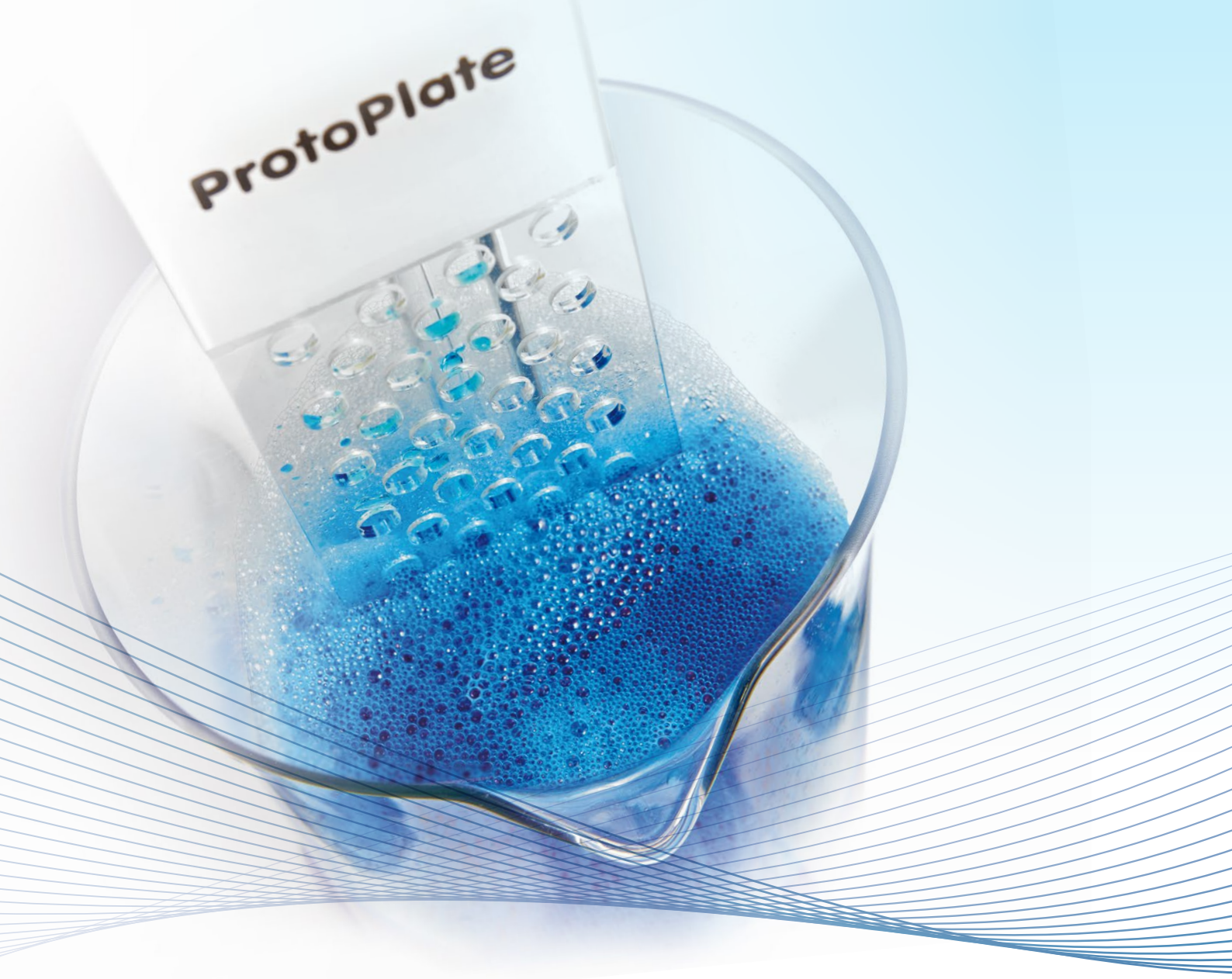
Creating Strip Conductors in a Beaker

Metallizing 3D-Molded Interconnect Devices with LPKF ProtoPlate LDS

LPKF
Laser & Electronics



Creating Strip Conductors in a Beaker

The Laser Direct Structuring (LDS) process has become increasingly important as the production process becomes simpler and more economic. With ProtoPlate LDS, LPKF closes a gap in prototyping three-dimensional molded interconnect devices.

With laser direct structuring, a laser beam applies strip conductor structures onto a three-dimensional plastic component. Copper and other metal layers are then deposited on these structures in a currentless metallization process.

For end products, the copper layer is protected against environmental influences with a razor-thin nickel and gold finish. For prototypes, this finish is not required: a copper build-up with serial production thickness is sufficient for performing installation tests and checking circuits.

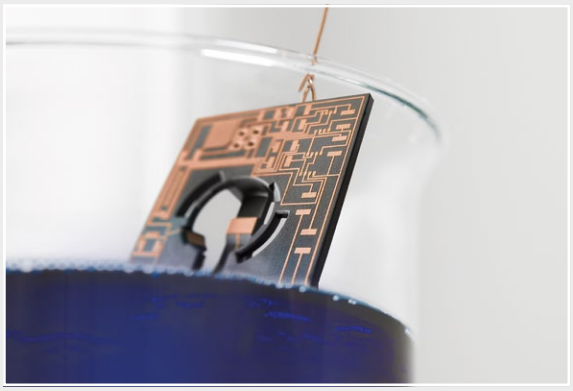
Prototyping with LPKF Laser Direct Structuring (LDS)

1. Create the three-dimensional base body
2. Paint the base body with LPKF ProtoPaint LDS
3. Apply the layout with a LPKF 3D laser system
4. Metallize with LPKF ProtoPlate LDS

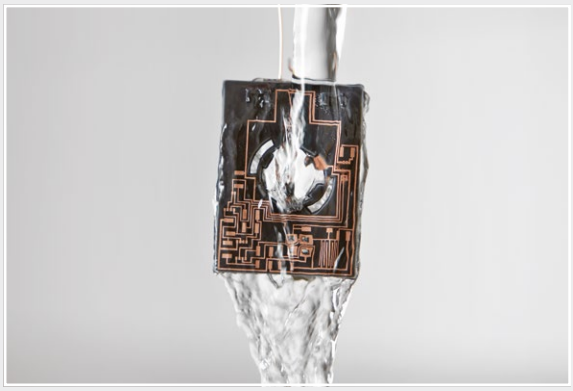
- No chemical knowledge required
- Metallization according to ‘recipe’
- Close-to-production layer thicknesses

1. Pour the copper solution into the beaker

2. Pour in the activator to start the metallization bath



3. Immerse the components in the bath



4. Rinse the components – and you’re finished!

The new ProtoPlate LDS reduces the processing effort required for metallization considerably. Metallization of three- dimensional interconnect devices can now be carried out in your own laboratory without any appreciable chemical knowledge.

The LPKF ProtoPlate LDS basic package consists of an integrated processing cell with beaker, magnetic stirrer, temperature monitor and internal air filtering. The chemical consumables for the copper build-up are summarized in the LPKF ProtoPlate CU set.

As Easy as Making Coffee

Metallization is very easy and the consumables are numbered. First, the copper solution is poured into the beaker and heated to approx. 44°C.

Next the ready-prepared activator is added to start the metallization bath. From this point of activation on, the metallization bath is serviceable for one to two hours.

The clean structured components are then immersed in the bath and metallization begins after a few minutes. Depending on the duration of the metallization process, uniform copper layers develop with a thickness of 3 µm to 10 µm on the plastic component. The time required for achieving various layer thicknesses can be found in an accompanying table.

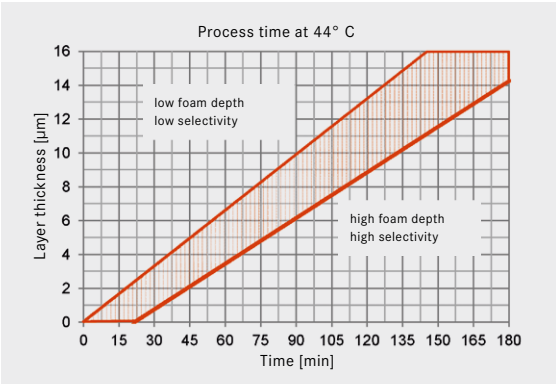
Finally, the LDS components are removed and rinsed. The consumed metallization solution can be collected in the original canister and disposed of. A label for disposal is included in the packaging.

Worldwide Support for Laser Direct Structuring

Wherever they are in the world, users of LPKF Fusion3D laser systems can be supported from our application centers in Germany, the USA, Japan and China. From 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 ProtoPlate LDS	
Enclosure size (W/H/D)	413 mm x 706 mm x 479 mm
Weight	23 kg
Power supply	230 V AC, 50 Hz / 110 V AC, 60 Hz
Power input	600 VA
Ambient temperature	20° C to 24° C, room temperature
Chemical set CU*	
Shelf life or storage of chemicals	Can be stored unopened for one year
Storage temperature of chemicals	5° C to 25° C, dry

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



Layer thickness depends on exposure time

Made in Germany

Worldwide (LPKF Headquarters)
LPKF Laser & Electronics AG Osteriede 7 30827 Garbsen Germany
Phone +49 (5131) 7095-0 Fax +49 (5131) 7095-90 info@lpkf.com
www.lpkf.com

North / Central America
LPKF Laser & Electronics North America
Phone +1 (503) 454-4200 Fax +1 (503) 682-7151 sales@lpkfusa.com
www.lpkfusa.com

China
LPKF Tianjin Co., Ltd.
Phone +86 (22) 2378-5318 Fax +86 (22) 2378-5398 sales@lpkf.cn
www.lpkf.cn

Hong Kong
LPKF Laser & Electronics (Hong Kong) Ltd.
Phone +852-2545-4005 Fax +852-2545-4006 hongkong@lpkf.com
www.lpkf.com

Japan
LPKF Laser & Electronics K.K. Japan
Phone +81 (0) 45 650 1622 Fax +81 (0) 45 650 1624 info.japan@lpkf.com
www.lpkf.jp

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Photos may also show optional accessories.

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