

Important notice for usage to Pin type Piezoelectric Buzzers

Please take a look for technical guideline
and failure mode information before
using products.



Important notice for usage to Pin type Piezoelectric Buzzers

Item	Guideline
Pre-Mounting	<p>When inserting this product manually into the printed circuit board, be careful that the pins properly enter the holes in the board.</p> <p>If the fixing part of a pin is broken, it is conceivable that an open circuit may occur. Because of this sound may fail to be emitted due to the pins being pushed into the product.</p>
After Mounting	<p>If the product is tilted when soldered, melt the solder again and correct the tilt. (Do not press down on the product from the top.)</p> <p>If the pins touch two locations on the piezoelectric vibration plate, a short may occur, preventing any sound from being emitted.</p> <p>Avoid having the piezoelectric buzzer in any area where foreign objects will be blown away using compressed air.</p> <p>This may cause deformation of the piezoelectric buzzer or cracking of the piezoelectric ceramic, resulting in unstable sound.</p> <p>If the casing and the rear cover are separated after the product has been mounted, do not attempt to re-assemble the product. Replace it with a new one.</p> <p>Deformation and mis-positioning of the pins or the vibration plate may result in unstable sound or prevent the generation of any sound at all.</p>
Other	<p>Do not insert foreign objects into the sound emission hole.</p> <p>This may cause deformation of the piezoelectric buzzer or cracking of the piezoelectric ceramic, resulting in unstable sound.</p> <p>Do not use this product in an atmosphere containing chlorine gas, sulfidizing gas, acid, or another corrosive substances.</p> <p>This may cause the characteristics of the product to deteriorate, and also reduce the sound volume level or prevent the emission of any sound at all.</p>

Applicable Series : PKB24SPCH3601-B0

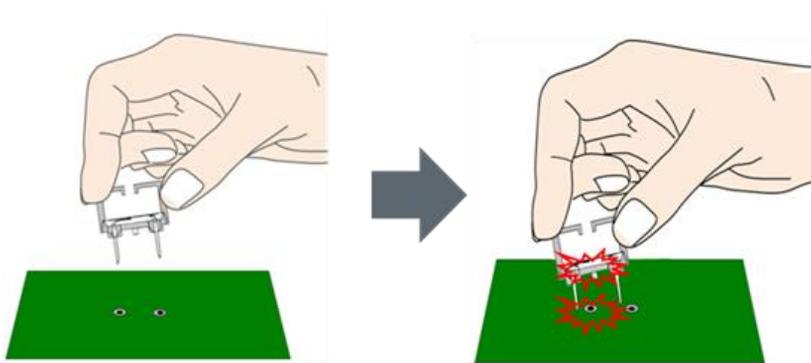
When inserting this product manually into the printed circuit board, be careful that the pins properly enter the holes in the board.

If the fixing part of a pin is broken, it is conceivable that an open circuit may occur. Because of this sound may fail to be emitted due to the pins being pushed into the product.

<How the failure occurs>

When attempting to insert the pins into the printed circuit board, if the pins do not enter the holes but instead strike the printed circuit board, a force will act to push the pins in the direction toward the inside of the product. If an excessively large force is applied in the direction toward the inside of the product, the fixing point of each pin will break, and the pins will be pushed into the product.

When the pins are pushed through the component, the two electrodes will touch the piezoelectric vibration plate, and a short circuit will occur, resulting in a malfunction.



<Case>



Condition of the pins that have been pushed into the product

Applicable Series : PKB24SPCH3601-B0

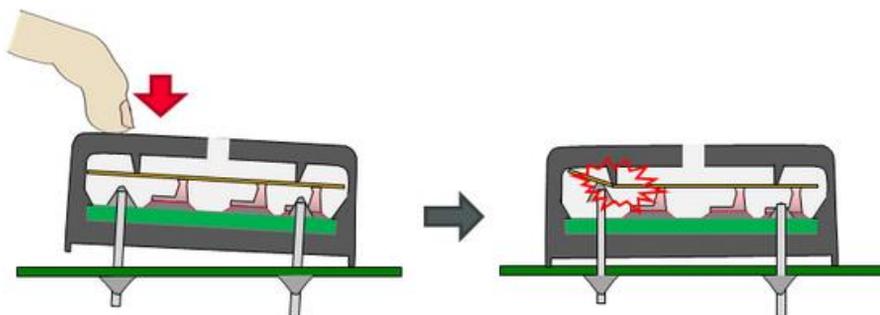
If the product is tilted when soldered, melt the solder again and correct the tilt. (Do not press down on the product from the top.)

If the pins touch two locations on the piezoelectric vibration plate, a short may occur, preventing any sound from being emitted.

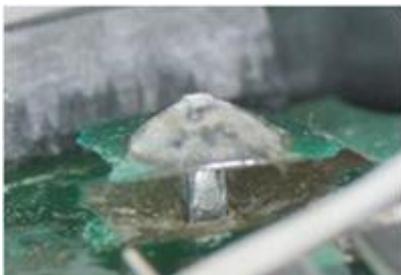
<How the failure occurs>

After the product has been soldered and is pressed downward from the top, an incredibly large force will be applied to the inside of the product causing the fixing point of each pin to break. This results in the pins being pushed into the product.

When the pins are pushed through the holes in the board, if they touch the two electrodes on the piezoelectric diaphragm, a short circuit will occur, resulting in a malfunction or failure.



<Case>



Condition of the pins that have been pushed into the product

<For reference>

In order to prevent a defect due to the pins being pushed in, be careful not to apply a force exceeding the value shown below, for each product.

Note that if the temperature of the product body is high, there is a possibility of a defect occurring even under a force that is weaker than the following value.

Maximum applied push-in force (In the case where the temperature is 25°C)

Part Number	Maximum pressure applied to the pins
PKB24SPCH3601-B0	30.0N

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Avoid having the piezoelectric buzzer in any area where foreign objects will be blown away using compressed air.

This may cause deformation of the piezoelectric buzzer or cracking of the piezoelectric ceramic, resulting in unstable sound.

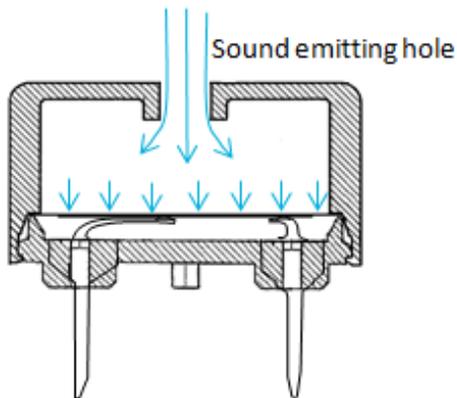
<How the failure occurs>

The piezoelectric buzzer produces sound waves from the oscillation of the piezoelectric diaphragm, via the sound emission holes in the acoustic housing, so it is not sealed from the environment.

Due to this construction, when compressed air is blown onto the piezoelectric buzzer, the air pressure is applied from the sound emission hole to the piezoelectric diaphragm, which may cause the following failures to occur.

The piezoelectric diaphragm becomes deformed.	In the acoustic housing, where the pin contact method is used to withdraw the electrode, deformation may produce poor contact. At the same time, as a result of the change in the electrical characteristics of the piezoelectric diaphragm, the sound generating condition may change, preventing normal operation.
The piezoelectric ceramic becomes damaged.	The damage will cause silver migration and a decrease in the drive area of the piezoelectric diaphragm, which may cause failures to occur.
The casing and the rear cover are pulled off.	There is no acoustic housing thus no the sound pressure level will be zero.

<Cause>



<Case>

Deformed diaphragm



Applicable Series : PKB24SPCH3601-B0

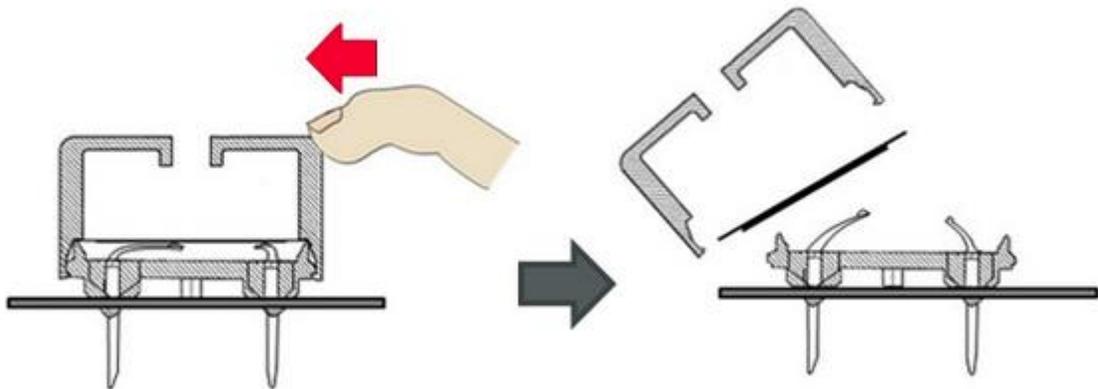
If the casing and the rear cover are separated after the product has been mounted, do not attempt to re-assemble the product. Replace it with a new one.

Deformation and mis-positioning of the pins or the vibration plate may result in unstable sound or prevent the generation of any sound at all.

<How the failure occurs>After mounting the piezoelectric buzzer on the printed circuit board or the set, if you apply a large force exceeding the fitting force or the adhesive force to the side of the product, the casing or the vibration plate will separate from the rear cover.

If you re-assembled the casing and the piezoelectric diaphragms, the exterior may in some cases appear to have returned to the condition prior to the separation of these parts.

However, it is likely that the electrical characteristics may fail to have been restored on account of deformation, mis-positioning of the pins or mis-positioning of the piezoelectric diaphragms during re-assembly.



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Do not insert foreign objects into the sound emission hole.

This may cause deformation of the piezoelectric buzzer or cracking of the piezoelectric ceramic, resulting in unstable sound.

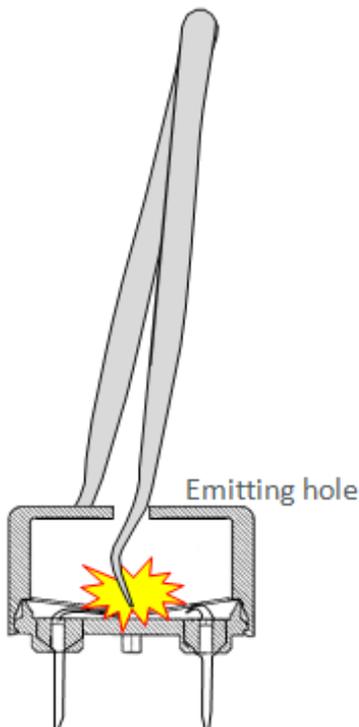
<How the failure occurs>

The piezoelectric buzzer produces sound waves from the oscillation of the piezoelectric diaphragm, via the sound emission holes in the acoustic housing, so it is not sealed from the environment.

If a foreign object is inserted into the sound emission hole, and it touches the piezoelectric diaphragm, this is likely to cause the following failures.

<p>The piezoelectric diaphragm becomes deformed.</p>	<p>In the acoustic housing, where the pin contact method is used to withdraw the electrode, deformation may produce poor contact. At the same time, as a result of the change in the electrical characteristics of the piezoelectric diaphragm, the sound generating condition may change, preventing normal operation.</p>
<p>The piezoelectric ceramic becomes damaged.</p>	<p>The damage will cause silver migration and a decrease in the drive area of the piezoelectric diaphragm, which may cause failures to occur.</p>
<p>The casing and the rear cover are pulled off.</p>	<p>There is no acoustic housing thus no the sound pressure level will be zero.</p>

<Cause>



<Case>

Deformed diaphragm



Applicable Series : PKB24SPCH3601-B0

Do not use this product in an atmosphere containing chlorine gas, sulfurizing gas, acid, or another corrosive substances.

This may cause the characteristics of the product to deteriorate, and also reduce the sound volume level or prevent the emission of any sound at all.

<How the failure occurs>

The silver electrode of the piezoelectric diaphragm will sulfurize, resulting in the formation of silver sulfide. Because silver sulfide does not conduct electricity, an open circuit condition is likely to occur.

Sulfidation : $\text{H}_2\text{S} + \text{Ag} \rightarrow \text{Ag}_2\text{S} + \text{H}_2$

<Case>

Normal



Abnormal



The electrode has turned black due to sulfidation.

* In order to indicate cases of sulfidation, Murata has example photographs for different part numbers.

<For reference>

Among our products, Murata also produces a silver electrode type which has been subjected to a simple coating process. Please contact us for details.