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**SoniCrest** Acoustic Components

Document Type : Specification  
 Product Type : Piezo Sound Generation Component  
 Part Number : HPA22F

A1 - new version created by Leo Sin on 7 Nov., 2007		

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## 1. Purpose and Scope

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

## 2. Description

ø22 mm piezo sound generator, RoHS compliant.

## 3. Application

Telecommunication Equipment, Computers and Peripherals, POS system, Portable Equipment, 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 : -25°C to +85°C
- 4.1.3. Weight : Approx. 3g

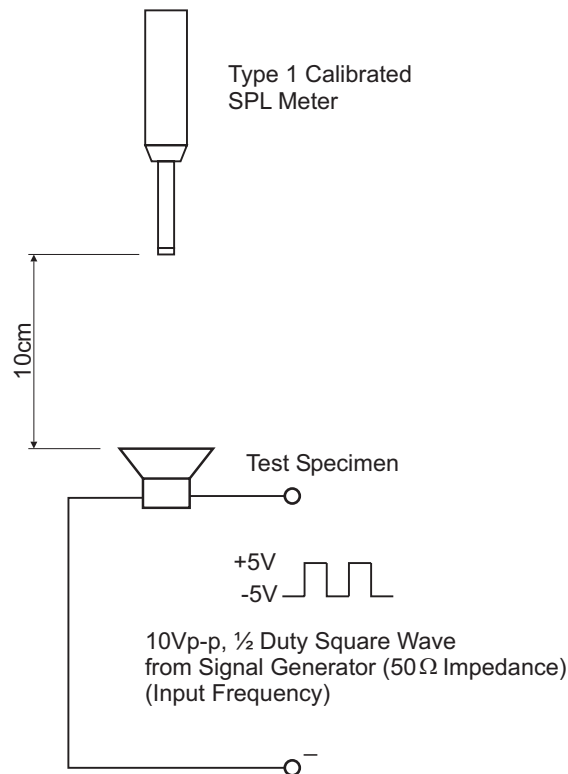
### 4.2. Electrical Requirement

- 4.2.1. Rated Voltage : 10Vp-p
- 4.2.2. Operating Voltage : 1 ~ 30Vp-p
- 4.2.3. Rated Current : ≤ 6mA
- 4.2.4. Capacitance : 12nF ± 30%
- 4.2.5. Sound Pressure Level at 10cm  
(Applying rated voltage and rated frequency) : ≥ 84dBA
- 4.2.6. Rated Frequency : 4000Hz ± 500Hz

### 4.3. Mechanical Requirement

- 4.3.1. Layout and Dimension : See Section 6, Figure 2

#### 4.4. Test Setup of SPL



**Figure 1. SPL Inspection Test Fixture**

**Notes :** Apply 10Vp-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

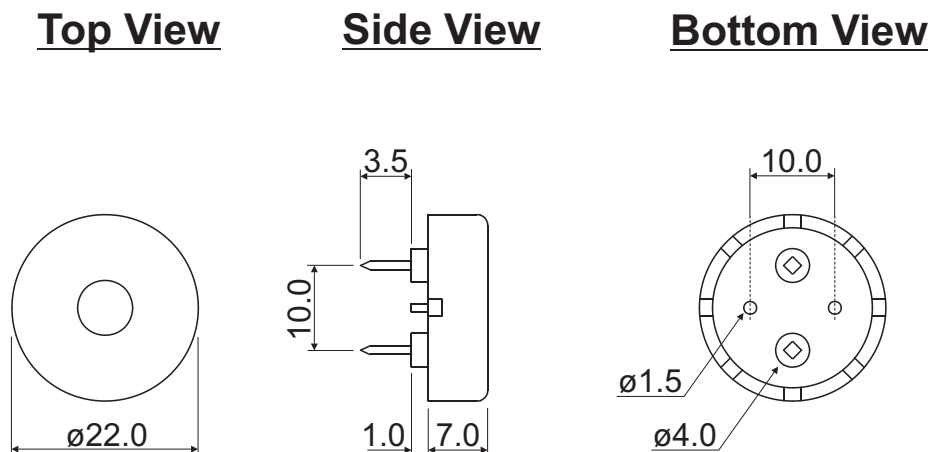
- 5.1. High Temperature** : Subject samples to +80°C for 240 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 5.2. Low Temperature** : Subject samples to -30°C for 240 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 5.3. Temperature Cycle** : Each temperature cycle shall consist of 30 minutes at -30°C, 15 minutes at +20°C, 30 minutes at +80°C and 15 minutes at +20°C. Test duration is for 5 cycles.
- 5.4. Static Humidity** : Precondition at +25°C for 1 hour. Then expose to +40°C with 90 to 95% relative humidity for 48 hours. Finally dry at room ambient for 2 hours before taking final measurement.
- 5.5. Random Vibration** : Secure samples. Vibrated randomly 10Hz ~ 55Hz with 1.5mm peak amplitude. The test duration is 2 hours per plane (x, y, z).
- 5.6. Drop Test** : Drop samples naturally from the height of 70cm onto a wooden board (10mm thickness) three directions.
- 5.7. Solderability** : 230°C±5°C for 3±0.5 seconds.

## 6. Mechanical Layout

Unit : mm

Tolerance :   Linear    XX.X    = ±0.3  
                                   XX.XX   = ±0.05  
                   Angular    = ±0.25°

(unless otherwise specified)



**Figure 2. HPA22F Mechanical Layout**

