Product Overview

- 28.5mm diameter piezo-electric transducer with thru-hole pins
- 93 dBA minimum output (12 Vp-p @ 10 cm) and 3 kHz resonant frequency
- ABS housing and removable wash tag preserves performance

Frequency Response (3Vp-p @ 0.1 meters)
## Mechanical and Environment Testing

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Test Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Temperature</td>
<td>95°C (±2°C) with random humidity for 240 hours</td>
</tr>
<tr>
<td>Low Temperature</td>
<td>-40°C (±2°C) with random humidity for 240 hours</td>
</tr>
<tr>
<td>Humidity</td>
<td>40°C (±2°C) with 90% to 95% relative humidity for 240 hours</td>
</tr>
<tr>
<td>Vibration</td>
<td>0.75 mm movement modulated at 10-55 Hz for 3 hours</td>
</tr>
<tr>
<td>Drop Test</td>
<td>100 cm free fall onto wood board, 10 cycles</td>
</tr>
<tr>
<td>Temperature Cycle Test</td>
<td>-40°C to 95°C, ten 3 hour cycles</td>
</tr>
</tbody>
</table>

After tests, part shall rest for 2 hours. Parts are then tested for clean, pure tones.

## Frequency Response and SPL Measurement Setup

- Testing Voltage
- Amplifier
- Audio Analyzer
- B&K Type 2012
- Standard Mic
- B&K 4191
- Measuring Distance
- Speaker
- IEC Baffle
- Anechoic Chamber: 480x420x360 cm

## Wave Solder Profile

![Wave Solder Profile](image)

## Recommended Drive Circuit

![Recommended Drive Circuit](image)
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>VALUES</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATED VOLTAGE</td>
<td>12</td>
<td>Vp-p</td>
</tr>
<tr>
<td>OPERATING VOLTAGE RANGE</td>
<td>3 ~ 28</td>
<td>Vp-p</td>
</tr>
<tr>
<td>RATED CURRENT (MAX)</td>
<td>8</td>
<td>mA</td>
</tr>
<tr>
<td>CAPACITANCE</td>
<td>20,000</td>
<td>pF</td>
</tr>
<tr>
<td>MINIMUM SPL @ 10 CM</td>
<td>93</td>
<td>dBA</td>
</tr>
<tr>
<td>RESONANT FREQUENCY</td>
<td>3,000</td>
<td>Hz</td>
</tr>
<tr>
<td>OPERATING TEMPERATURE</td>
<td>-30 ~ +85</td>
<td>°C</td>
</tr>
<tr>
<td>STORAGE TEMPERATURE</td>
<td>-40 ~ +95</td>
<td>°C</td>
</tr>
<tr>
<td>HOUSING MATERIAL</td>
<td>ABS</td>
<td>-</td>
</tr>
<tr>
<td>TERMINAL MATERIAL</td>
<td>Au PLATED PHOSPHER BRONZE</td>
<td>-</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>3.7</td>
<td>grams</td>
</tr>
</tbody>
</table>

**REVISION HISTORY**

<table>
<thead>
<tr>
<th>LTR</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>REVISED TO INVENTOR 3-D DRAWING TEMPLATE</td>
<td>10/17/2007</td>
<td>B.R.</td>
</tr>
</tbody>
</table>

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS.

2. SPECIFICATIONS SUBJECT TO CHANGE OR WITHDRAWL WITHOUT NOTICE.

3. THIS PART IS RoHS 2002/95/EC COMPLIANT.

4. PART WASHABLE USING DEIONIZED WATER, OR PURE ISOPROPYL ALCOHOL.

**PARAMETERS**

**VALUES**

**UNITS**

**RATED VOLTAGE**

12 Vp-p

**OPERATING VOLTAGE RANGE**

3 ~ 28 Vp-p

**RATED CURRENT (MAX)**

8 mA

**CAPACITANCE**

20,000 ± 30% pF

**MINIMUM SPL @ 10 CM**

93 dBA

**RESONANT FREQUENCY**

3,000 ± 500 Hz

**OPERATING TEMPERATURE**

-30 ~ +85 °C

**STORAGE TEMPERATURE**

-40 ~ +95 °C

**HOUSING MATERIAL**

ABS

**TERMINAL MATERIAL**

Au PLATED PHOSPHER BRONZE

**WEIGHT**

3.7 grams

**BASIC DRIVING CIRCUIT (FOR TESTING ONLY)**

- 2N2222A
  - 10K
  - 220K
  - 1K

**P.C. PIN HOLE PATTERN**

- ø30
- ø1 (3)
- 120°

**GROUND**

- LOCATING DOT
- MASKING LABEL
- Ø4.6 ± 0.1 SOUND EMISSION HOLE

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