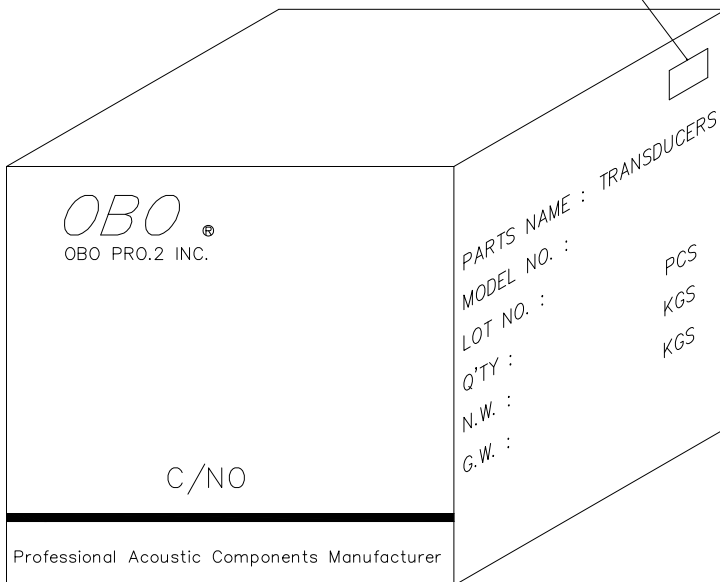
Inside box

RoHS Tape (\*)

Carton



1 Reel / Inside box  
(33.3\*2.4\*33.5)



10 Inside box (10000pcs)  
/ Carton (34.5\*26.5\*35.3)

