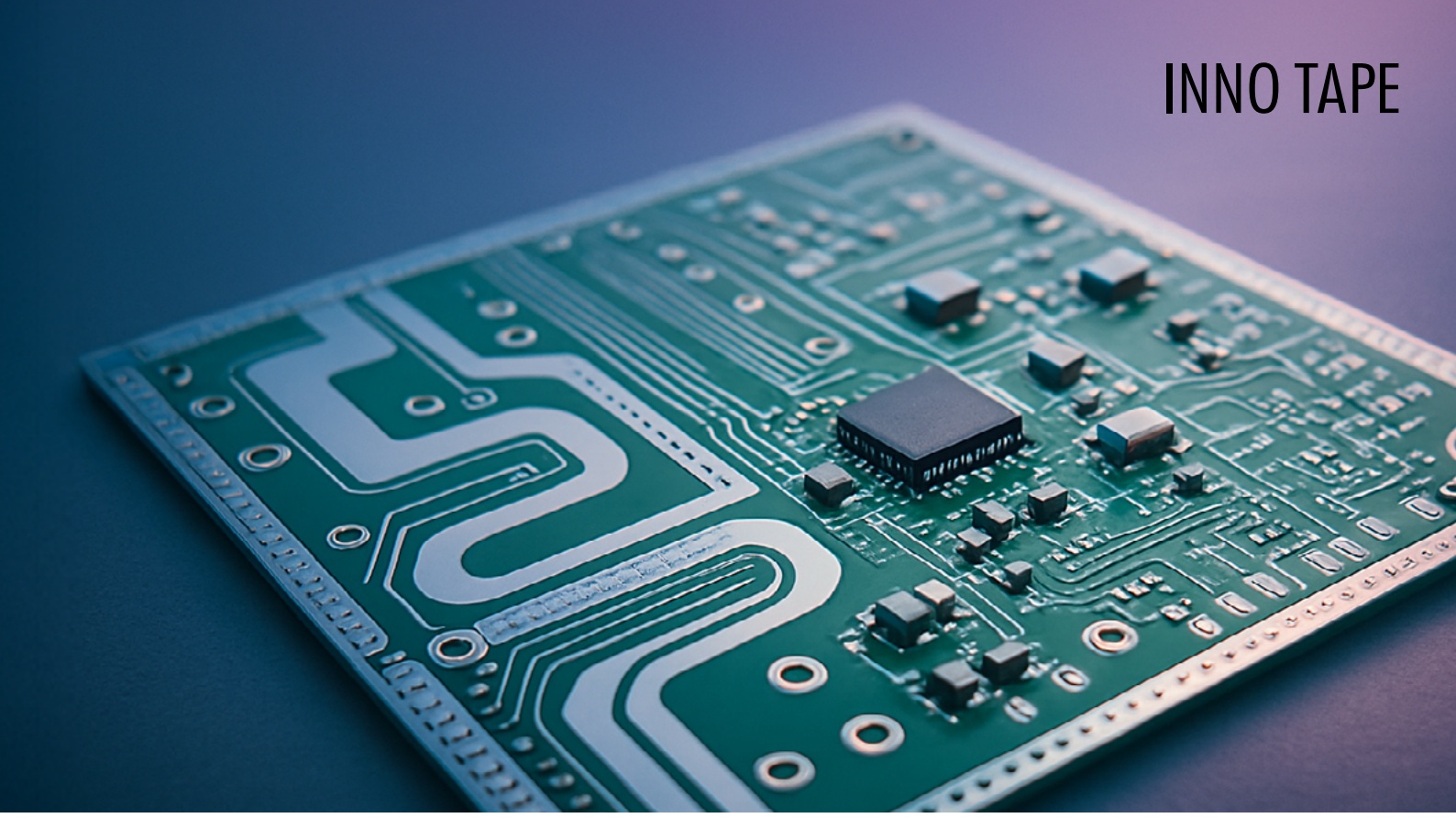
INNO TAPE



CASE STUDY

PRINTED CIRCUIT BOARD SHIELDING

MANUFACTURER INDEPENDENCE AS A SOLUTION ADVANTAGE

A component on a printed circuit board was being disrupted by external radiation – safe series production approval was at risk.

Standard products did not offer a solution: shielding alone would have caused short circuits, while insulation alone would not have reduced the interference.

Thanks to our manufacturer-independent material selection, we developed a three-layer structure that combines shielding, insulation and fixation – ready for installation, reproducible and UL-compliant.

The entire case study provides insight into the structure, material selection and benefits for series production.

PRINTED CIRCUIT BOARD SHIELDING

MANUFACTURER INDEPENDENCE AS A SOLUTION ADVANTAGE

INITIAL SITUATION

Every detail counts in the development of modern electronic components for vehicles. A customer from the automotive industry faced a demanding challenge:
A component installed on a printed circuit board was disrupted by external radiation, which led to a functional impairment that jeopardised series production approval.

The aim was to find a solution that would reliably shield the component without having to change the existing design. At the same time, the structure had to be designed in such a way that it could be easily integrated into series production.

CHALLENGE

The case clearly showed why standard products often reach their limits. Simple shielding was not enough – it would inevitably have caused short circuits between adjacent conductor tracks. Even a purely insulating layer without metallic components would not have sufficiently reduced the interference.

In addition, the material not only had to be electrically and mechanically compatible, but also had to meet the stringent requirements of the automotive industry – particularly in terms of temperature resistance, UL certification and processability in series production.

This ruled out any off-the-shelf solution. A material concept was needed that would meet all requirements simultaneously.

In summary:

- Shielding against radiation
- Electrical insulation
- Mechanical fixation
- Compliance with strict tolerances and UL requirements

Our approach:
Manufacturer-independent material selection
Because we are not tied to a single manufacturer, we can compare, combine and coordinate materials from different suppliers.

This allows us to precisely meet specific requirements – regardless of where the material comes from.

This freedom is a decisive advantage when standard solutions are not sufficient. It allows us to combine the best properties from different material worlds instead of limiting ourselves to what a single manufacturer offers.

SOLUTION

Based on this flexibility, a three-layer structure was developed that met all requirements.

1. Copper foil with electrically conductive adhesive (3M)

- Reliably shields the component against external radiation and ensures stable electromagnetic shielding.

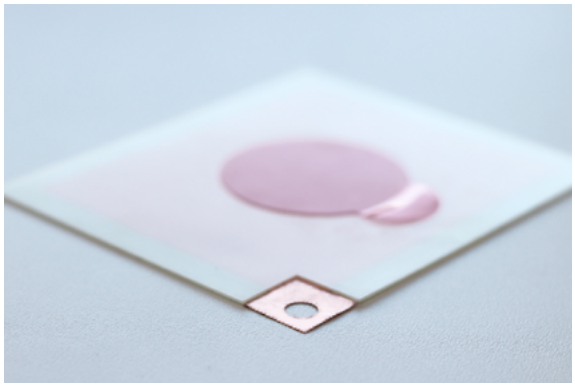
2. PET insulation material (DuPont)

- Prevents electrical connection between the conductor tracks. Without this layer, the copper foil would have electrically connected adjacent components.
- Only a defined contact surface was deliberately left exposed to ensure the electrical connection.

3. Adhesive point with UL-listed adhesive (tesa)

- Fixes the structure from above and keeps it precisely in position throughout the entire assembly process.
- UL certification ensured that the structure also complies with safety requirements.

The entire sandwich structure was manufactured in our assembly department as a complete, ready-to-install solution – ready for installation, reproducible and tested.



RESULT

The result was impressive across the board:

- The source of interference was reliably shielded.
- The layout of the printed circuit board remained unchanged.
- The design was easily transferred to series production.
- The cross-manufacturer comparison made it possible to optimise costs and delivery times.

This resulted in multiple benefits for the customer – technically, economically and organisationally. Instead of relying on the limitations of a single manufacturer, we utilised the entire spectrum of the market to create a solution that was a perfect fit.

CONCLUSION

Manufacturer independence is not an end in itself – it is a strategic advantage. It enables solutions that are technically better, economically more efficient and more secure in the long term. Especially in the automotive industry, where every detail counts, this flexibility is crucial for implementing projects in a stable and sustainable manner.

As a specialised converter, we combine expertise, experience and material diversity to develop the optimal solution for every application – independent of the manufacturer, but always with the highest quality standards.

WHY INNO TAPE

With almost 20 years of experience as an adhesive tape converter for the automotive industry, we develop solutions that work – technically, economically and in terms of process. We take bonding one step further: from material combination to application in the vehicle.

AND WHAT CAN WE DO FOR YOU?

No matter how far along you are in your project, feel free to contact us – we will support you and take the work off your hands: as a partner, manufacturer-independent, flexible and fast.

Your contact
Matthias Wilke | +49 5181-80687-145 | mw@innotape.de