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SoniCrest Acoustic Components

Document Type : Specification
Product Type : SMD Piezo Sound Generator Component
Part Number : HPS16C

A1 - New version created by Ting Lok, Ngan on 21 Oct., 2003		
A2 - Update RoHS version by Ting Lok, Ngan on 19 Oct., 2005		
A3 - Update section 7 by Ting Lok, Ngan on 19 May, 2008		
A4 - Update section 4 - 8 by Lok, Lo on 29 Apr., 2019		

1. Purpose and Scope

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

2. Description

16 x 16 mm SMD 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	: -40°C to +105°C
4.1.2.	Storage Temperature Range	: -40°C to +120°C
4.1.3.	Housing Material	: LCP
4.1.4.	Weight	: Approx.0.8g

4.2. Electrical Requirement

4.2.1.	Rated Voltage	: 3Vp-p
4.2.2.	Maximum Operating Voltage	: 25Vp-p
4.2.3.	Rated Current	: <=3mA
4.2.4.	Capacitance	: 15 ± 30% nF
4.2.5.	Sound Pressure level at 10cm (Applying rated voltage and rated frequency)	: >=75dB
4.2.6.	Rated Frequency	: 4000Hz

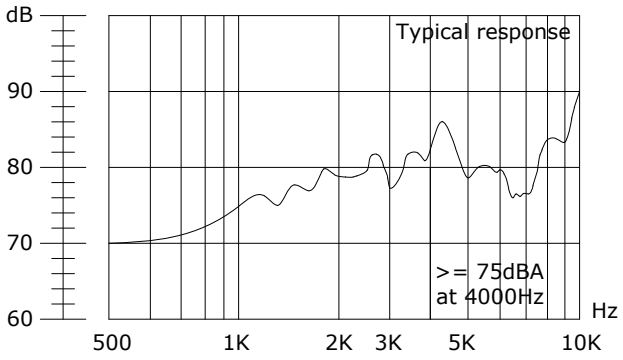

Figure 1. Frequency Response

4.3 Mechanical Requirement

4.3.1. Layout and Dimension : See Section 7, Figure 4

4.4 Test Setup of SPL

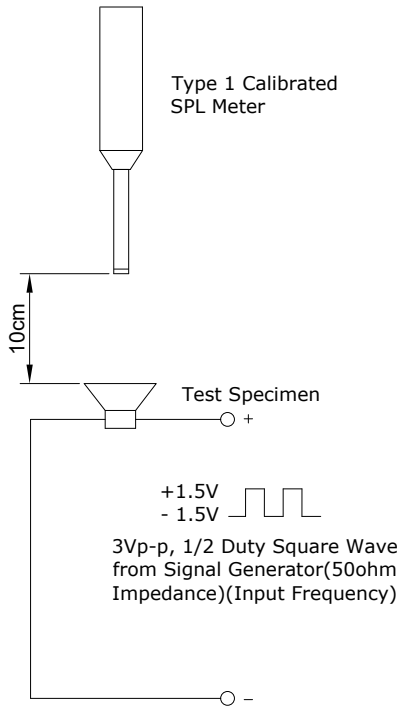

Figure 2. Test Setup

Notes : Apply rated voltage and signa 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 +120°C for 120 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 4 hours soak.

5.2. Low Temperature : Subject samples to -40°C for 120 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 4 hours soak.

5.3. Temperature Shock : Each humidity cycle shall consist of 30 minutes at -40°C, 15 minutes at +20°C, 30 minutes at +120°C and 15 minutes at +20°C. Test duration is for 5 cycles. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 4 hours soak.

5.4. Static Humidity : Subject samples to +40°C with 90%~95% relative humidity for 120 hours. Finally dry at room ambient for 4 hours before taking final measurement.

5.5. Random Vibration : Secure samples. Vibrated randomly 10 ~ 55Hz with 1mm peak amplitude in 3 directions (x, y and z). The test duration is 2 hours.

5.6. Drop Test : Drop samples naturally from the height of 700mm onto a 10mm thickness wooden board in any directions, test total 6 times.

5.7. Pull Strength : Applied pull force 9.8N load to housing for 10±1s in axial direction.

5.8. Mechanical Shock : Secure samples. Applied half sine wave shock (980m/s²) in 3 axial directions (x, y and z), test total 9 times.

6. Recommended Reflow Process Condition

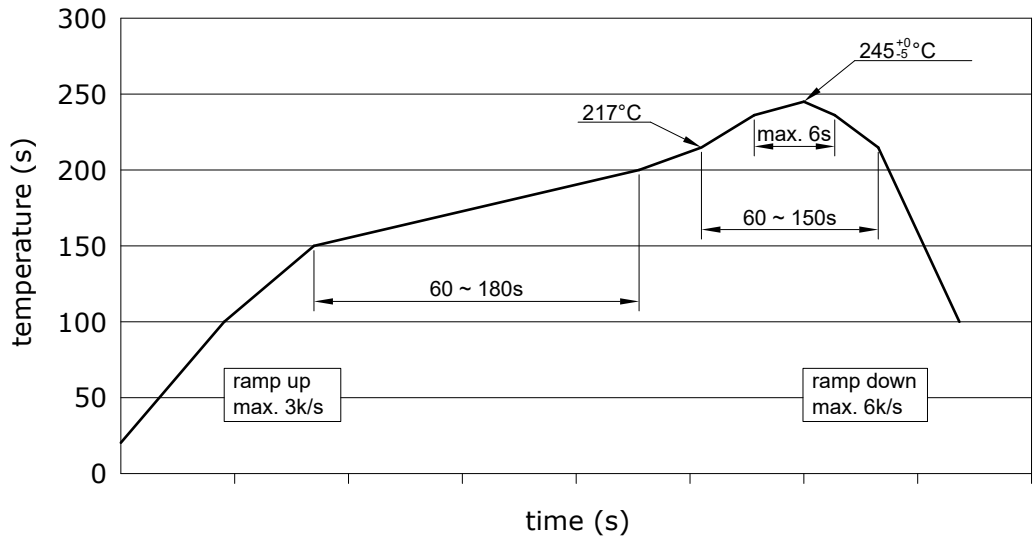

Figure 3. Recommended reflow oven temperature profile

7. Mechanical Layout

Unit : mm
Tolerance : Linear XX.X = ±0.3
XX.XX = ±0.05
Angular = ±0.25°
(unless otherwise specified)

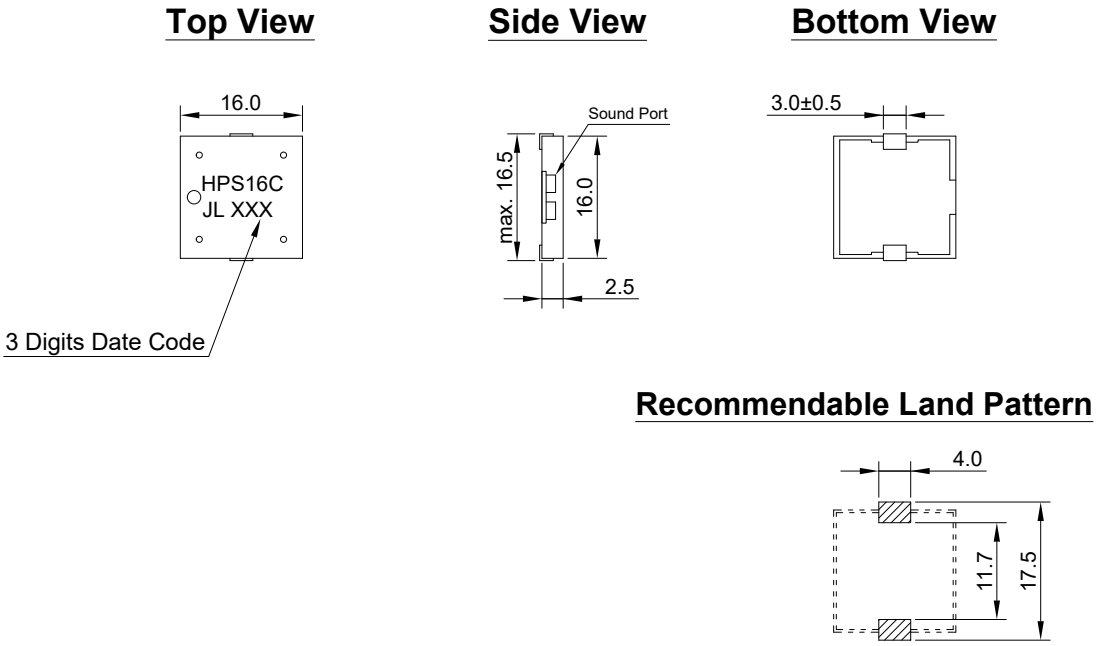

Figure 4. HPS16C Mechanical Layout

8. Standard Packing Layout

8.1. Tape Layout

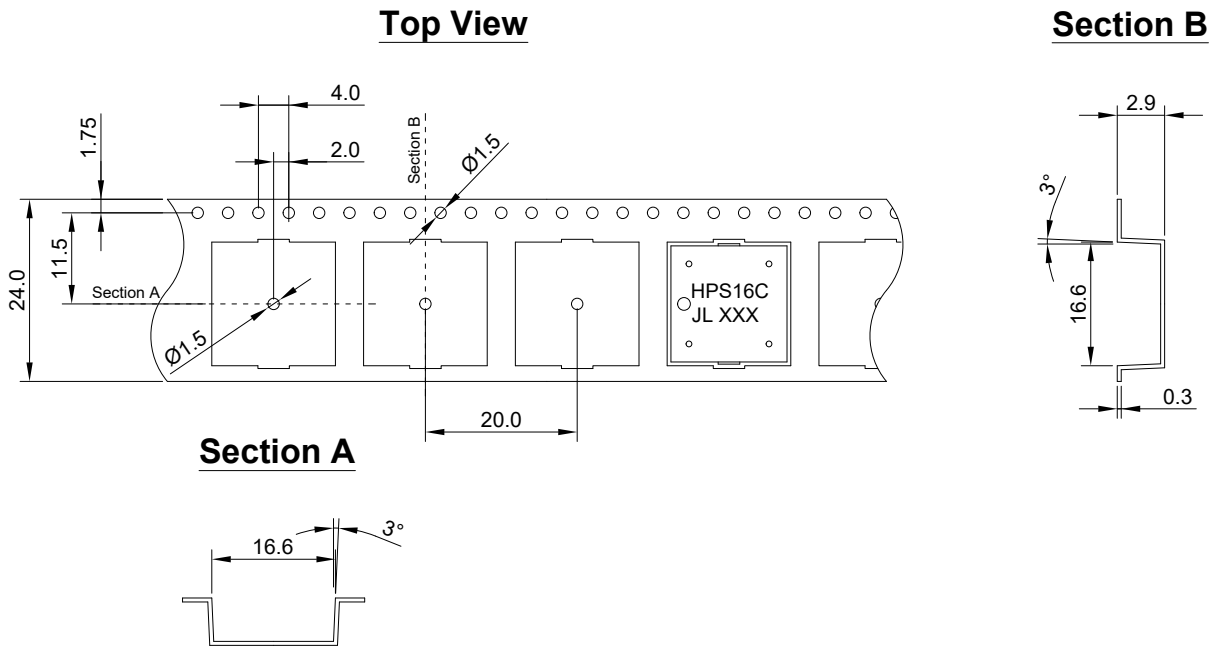

Figure 5. Tape Layout

8.2. Reel Layout

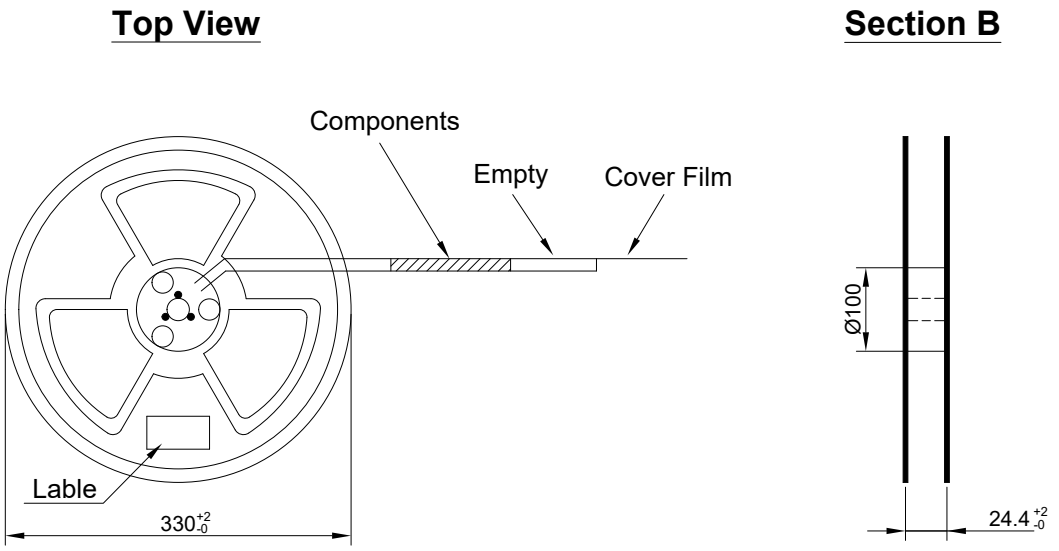

Figure 6. Reel Layout

8.3. Packing Quantity : 700 pieces per reel, 10 reels per carton (Total 7000 pieces)

8.4. Carton Size : 420 x 355 x 365 mm

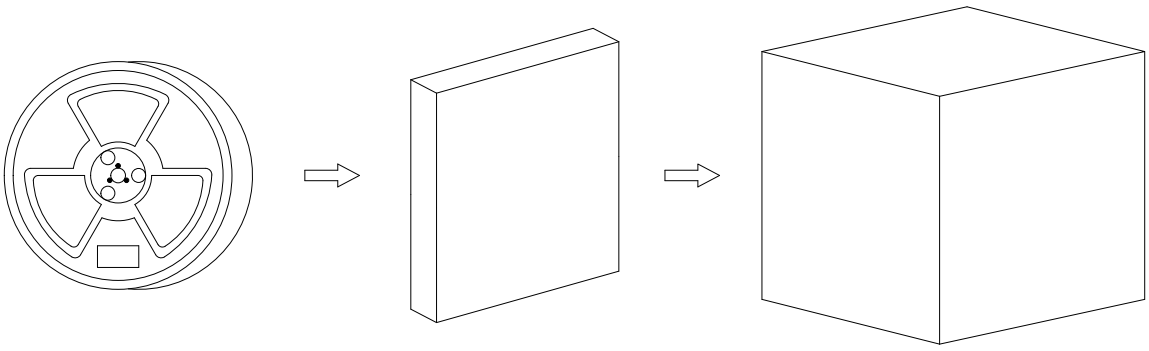

Figure 7. Reels Installation