



soberton inc.

ST BUZZER

Acoustic Product Specification

Product Number: ST-04BL



Release | Revision: C/2018

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Specifications

Item	Unit	Specification	Condition
Rated Voltage	Vo-p	3.6	Vo-p 
Operating Voltage	Vo-p	2.4 ~ 4.5	
Mean Current	mA	100 Max.	At rated voltage, 2300 Hz square wave, 1/2 duty
Coil Resistance	Ω	16 ±3	
Sound Output	dB	83	At 10cm(A-weight free air), at rated voltage 2300Hz, square wave, 1/2 duty
Rated Frequency	Hz	2300	
Operating Temp	°C	-20 ~ +70	
Storage Temp	°C	-30 ~ +80	
Dimension	mm	L8.5 × W8.5 × H4.0	See attached drawing
Weight	gram	0.8	
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 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 wooden board 1 time.	



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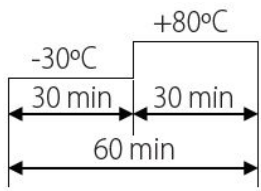
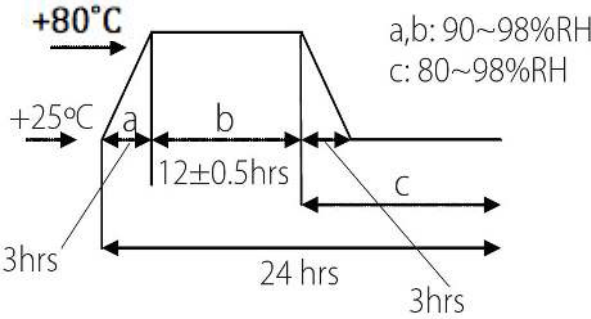
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Environment Test

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 -30°C for 96 hours	
Thermal Shock	The part shall be subjected to 5 cycles. Each cycle shall consist of: 	
Temp./Humidity Cycle	The part shall be subjected to 5 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 72 hours of continuous operation at +70°C at 3.6V, 2300Hz applied.	
	Low Temperature The part shall be subjected to 72 hours of continuous operation at -20°C at 3.6V, 2300Hz applied.	

Standard test condition:

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



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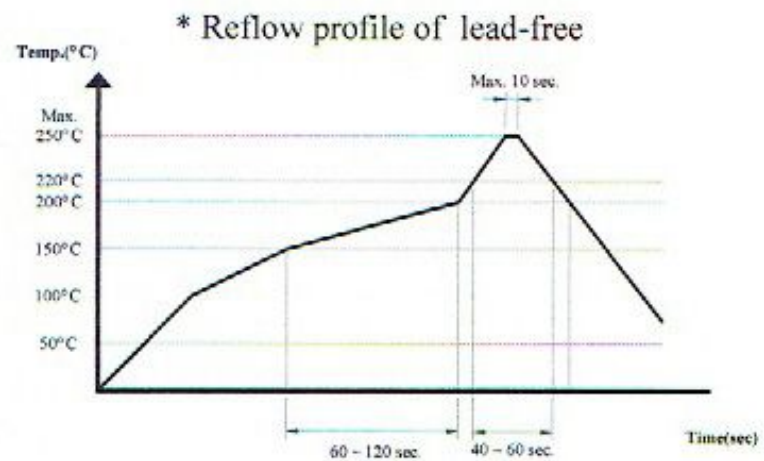
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Recommended Temperature Profile for Reflow Oven

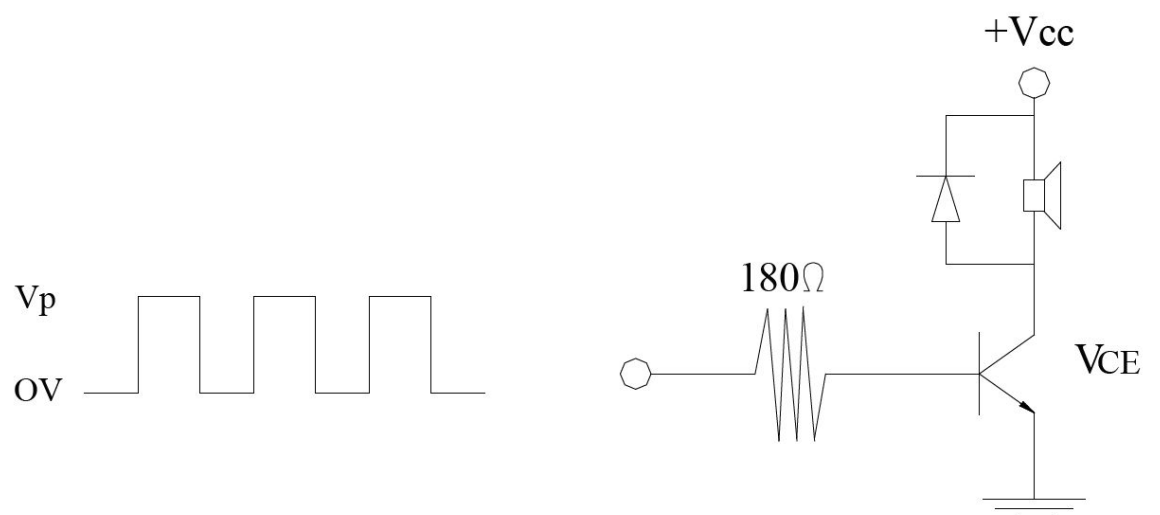
Recommendable wave soldering condition is as follows:

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



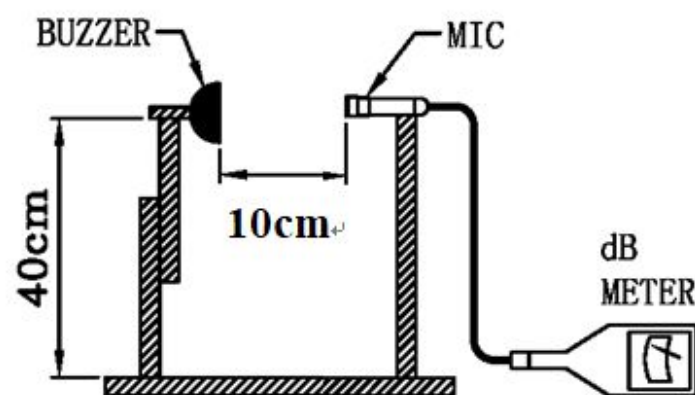
Measurement Test Circuit



Inspection Fixture

S.P.L Measuring Circuit

Input Signal: 3.6 Vo-p, square wave, 1/2 duty, 2300 Hz



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

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



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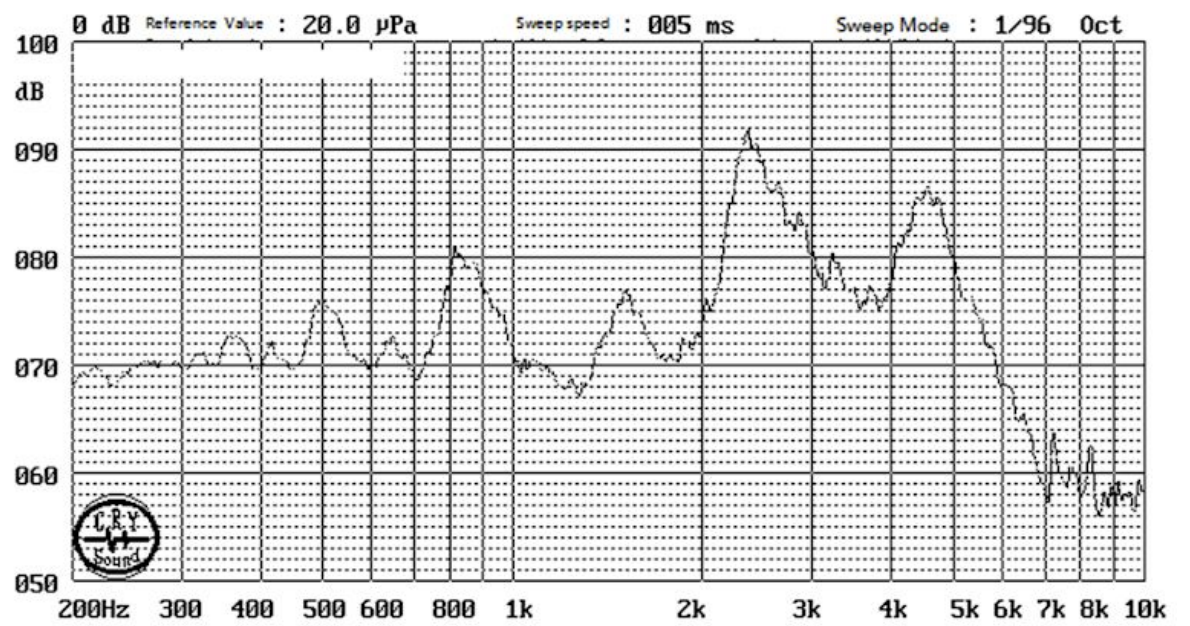
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Typical Frequency Response Curve





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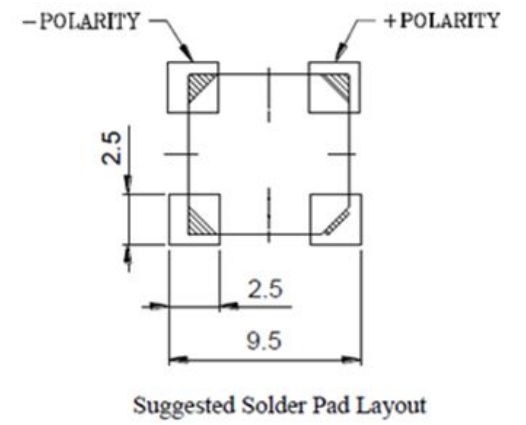
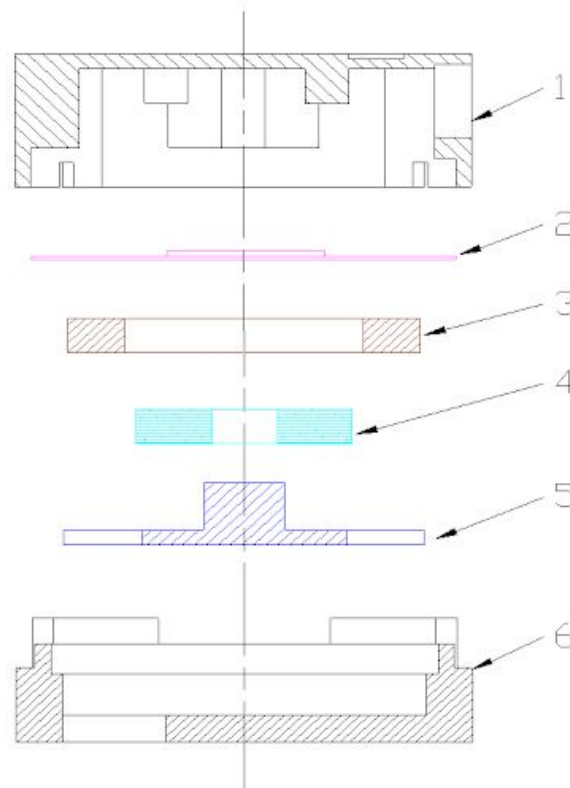
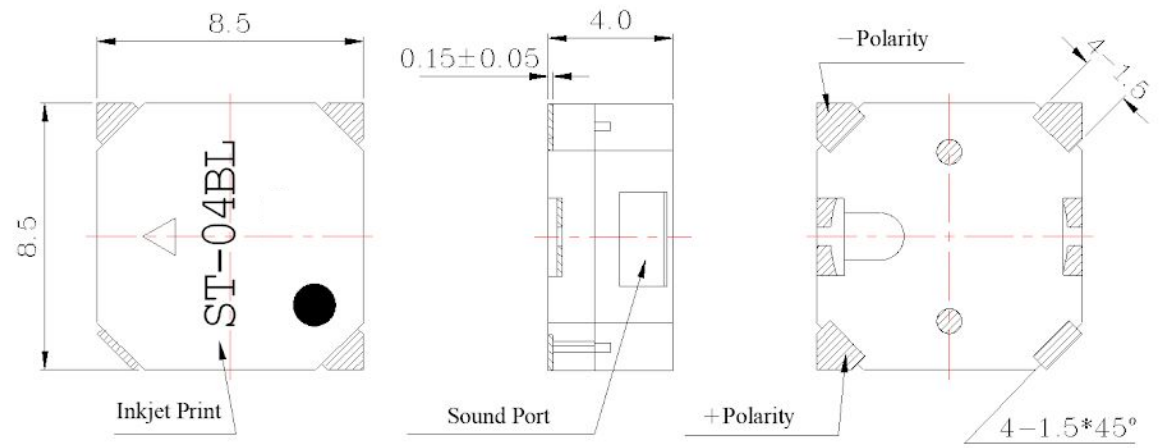
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Tolerance: ± 0.5 (unit: mm)



No.	Part Name	Material	Quantity
1	Cover	LCP	1
2	Diaphragm	Nickel Alloy + Ferrum	1
3	Magnet ring	NdFeB	1
4	Coil	Copper	1
5	Frame	Iron	1
6	Case	LCP	1



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