

# Piezoelectronic Buzzers

## PB Series(Pin Terminal/Lead)

Conformity to RoHS Directive

### FEATURES

- The PB series are high-performance buzzers with a unimorph piezoelectric ceramic element and an integral self-excitation oscillator circuit.
- They exhibit extremely low power consumption in comparison to electromagnetic units.
- They are constructed without switching contacts to ensure long life and no electrical noise.
- Compact, yet produces high acoustic output with minimal voltage.



### APPLICATIONS

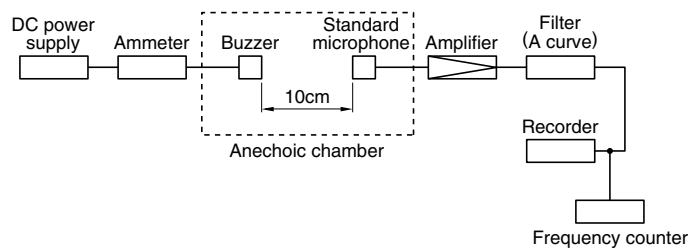
Fire alarms, smoke detectors, home security systems, call buzzers, car alarm systems, clocks, and cash registers.

### ELECTRICAL CHARACTERISTICS

Part No.	Resonant frequency (kHz)	Operating voltage $E_{dc}$ (V)	Sound pressure (dB(A)/100cm)	Consumption current (mA)max.	Testing voltage (V)	Terminal construction
PB2130UP002A	3.3±0.8	4 to 15	75min.	20	12	Pin terminal
PB2320UP002A5	2±0.5	4 to 17	75±5	20	13	Pin terminal
PB2130UP002C	3.3±0.8	4 to 15	65min.	20	12	Pin terminal
PB2130UL100A	3.3±0.8	4 to 15	75min.	20	12	Lead

- Measured at 25°C, operating temperature range -20 to +60°C

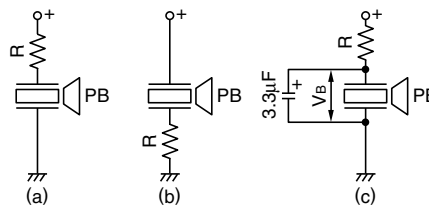
### SOUND MEASURING METHOD



- 20dB is subtracted from the 10cm measured value, and converted to 1m value.

### VOLTAGE BUZZER SOUND CONTROLS

When resistance is connected in series (as shown in illustrations (a) and (b)), abnormal oscillation may occur when adjusting the sound volume. In this case, insert a capacitor in parallel to the voltage oscillation board (as shown in illustration (c)). By doing so, abnormal oscillation can be prevented by grounding one side. However, the voltage  $V_B$  added to the voltage oscillation board must be within the maximum input voltage range, and as capacitance of 3.3μF or greater should be connected.

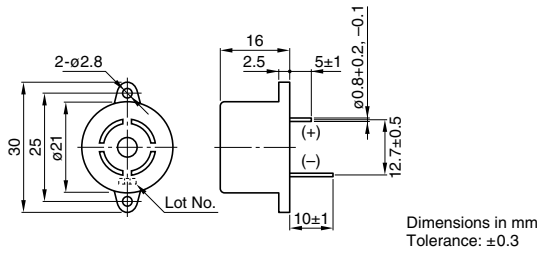


- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

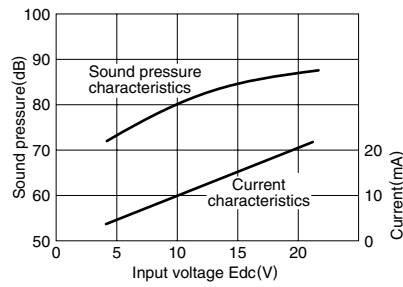
### SHAPES AND DIMENSIONS

#### PB2130UP002A

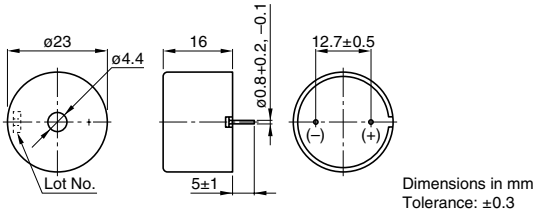


### SOUND PRESSURE-CURRENT CHARACTERISTICS

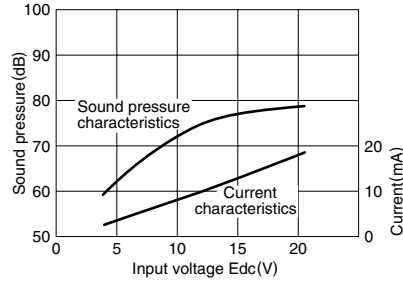
#### PB2130UP002A



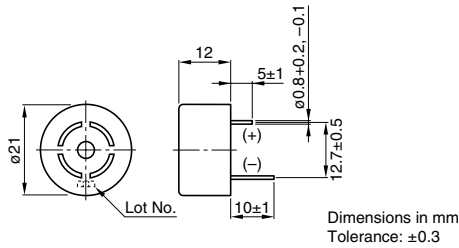
#### PB2320UP002A5



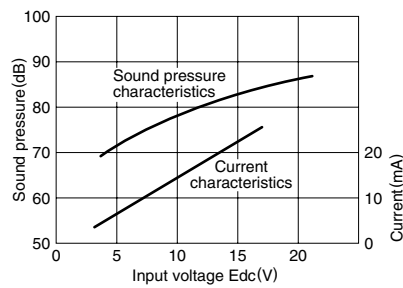
#### PB2320UP002A5



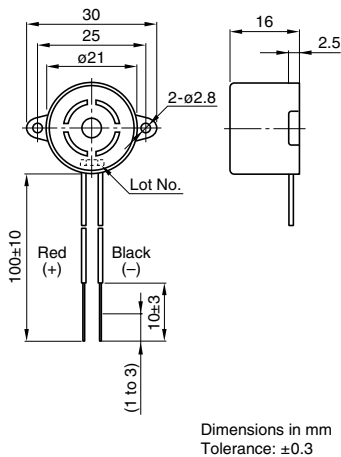
#### PB2130UP002C



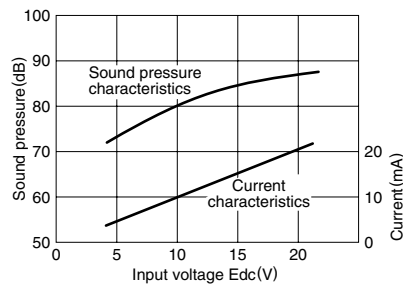
#### PB2130UP002C



#### PB2130UL100A



#### PB2130UL100A



## PRECAUTIONS FOR USE

TDK's PB series piezoelectric buzzer has an oscillation circuit. It therefore sounds when a DC voltage is supplied. Bear the following precautions in mind before use.

- The input polarity. Make sure to connect it correctly.
- Do not supply to the buzzer any voltage greater than permissible.
- Use a regulated DC power supply voltage with low ripples.
- Avoid using the buzzer outdoors. It is designed for indoor use. If it has to be used outdoors, provide a waterproofing and other necessary measures. It may not operate properly if terminals have subjected to moisture.
- Avoid washing the buzzer to allow solvent or gas to enter it; otherwise solvent that has entered from the sound release hole may stay in it a long time and affect its performance.
- A piezoelectric ceramic in approximately 100 micron meters thickness is used as a buzzer sound generator. If the ceramic is pressed with a pin or the like through the sound release holes, it may be damaged. Do not stack these buzzers.
- Do not apply any mechanical force to the buzzer; otherwise the buzzer case may be deformed and result in improper buzzer 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.
- It is recommended that the PB23 type buzzer be installed off a printed circuit board because the buzzer case and terminal vibrate; otherwise resonance may occur on the board.
- Do not bend the terminal pin; otherwise the state of vibration between the case and terminal pin or board may vary and result in a characteristic change, causing the buzzer to make no sound.
- The terminal pin of the buzzer must be soldered at 350°C max.(80W max.)(soldering iron trip) within 5 seconds.
- Do not use the buzzer in an atmosphere containing corrosive gas (H<sub>2</sub>S etc.) for a long time; otherwise the circuit parts or sound generator may corrode and result in improper buzzer operation.
- Do not drop the buzzer; handle it carefully.