

**BeStar Technologies Inc.**

Address: 761 N. 17th Street Unit 4, St. Charles, IL 60174

Tel : 847-261-2850 E-mail : [sales@bestartech.com](mailto:sales@bestartech.com) Web : [www.bestartech.com](http://www.bestartech.com)

Document Number : 0806-95  
Revision : A3  
Total Pages : 4  
Prepare by : Holmes, Poon  
Date : 31 March, 2011

**SoniCrest** Brand Acoustic Components[www.jlsoniccrest.com](http://www.jlsoniccrest.com)

Document Type : Specification  
Product Type : Piezo Sound Generator Component  
Part Number : HPA13H

A1 - New issue created by Ting Lok, Ngan on 21 Jun., 2008		
A2 - Updated section 4 by Holmes, Poon 16 Dec., 2010		
A3 - Updated section 4 ~ 6 by Holmes, Poon 31 Mar., 2011		

This material is the property of BeStar Technologies Inc.  
Unauthorized copying or use of this material is prohibited.

## 1. Purpose and Scope

This document contains both general requirements, qualification requirements, and those specific electrical, mechanical requirements for this part.

## 2. Description

Ø12.6 mm piezo sound generator, RoHS compliant.

## 3. Application

Telecommunication Equipment, Computers and Peripherals, Portable Equipment, Automobile Electronics, POS System, etc.

## 4. Component Requirement

### 4.1 General Requirement

4.1.1. Operating Temperature Range	: -20°C to +70°C
4.1.2. Storage Temperature Range	: -30°C to +80°C
4.1.3. Housing Material	: Noryl
4.1.4. Weight	: Approx. 1g

### 4.2 Electrical Requirement

4.2.1. Rated Voltage	: 3Vp-p
4.2.2. Operating Voltage	: 1 ~ 25 Vp-p
4.2.3. Rated Current	: ≤5mA
4.2.4. Capacitance	: 12 ± 30% nF
4.2.5. Sound Pressure level at 10cm (Applying rated voltage and rated frequency)	: ≥70dB
4.2.6. Rated Frequency	: 4000 ± 500 Hz

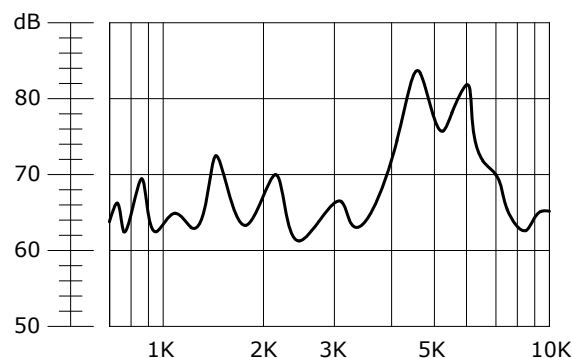
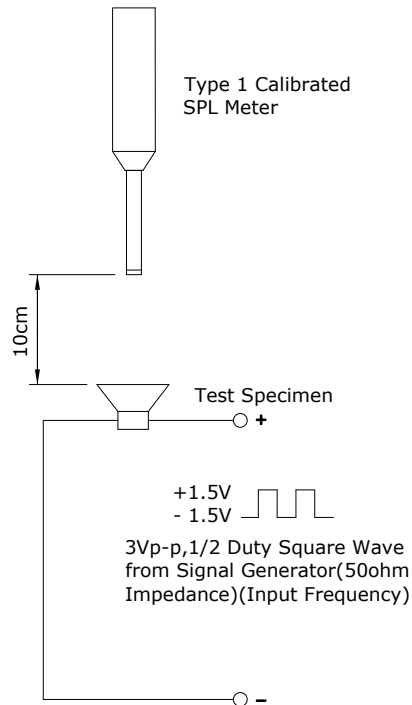


Figure 1. Frequency Response

### 4.3 Mechanical Requirement

4.3.1. Layout and Dimension	: See Section 6, Figure 3
-----------------------------	---------------------------

#### 4.4 Test Setup



**Figure 2. Test Setup**

**Notes :** Apply 3Vp-p from Signal Generator, set 4000Hz from Signal Generator. Measure SPL using a calibrated SPL meter 10cm from the alert port. Sound level meter to be in accordance with IEC651 (1979) Type 1 and/or ANSI S1.4-1983. The meter must be checked on a daily basis using a calibrated acoustic calibrator recommended by the manufacturer. Measurement should be carried out in a free field environment or at least 40cm from any surface.

5. Reliability Test

- 5.1. **High Temperature** : Subject samples to  $+70 \pm 2^{\circ}\text{C}$  and operate for 240 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 5.2. **Low Temperature** : Subject samples to  $-30 \pm 2^{\circ}\text{C}$  and operate for 240 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 5.3. **Static Humidity** : Precondition at room temperature for 1 hour. Then expose to  $+40 \pm 2^{\circ}\text{C}$  with 90 ~ 95% relative humidity for 48 hours. Finally dry at room ambient for 2 hours before taking final measurement.

6. Mechanical Layout

Unit : mm  
Tolerance : Linear    XX.X    =  $\pm 0.3$   
                             XX.XX   =  $\pm 0.05$   
                             Angular   =  $\pm 0.25^{\circ}$   
(unless otherwise specified)

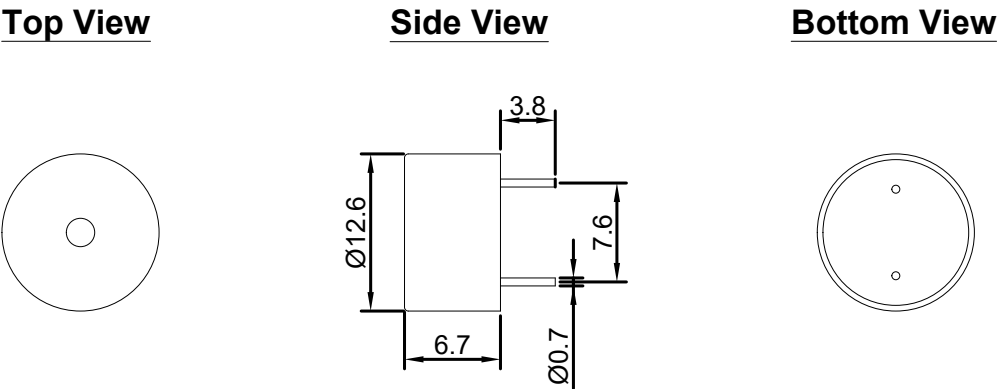


Figure 3. HPA13H Mechanical Layout