
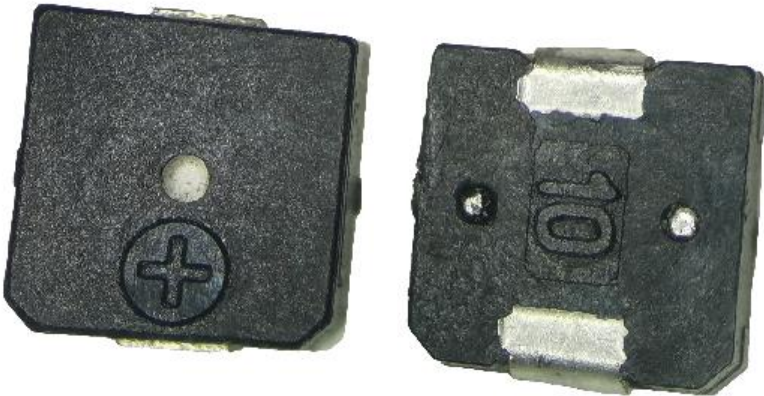
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## SPECIFICATION FOR APPROVAL

### SMD ELECTRO-MAGNETIC TRANSDUCER

Model Name	LET4020S-03L-4.0-12-R
Note	

<b>Product Photo</b>	<b>Cre-sound</b>
	<b>DRAWN: 周文占</b>
	<b>CHECKED: 许海</b>
	<b>APPROVED: 宋雪琪</b>
<b>Customer Confirmation:</b>	



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## SMD ELECTRO-MAGNETIC TRANSDUCER

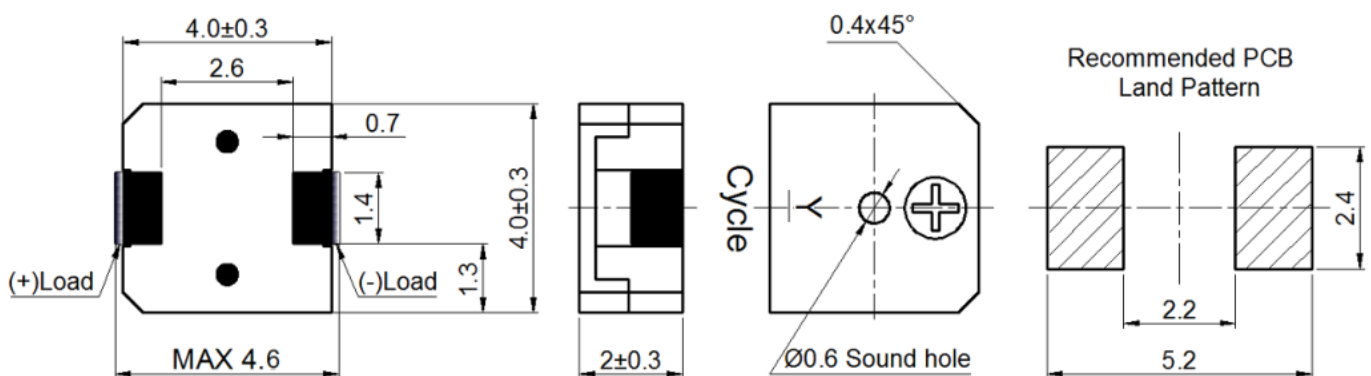
No.	Technical terms	Value
1	Rated Voltage (V)	3
2	Operating Voltage (V)	2~5
3	☆*Current Consumption (mA)	≤100
4	☆Coil Resistance (Ω)	12±2
5	☆*Sound Output at 5cm (dB)	≥75
6	Resonant Frequency (Hz)	4000
7	Operating Temperature (°C)	-40~+105
8	Storage Temperature (°C)	-40~+120
9	Weight (g)	0.1
10	Housing Material	LCP
11	RoHS	Yes

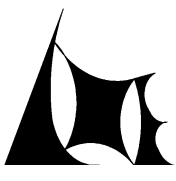
\*Applying rated voltage (Resonant frequency, 1/2 duty, Square wave)

☆Test Basic State: Temp(20±2°C), Humidity(40~70%RH), Air pressure(860~1060hPa).

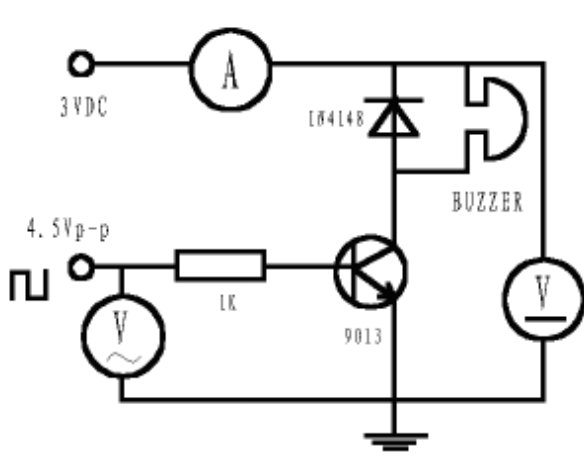
### DIMENSIONS (UNIT: mm)

Tolerance: ±0.5mm Except Specified

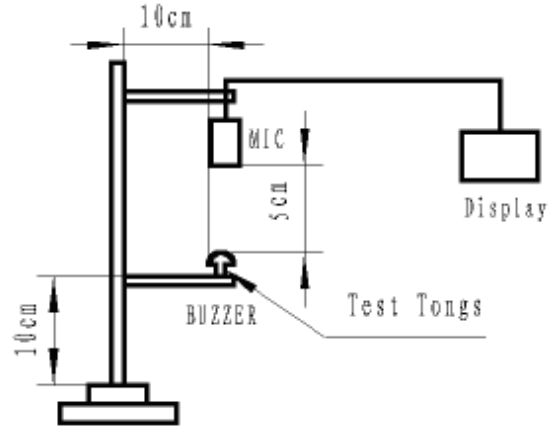


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**TEST METHOD:**

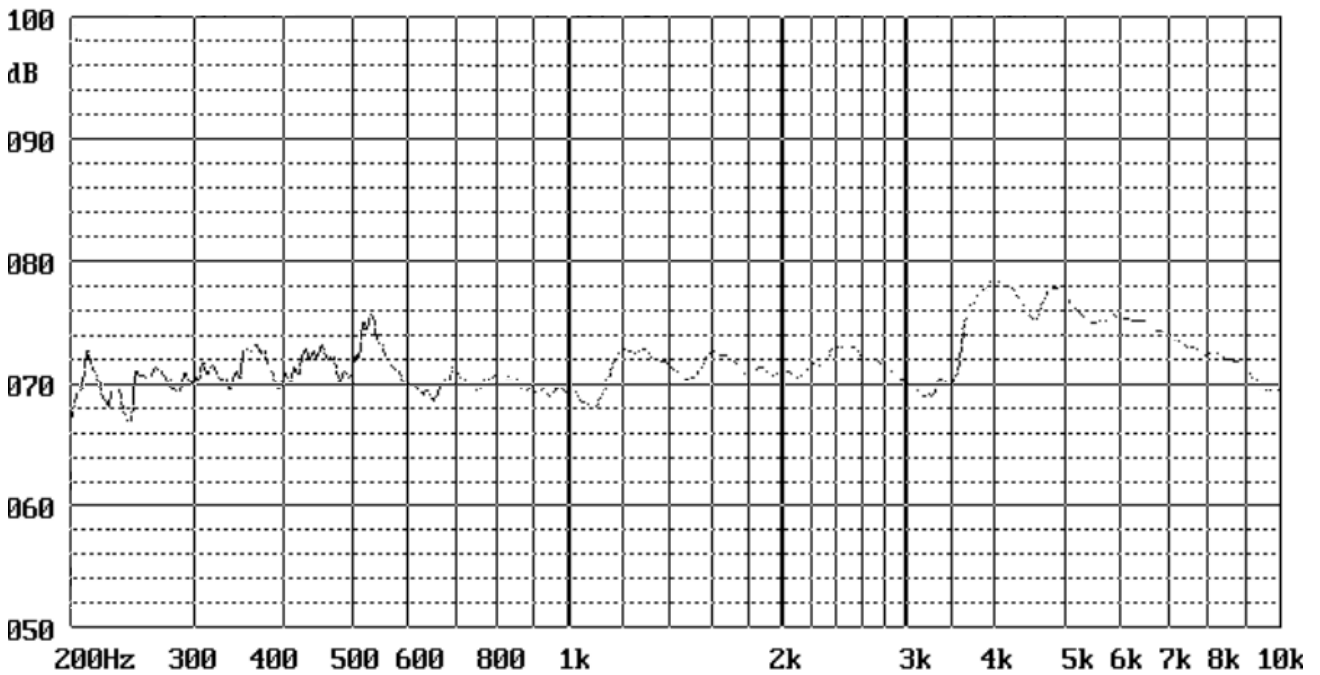



Test Circuit




Test Equipis

**FREQUENCY RESPONSE:**




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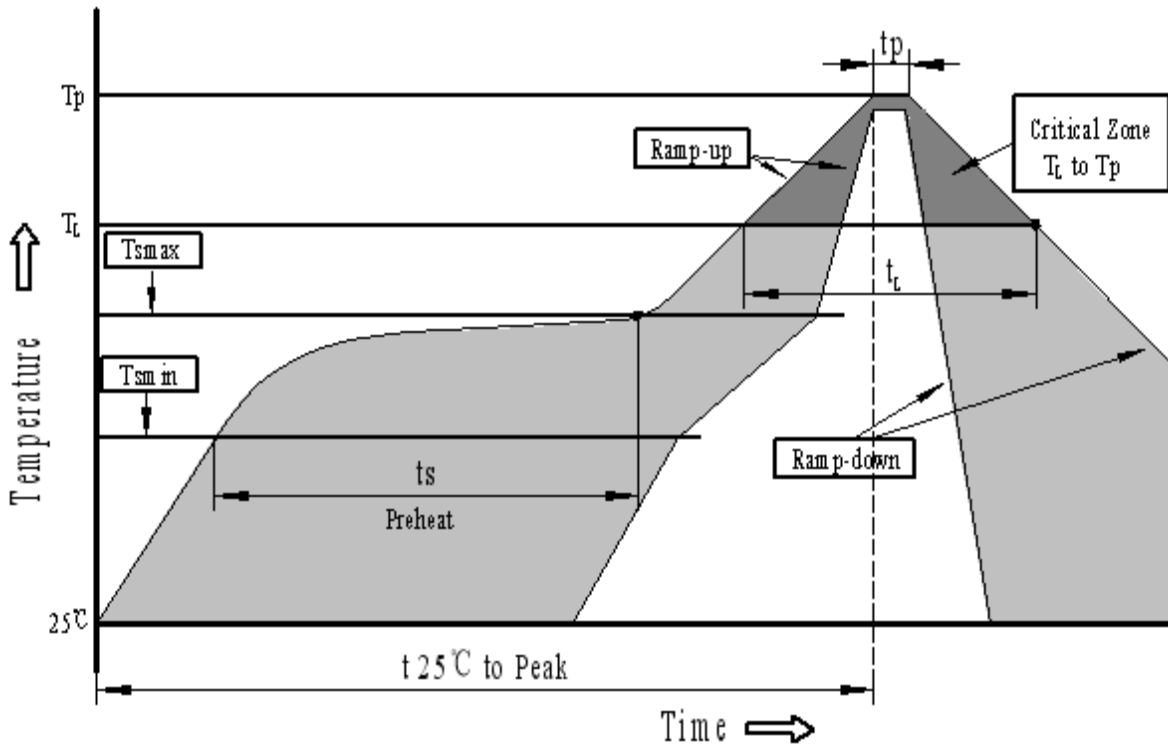
### RELIABILITY TEST:

NO.	ITEM	TESTING CONDITION	VARIANCE AFTER TEST
1	High temp. storage life	The part shall be capable of withstanding a storage temperature is $+120^{\circ}\text{C}$ for 120 hours	After being placed for 2 to 4hrs at room temp, the product shall meet specifications, except the SPL should be in $\pm 10\text{dB}$ compared with initial one.
2	Low temp. storage life	The part shall be capable of withstanding a storage temperature is $-40^{\circ}\text{C}$ for 120 hours	
3	Temp. Cycle	Total 5 cycles, 1 cycle consisting of $-40 \pm 2^{\circ}\text{C}$ , 30 minutes $20 \pm 5^{\circ}\text{C}$ 15 minutes $120 \pm 2^{\circ}\text{C}$ , 30 minutes $20 \pm 5^{\circ}\text{C}$ 15 minutes	
4	Humidity Test	$40 \pm 2^{\circ}\text{C}$ , 90~95% RH, 120 hours	
5	Vibration Test	To-and-fro. sweep time (from 10 to 55 Hz and then 55 to 10Hz ) under single amplitude of 1.52mm is 1 minute. The vibration test shall consist of 2 hours per plane in each three mutually perpendicular planes for a total time of 6 hours.	The SPL shall meet specification.
6	Shock	Sounder shall be measured after being applied shock ( $980\text{m/s}^2$ ) for each three mutually perpendicular directions to each of 3 times by half sine wave.	After the test, the product shall meet specifications, except the SPL should be in $\pm 10\text{dB}$ compared with initial one.
7	Drop Test	The part only shall be dropped from the height of 70cm onto 10mm thick wooden board each 3 times in 3 axial directions(x,y&z) (a total of 9 times).	After the test part shall meet specifications without any degradation in appearance and performance.
8	Lead pull	The part shall be pushed with a force of 9.8N for $10 \pm 1$ seconds behind the part. 	The SPL shall meet specification.
9	Recommended temp. Profile for Reflow Oven	Shown in Fig.1	

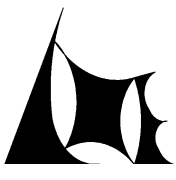
**Warranty:** For a period of one year from date of manufacture under normal operations.

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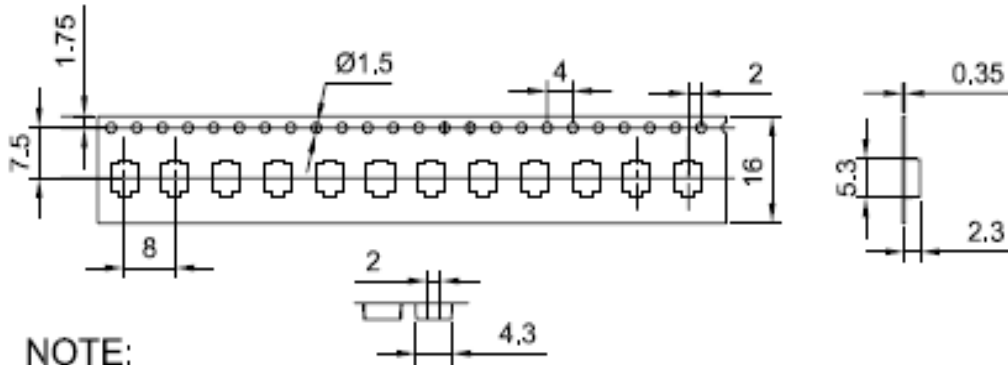
**Recommended Temp. Profile for Reflow Oven (Fig.1)**



Profile Feature	Pb-Free Assembly
Average ramp-up rate( $T_L$ to $T_p$ )	3°C/second max.
Preheat	
-Temperature Min.( $T_{Smin}$ )	150°C
-Temperature Min.( $T_{Smax}$ )	200°C
-Temperature Min.( $t_s$ )	60~180 seconds
$T_{Smax}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
- Temperature( $T_L$ )	217°C
-Time( $t_L$ )	60~150 seconds
Peak temperature( $T_p$ )	260°C+0/-5°C
Time within 5°C of actual Peak temperature ( $t_p$ )	6 seconds max.
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

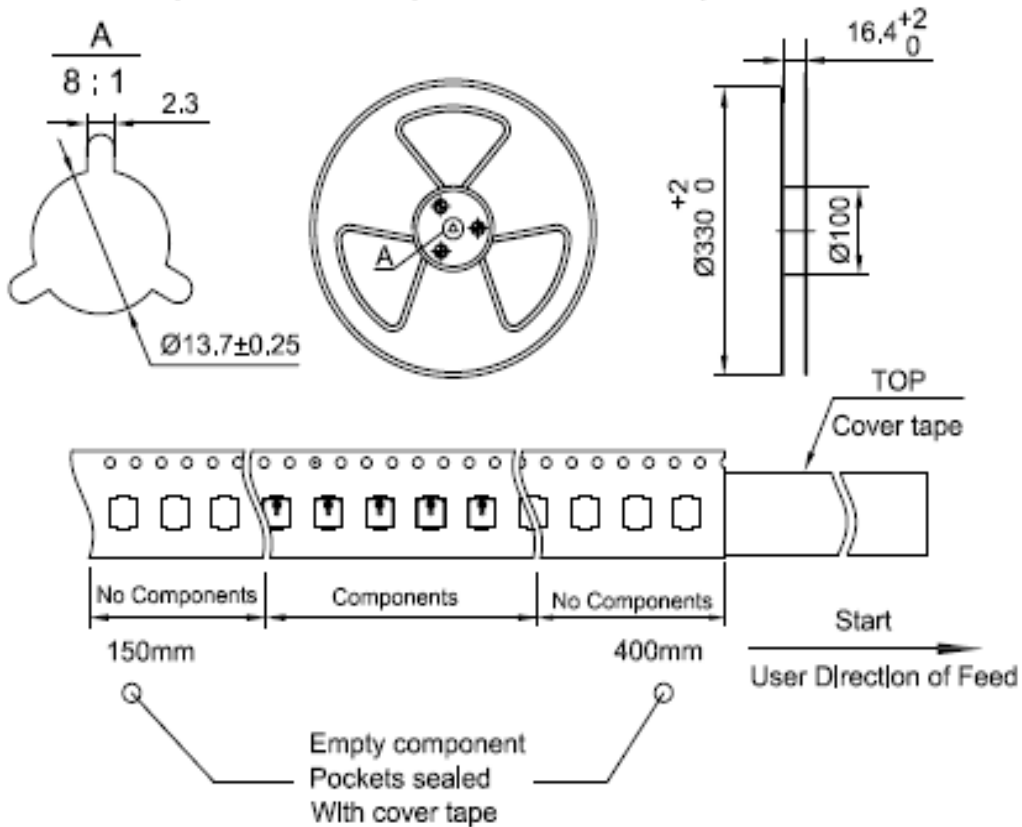
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**PACKING:**



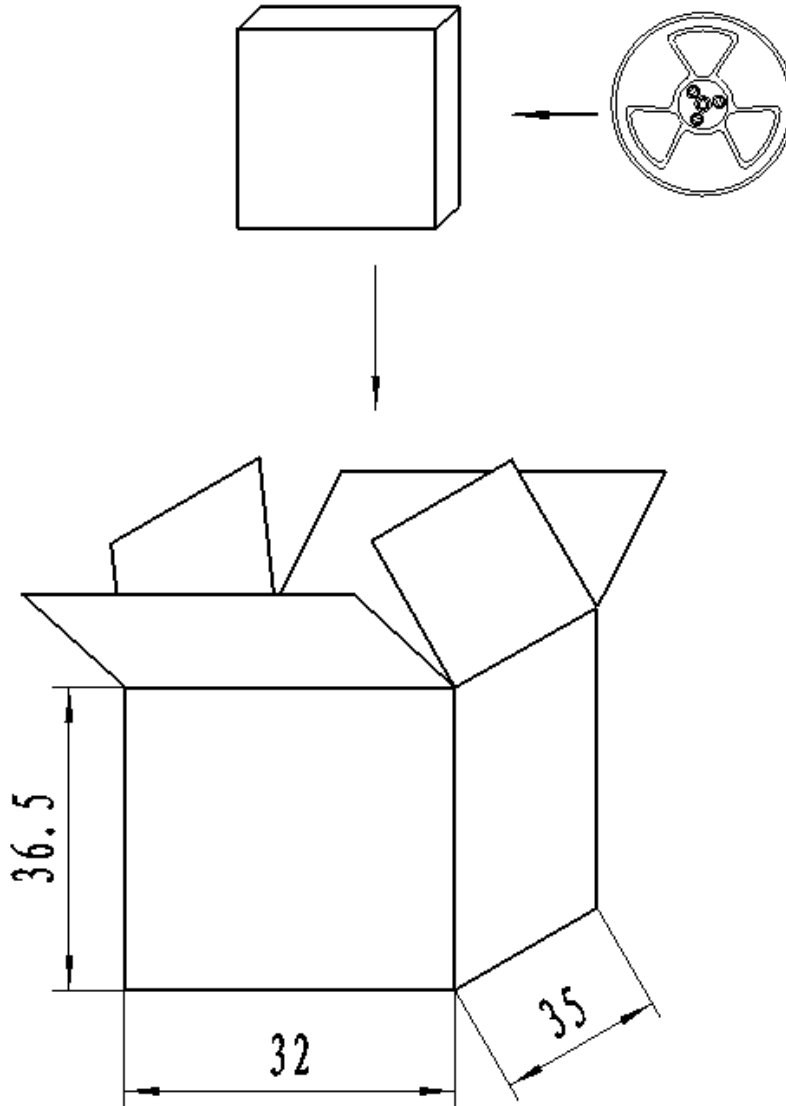
**NOTE:**

1. 10 sprocket hole pitch cumulative tolerance +/-0.20mm.
2. All dimensions meet EIA-481-D requirements.
3. Thickness: 0.35+/-0.05mm.
4. Component loaded per 13" reel: 3000pcs.



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**PACKING:**



**NOTES:**

- 1.3000 PCS per box
- 2.Total 10 boxes per carton
- 3.Total 30000 PCS carton

*Changzhou Cre-sound Electronics Co., Ltd*