

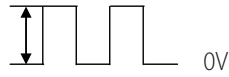


**MODEL:** ST-0503-3  
**PRODUCT:** Electromagnetic Buzzer  
**EDITION:** A/2017

**THIS SPECIFICATION APPLIES TO THE ELECTROMAGNETIC BUZZER**

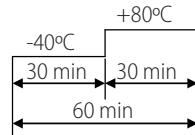
**SPECIFICATION**

TEST CONDITION: TEMP= +25 ±2°C RELATED HUMIDITY= 65 ±5% AIR PRESSURE: 860 ~ 1060MBAR

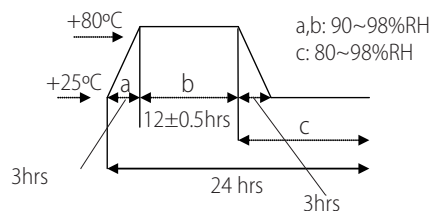
item	unit	specification	condition
rated voltage	Vo-p	3.0	Vo-p 
operating volt	Vo-p	2.0 ~ 4.0	
mean current	mA	Max.110	At rated voltage 4000Hz, square wave, 1/2 duty
coil resistance	Ω	12 ±3	
sound output	dBA	75	At 10cm (A-weight free air), At rated voltage 4000Hz, square wave, 1/2duty
rated frequency	Hz	4000	
operating temp	°C	-30 ~ +70	
storage temp	°C	-40 ~ +80	
dimension	mm	5.0 × 5.0 × 3.0	See attached drawing
weight	gram	0.3	
material		LCP(Black)	
terminal		SMD Type (Plating Sn)	See attached drawing
environmental protection regulation		RoHS	

**ENVIRONMENT TEST**

item	test condition	evaluation standard
high temp. test	After being placed in a chamber at +80°C for 48 hours.	After the test the part will meet specifications without any degradation in appearance and performance except SPL. After 4 hours at +25°C.
low temp. test	After being placed in a chamber at -40°C for 48 hours.	The SPL will be in ±10dBA compared with initial one.
thermal shock	The part will be subjected to 10 cycles. One cycle shall consist of:	



temp./humidity cycle	The part will be subjected to 10 cycles. One cycle shall be 24 hours and consist of:	
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## RELIABILITY TEST

item	test conditions	evaluation standard
operating life test	ORDINARY TEMPERATURE The part will be subjected to 96 hours of continuous operation at $+25\pm 10^{\circ}\text{C}$	After the test the part will meet specifications without any degradation in appearance and performance except SPL, after 4 hours at $+25^{\circ}\text{C}$ . The SPL would be in $\pm 10\text{dBA}$ compared with initial one.
	HIGH TEMPERATURE The part will be subjected to 72 hours of continuous operation at $+70^{\circ}\text{C}$ with 3.0V, 4000Hz applied.	
	LOW TEMPERATURE The part will be subjected to 72 hours of continuous operation at $-30^{\circ}\text{C}$ with 3.0V, 4000Hz applied.	

### TEST CONDITION

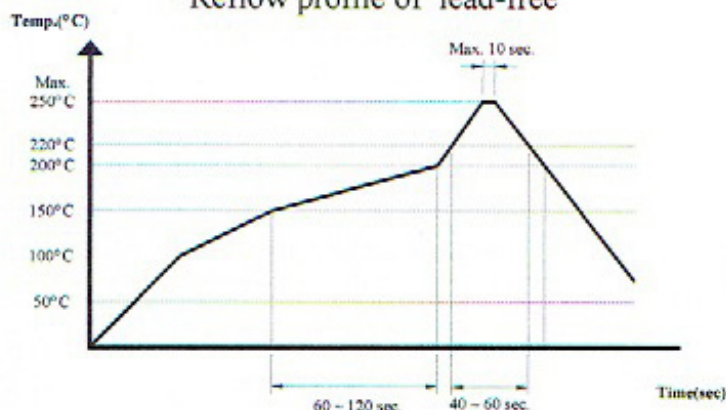
Standard Test Condition : a)Temperature:  $+5\sim +35^{\circ}\text{C}$  b)Humidity:45~85% c)Pressure: 860~1060mbar

## MECHANICAL CHARACTERISTICS

item	test condition	evaluation standard
solderability	Lead terminals are immersed in solder bath of $+250\pm 5^{\circ}\text{C}$ for $3\pm 1$ seconds.	90% min. lead terminals will be wet with solder No interference in operation.
soldering heat resistance	The product followed the reflow profile to test its reflow thermo-stability.	
terminal mechanical strength	Lead pads will be soldered on the pc board, and the force 9.8N(1.0Kg) will be applied behind the part for 10 seconds.	No damage and cutting off
vibration	The part will be subjected to a vibration cycle of 10Hz to 55Hz to 10Hz in a period of 1 minute. Total peak amplitude will be 1.52mm(9.3G). The vibration test will consist of 2 hours per axis in each three axes (X,Y,Z). Total 6 hours.	After the test the part will meet specifications without any damage in appearance and performance except SPL. SPL would be in $\pm 10\text{dBA}$ compared with initial one.
drop test	The part only will be dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X,Y,Z). Total of 9 times.	

## RECOMMENDED TEMPERATURE PROFILE FOR REFLOW OVEN

\* Reflow profile of lead-free



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.

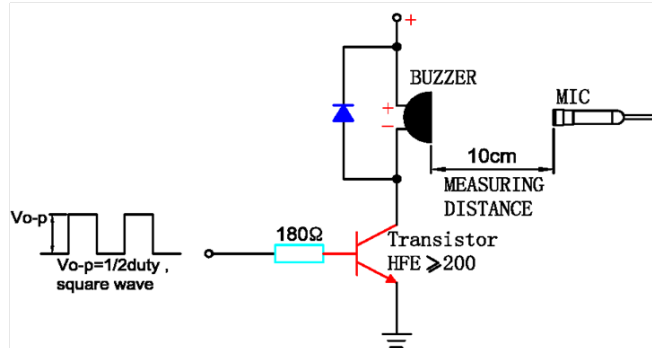
Note 2: Peak reflow temperature of  $250^{\circ}\text{C}$  maximum of 10 seconds, with a maximum duration of 40-60 seconds between  $220^{\circ}\text{C}$  and  $250^{\circ}\text{C}$



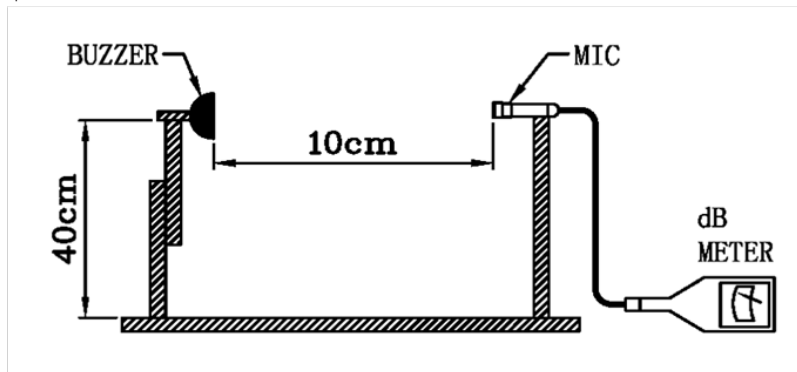
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## MEASUREMENT METHOD

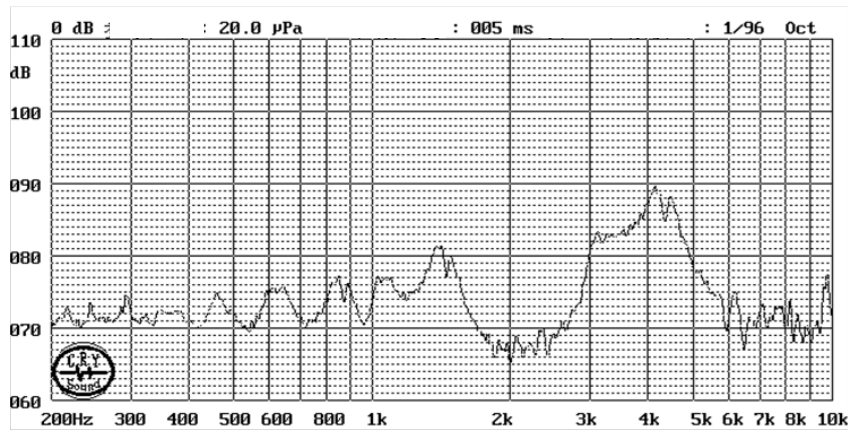
**Acoustic Characteristics:** The oscillation frequency, current consumption and sound pressure are measured by the measuring instruments shown below :



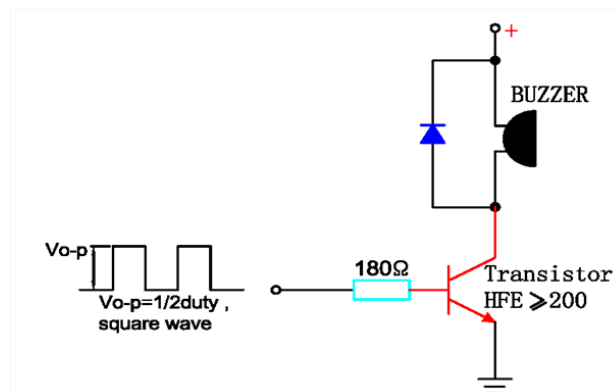
In the measuring test, buzzer is placed as follows:



## TYPICAL FREQUENCY RESPONSE CURVE



## DRIVING CIRCUIT



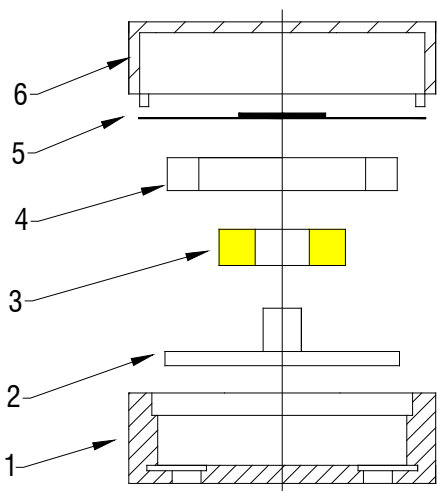
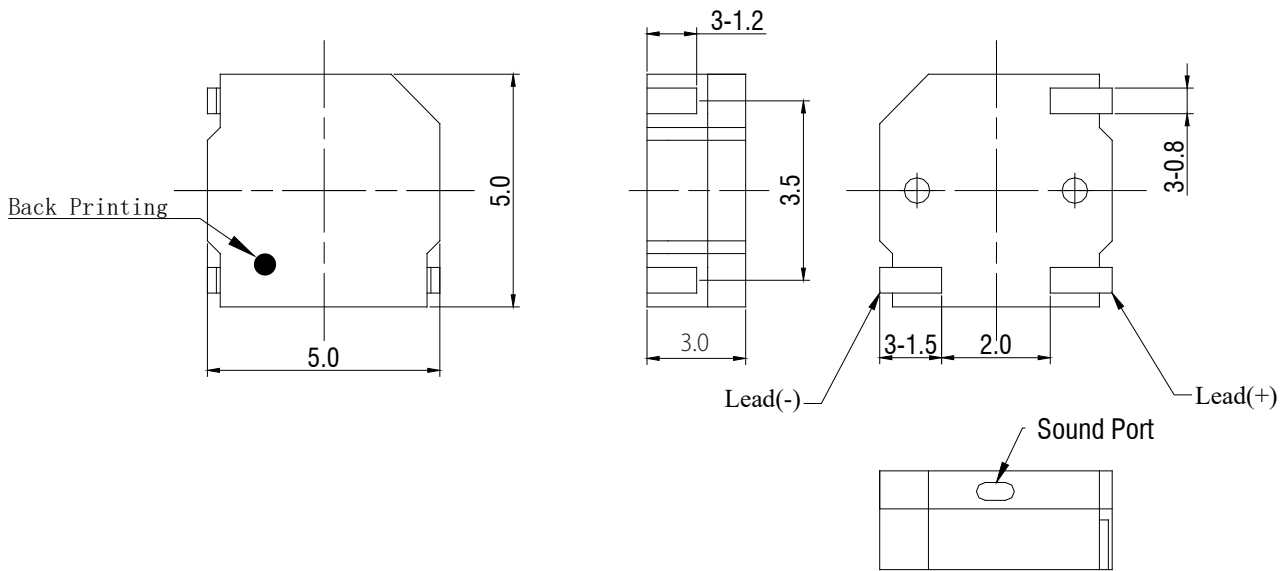
The base current  $I_b$  should high enough so that it saturates the collector current of the transistor with the CB load.



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**DIMENSIONS**

Tolerance: ±0.3 (unit: mm)

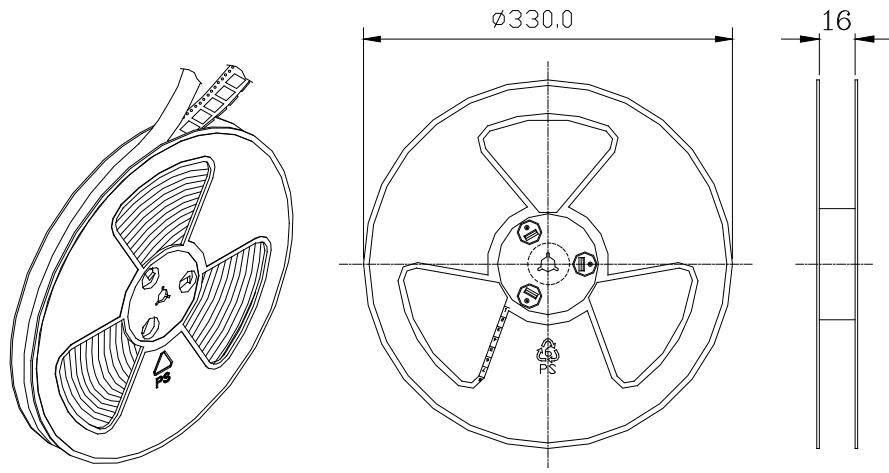


no	components	material	quantity
1	Case	LCP	2
2	Core	Ferrum	1
3	Coil	Copper	1
4	Magnet ring	NdFeB	1
5	Diaphragm	Ferrum	1
6	Case	LCP	1

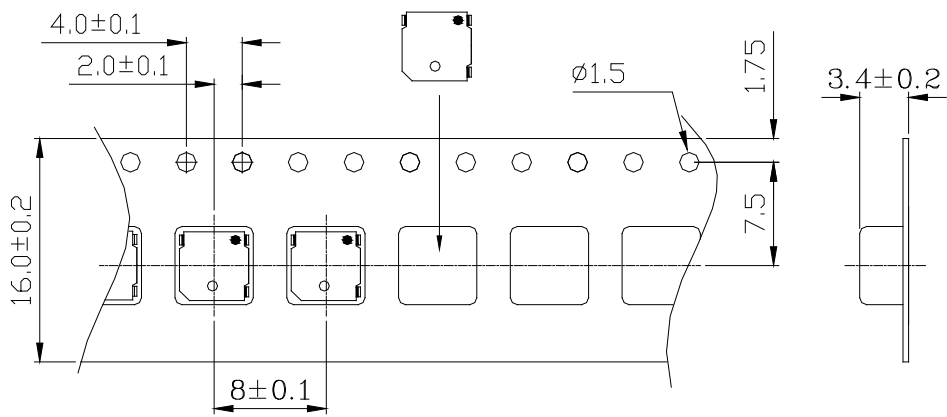


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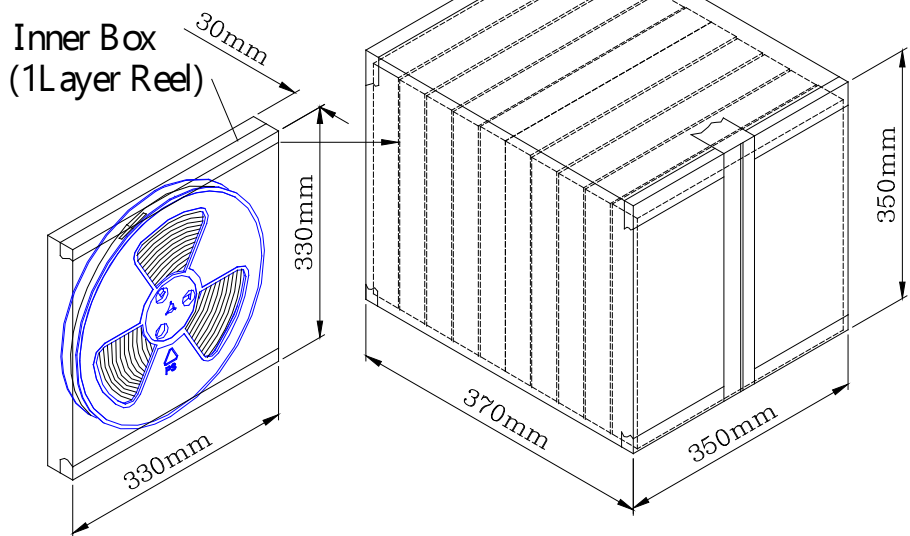
**PACKING**



1 Reel : 2500PCS



Carton Box  
(10 Inner Box)



packing box	L x W x H (mm)	pieces
Inner Box	330x330x30	1 x 2500 = 2500pcs
Carton box	350 x 350 x 370	10 x 2500 = 25,000pcs