



soberton inc.

# ST BUZZER

## Acoustic Product Specification

Product Number: ST-0402S



Release | Revision: B/2018

### CONTENTS

This document contains the technical specifications for the electromagnetic buzzer.

#### Page 1

Specifications

Mechanical Characteristics

#### Page 2

Environment Test

Reliability Test

#### Page 3

Frequency Response Curve

Testing Method

#### Page 4

Recommended Driving Circuit

Soldering Conditions

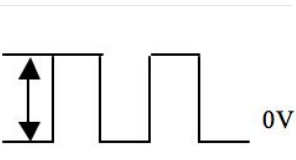
#### Page 5

Dimensions

#### Page 6

Packing

## Specifications

Item	Unit	Specification	Condition
Rated Frequency	Hz	4000	
Rated Voltage	Vo-p	3	
Operating Voltage	Vo-p	2.0 ~ 4.0	
Mean Current	mA	90 Max.	Vo-p= 1/2 duty, square wave
Coil Resistance	Ω	17 ±3	
Sound Pressure Level	dB	70	At 10cm rated voltage
Operating Temp	°C	-30 ~ +70	
Storage Temp	°C	-40 ~ +85	
Dimension	mm	L4.0 × W4.0 × H2.0	See attached drawing
Weight	gram	0.1	
Housing Material		LCP (Black)	
Leading Pin	SMD type	Tin plated (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 on the pc board, and the 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. The 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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Mechanical Characteristics

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Reliability Test

### Page 3

Frequency Response Curve

Testing Method

### Page 4

Recommended Driving Circuit

Soldering Conditions

### Page 5

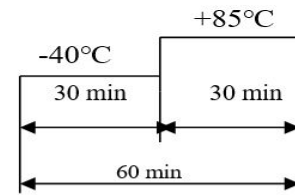
Dimensions

### Page 6

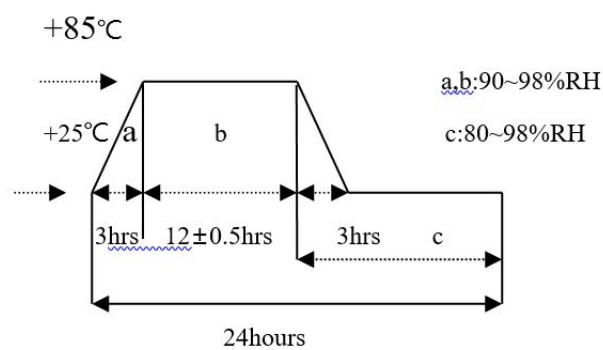
Packing

## Environment Test

Item	Test condition	Evaluation standard
High Temperature Test	The part is placed in a chamber at +85°C for 96 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 shall be in ±10dBA compared with initial one.
Low Temperature Test	The part is placed in a chamber at -40°C for 96 hours.	
Thermal Shock	The part shall be subjected to 10 cycles. Each cycle shall consist of;	



Temperature Cycle Test



## Reliability Test

Item	Test Condition	Evaluation Standard
Ordinary Temperature	The part shall be subjected to 96 hours of continuous operation at +25°C±10°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 ±10dBA compared with initial one.
High Temperature	The part shall be subjected to 72 hours of continuous operation at +85°C with 3.0V, 4000Hz applied.	
Low Temperature	The part shall be subjected to 72 hours of continuous operation at -40°C with 3.0V, 4000Hz applied.	

### Standard Test Condition:

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



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## CONTENTS

This document contains the technical specifications for the electromagnetic buzzer.

### Page 1

Specifications

Mechanical Characteristics

### Page 2

Environment Test

Reliability Test

### Page 3

Frequency Response Curve

Testing Method

### Page 4

Recommended Driving Circuit

Soldering Conditions

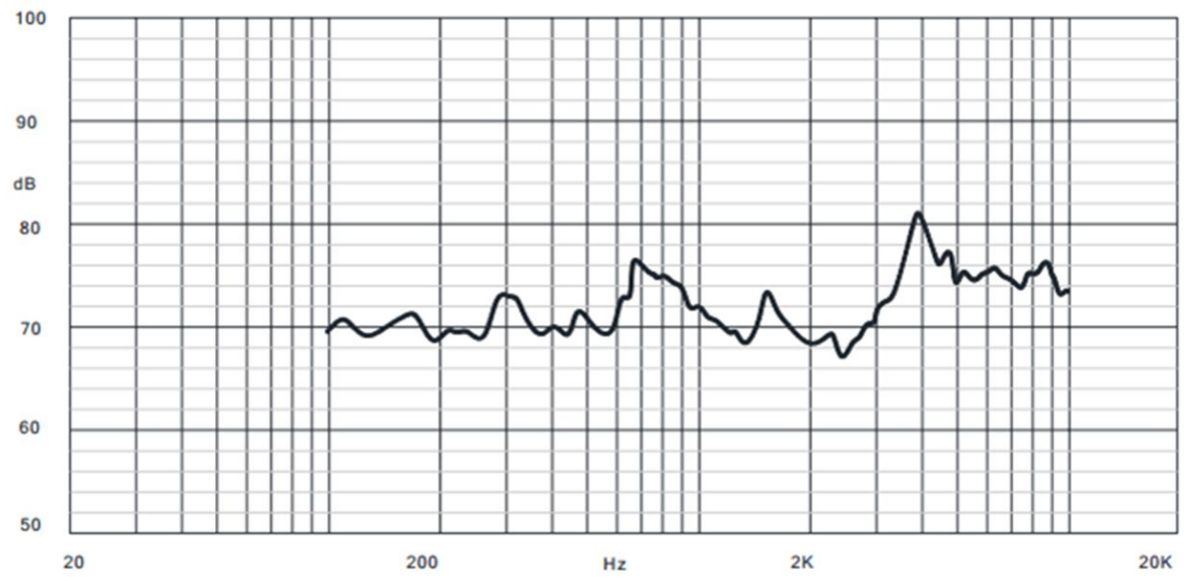
### Page 5

Dimensions

### Page 6

Packing

## Typical Frequency Response Curve



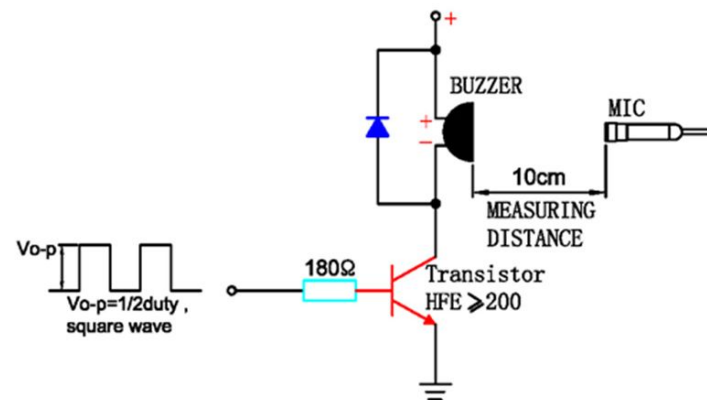
## Testing Method

### STANDARD MEASUREMENT CONDITIONS:

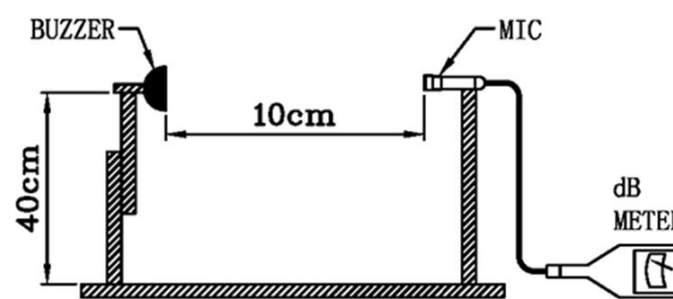
Temperature: 25 ±2 °C Humidity: 45 ~ 65%

### 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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#### Page 2

Environment Test

Reliability Test

#### Page 3

Frequency Response Curve

Testing Method

#### Page 4

Recommended Driving Circuit

Soldering Conditions

#### Page 5

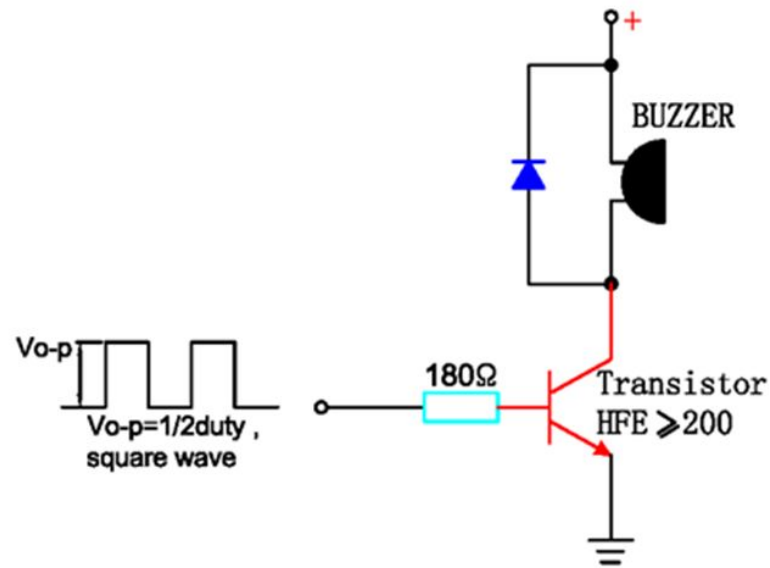
Dimensions

#### Page 6

Packing

## Recommended Driving Circuit

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



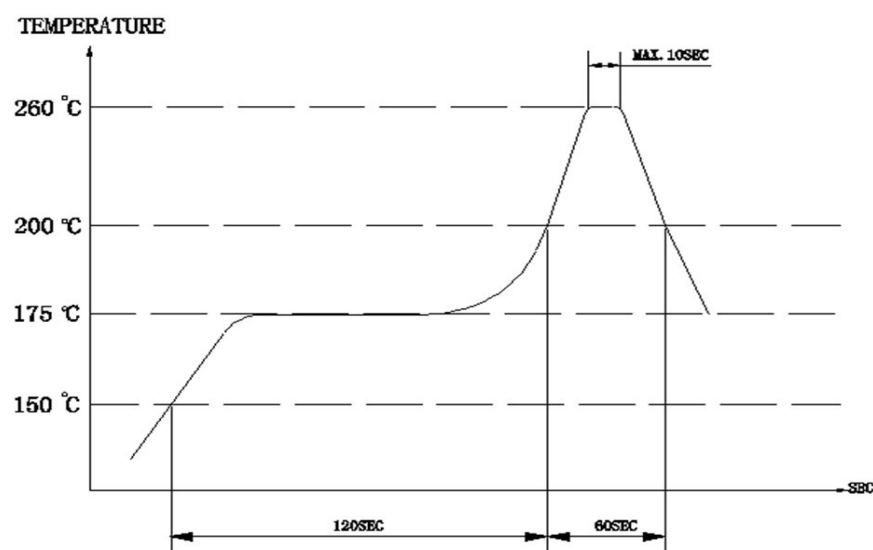
## Soldering Conditions

- 1.) Recommendable reflow soldering condition is as follows  
(Reflow soldering is twice)

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

Heat resistant line (Used when heat resistant reliability test is performed)

- 2.) Manual soldering: Manual soldering temperature 350 °C within 5 sec.





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Specifications

Mechanical Characteristics

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Environment Test

Reliability Test

### Page 3

Frequency Response Curve

Testing Method

### Page 4

Recommended Driving Circuit

Soldering Conditions

### Page 5

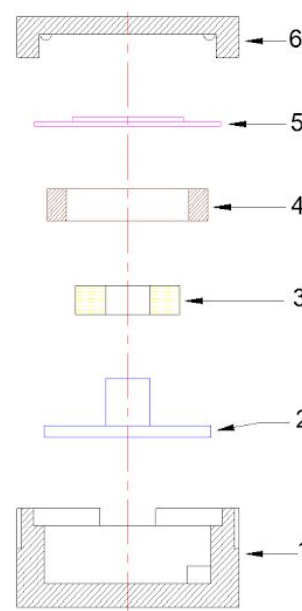
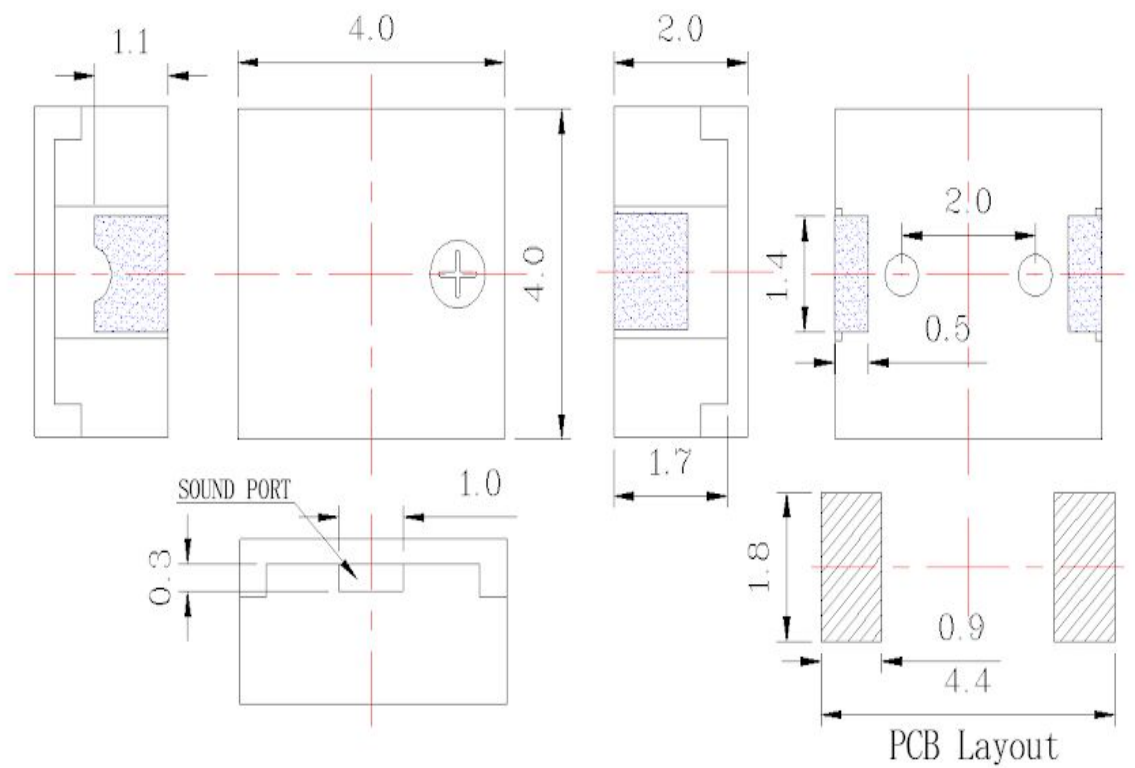
Dimensions

### Page 6

Packing

## Dimensions

Tolerance:  $\pm 0.5$  (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	Nickel Alloy + Ferrum	1
6	Case	LCP	1





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### Page 3

Frequency Response Curve

Testing Method

### Page 4

Recommended Driving Circuit

Soldering Conditions

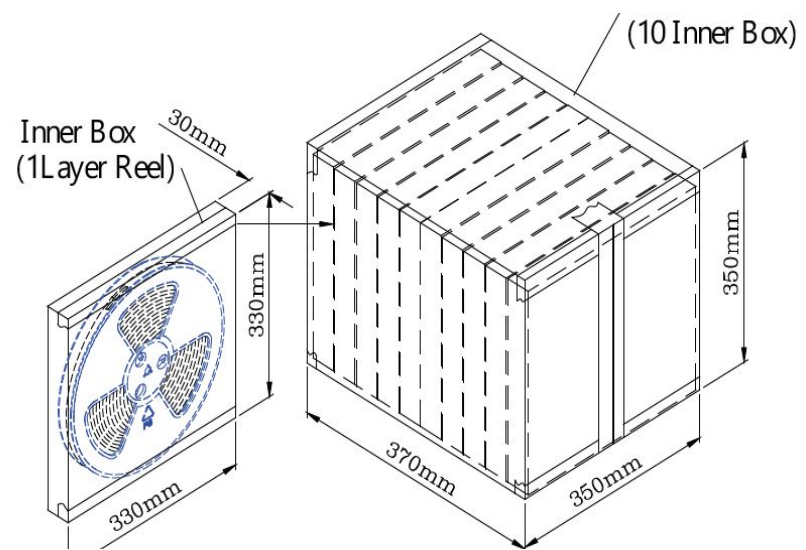
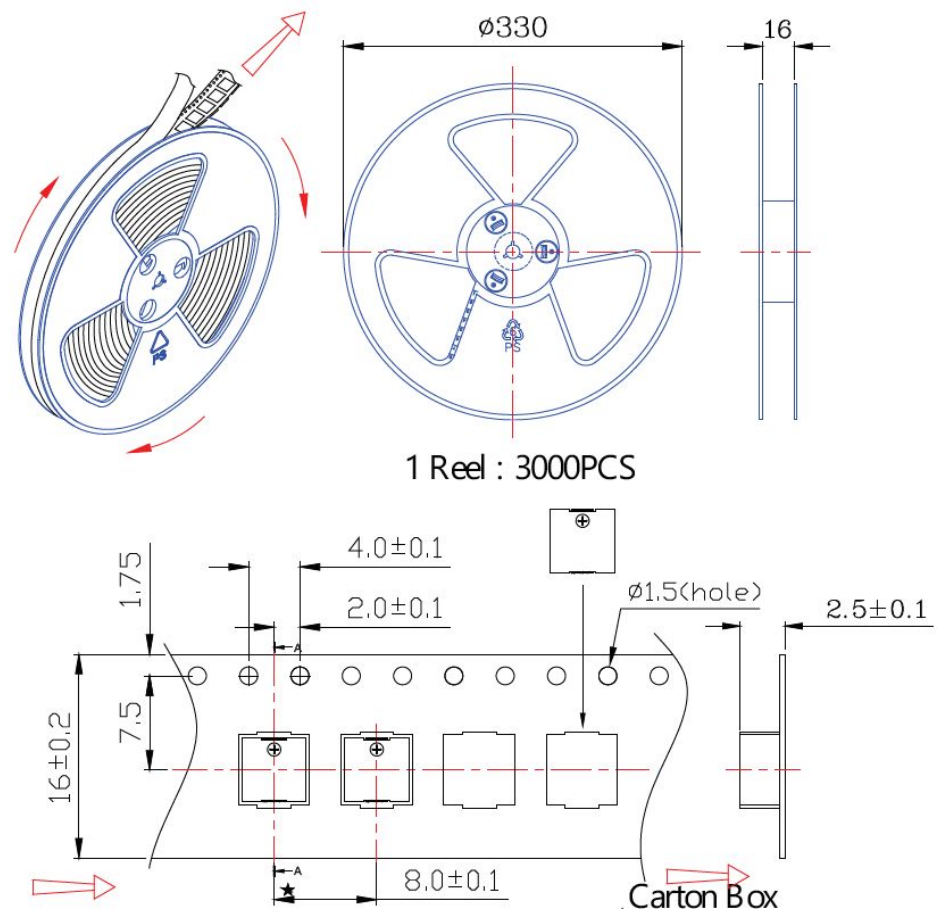
### Page 5

Dimensions

### Page 6

Packing

## Packing



Packing	L x W x H (mm)	Pieces
Inner Box	330 x 330 x 30	1 x 3000 = 3,000pcs
Carton Box	370 x 350 x 350	10 x 3000 = 30,000pcs