



soberton inc.

ST BUZZER

Acoustic Product Specification

Product Number: ST-0502



Release | Revision: C/2018

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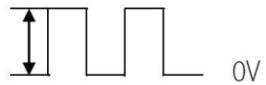
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Specifications

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	dB(A)	75	At 10cm (A-weight free air). At rated voltage, 4000Hz, square wave, ½ duty
Rated Frequency	Hz	4000	
Operating Temp	°C	-30 ~ +70	
Storage Temp	°C	-40 ~ +80	
Dimension	mm	5.2×5.2×H2.0	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 Related 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 of +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 profile to test its reflow thermal stability.	
Terminal Mechanical Strength	A force of 0.5 kg will be applied to the part for 60 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 ±10dB(A) 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.	

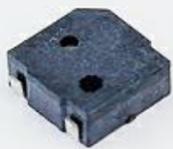


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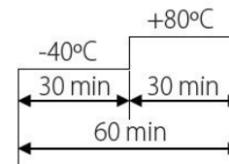
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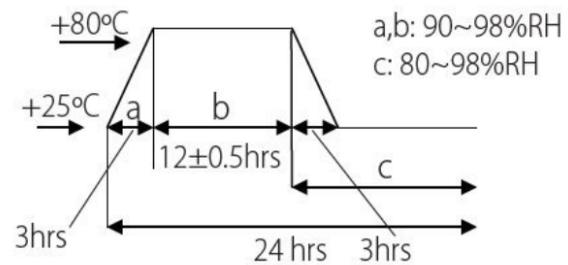
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Environment Test

Item	Test condition	Evaluation standard
High Temp. Test	The part is placed in a chamber at +80°C for 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 should be in ±10dBA compared with initial one.
Low Temp. 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:	



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	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 96 hours of continuous operation at +70°C at 3.0V, 4000Hz applied.	
	Low Temperature The part shall be subjected to 96 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

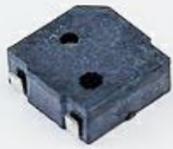


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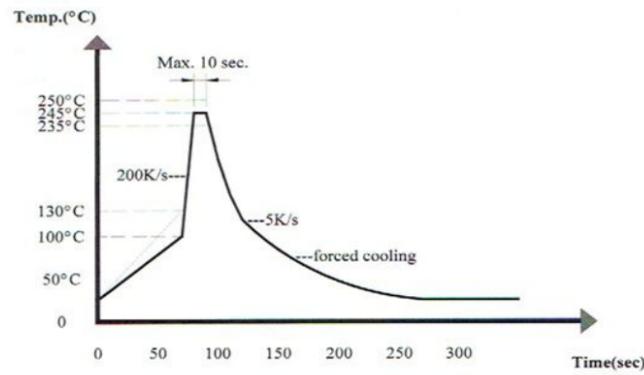
Recommended Temperature Profile for Reflow Oven

Recommendable wave soldering condition is as follows:

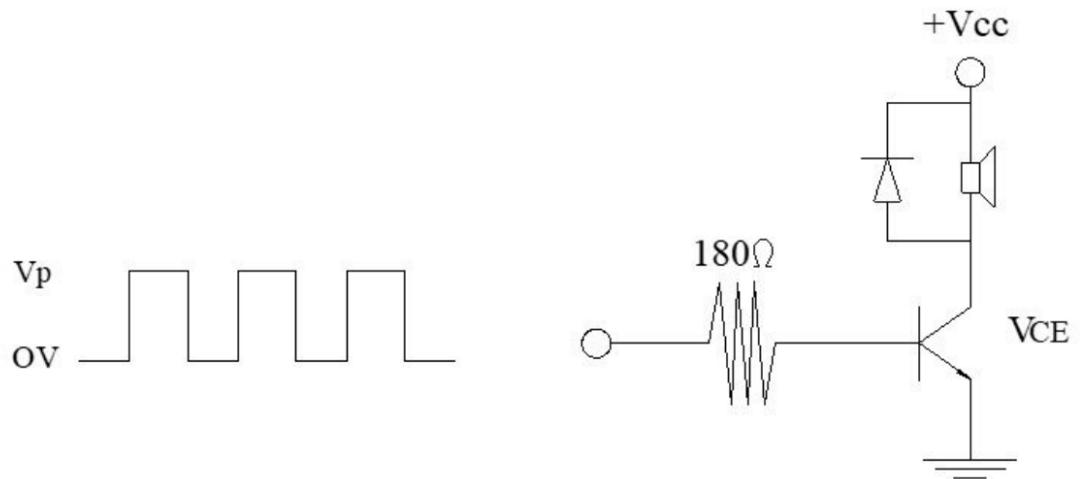
Note 1: It is requested that reflow soldering should be executed after heat of product goes down to normal temperature.

Note 2: Peak reflow temperature of 250°C maximum of 10 seconds

* Wave Soldering profile of lead-free



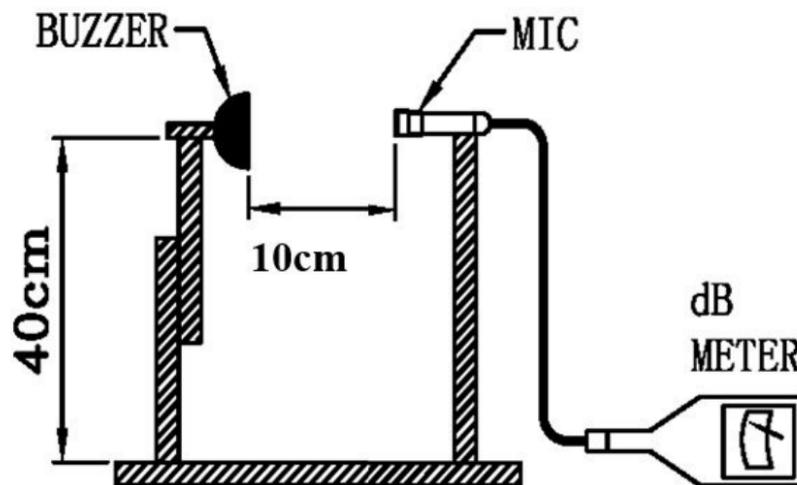
Measurement Test Circuit



Inspection Fixture

S.P.L Measuring Circuit

Input Signal: 3.0 Vo-p, square wave, 1/2 duty, 4000Hz



Mic: RION S.P.L meter UC30 or equivalent

S.G: Hewlett Packard 33120A Function Generator or equivalent

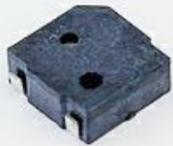


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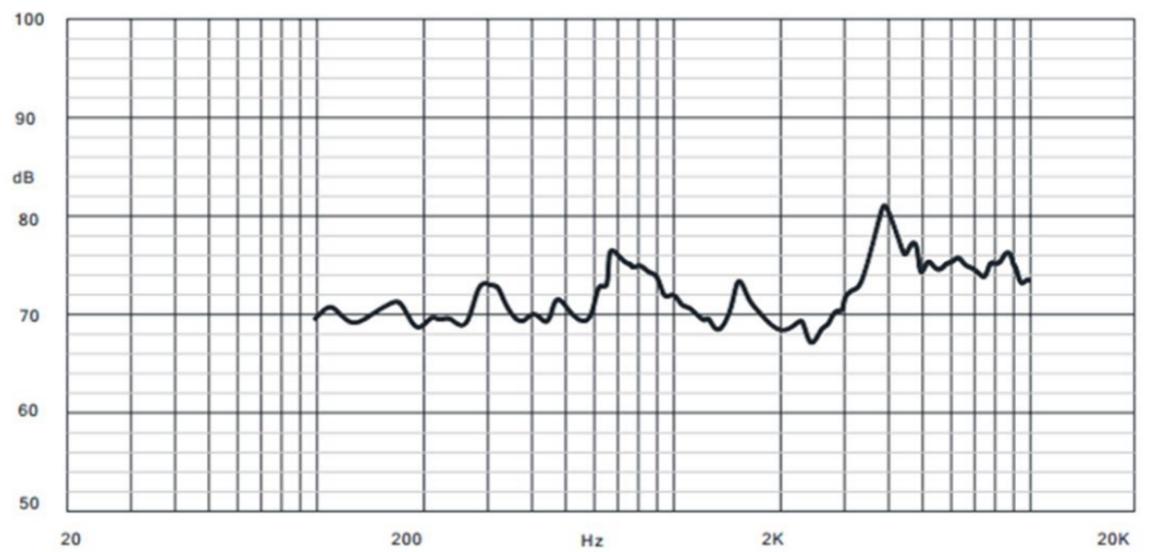
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Typical Frequency Response Curve





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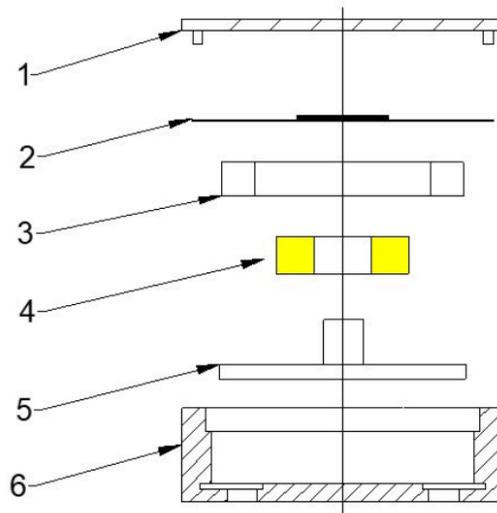
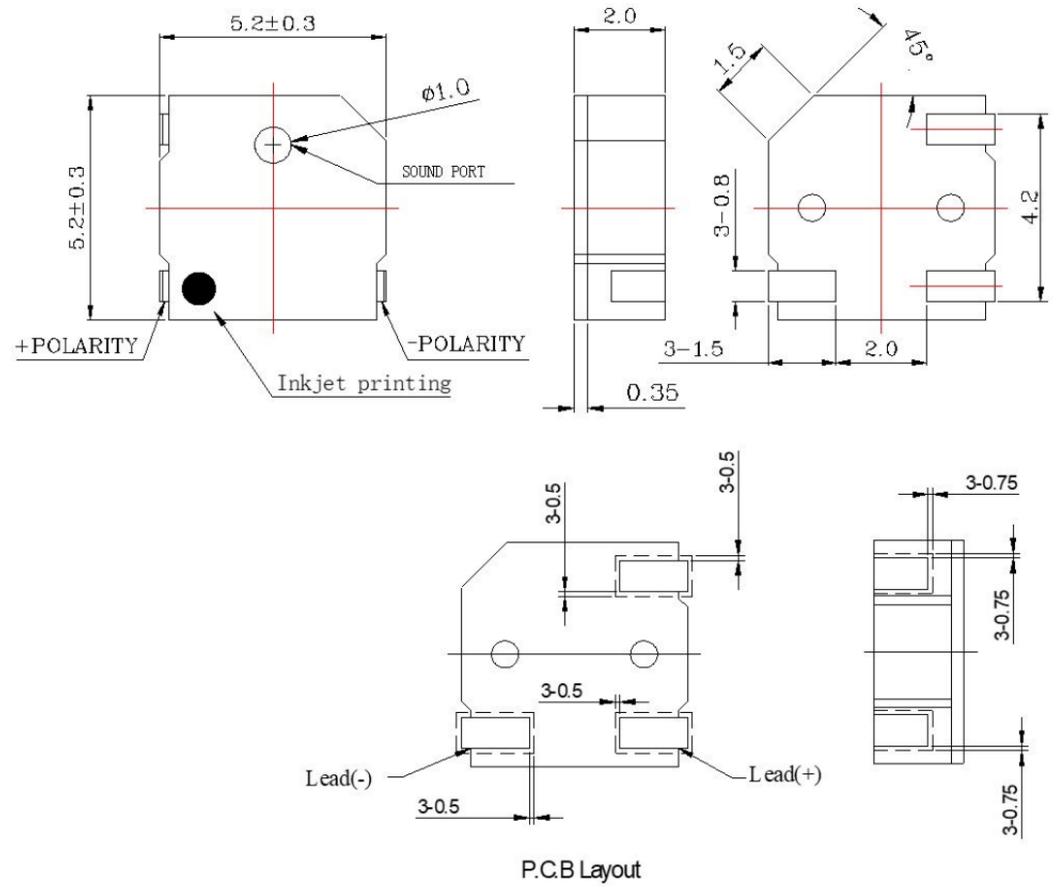
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Dimensions

Tolerance: ± 0.3 (unit: mm)



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

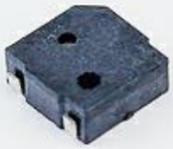


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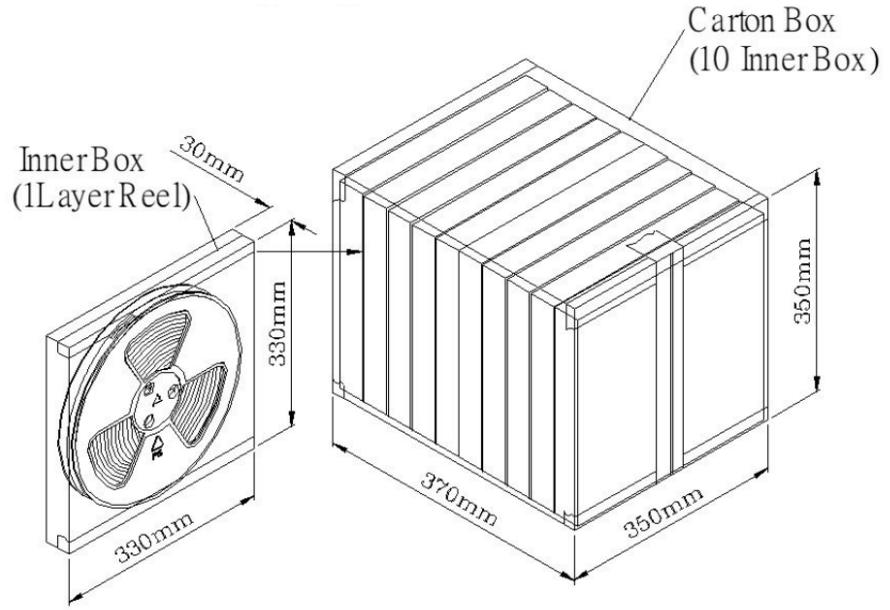
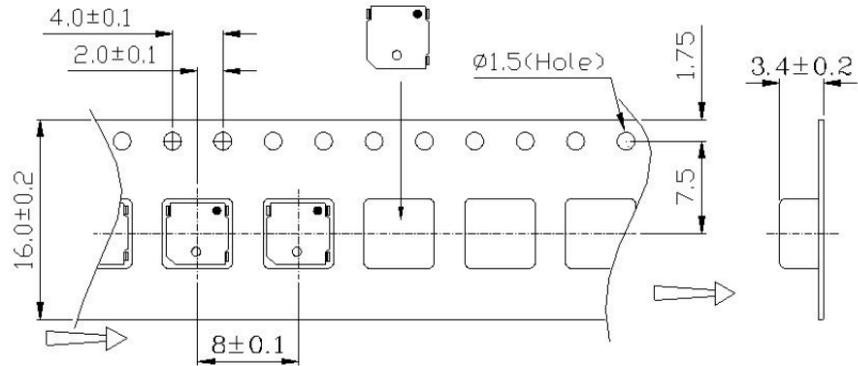
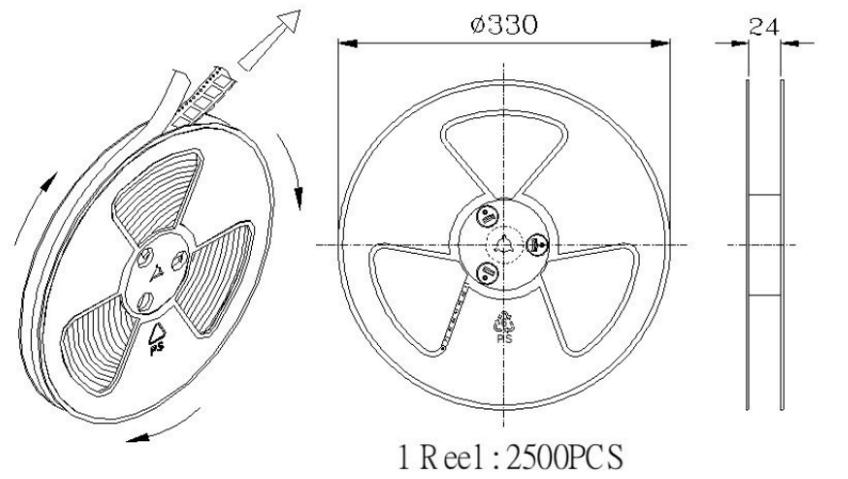
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Packing Job	L x W x H (mm)	Pieces
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Inner Box	330 x 330 x 30	1 x 2500 = 2,500pcs
Carton Box	370 x 350 x 350	10 x 2500 = 25,000pcs