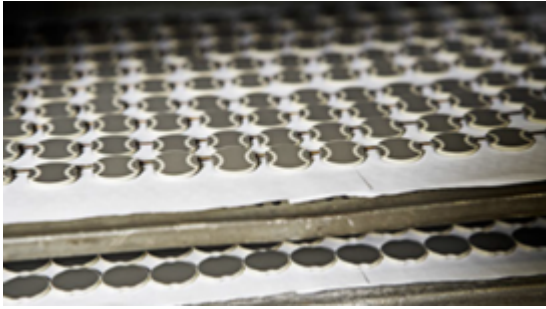


Electrode material and pattern



Noliac offers a variety of solutions for electrode material and electrode patterns for your piezo components. We can custom design both electrode material and electrode patterns to match your specific application.

ELECTRODE PATTERN





Noliac offers a great variety of electrode patterns for your piezo components. We currently offer these choices: solid, wrap-around, side-tab, insulation band, and bull's-eye.

Contact us for further information

If you want to know more about our electrode patterns or require a different electrode pattern, please contact us either by using our Request for Quote form or [contact sales](#).

Solid

The solid electrode pattern is the most common electrode pattern for Noliac piezo components. This pattern is also the most cost-effective pattern.

Wrap-around

The wrap-around is another common electrode pattern. The wrap-around electrode pattern is typically used when you need to connect more electrical leads to the same surface of the piezo component. This may be relevant if you want to bond the opposite surface of the component against a flat surface. This specific electrode pattern is often used on "thin" piezo components.

Please note, the un-electroded band of the electrode pattern must be as wide as the thickness of the component. Therefore, this pattern is not suited for very thick components with very small electrode surface areas.

There can be many variations in wrap-around electrode pattern placement and dimensions. Therefore, it is necessary to have a drawing of the desired electrode pattern. Noliac can provide drawings and specifications in order to get full agreement about the design.

Side tab

The side tab electrode pattern can be used as an alternative to the wrap-around electrode pattern if the thickness of the piezo is too great, relative to the electrode surface area.

Insulation band

The insulation band electrode pattern is designed to isolate an electrical input from a casing or housing. The pattern can be applied to both the positive and negative surfaces of a piezo component. Another feature of the isolation band electrode pattern is that it can be used to change the capacitance of a piezo component.

Bull's-eye

On the bull's-eye electrode pattern both the bottom, the sides, and a portion of the top surface are electroded. The top surface of the ceramic features a reduced electrode pattern with an insulation band separating the positive and negative electrodes. Please note, that the insulation band on the bull's-eye must be as thick as the component itself. The bull's-eye pattern is typically used in knock sensor and nebulizer applications.

Custom designed electrode patterns

Noliac offers to custom design the electrode patterns to match your specific requirement. If you want to know more about our electrode patterns or require a different electrode pattern, please contact us either by using our Request for Quote form or [contact sales](#).

ELECTRODE MATERIAL

We apply electrodes by screen printing and by sputtering. Screen printed electrodes fired on silver is the standard electrode material. However, Noliac also offers to custom design your piezo components with alternative electrode materials. We currently offer these possibilities:

Screen printed

- Silver (Ag): Ag is the most suitable for soldering.
- Gold (Au): Au does not oxidate, and Au is therefore the most suitable for small mechanical contact.

Sputtered (top layer)

- Nickel (Ni): To ensure a good adhesion of the Ni layer, we first apply a layer of titanium (Ti) + nickel-chromium (NiCr)
- Gold (Au): To ensure solderability, we apply a layer of titanium (Ti) + nickel-chromium (NiCr) + Nickel (Ni). The Au layer protects the Ni from oxidation.
- Silver

Contact us for more information

If you want more information on electrode material, please contact us either by using our Request for Quote form or [contact sales](#).