



**THE DATASHEET OF  
ST-0503-3**





soberton inc.

## ST BUZZER

Acoustic Product Specification

Product Number: ST-0503-3



Release | Revision: C/2018

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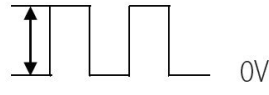
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### Specifications

Item	Unit	Specification	Condition
Rated Voltage	Vo-p	3.0	Vo-p 
Operating Voltage	Vo-p	2.0 ~ 4.0	
Mean Current	mA	110 Max.	At rated voltage, 4000 Hz square wave, 1/2 duty
Coil Resistance	Ω	12 ±3	
Sound Output	dBA	75	At 10cm(A-weight free air), at rated voltage 4000Hz, square wave, 1/2 duty
Rated Frequency	Hz	4000	
Operating Temp	°C	-30 ~ +70	
Storage Temp	°C	-40 ~ +80	
Dimension	mm	L5.0 × W5.0 × H2.7	See attached drawing
Weight	gram	0.3	
Material		LCP (Black)	
Terminal		SMD type (Plating Sn)	See attached drawing
Environmental Protection Regulation		RoHS	

### Test Condition

Temperature : +25±2 °C Relative Humidity: 65±5% Air Pressure: 86-106KPa

### Mechanical Characteristics

Item	Test condition	Evaluation standard
Solderability	Lead terminals are immersed in rosin for 5 seconds and then immersed in the solder bath at +250 ±5°C for 3 ±1 seconds.	90% min. lead terminals shall be wet with solder No interference in operation.
Soldering Heat Resistance	The product follows the reflow temperature curve to test its reflow thermal stability.	
Terminal Mechanical Strength	Lead pads shall be soldered onto the pcb, and a force of 9.8N (1.0kg) shall be applied to the part for 10 seconds.	No damage and cutting off
Vibration	The part shall be subjected to a vibration cycle of 10Hz to 55Hz to 10Hz in a period of 1 minute. Total peak amplitude shall be 1.52mm(9.3G). The vibration test shall consist of 2 hours per axis in each three axes (X,Y,Z). Total 6 hours.	After the test, the part shall meet specifications without any damage in appearance and performance, except SPL. SPL should be in ±10dBA compared with initial one.
Drop Test	The part is dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X,Y,Z). Total of 9 times.	



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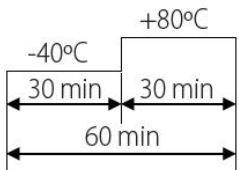
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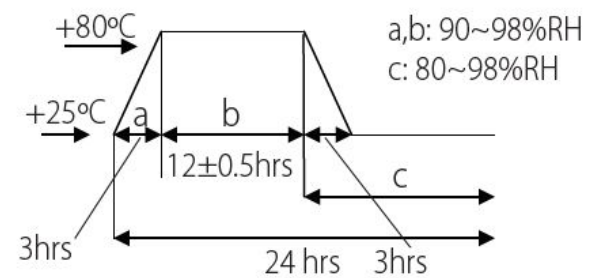
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## Environment Test

Item	Test condition	Evaluation standard
High Temp. Test	The part is placed in a chamber at +80°C for 48 hours	After the test, the part shall meet specifications without any degradation in appearance and performance, except SPL. After 4 hours at +25°C, the SPL should be in $\pm 10\text{dBA}$ compared with initial one.
Low Temp. Test	The part is placed in a chamber at -40°C for 48 hours	
Thermal Shock	The part shall be subjected to 10 cycles. Each cycle shall consist of: 	

Temp./Humidity Cycle

The part shall be subjected to 10 cycles. One cycle shall be 24 hours and consist of:



## Reliability Test

Item	Test condition	Evaluation standard
Operating Life Test	<b>Ordinary Temperature</b> The part shall be subjected to 100 hours of continuous operation at $+25 \pm 10^\circ\text{C}$ .	After the test, the part shall meet specifications without any degradation in appearance and performance, except SPL. After 4 hours at +25°C, the SPL should be in $\pm 10\text{dBA}$ compared with initial one.
	<b>High Temperature</b> The part shall be subjected to 50 hours of continuous operation at +70°C at 3.0V, 4000Hz applied.	
	<b>Low Temperature</b> The part shall be subjected to 50 hours of continuous operation at -30°C at 3.0V, 4000Hz applied.	

### Standard test condition:

- a) Temperature: +5~+35°C
- b) Humidity: 45~85%
- c) Pressure: 86~106KPa



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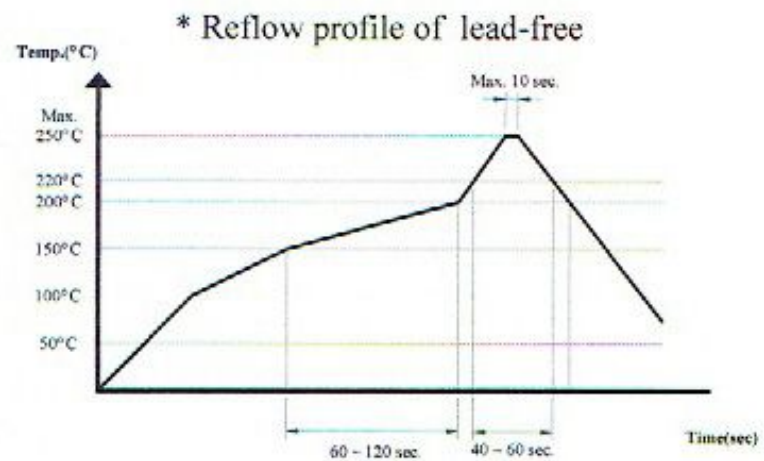


## Recommended Temperature Profile for Reflow Oven

Recommendable wave soldering condition is as follows:

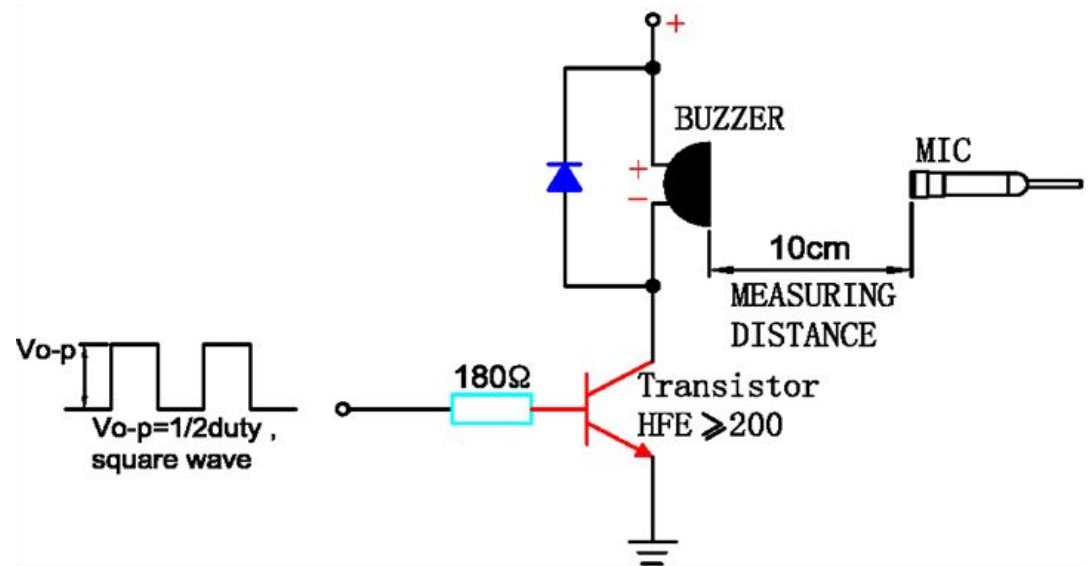
**Note 1:** It is requested that reflow soldering should be executed after heat of product goes down to normal temperature.

**Note 2:** Peak reflow temperature of 250°C maximum of 10 seconds, with a maximum duration of 40-60 seconds between 220°C and 250°C

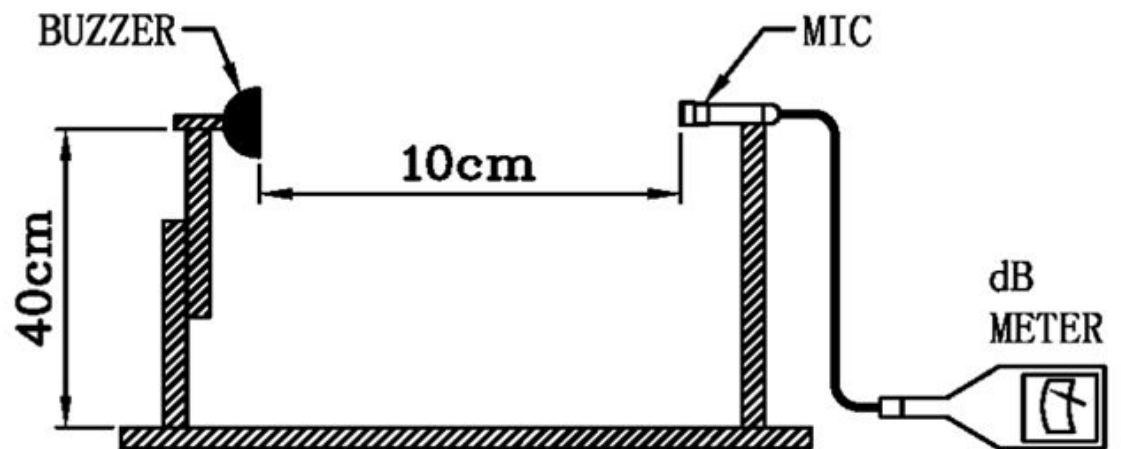


## Measurement Method

**Acoustic Characteristics:** The oscillation frequency, current consumption and sound pressure are measured by the measuring instruments shown below :



In the measuring test, buzzer is placed as follows:



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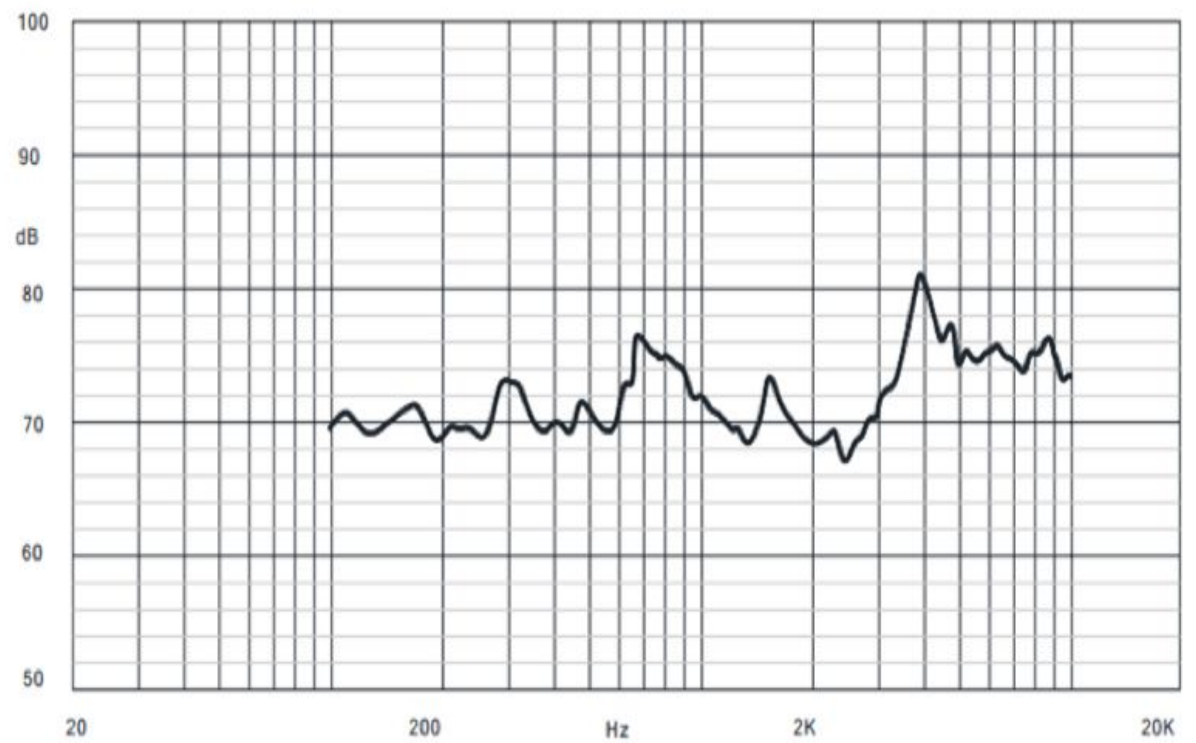
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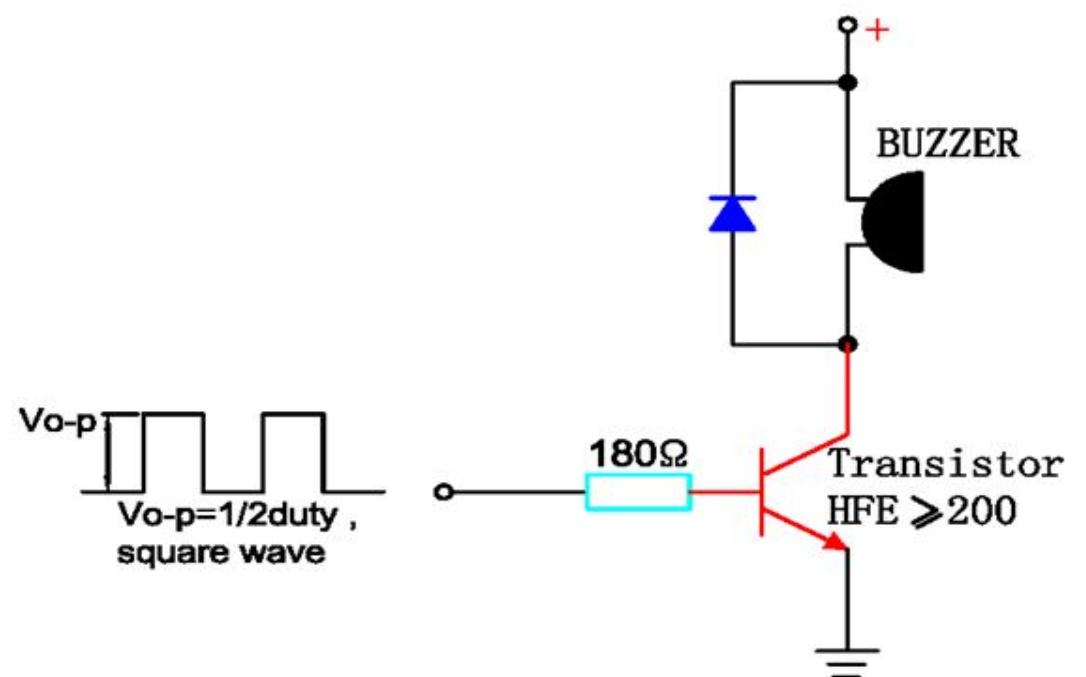
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## Typical Frequency Response Curve



## Driving Circuit

The base current  $I_b$  should high enough so that it saturates the collector current of the transistor with the CB load.





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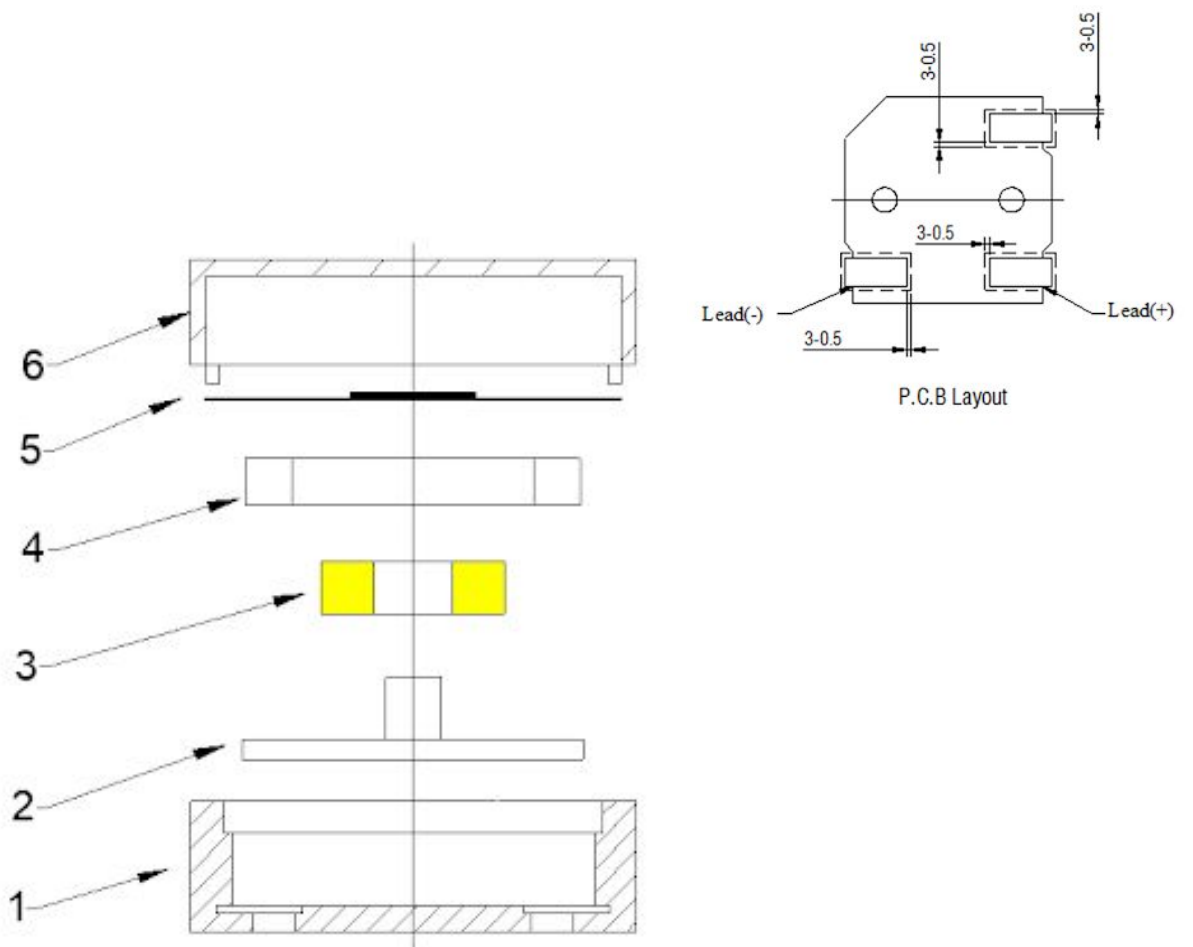
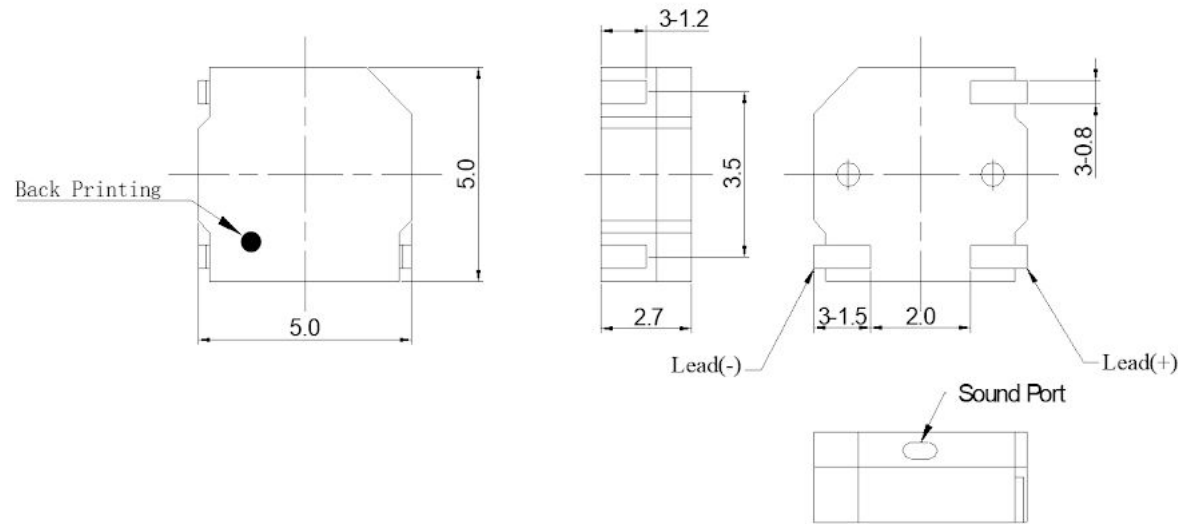
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## Dimensions

Tolerance:  $\pm 0.3$  (unit: mm)



No.	Part Name	Material	Quantity
1	Case	LCP	1
2	Core	Ferrum	1
3	Coil	Copper	1
4	Magnet Ring	NdFeB	1
5	Diaphragm	Ferrum	1
6	Case	LCP	1



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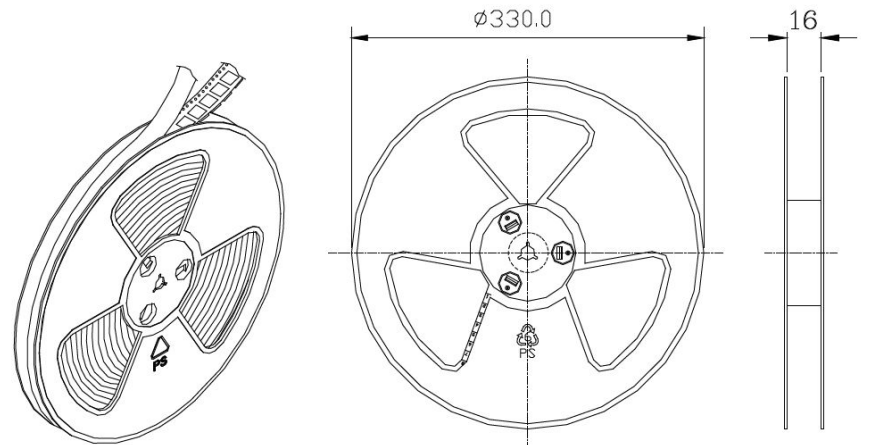
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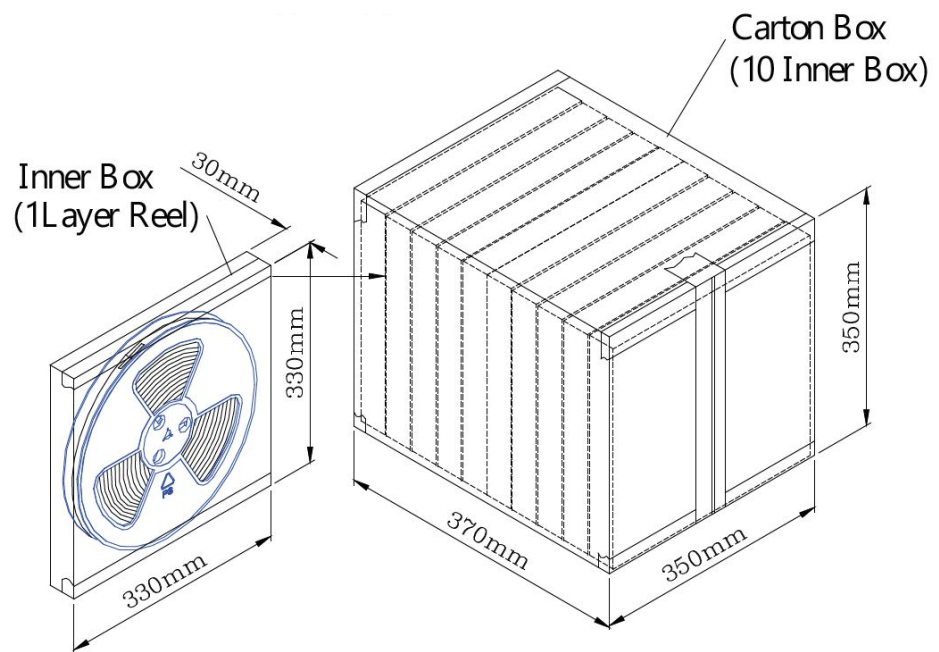
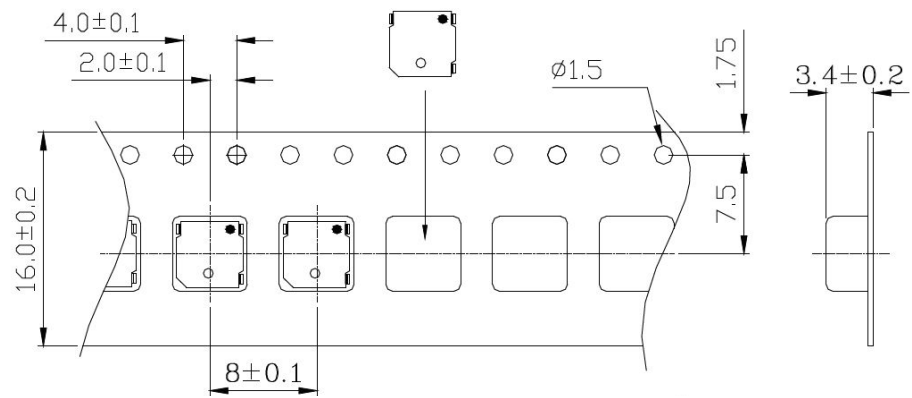
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## Packing



1 Reel : 2500PCS



Packing Job	L x W x H (mm)	Pieces
Inner Box	330 x 330 x 30	1 x 2500 = 2,500pcs
Carton Box	370 x 350 x 350	10 x 2500 = 25,000pcs

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- ✓ Shortage Management
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