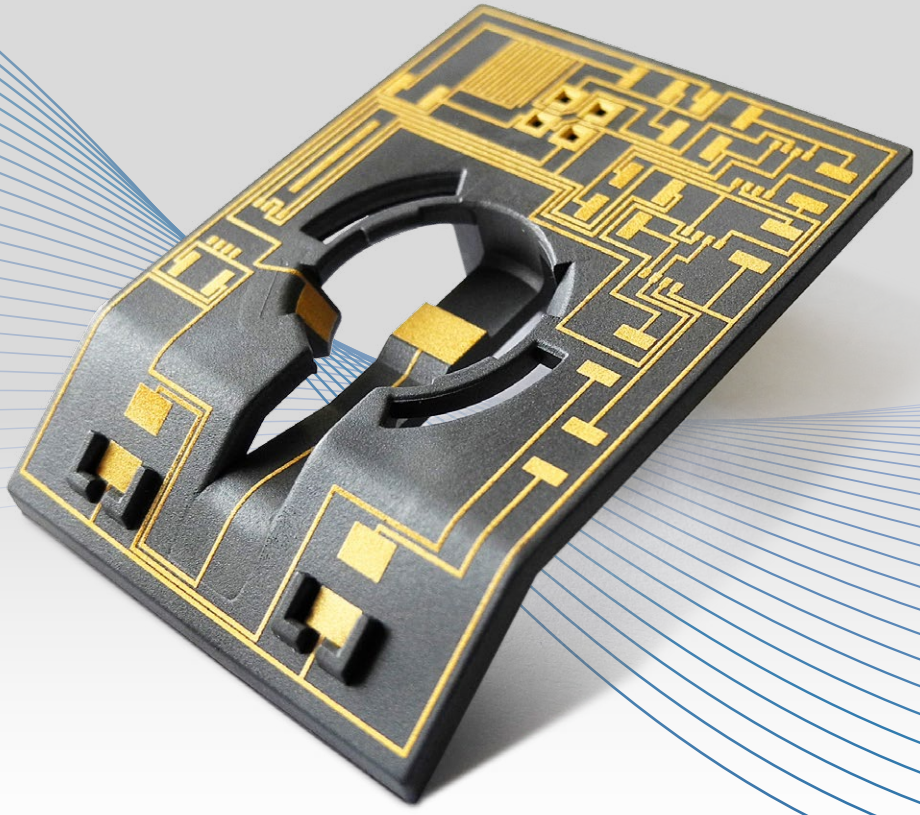
Creating Strip Conductors with a Spray Can

LDS Coating of 3D-Molded Interconnect Devices with LPKF ProtoPaint LDS

LPKF
Laser & Electronics



Strip Conductors from a Spray Can

The laser direct structuring (LDS) process is well known as a key factor in the production of smartphone and tablet antennas, but it is also becoming a significant player in LED lighting and the automotive arena. Now with LPKF ProtoPaint LDS, a new paint is available that turns a variety of spatial base bodies into three-dimensional molded interconnect devices.

With laser direct structuring, a laser beam applies strip conductor structures onto a three-dimensional plastic component. Copper is then deposited on these structures in a currentless process.

In series production, a non-machined part is used that is made from a plastic provided with an LDS additive in single-component injection molding. LPKF ProtoPaint LDS is an easy-to-apply paint that produces a functional coating, even without expensive injection molding tools. The LDS process then creates the structures on the paint coat.

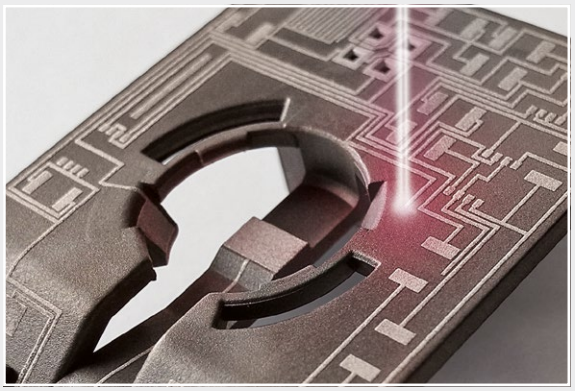
Along with the ProtoPaint spray can, the set also includes test components and instructions on a DVD

- LDS painting from a spray can
- Easy to use
- High covering and filling power

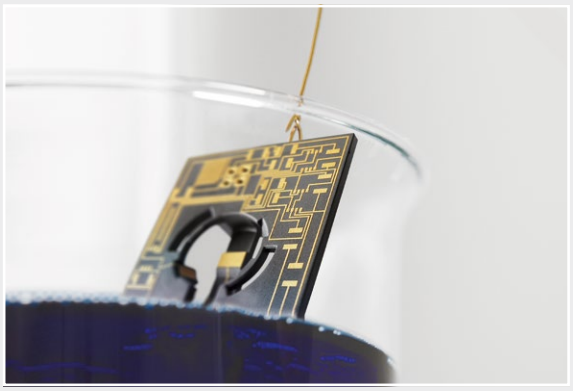
Prototyping with LPKF laser direct structuring (LDS)

1. Creating the three-dimensional base body

2. Painting the base body



3. Structuring the strip conductors with the LPKF ProtoLaser 3D



4. Metallizing with LPKF ProtoPlate LDS

LDS Coating

The basis for an LDS prototype is a three-dimensional component, produced by a generative process. Then LPKF ProtoPaint LDS adds an activatable surface.

To activate the paint, the lower cap is removed and the key ring is attached and turned a few times. Shake it for a few minutes and the paint is ready to use. Once the paint is applied, it remains usable for about four hours.

After thorough cleaning, the component is painted at a distance of 15 to 20 centimeters with a cross-coat. With three-dimensional components, coating the LPKF ProtoPaint LDS in stages is recommended to prevent the paint from running.

The component should then be dried for at least 180 minutes at a maximum of 70° C in a circulating air oven. Good cross-linkage of the paint surface and hardening are required for good metallization.

LDS Prototypes in One Day

ProtoPaint LDS enables users to quickly and inexpensively create 3D-molded interconnect device prototypes. The components created can be structured with the laser, like conventional LDS components. Electronic components can be applied by means of conductive adhesives for assembled prototypes.

Worldwide Support for Laser Direct Structuring

Wherever they are in the world, users of LPKF Fusion3D laser systems can be supported from LPKF's application centers in Germany, the USA, Japan and China. At these centers, users have access to LPKF's years of experience in laser material processing and the complete LDS technology. User training for technical employees and special consulting services complete the offer from the world market leader in laser systems for structuring three-dimensional molded interconnect devices. LPKF will gladly provide application reports and further information on request.

Technical Data: LPKF ProtoPaint LDS	
Color of the paint	Black
Shelf life or storage	Unopened, up to one year
Storage conditions	At 5 °C to 25 °C, in dry storage
Processing temperature	20 °C to 24 °C (room temperature)
Time for becoming touch-dry	Approx. 30 minutes
Drying time	3 hours at 70 °C
Spraying distance	15 to 20 cm
Relative air humidity when drying	≥ 15 % at 50 °C
Wet layer thickness	Approx. 60 µm in 2 to 3 layers
Dry layer thickness	Approx. 20 – 25 µm in 2 to 3 layers
Recommended laser parameters	
Laser output	3 – 6 W (typically)
Frequency	40 –100 kHz (typically)
Scanner speed	2 – 4 m/s (typically)
Hatch	40 – 50 µm (typically)
Ventilation time	15 minutes

For further details, see chemical safety data sheets and user manual.

Made in Germany

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Photos may also show optional accessories.

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