
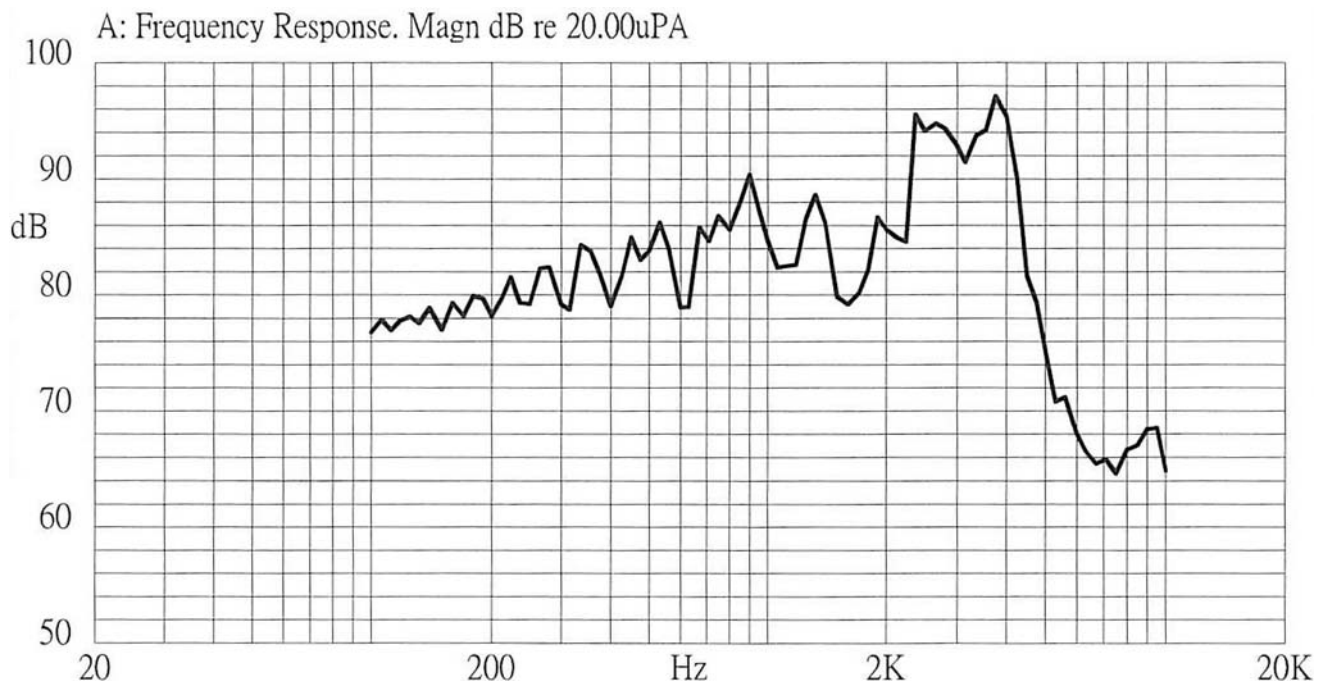


**CUI INC****Part No: CEM-1212S****Description: magnetic buzzer****Date: 6/12/2006****Unit: mm****Page No: 1 of 5**

## Specifications

Rated voltage	12.0 Vo-p	
Operating voltage	6.0 - 16.0 Vo-p	
Mean current	40 mA max.	
Coil resistance	140 $\pm$ 21 Ohm	Applying rated voltage, 2400 Hz square wave, 1/2 duty
Sound output	Min. 85 (Typical 92) dBA	Distance at 10cm (A-weight free air). Applying rated voltage of 2400 Hz, square wave, 1/2 duty.
Rated frequency	2,400 Hz	
Operating temperature	-20 ~ +60° C	
Storage temperature	-30 ~ +70° C	
Dimensions	$\varnothing$ 12.0 x H9.5 mm	
Weight	1.6 g	
Material	PBT (Black)	
Terminal	Pin type (Au Plating)	
RoHS	yes	

## Frequency Response Curve





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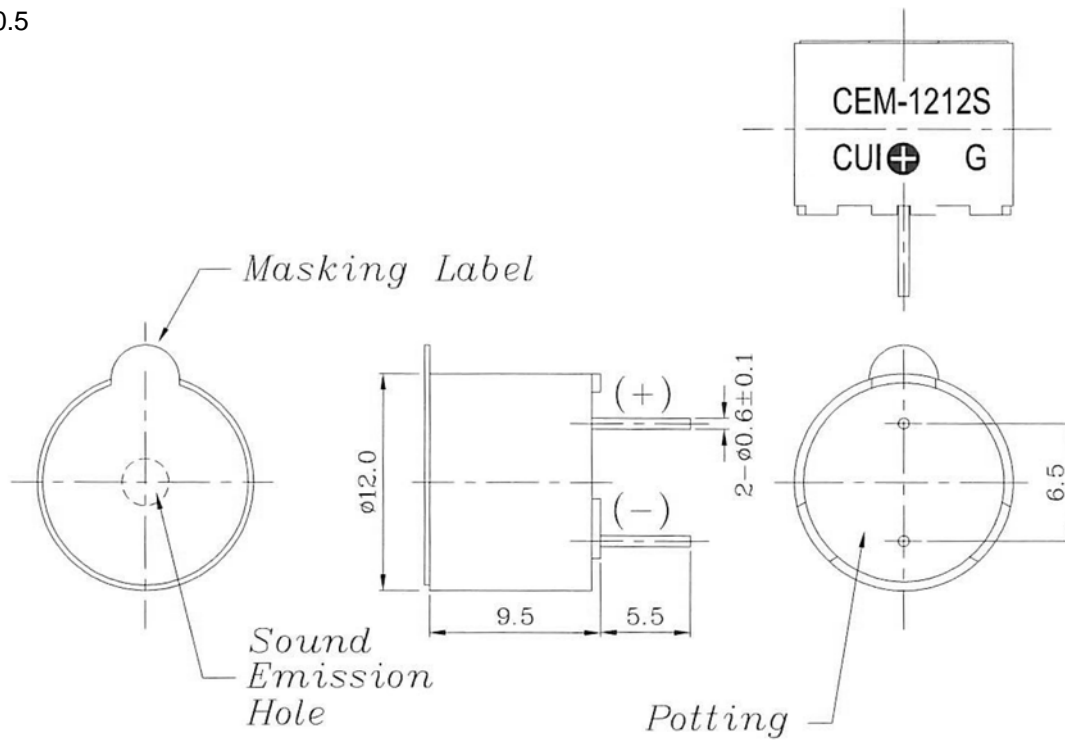
Date: 6/12/2006

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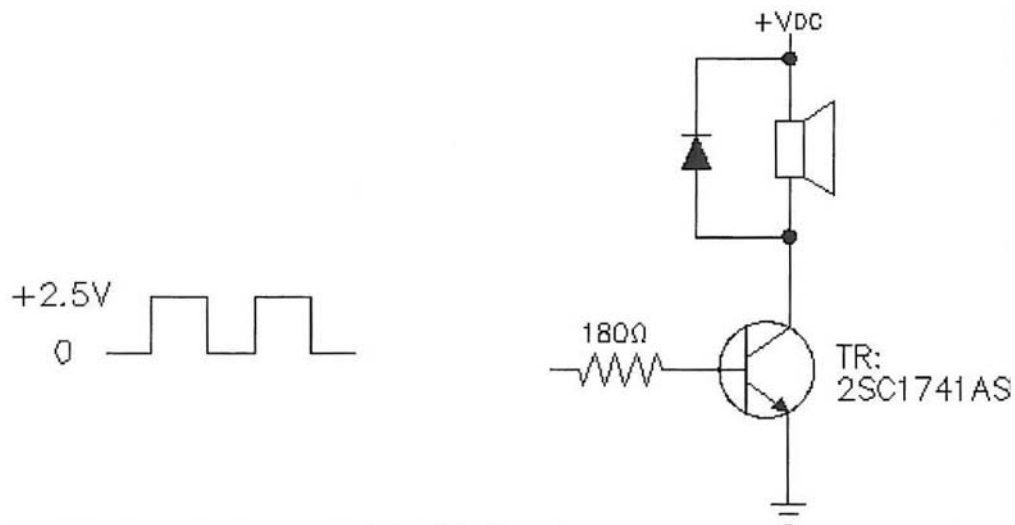
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## Appearance Drawing

Tolerance:  $\pm 0.5$



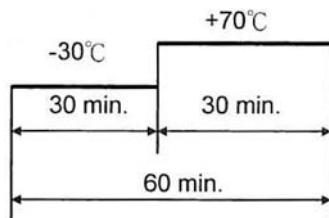
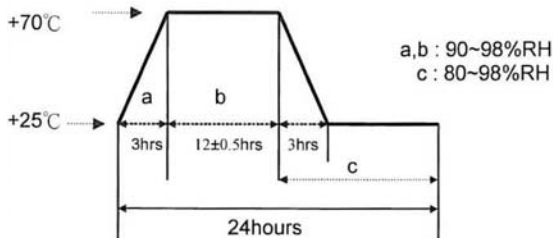
## Measurement Method



## Mechanical Characteristics

Item	Test Condition	Evaluation Standard
Solderability	Lead terminals are immersed in rosin for 5 seconds and then in a solder bath of $+270 \pm 5^{\circ}\text{C}$ for $3 \pm 1$ seconds.	90% min. of the lead terminals must be wet with fresh solder. (Except the edge of the terminal)
Soldering Heat Resistance	Lead terminals are immersed up to 1.5mm from the buzzer's body in a solder bath of $+260 \pm 5^{\circ}\text{C}$ for $3 \pm 1$ seconds.	No in interference in operation.
Terminal Mechanical Strength	The force of 9.8 N (1.0 kg) will be applied to each terminal in each axial direction for 10 seconds.	No damage or cutting off.
Vibration	The buzzer will be measured after applying a vibration amplitude of 1.5 mm with 10 to 55 Hz band of vibration frequency to each of the 3 perpendicular directions for 2 hours.	After the test, the part will meet specifications without any damage to the appearance and the SPL should be within $\pm 10$ dBA of the initial SPL.
Drop Test	The part is to be dropped from a height of 75 cm onto a 40 mm thick wooden board 3 times in 3 axis (X, Y, Z) for a total of 9 drops.	

## Environment Test

Item	Test Condition	Evaluation Standard
High temp. test	The part will be subjected to $+70^{\circ}\text{C}$ for 96 hours.	After the test, the part shall meet specifications without any damage to the appearance or performance and the SPL should be within $\pm 10$ dBA of the initial SPL.
Low temp. test	The part will be subjected to $-30^{\circ}\text{C}$ for 96 hours	
Thermal shock	The part will be subjected to 10 cycles. One cycle will consist of: <div data-bbox="647 1199 974 1415" data-label="Figure">  <p>The diagram shows a thermal shock cycle. It starts at <math>-30^{\circ}\text{C}</math> for 30 min., then transitions to <math>+70^{\circ}\text{C}</math> for 30 min. The total duration of one cycle is 60 min.</p> </div>	
Temp./Humidity cycle	The part shall be subjected to 10 cycles. One cycle will consist of: <div data-bbox="534 1530 1083 1766" data-label="Figure">  <p>The diagram shows a temperature and humidity cycle. It starts at <math>+25^{\circ}\text{C}</math> for 3hrs (labeled 'a'), then rises to <math>+70^{\circ}\text{C}</math> for <math>12 \pm 0.5</math>hrs (labeled 'b'), then falls back to <math>+25^{\circ}\text{C}</math> for 3hrs (labeled 'c'). The total duration of one cycle is 24hours. Humidity levels are specified as: a, b : 90~98%RH; c : 80~98%RH.</p> </div>	After the test, the part shall meet specifications without any damage to the appearance or performance and the SPL should be within $\pm 10$ dBA of the initial SPL.

**Reliability Tests**

<b>Item</b>	<b>Test Condition</b>	<b>Evaluation Standard</b>
Operating (Life Test)	<p>1. Continuous life test: The part will be subjected to 72 hours at +45°C with 12 V, 2400 Hz applied.</p> <p>2. Intermittent life test: A duty cycle of 1 minute on, 1 minutes off, a minimum of 10,000 times at room temp (+25±10°C) with 12 V, 2400 Hz applied.</p>	After the test, the part shall meet specifications without any damage to the appearance. After 4 hours at +25°C, the SPL should be within ±10 dBA of the initial SPL.

**Test Conditions**

Standard Test Condition	a) Temperature: +5 ~ +35°C	b) Humidity: 45 - 85%	c) Pressure: 860 - 1060 mbar
Judgement Test Condition	a) Temperature: +25 ±2°C	b) Humidity: 60 - 70%	c) Pressure: 860 - 1060 mbar



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## Packaging

