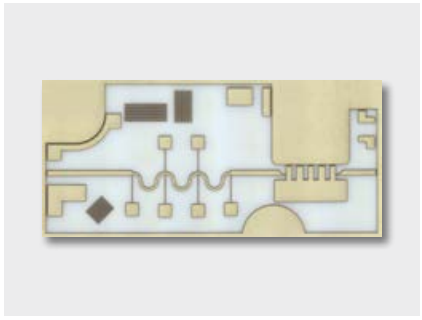
Infinite Laser Processing on Innovative Materials

LPKF ProtoLaser R4

- Precision picosecond lasers for innovative research
- Nondamaging processing of heat-sensitive materials
- Intuitive CAM software
- Ready-to-use laser class 1 laboratory system

Removal of copper from double-sided PET film



Al_2O_2 with copper, structured and cut

LPKF Laser & Electronics

distributor 25 years of Turkey

tamara electronics design

Short Laser Pulses – Nondamaging Material Processing
LPKF ProtoLaser R4 with Ultrashort-Pulse Laser Source

An important parameter in the laser microprocessing of materials is the pulse width. The LPKF ProtoLaser R4 with picosecond-fast laser pulses allows for extremely precise structuring of delicate substrates and cutting of hardened or fired technical substrates.

Laser Ablation with Practically No Heat Input

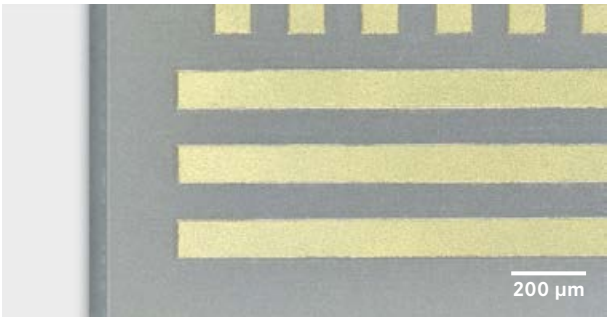
In laser technology, the shorter the laser pulse, the lower the heat input into the surrounding material. With a picosecond laser, an important hurdle is overcome: there is practically no heat transfer; the targeted material evaporates immediately.

Advanced Material Processing

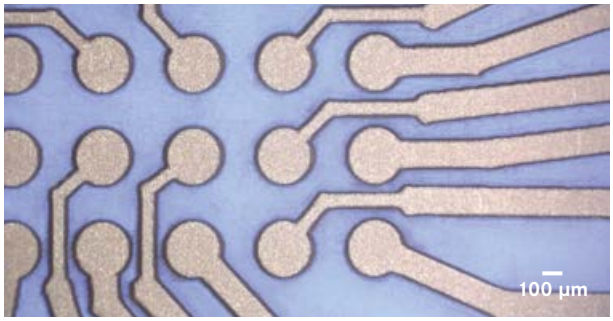
This thermal effect is important for both the cutting and the surface processing of temperature-sensitive materials. The laser offers a very high pulse energy for cutting, for example, ceramic materials such as Al_2O_3 or GaN without discoloring the materials in the machining process. Thanks to the low heat input, no microcracks arise in the material.

For surface processing applications such as ablation of transparent thin films or detachment of metal layers on plastic foils, a very stable laser input at a low laser power is required. The LPKF ProtoLaser R4 can easily straddle these diverging requirements. Standard FR4 and laminated HF materials can be processed just as well with this machine.

The high-precision software and the integrated camera are supported by the user-friendly LPKF CircuitPro software. This enables the user to complete projects on challenging materials in the in-house lab in a very short time.



Structuring and cutting of GaN with a gold layer



Removal of copper from transparent PET film

LPKF ProtoLaser R4	
Max. material size and layout area (X x Y x Z)	229 mm x 305 mm x 7 mm
Laser wavelength	515 nm
Laser pulse frequency	Max. 50 – 500 kHz
Laser pulse width	1.5 ps
Laser output	8 W
Diameter of focused laser beam	15 µm
Table travel speed (X x Y x Z)	100 mm/s x 100 mm/s x 10 mm/s
Dimensions (W x H x D)	910 mm x 1650 mm x 795 mm (height with open hood = 1765 mm)
Weight	390 kg
Power input	110 – 230 V; 2 kW
Required accessories	Extraction, compressor

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