Piezoelectronic buzzers
Without oscillator circuit
Pin terminal

**PS** series

Pin terminal type
- PS12
- PS14
- PS17
Piezoelectronic buzzers
Without oscillator circuit
Pin terminal/Lead lines/SMD

Overview of the PS series

FEATURES
- Sounding body (unimorph) that piezo bonded the diaphragm is used, and attach on circuit, and is easy design high performance efficiency piezoelectric buzzer.
- They feature extremely low power consumption in comparison to electromagnetic units.
- Because these buzzers are designed for external excitation, the same part can serve as both a musical tone oscillator and a buzzer.
- They can be used with automated inserters. Moisture-resistant models are also available.
- The lead wire type (PS1550L40N) with both-sided adhesive tape installed easily is prepared.

APPLICATION
Electric ranges, washing machines, computer terminals, various devices that require speech synthesis output.

RECOMMENDED OPERATING CIRCUIT EXAMPLE

![Circuit Diagram]

- Resistor to do charging and discharging to a piezoelectric element (Value of about 1kΩ is good efficiency).

SOUND MEASURING METHOD


⚠️ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.
# Overview of the PS series

## PRODUCT LINEUP

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>Outside diameter (mm)</th>
<th>Height [excluding terminal] (mm)</th>
<th>Terminal pitch (mm)</th>
<th>Sound pressure (dB(A)/10cm)</th>
<th>Frequency (kHz)</th>
<th>Input voltage (V0-p)[rectangular waves]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS12</td>
<td>PS1240P02BT</td>
<td>ø12.2</td>
<td>6.5</td>
<td>5</td>
<td>70 min.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PS1240P02CT3</td>
<td>ø12.2</td>
<td>3.5</td>
<td>5</td>
<td>60 min.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>PS14</td>
<td>PS1440P02BT</td>
<td>ø14</td>
<td>8</td>
<td>5</td>
<td>75 min.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PS1420P02CT</td>
<td>ø14</td>
<td>11</td>
<td>5</td>
<td>70 min.</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>PS17</td>
<td>PS1720P02</td>
<td>ø17</td>
<td>8</td>
<td>10</td>
<td>70 min.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PS1740P02E</td>
<td>ø17</td>
<td>7.5</td>
<td>10</td>
<td>75 min.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PS1740P02CE</td>
<td>ø17</td>
<td>4.6</td>
<td>10</td>
<td>60 min.</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>Application</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS12</td>
<td>PS1240P02BT</td>
<td>For warning and alarm sounds of home appliances (air conditioners, refrigerators, fan forced heaters, cordless telephones, etc.)</td>
<td>Compact/automatic mountable/12.7mm pitch radial taping</td>
</tr>
<tr>
<td></td>
<td>PS1240P02CT3</td>
<td></td>
<td>Thin type/automatic mountable/12.7mm pitch radial taping</td>
</tr>
<tr>
<td>PS14</td>
<td>PS1440P02BT</td>
<td></td>
<td>High sound pressure/automatic mountable/15mm pitch radial taping</td>
</tr>
<tr>
<td></td>
<td>PS1420P02CT</td>
<td></td>
<td>Low frequency tone/automatic mountable/15mm pitch radial taping</td>
</tr>
<tr>
<td>PS17</td>
<td>PS1720P02</td>
<td></td>
<td>Low frequency tone / High sound pressure</td>
</tr>
<tr>
<td></td>
<td>PS1740P02E</td>
<td></td>
<td>High sound pressure</td>
</tr>
<tr>
<td></td>
<td>PS1740P02CE</td>
<td></td>
<td>Thin type</td>
</tr>
</tbody>
</table>

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20220222 / piezoelectronic_buzzer_ps_en
Pin terminal type PS12

PS1240P02BT

**FEATURES**
- Miniature size(ø12.2×T6.5mm).
- High cost performance.
- Suitable for automatic radial taping machine(12.7mm-pitch).

**SHAPE & DIMENSIONS**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound pressure</td>
<td>70dB(A)/10cm min. [at 4kHz, 3V0-P rectangular waves, measuring temperature: 25±5°C, humidity: 60±10%]</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>–10 to +70°C</td>
</tr>
<tr>
<td>Storage conditions</td>
<td>+5 to +40°C, 20 to 70%RH, please use within 6 months</td>
</tr>
<tr>
<td>Maximum input voltage</td>
<td>30V0-P max. [without DC bias]</td>
</tr>
<tr>
<td>Minimum delivery unit</td>
<td>2500 pieces [500 pieces/1 reel×5 reels]</td>
</tr>
</tbody>
</table>

**FREQUENCY SOUND PRESSURE CHARACTERISTICS**

- **SINE WAVE DRIVE**

  ![Sine Wave Drive Graph]

- **SQUARE WAVE DRIVE**

  ![Square Wave Drive Graph]

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Pin terminal type PS12

PS1240P02CT3

- **FEATURES**
  - Thin type (ø12.2×T3.5mm).
  - Suitable for automatic radial taping machine (12.7mm-pitch).

- **SHAPE & DIMENSIONS**

  ![Dimensions in mm](image1)

  ![Dimensions in mm](image2)

- **SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Sound pressure</td>
<td>60dB(A)/10cm min. [at 4kHz, 3V0-P rectangular waves, measuring temperature: 25±5°C, humidity: 60±10%]</td>
</tr>
<tr>
<td>Operating temperature range</td>
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</tr>
<tr>
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<td>+5 to +40°C, 20 to 70%RH, please use within 6 months</td>
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<tr>
<td>Maximum input voltage</td>
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</tr>
<tr>
<td>Minimum delivery unit</td>
<td>2500 [500 pieces/1 reel×5 reels]</td>
</tr>
</tbody>
</table>

- **FREQUENCY SOUND PRESSURE CHARACTERISTICS**

  - **SINE WAVE DRIVE**

    ![Graph](image3)

  - **SQUARE WAVE DRIVE**

    ![Graph](image4)

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Pin terminal type PS14

PS1440P02BT

**FEATURES**
- High sound pressure.
- Miniature size (ø14×T8mm).
- Suitable for automatic radial taping machine (15mm-pitch).

**SHAPE & DIMENSIONS**

![Dimensions in mm]

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound pressure</td>
<td>75dB(A)/10cm min. (at 4kHz, 3V₀–P rectangular waves, measuring temperature: 25±5°C, humidity: 60±10%)</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>–10 to +70°C</td>
</tr>
<tr>
<td>Storage conditions</td>
<td>+5 to +40°C, 20 to 70%RH, please use within 6 months</td>
</tr>
<tr>
<td>Maximum input voltage</td>
<td>30V₀–P max. (without DC bias)</td>
</tr>
<tr>
<td>Minimum delivery unit</td>
<td>1750 pieces (350 pieces/1 reel × 5 reels)</td>
</tr>
</tbody>
</table>

**FREQUENCY SOUND PRESSURE CHARACTERISTICS**

- **SINE WAVE DRIVE**

![Graph: Sine Wave Drive]

- **SQUARE WAVE DRIVE**

![Graph: Square Wave Drive]

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**Pin terminal type PS14**

**PS1420P02CT**

**FEATURES**
- Low frequency tone (2kHz).
- Suitable for automatic radial taping machine (15mm-pitch).

**SHAPE & DIMENSIONS**

Dimensions in mm

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound pressure</td>
<td>70dB(A)/10cm min. [at 2kHz, 5V0-P rectangular waves, measuring temperature: 25±5°C, humidity: 60±10%]</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>–10 to +70°C</td>
</tr>
<tr>
<td>Storage conditions</td>
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</tr>
<tr>
<td>Minimum delivery unit</td>
<td>1750 pieces [350 pieces/1 reel × 5 reels]</td>
</tr>
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**FREQUENCY SOUND PRESSURE CHARACTERISTICS**

**SINE WAVE DRIVE**

![Sine Wave Drive Graph]

**SQUARE WAVE DRIVE**

![Square Wave Drive Graph]
Pin terminal type PS17

PS1720P02

**FEATURES**

- Low frequency tone.
- High sound pressure.

**SHAPE & DIMENSIONS**

![Diagram of PS1720P02 buzzer]

- Low frequency tone.
- High sound pressure.

**SPECIFICATIONS**

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<tr>
<td>Sound pressure</td>
<td>70dB(A)/10cm min. [at 2kHz, 3Vrms rectangular waves, measuring temperature:25±5°C, humidity:60±10%]</td>
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<tr>
<td>Operating temperature range</td>
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</tr>
<tr>
<td>Storage conditions</td>
<td>+5 to +40°C, 20 to 70%RH, please use within 6 months</td>
</tr>
<tr>
<td>Maximum input voltage</td>
<td>30Vrms max. [without DC bias]</td>
</tr>
<tr>
<td>Minimum delivery unit</td>
<td>1500 pieces</td>
</tr>
</tbody>
</table>

**FREQUENCY SOUND PRESSURE CHARACTERISTICS**

- **SINE WAVE DRIVE**
  
  ![Graph showing sound pressure vs. frequency for sine wave drive]

- **SQUARE WAVE DRIVE**
  
  ![Graph showing sound pressure vs. frequency for square wave drive]

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Pin terminal type PS17

PS1740P02E

- **FEATURES**
  - High sound pressure.

- **SHAPE & DIMENSIONS**

![Diagram of PS17 buzzer]

Tolerance: ±0.3 mm

Dimensions in mm

- **SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>Sound pressure</td>
<td>75dB(A)/10cm min. [at 4kHz, 3V₀-P rectangular waves, measuring temperature 25±5°C, humidity 60±10%]</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>–10 to +70°C</td>
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<tr>
<td>Minimum delivery unit</td>
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</tr>
</tbody>
</table>

- **FREQUENCY SOUND PRESSURE CHARACTERISTICS**

**SINE WAVE DRIVE**

![Graph of sine wave sound pressure vs. frequency]

**SQUARE WAVE DRIVE**

![Graph of square wave sound pressure vs. frequency]

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Pin terminal type PS17

PS1740P02CE

**FEATURES**

- Thin type.

**SHAPE & DIMENSIONS**

![Shape & Dimensions Diagram]

Tolerance: ±0.3
Dimensions in mm

**SPECIFICATIONS**

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**FREQUENCY SOUND PRESSURE CHARACTERISTICS**

- **SINE WAVE DRIVE**

![Sine Wave Drive Graph]

- **SQUARE WAVE DRIVE**

![Square Wave Drive Graph]

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REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

⚠️ REMINDERS

Please be sure to read the specifications of TDK electromagnetic buzzer (hereinafter referred to as “the buzzer”) before use.

- Do not apply DC bias to the piezoelectric buzzer; otherwise insulation resistance may become low and affect the performance.
- Do not supply any voltage higher than applicable to the piezoelectric buzzer.
- Do not use the piezoelectric buzzer outdoors. It is designed for indoor use. If the piezoelectric buzzer has to be used outdoors, provide it with waterproofing measures; it will not operate normally if subjected to moisture.
- Do not wash the piezoelectric buzzer with solvent or allow gas to enter it while washing; any solvent that enters it may stay inside a long time and damage it.
- A piezoelectric ceramic material of approximately 100μm thick is used in the sound generator of the buzzer. Do not press the sound generator through the sound release hole otherwise the ceramic material may break. Do not stack the piezoelectric buzzers without packing.
- Do not apply any mechanical force to the piezoelectric buzzer; otherwise the case may deform and result in improper operation.
- Do not place any shielding material or the like just in front of the sound release hole of the buzzer; otherwise the sound pressure may vary and result in unstable buzzer operation. Make sure that the buzzer is not affected by a standing wave or the like.
- Be sure to solder the buzzer terminal at 350°C max.(80W max.)(soldering iron trip) within 5 seconds using a solder containing silver.
- Avoid using the piezoelectric buzzer for a long time where any corrosive gas H2S, etc.) exists; otherwise the parts or sound generator may corroded and result in improper operation.
- Be careful not to drop the piezoelectric buzzer.
- High safety and reliability is needed, and or, there is fear that failure, wrong movement, failure of product damages and worldly goods etc related to life and health of people, or do not use for equipment(as nuclear power equipment?-automobile?-aircraft?-medical? device) with fear that significant influence is had socially.
- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
- The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
- If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

(1) Aerospace/aviation equipment
(2) Transportation equipment (cars, electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

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