



# Piezoelectronic buzzers

Pin terminal/Lead lines/SMD(Without oscillator circuit)

## PS series

---

### Pin terminal type

PS12

PS14

PS17

PS19

### Lead wire type

PS15

### SMD type

PST14

---

# Piezoelectronic buzzers

Pin terminal/Lead lines/SMD(Without oscillator circuit)

## Overview of the PS series

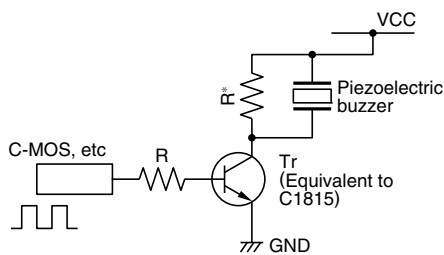
### FEATURES

- 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

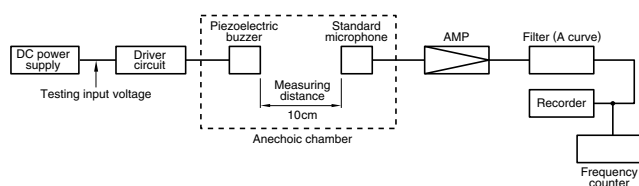
Electric ranges, washing machines, computer terminals, various devices that require speech synthesis output.

### RECOMMENDED OPERATING CIRCUIT EXAMPLE



\* Resistor to do charging and discharging to a piezoelectric element (Value of about  $1k\Omega$  is good efficiency).

### SOUND MEASURING METHOD


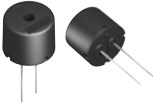







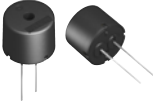
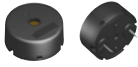



○ RoHS Directive Compliant Product: See the following for more details. <https://product.tdk.com/info/en/environment/rohs/index.html>

⚠ 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

| Type  | Part No.   | Outside dimensions    |                                  |                     | Characteristics                      |                 |  |
|-------|--|-----------------------|----------------------------------|---------------------|--------------------------------------|-----------------|--|
|       |  | Outside diameter (mm) | Height [excluding terminal] (mm) | Terminal pitch (mm) | Sound pressure (dB(A)/10cm)          | Frequency (kHz) | Input voltage (V <sub>0-P</sub> )[rectangular waves] |
| PS12  |  PS1240P02BT  | φ12.2                 | 6.5                              | 5                   | 70 min.                              | 4               | 3  |
|       | PS1240P02CT3   | φ12.2                 | 3.5                              | 5                   | 60 min.                              | 4               | 3  |
| PS14  |  PS1440P02BT  | φ14                   | 8                                | 5                   | 75 min.                              | 4               | 3  |
|       | PS1420P02CT  | φ14                   | 11                               | 5                   | 70 min.                              | 2               | 5  |
| PS17  | PS1720P02  | φ17                   | 8                                | 10                  | 70 min.                              | 2               | 3  |
|       |  PS1740P02E   | φ17                   | 7.5                              | 10                  | 75 min.                              | 4               | 3  |
|       | PS1740P02CE  | φ17                   | 4.6                              | 10                  | 60 min.                              | 4               | 3  |
| PS19  |  PS1927P02   | φ19                   | 10.5                             | 20                  | 90 min.                              | 2.7             | 10   |
|       | PS1920P02  | φ19                   | 10.5                             | 20                  | 80 min.                              | 2               | 10   |
| PST14 |  PST1423P02 | □ 14                  | (9)                              | —                   | 84 min.                              | 2.3             | 24V <sub>p-p</sub> (±12V <sub>0-p</sub> )            |
| PS15  |  PS1550L40N | φ15                   | 1.6                              | —                   | Depend on the installation condition |                 | 20V <sub>0-p</sub> max.                              |

| Type  | Part No.  | Application   | Features   |
|-------|---|---|--|
| PS12  |  PS1240P02BT |   | Compact/automatic mountable/12.7mm pitch radial taping           |
|       | PS1240P02CT3  |   | Thin type/automatic mountable/12.7mm pitch radial taping         |
| PS14  |  PS1440P02BT | For warning and alarm sounds of home appliances(air conditioners, refrigerators, fan forced heaters, cordless telephones, etc.) | High sound pressure/automatic mountable/15mm pitch radial taping |
|       | PS1420P02CT   |   | Low frequency tone/automatic mountable/15mm pitch radial taping  |
|       | PS1720P02   |   | Low frequency tone / High sound pressure                         |
| PS17  |  PS1740P02E  |   | High sound pressure  |
|       | PS1740P02CE   |   | Thin type  |
| PS19  |  PS1927P02   | For potted circuit (washing machines, drying machines, hot water supply systems, etc.)  | High sound pressure / Water-proof processing element             |
|       | PS1920P02   |   | Low frequency tone / Water-proof processing element              |
| PST14 |  PST1423P02  | applicable to automobile equipment  | SMD / Taping products  |
| PS15  |  PS1550L40N  | Digital camera  | Thin type / Installation easy                                    |

⚠ 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.

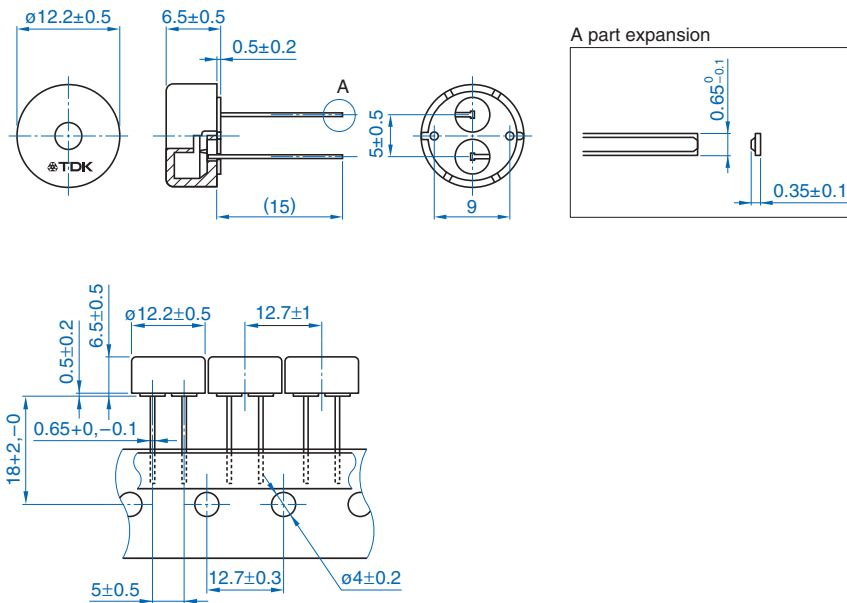
# Pin terminal type PS12

## PS1240P02BT

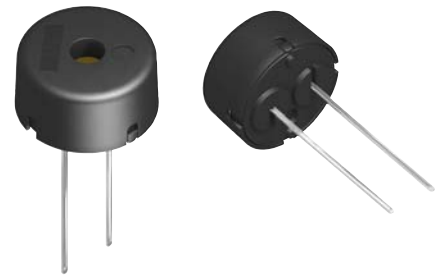
### FEATURES

- Miniature size( $\phi 12.2 \times T6.5$ mm).
- High cost performance.
- Suitable for automatic radial taping machine(12.7mm-pitch).

### SHAPE & DIMENSIONS



Dimensions in mm

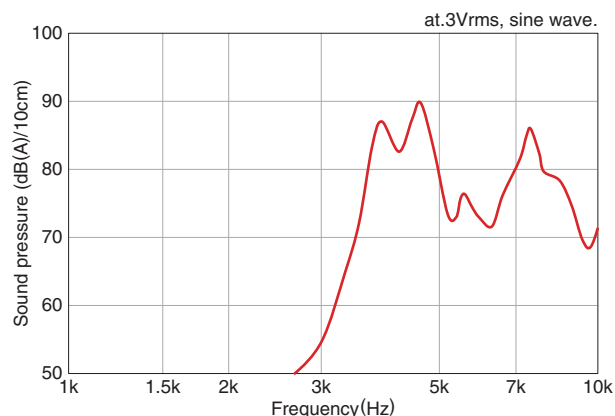


### SPECIFICATIONS

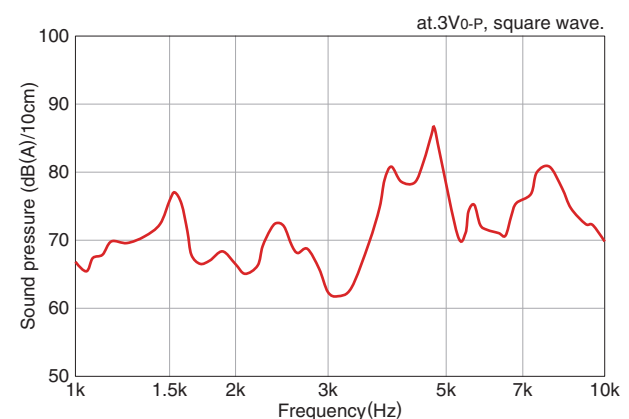
|                             |  |   |
|-----------------------------|--|---|
| Sound pressure              | 70dB(A)/10cm min.                                    | [at 4kHz, 3V <sub>0-P</sub> rectangular waves, measuring temperature: 25±5°C, humidity: 60±10%] |
| Operating temperature range | -10 to +70°C   |   |
| Storage conditions          | +5 to +40°C, 20 to 70%RH, please use within 6 months |   |
| Maximum input voltage       | 30V <sub>0-P</sub> max.                              | [without DC bias]   |
| Minimum delivery unit       | 2500 pieces  | [500 pieces/1 reel×5 reels]   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



⚠ 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.

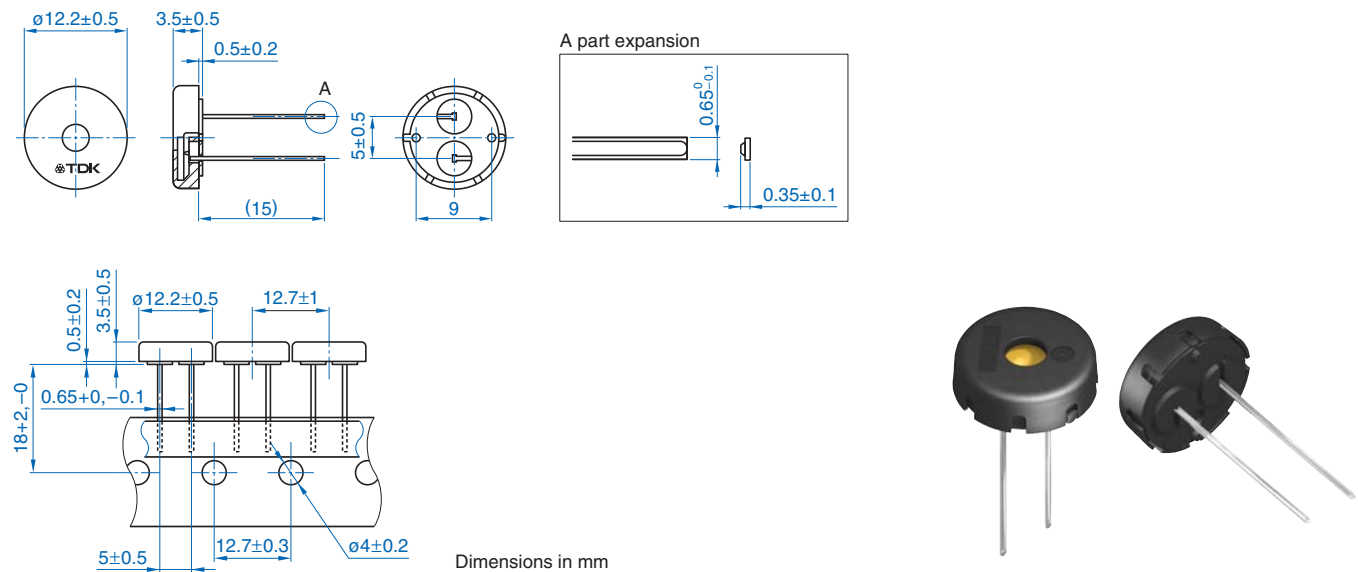
# Pin terminal type PS12

## PS1240P02CT3

### FEATURES

- Thin type( $\phi 12.2 \times T3.5$ mm).
- Suitable for automatic radial taping machine(12.7mm-pitch).

### SHAPE & DIMENSIONS

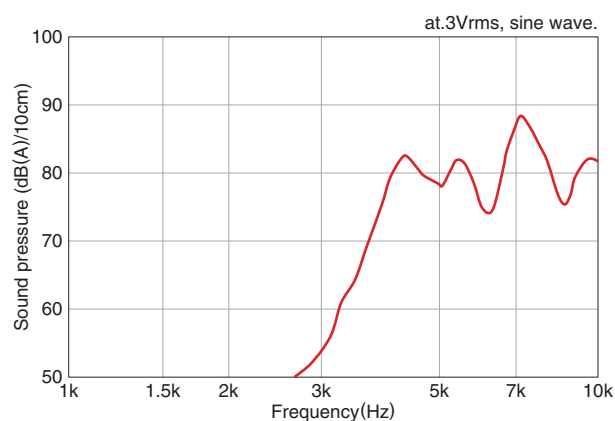


### SPECIFICATIONS

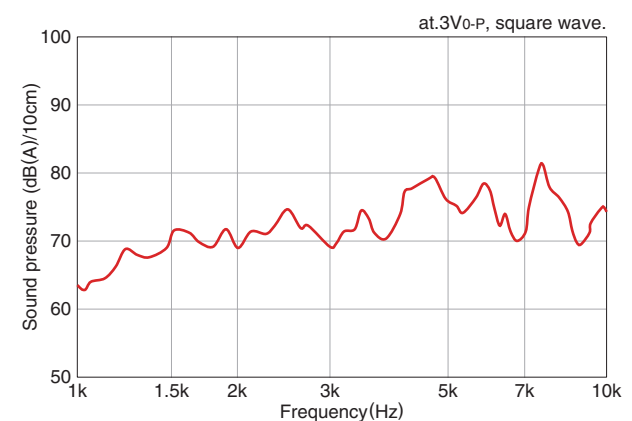
|                                    |  |   |
|------------------------------------|--|---|
| <b>Sound pressure</b>              | 60dB(A)/10cm min.                                    | [at 4kHz, 3V <sub>0-P</sub> rectangular waves, measuring temperature: 25±5°C, humidity: 60±10%] |
| <b>Operating temperature range</b> | -10 to +70°C   |   |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months |   |
| <b>Maximum input voltage</b>       | 30V <sub>0-P</sub> max.                              | [without DC bias]   |
| <b>Minimum delivery unit</b>       | 2500個  | [500 pieces/1 reel×5 reels]   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



⚠ 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.

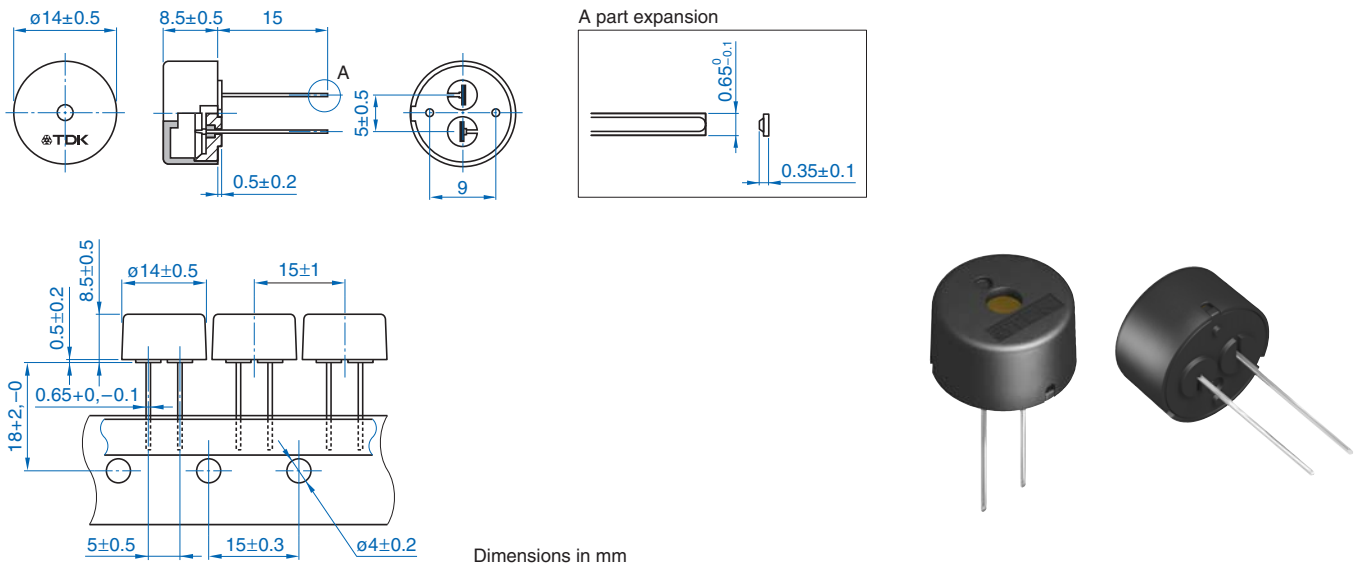
# Pin terminal type PS14

## PS1440P02BT

### FEATURES

- High sound pressure.
- Miniature size( $\phi 14 \times T8$ mm).
- Suitable for automatic radial taping machine(15mm-pitch).

### SHAPE & DIMENSIONS

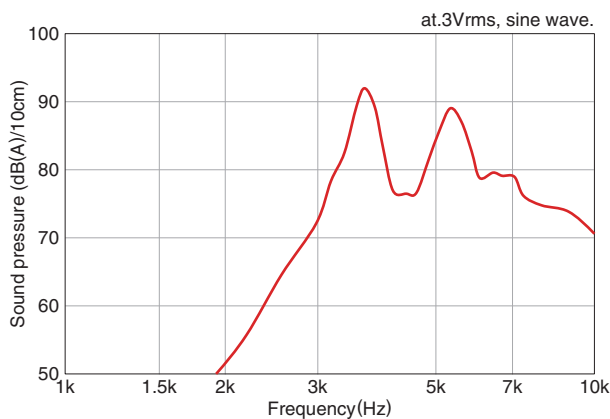


### SPECIFICATIONS

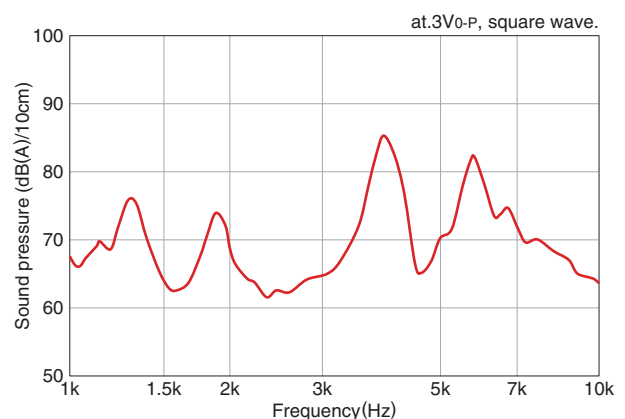
|                                    |  |   |
|------------------------------------|--|---|
| <b>Sound pressure</b>              | 75dB(A)/10cm min.                                    | [at 4kHz, 3V <sub>0-P</sub> rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| <b>Operating temperature range</b> | -10 to +70°C   |   |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months |   |
| <b>Maximum input voltage</b>       | 30V <sub>0-P</sub> max.                              | [without DC bias]   |
| <b>Minimum delivery unit</b>       | 1750 pieces  | [350 pieces/1 reel×5 reels]   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



⚠ 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.

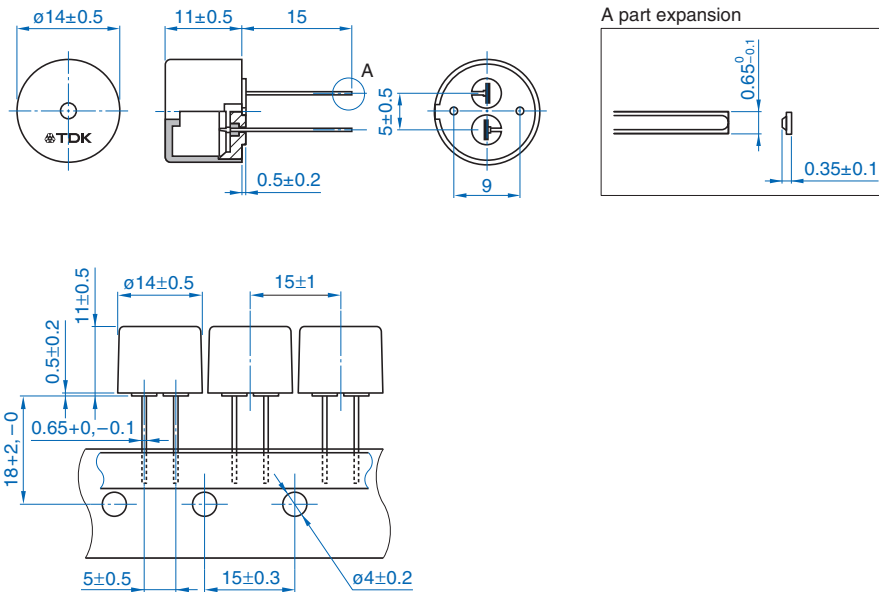
# Pin terminal type PS14

## PS1420P02CT

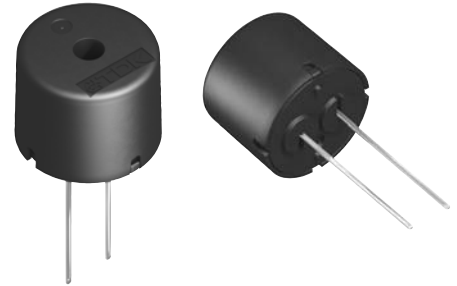
### FEATURES

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

### SHAPE & DIMENSIONS



Dimensions in mm

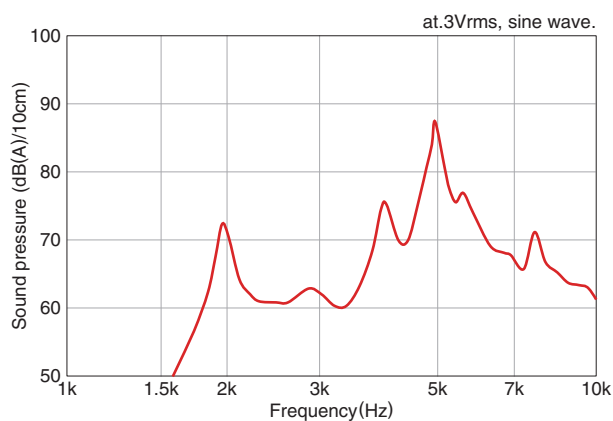


### SPECIFICATIONS

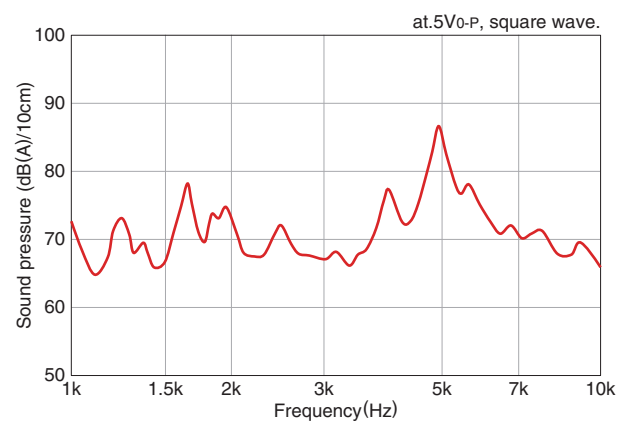
|                                    |  |   |
|------------------------------------|--|---|
| <b>Sound pressure</b>              | 70dB(A)/10cm min.                                    | [at 2kHz, 5V <sub>0-P</sub> rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| <b>Operating temperature range</b> | -10 to +70°C   |   |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months |   |
| <b>Maximum input voltage</b>       | 30V <sub>0-P</sub> max.                              | [without DC bias]   |
| <b>Minimum delivery unit</b>       | 1750 pieces  | [350 pieces/1 reel×5 reels]   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



⚠ 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.

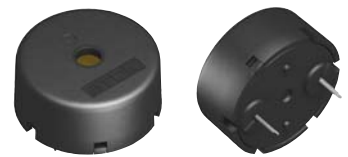
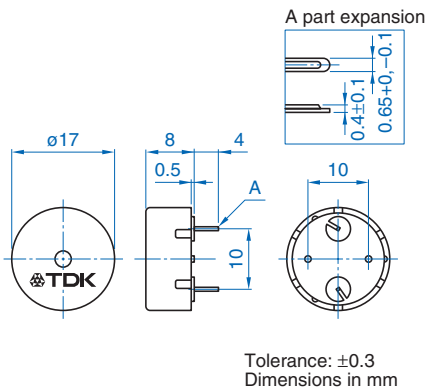
# Pin terminal type PS17

## PS1720P02

### FEATURES

- Low frequency tone.
- High sound pressure.

### SHAPE & DIMENSIONS

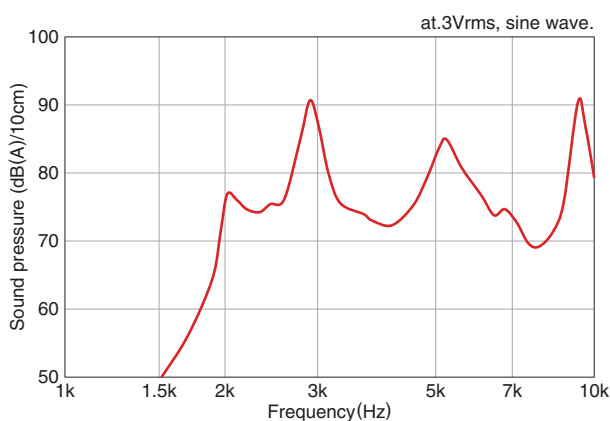


### SPECIFICATIONS

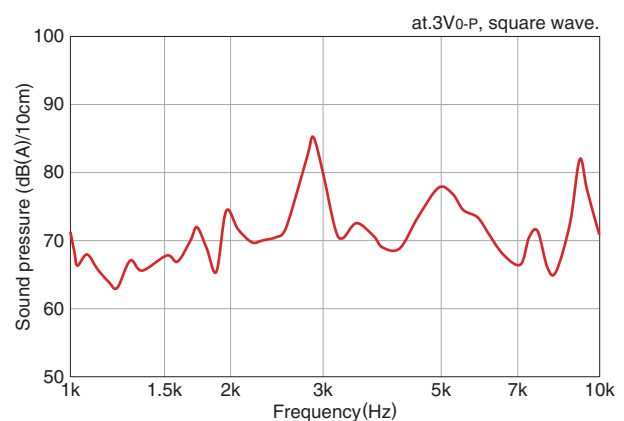
|                                    |   |
|------------------------------------|---|
| <b>Sound pressure</b>              | 70dB(A)/10cm min. [at 2kHz, 3V <sub>0-P</sub> rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| <b>Operating temperature range</b> | -10 to +70°C  |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months  |
| <b>Maximum input voltage</b>       | 30V <sub>0-P</sub> max. [without DC bias]   |
| <b>Minimum delivery unit</b>       | 1500 pieces   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



**⚠** 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.



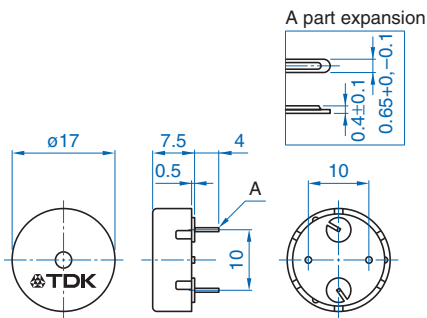
# Pin terminal type PS17

## PS1740P02E

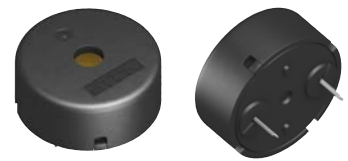
### FEATURES

- High sound pressure.

### SHAPE & DIMENSIONS



Tolerance:  $\pm 0.3$   
Dimensions in mm

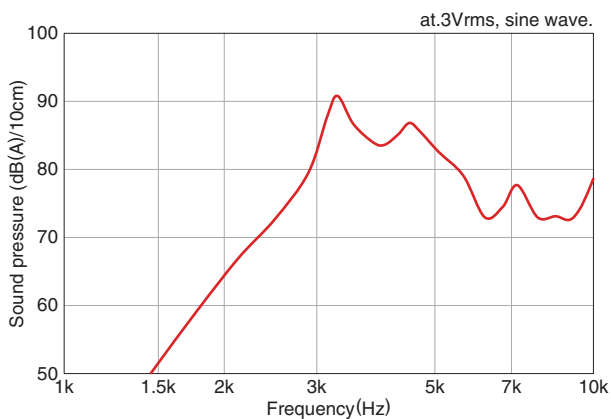


### SPECIFICATIONS

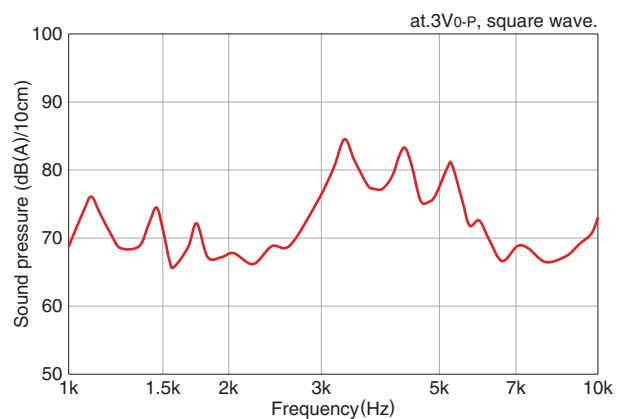
|                             |  |   |
|-----------------------------|--|---|
| Sound pressure              | 75dB(A)/10cm min.                                    | [at 4kHz, 3V <sub>0-P</sub> rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| Operating temperature range | -10 to +70°C   |   |
| Storage conditions          | +5 to +40°C, 20 to 70%RH, please use within 6 months |   |
| Maximum input voltage       | 30V <sub>0-P</sub> max.                              | [without DC bias]   |
| Minimum delivery unit       | 1500 pieces  |   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### □ SINE WAVE DRIVE



#### □ SQUARE WAVE DRIVE



⚠ 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.

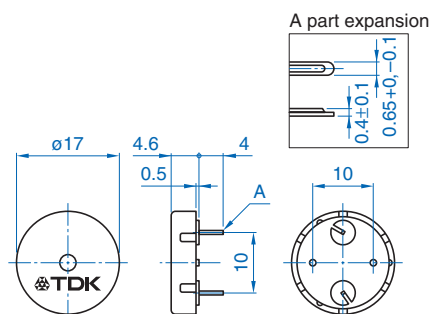
# Pin terminal type PS17

## PS1740P02CE

### FEATURES

- Thin type.

### SHAPE & DIMENSIONS



Tolerance:  $\pm 0.3$   
Dimensions in mm

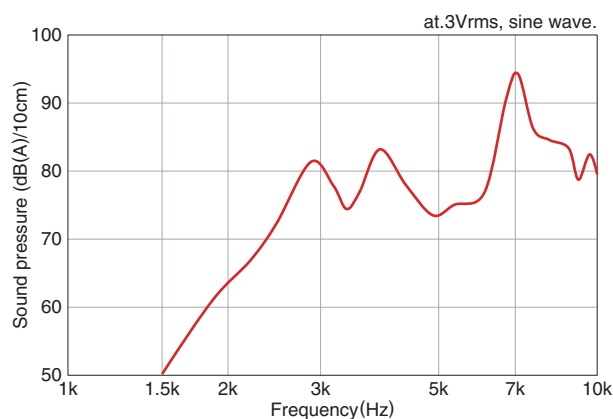


### SPECIFICATIONS

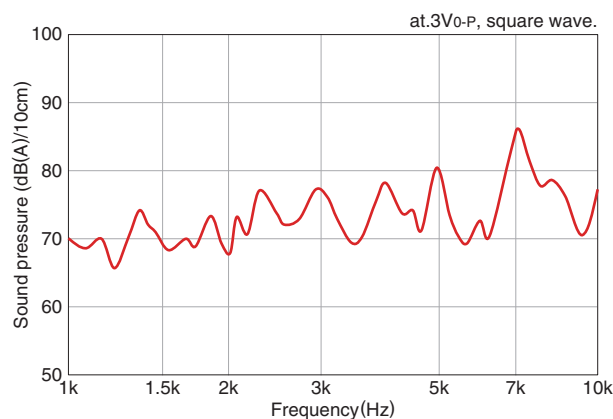
|                             |  |   |
|-----------------------------|--|---|
| Sound pressure              | 60dB(A)/10cm min.                                    | [at 4kHz, 3V <sub>0-P</sub> rectangular waves, measuring temperature:25 $\pm$ 5°C, humidity:60 $\pm$ 10%] |
| Operating temperature range | -10 to +70°C   |   |
| Storage conditions          | +5 to +40°C, 20 to 70%RH, please use within 6 months |   |
| Maximum input voltage       | 30V <sub>0-P</sub> max.                              | [without DC bias]   |
| Minimum delivery unit       | 1500 pieces  |   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### □ SINE WAVE DRIVE



#### □ SQUARE WAVE DRIVE



⚠ 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.

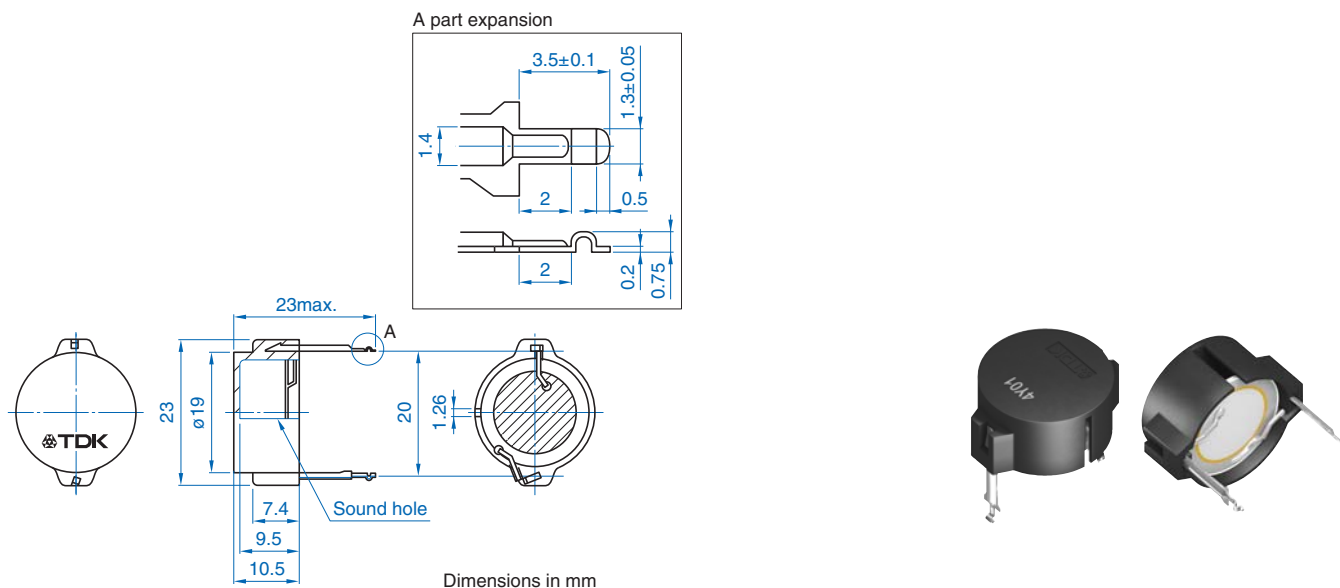
# Pin terminal type PS19

## PS1920P02

### FEATURES

- Low frequency tone(2kHz).
- Piezo element is coated with water proof processing.

### SHAPE & DIMENSIONS

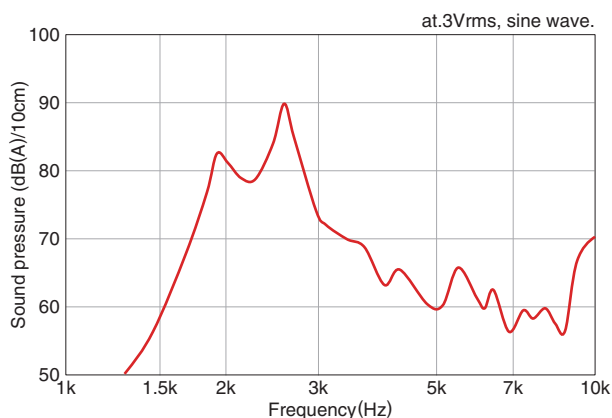


### SPECIFICATIONS

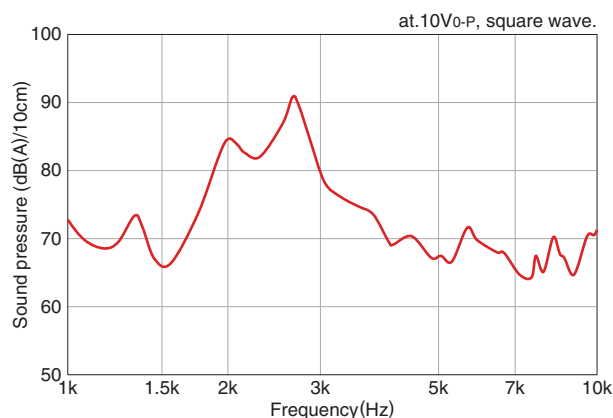
|                                    |  |  |
|------------------------------------|--|--|
| <b>Sound pressure</b>              | 80dB(A)/10cm min.                                    | [at 2kHz, 10V <sub>0-P</sub> rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| <b>Operating temperature range</b> | -10 to +70°C   |  |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months |  |
| <b>Maximum input voltage</b>       | 20V <sub>0-P</sub> max.                              | [without DC bias]  |
| <b>Minimum delivery unit</b>       | 600 pieces   |  |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



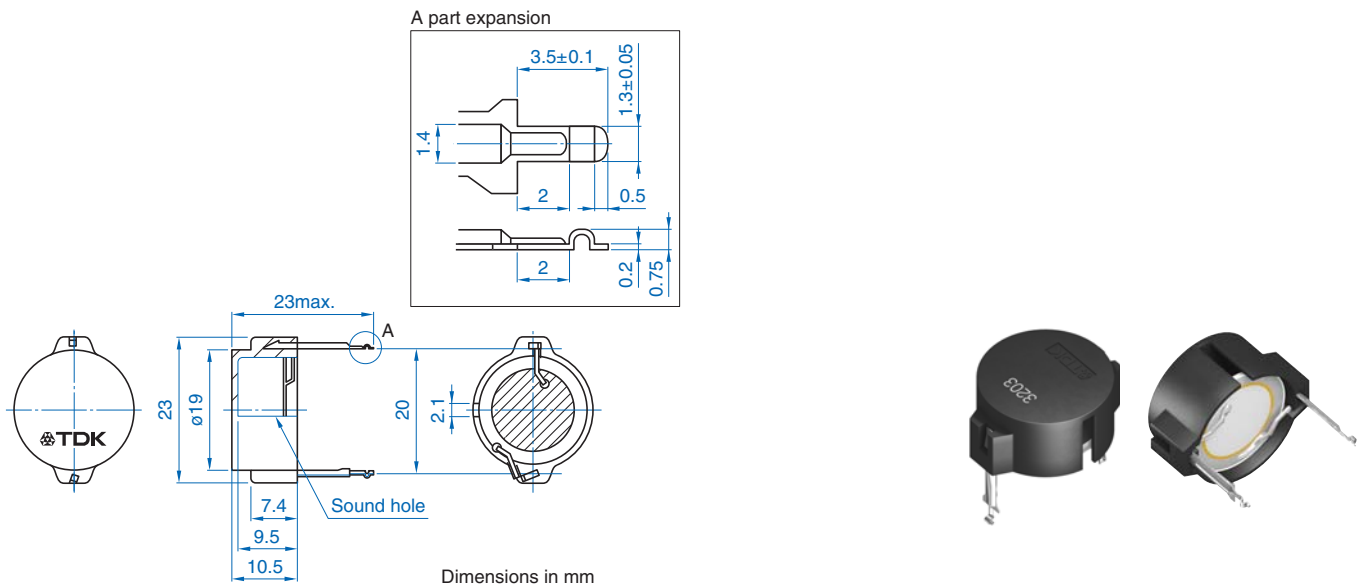
# Pin terminal type PS19

## PS1927P02

### FEATURES

- High sound pressure.
- Piezo element is coated with water proof processing.

### SHAPE & DIMENSIONS

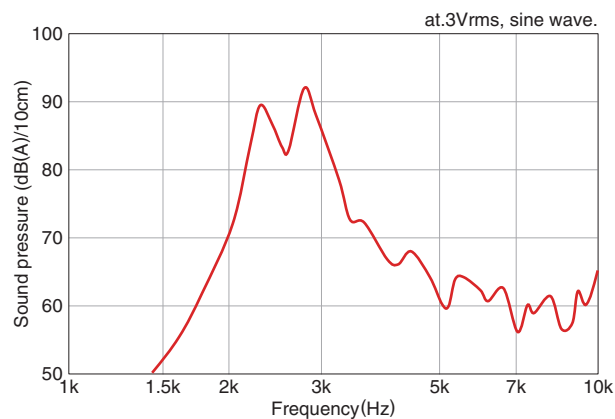


### SPECIFICATIONS

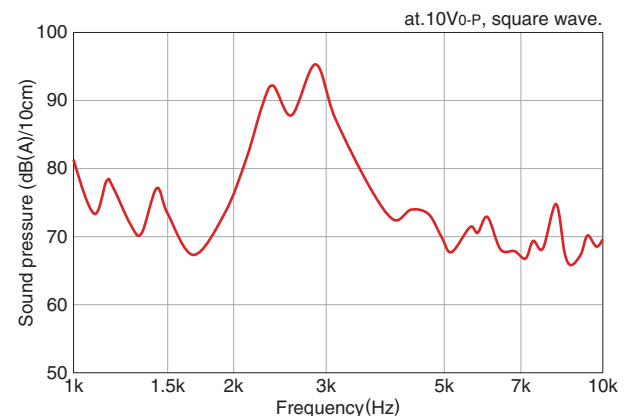
|                                    |  |
|------------------------------------|--|
| <b>Sound pressure</b>              | 90dB(A)/10cm min. [at 2.7kHz, 10V <sub>0-P</sub> rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| <b>Operating temperature range</b> | -10 to +70°C   |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months   |
| <b>Maximum input voltage</b>       | 20V <sub>0-P</sub> max. [without DC bias]  |
| <b>Minimum delivery unit</b>       | 600 pieces   |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE



⚠ 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.

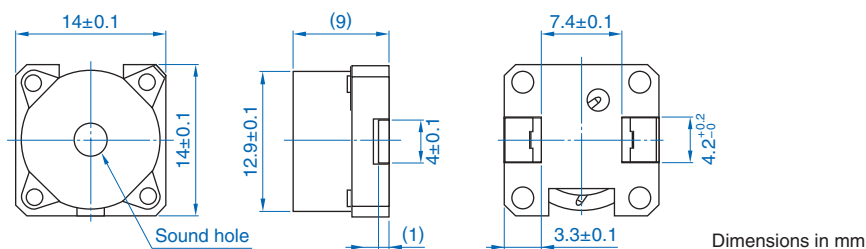
# SMD type PST14

## PST1423P02

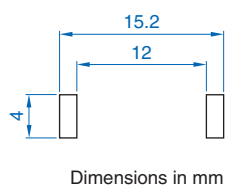
### FEATURES

- These high reliability electromagnetic buzzers are applicable to automobile equipment.
- Suitable for surface mount process(SMD). Stand up to reflow process twice.

### SHAPE & DIMENSIONS



### RECOMMENDED LAND PATTERN

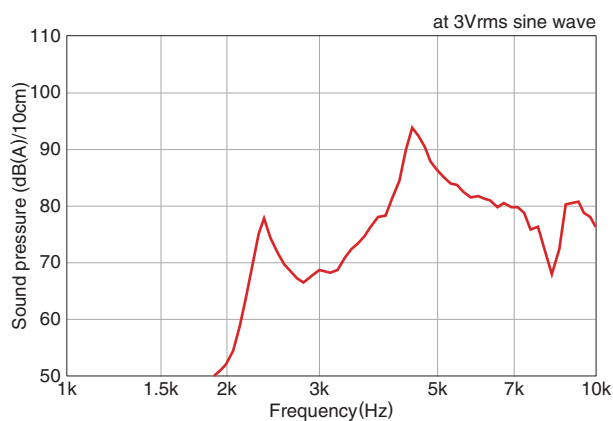


### SPECIFICATIONS

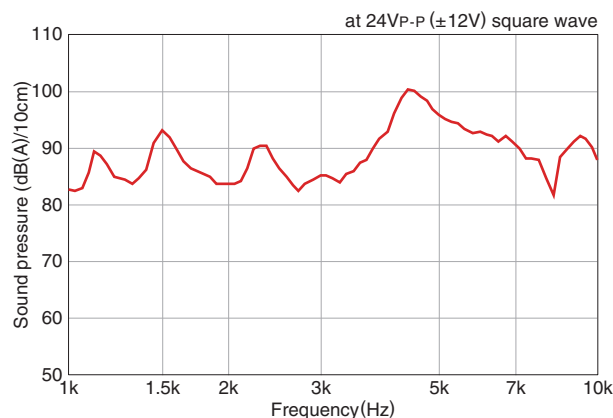
|                                    |  |  |
|------------------------------------|--|--|
| <b>Sound pressure</b>              | 84dB(A)/10cm min   | [at 2.3kHz 24VP-P (±12V) rectangular waves, measuring temperature:25±5°C, humidity:60±10%] |
| <b>Operating temperature range</b> | -40 to +85°C   |  |
| <b>Storage conditions</b>          | Store the environment of the room temperature 5 to 40°C, humidity 20 to 70%RH, please use within the 6 months. |  |
| <b>Maximum input voltage</b>       | 32VP-P (±16V) max  |  |
| <b>Minimum ordering unit</b>       | 1250 pieces  |  |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### SINE WAVE DRIVE



#### SQUARE WAVE DRIVE

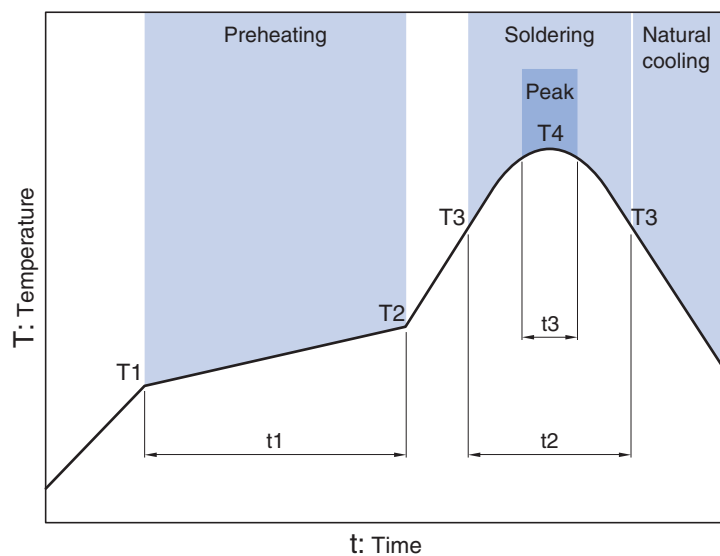


⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

# SMD type PST14

## PST1423P02

### RECOMMENDED REFLOW PROFILE



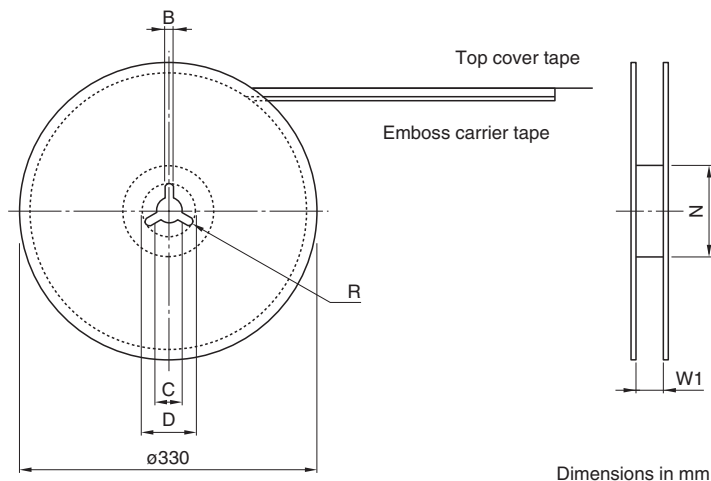
| Preheating |       |            | Soldering |           | Peak         |         |
|------------|-------|------------|-----------|-----------|--------------|---------|
| Temp.      | Temp. | Time       | Temp.     | Time      | Temp.        | Time    |
| T1         | T2    | t1         | T3        | t2        | T4           | t3      |
| 150°C      | 180°C | 60 to 120s | 230°C     | 20 to 40s | 250 to 260°C | 5s max. |

# SMD type PST14

## PST1423P02

**PACKAGING STYLE**

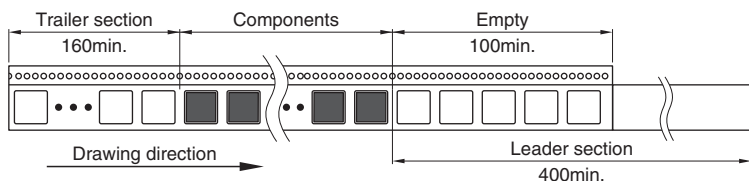
TAPING SPECIFICATIONS



Dimensions in mm

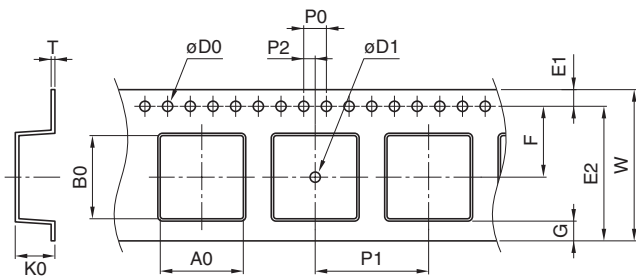
| B       | C         | D        | N      | R       | W1        |
|---------|-----------|----------|--------|---------|-----------|
| 2.5±0.3 | ø13.2±0.3 | 21.0±0.4 | ø100±2 | (R1.15) | 24.5+2/-0 |

PRODUCTS INSTALL STATUS



Dimensions in mm

Carrier tape dimensions



Dimensions in mm

| F        | G     | T        | W        | A0       | B0       | D0          | D1       | E1       | E2           | K0      | P0      | P1       | P2      |
|----------|-------|----------|----------|----------|----------|-------------|----------|----------|--------------|---------|---------|----------|---------|
| 11.5±0.1 | (3.5) | 0.5±0.05 | 24.0±0.3 | 14.5±0.2 | 14.5±0.2 | ø1.5+0.1/-0 | ø1.5±0.1 | 17.5±0.1 | 22.25+0.2/-0 | 9.5±0.1 | 4.0±0.1 | 20.0±0.1 | 2.0±0.1 |

⚠ 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.

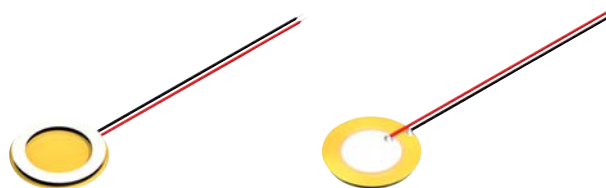
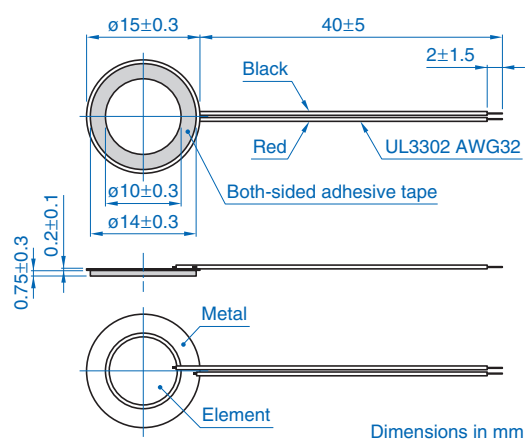
# Lead wire type PS15

## PS1550L40N

### FEATURES

- Miniature size( $\phi 15 \times T1.6$ mm).
- High cost performance.
- The installation of this type is easy with both-sided tape.
- This product adopts an excellent both-sided adhesive tape in bonding and the sound characteristic.

### SHAPE & DIMENSIONS

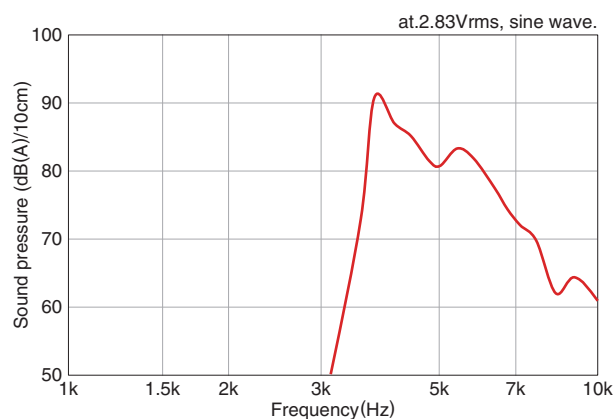


### SPECIFICATIONS

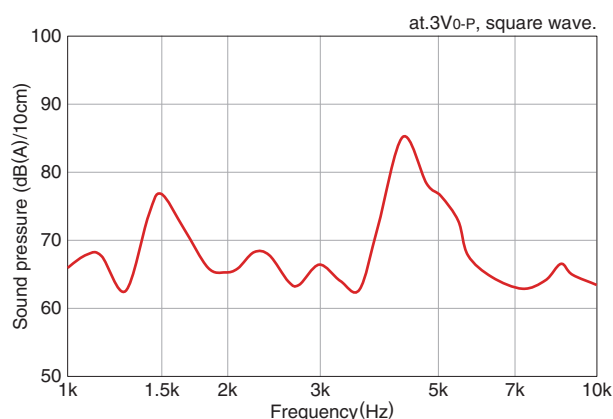
|                                    |  |
|------------------------------------|--|
| <b>Operating temperature range</b> | -10 to +70°C   |
| <b>Storage conditions</b>          | +5 to +40°C, 20 to 70%RH, please use within 6 months |
| <b>Maximum input voltage</b>       | 20V <sub>0-P</sub> max. [without DC bias]            |
| <b>Minimum delivery unit</b>       | 4000 pieces  |

### FREQUENCY SOUND PRESSURE CHARACTERISTICS

#### □ SINE WAVE DRIVE



#### □ SQUARE WAVE DRIVE



\* The frequency characteristic changes depending on the case shape and the installation 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.



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

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TDK:](#)

[PS1740P02](#) [PS1920P02](#) [PS1927P02](#) [PS1240P02BT](#) [PS1240P02CT3](#) [PS1440P02BT](#) [PS1240P02CT](#)  
[PS1420P02AT](#) [PS1240P02AT](#) [PS1720P02](#) [PS1420P02CT](#) [PS1740P02CE](#) [PS1740P02E](#) [PS1740P02C1E](#)  
[PS1550L40N](#)