



HCS1403C/215

Product Specification

SoniCrest
Acoustic Components

Product Type : Electro-magnetic Sound Generator Component
Brand : SoniCrest
Drive Type : External Drive
Mounting : SMD
Part Number : HCS1403C/215

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Prepare by : Ting Lok, Ngan
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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

14 x 11mm SMD electro-magnetic sound generator with rated frequency 2731Hz, RoHS compliant.

3. Application

Telecommunication Equipment, Computers and Peripherals, POS, etc.

4. Design Consideration and Installation Guideline

4.1. Design Consideration

- 4.1.1.** Apply signal to the negative terminal to drive the external drive type buzzer. Do not connect the negative terminal to Ground.

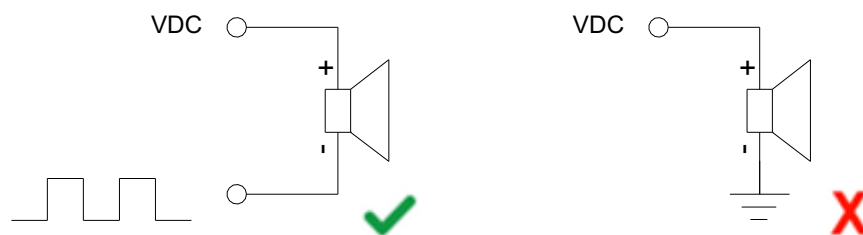


Figure 1. Design Consideration (1)

- 4.1.2.** The signal applied to the buzzer should be V0-p (zero to peak) instead of Vp-p (peak to peak). The sound will also be generated if applying Vp-p signal but it may cause the resonant frequency to deviate from it's original point and produce variations in the sound pressure level.

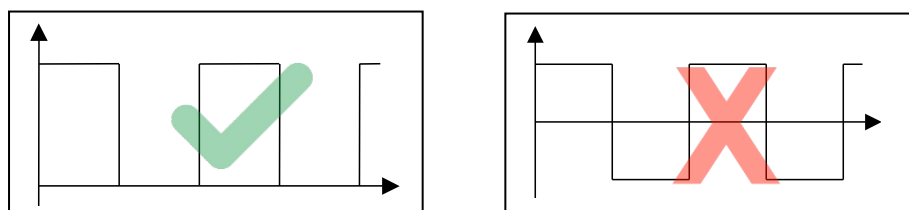


Figure 2. Design Consideration (2)



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- 4.1.3.** Make sure the application voltage is the same as rated voltage of buzzer. The buzzer can still operate in other voltage level within the operating range but it will not always meet the various stated specifications.
- 4.1.4.** Application circuit should ideally be capable of current supply that is double the rated current consumption of the sound generator.

4.2. Typical Driving Circuit for Electro-magnetic Buzzer

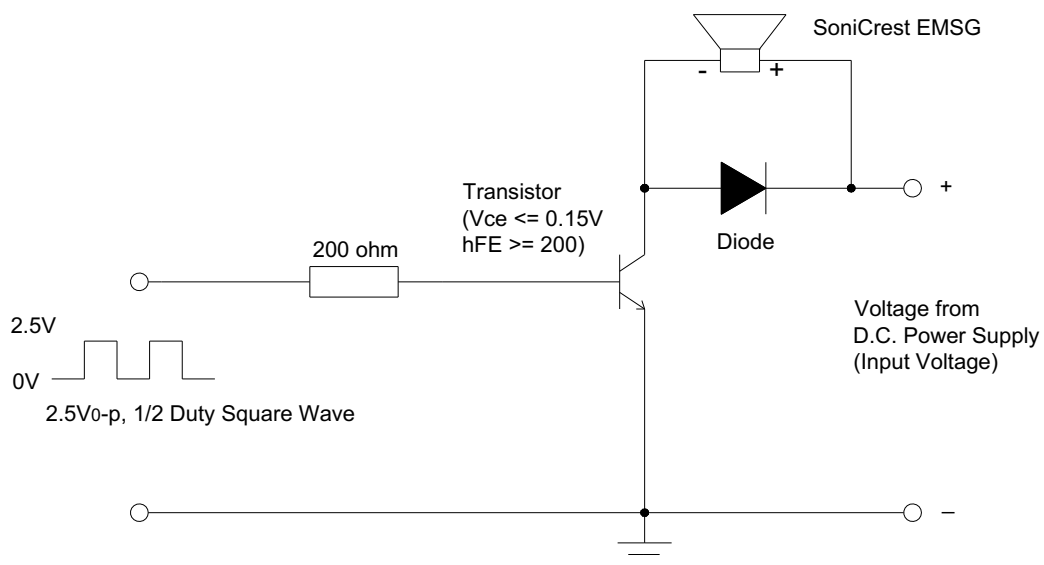


Figure 3. Typical Driving Circuit for Electro-magnetic Buzzer

4.3. Installation Guideline

Make sure the sound port towards the sound hole of product casing to maximize the sound output.





5. Component Requirement (All data taken at $23\pm 2^{\circ}\text{C}$ unless otherwise specified)

5.1. General Requirement

5.1.1. Operating Temperature Range	: -20°C to $+85^{\circ}\text{C}$
5.1.2. Storage Temperature Range	: -30°C to $+85^{\circ}\text{C}$
5.1.3. Weight	: Approx. 1.0g

5.2. Electrical Requirement

5.2.1. Rated Voltage	: 3V
5.2.2. Operating Voltage	: 2 ~ 4V
5.2.3. Rated Current	: $\leq 70\text{mA}$
5.2.4. Rated Frequency	: 2731Hz
5.2.5. Coil Resistance	: $18 \pm 5 \Omega$
5.2.6. Sound Pressure Level at 10cm (Applying rated voltage and rated frequency)	: $\geq 87\text{dB}$

5.3. Electrical Characteristics Curves

Frequency Response at 3V, 10cm

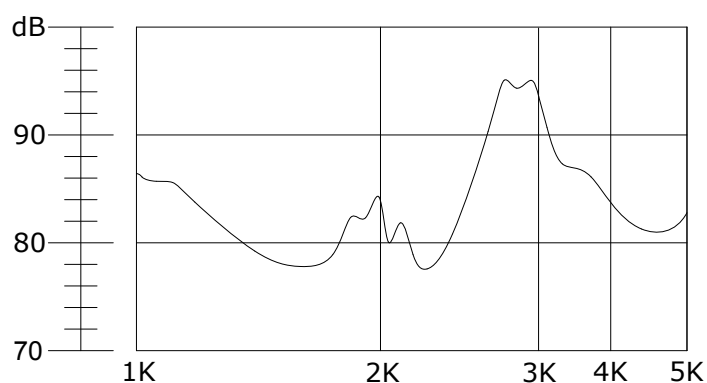


Figure 4. Frequency Response





5.4. Test Setup

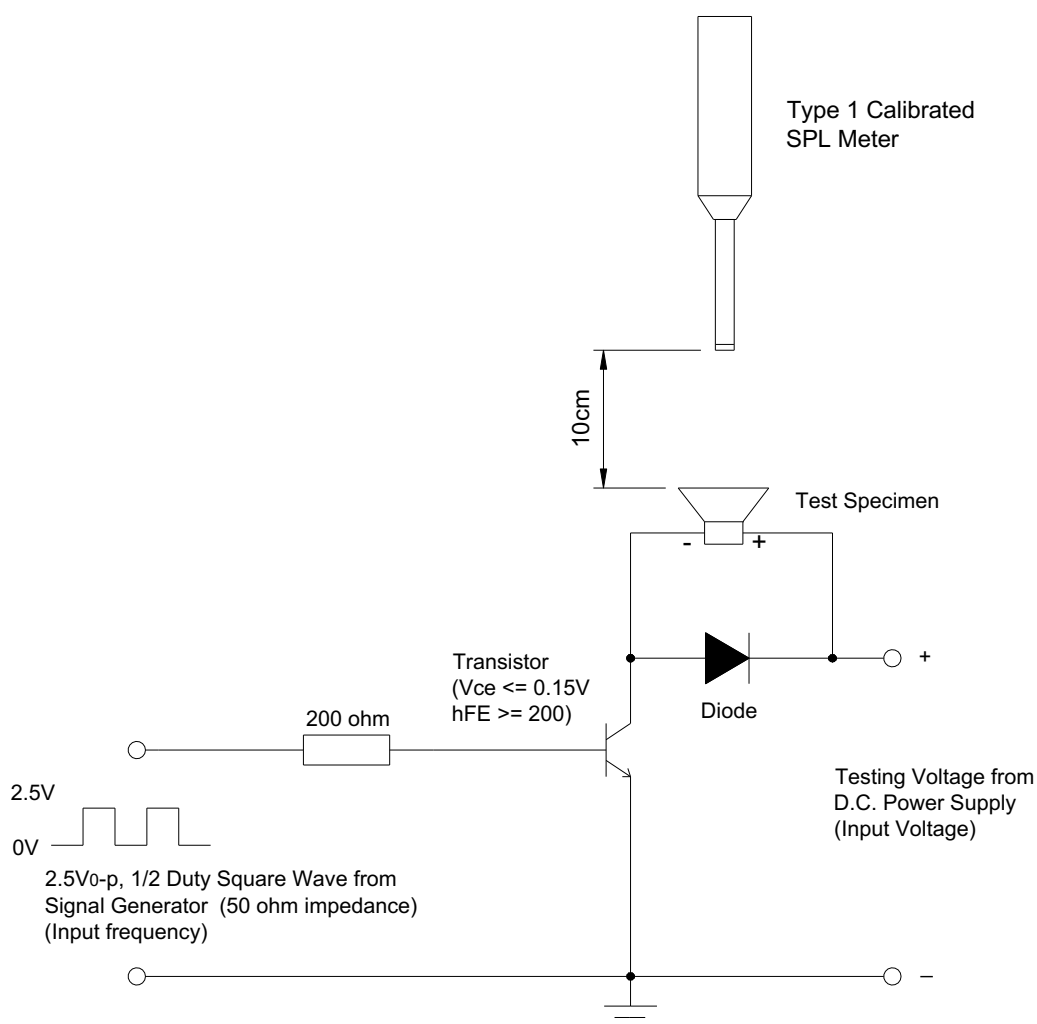


Figure 5. Test Setup

Notes : Apply 2.5V_{0-p} from Signal Generator, set 2731Hz 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.





6. Reliability Test

- 6.1. High Temperature :** Subject samples to $+85\pm 2^{\circ}\text{C}$ for 96 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 6.2. Low Temperature :** Subject samples to $-30\pm 2^{\circ}\text{C}$ for 96 hours. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 6.3. Temperature Shock :** Each temperature cycle shall consist of 30 minutes at -20°C , 15 minutes at $+25^{\circ}\text{C}$, 30 minutes at $+85^{\circ}\text{C}$ and 15 minutes at $+25^{\circ}\text{C}$ with 30 minutes transition time. Test duration is for 5 cycles. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.
- 6.4. 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.
- 6.5. Random Vibration :** Secure samples. Vibrated randomly 10 ~ 55Hz with 1.5mm peak amplitude in 3 directions (x, y and z). The test duration is 2 hours per plane.
- 6.6. Drop Test :** Drop samples naturally from the height of 75cm onto a 4cm thickness wooden board 6 times in any directions.
- 6.7. Solderability :** Immerse solder pads into molten solder at $300 \pm 5^{\circ}\text{C}$ for 3 ± 1 seconds. After testing covered area of pins should be $\geq 90\%$ with a continuous coating of bright solder.
- 6.8. Terminal Strength :** Applied 1kg (9.8N) force to each terminal in axial direction for 10 seconds.

7. Recommended Reflow Process Condition

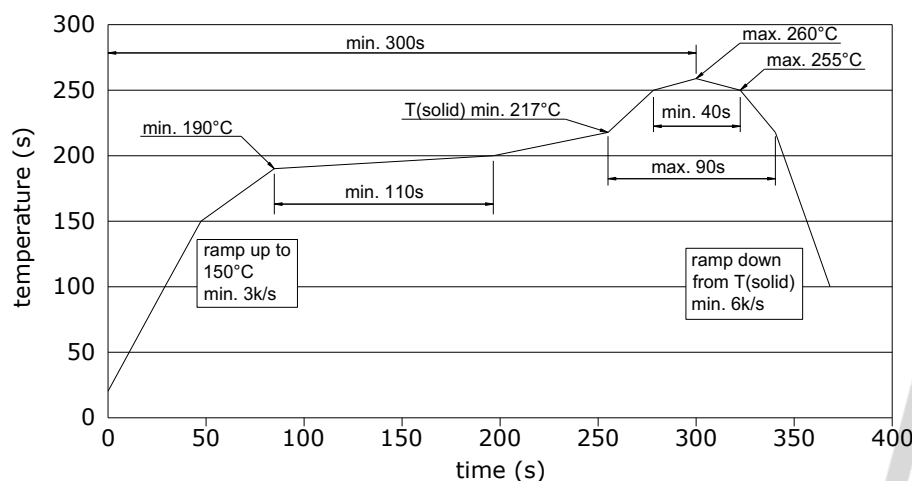


Figure 6. Recommended Reflow Oven Temperature Profile



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8. Mechanical Requirements

Unit : mm

Tolerance : Linear XX.X = ± 0.3
 XX.XX = ± 0.05
 Angular = $\pm 0.25^\circ$

(unless otherwise specified)

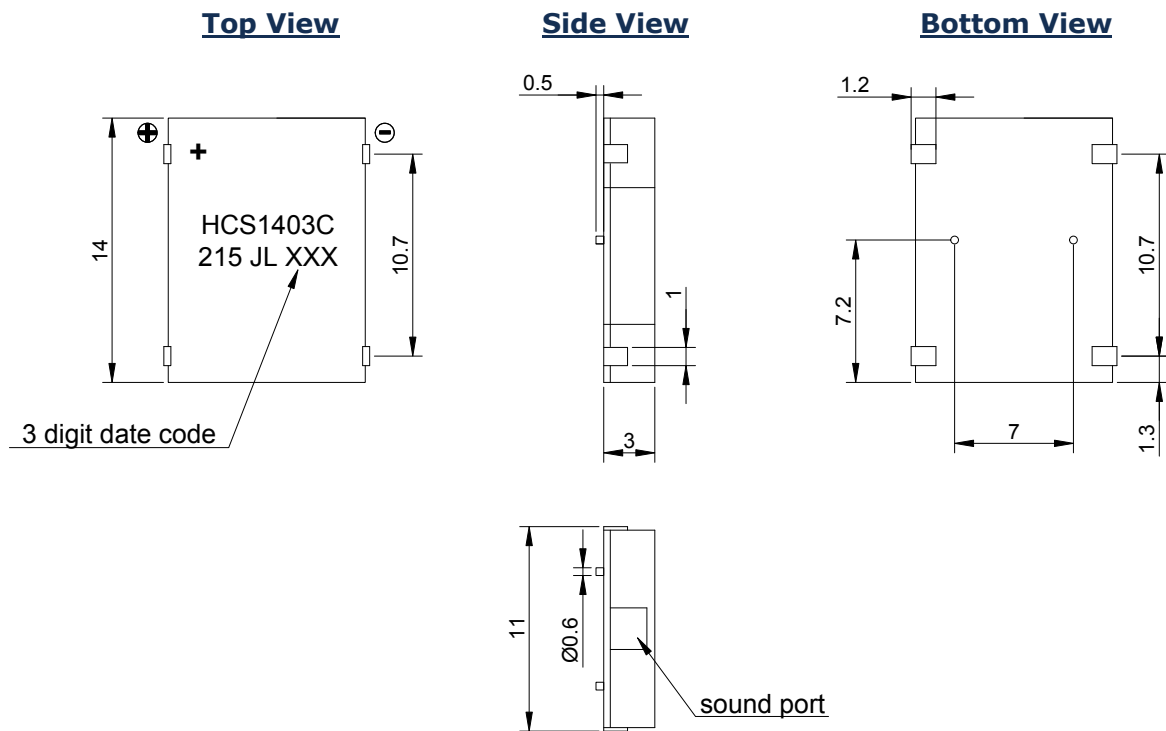


Figure 7. HCS1403C/215 Mechanical Layout





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9. Standard Packing Information

9.1. Packing Quantity : 750 pieces per reel, 5 reels per box (Total 3750 pieces)
(Box volume: 35 x 18 x 35 cm)

9.2. Tape and Reel Layout

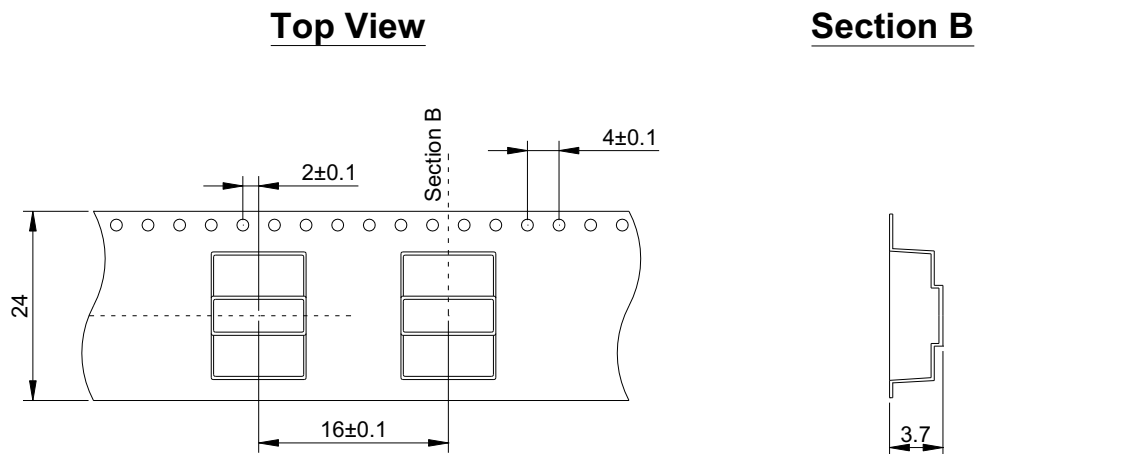


Figure 8. Tape Layout

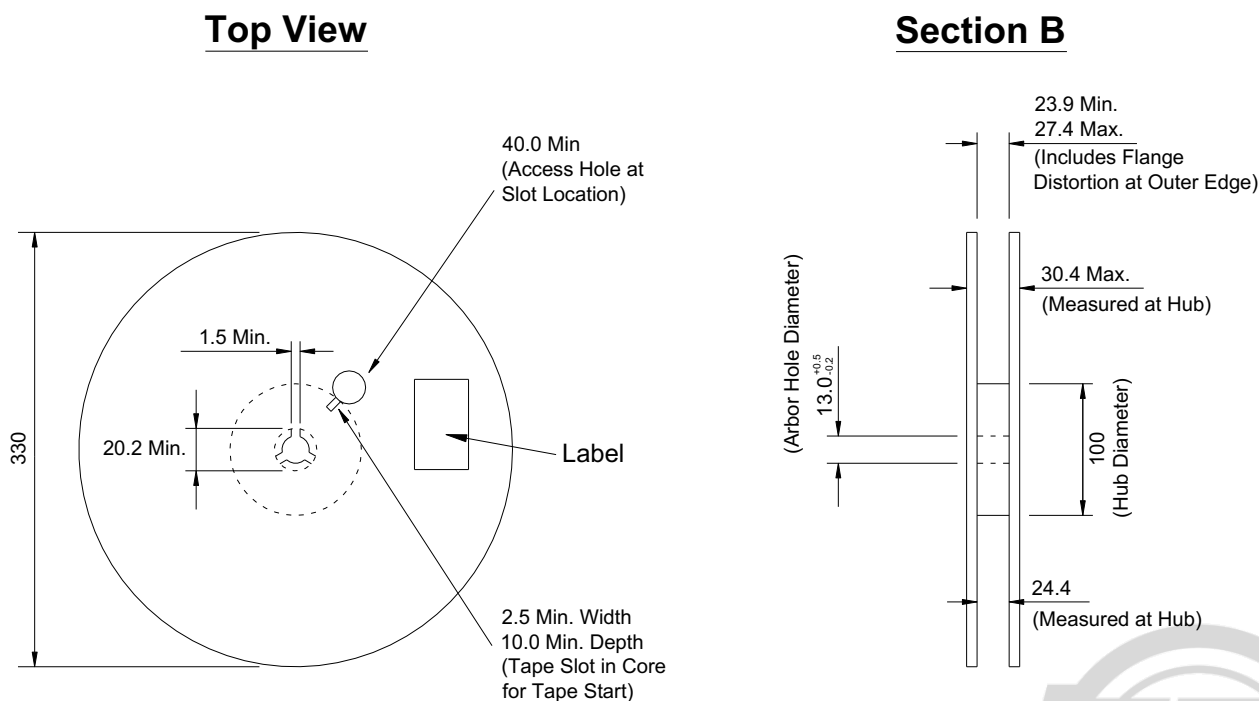


Figure 9. Reel Layout



9.3. Carton Layout

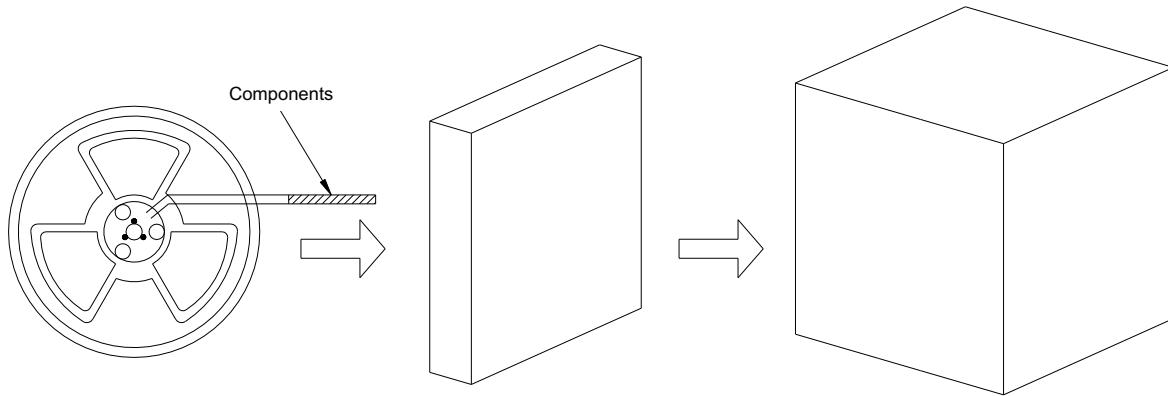


Figure 10. Carton Layout

9.4. Moisture Sensitivity Level: Level 2A

9.5. Storage Condition : +5 ~ +25°C with lower than 65% relative humidity.

9.6. Storage Period : Recommend to use within 6 months after arrival.





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10. Material Statement

10.1. RoHS : Meet the requirements regarding the European Directive 2011/65/EU and amendment 2015/963.

10.2. REACH : In compliance with European Union Directive 1907/2006 on the Registration Evaluation Authorization and Restriction of Chemicals (REACH).

10.3. Conflict Minerals : The raw materials used are not sourced from DRC or any of the covered countries.

11. Contact Information

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