Unlimited possibilities

LPKF ProtoLaser R4 with ultra-short laser pulses processes the latest materials in research and development

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The development of new materials is the basis for many promising, future-oriented innovations. In order to maintain the material properties during machining, sophisticated and flexible tools are required. LPKF is now launching the new ProtoLaser R4, particularly for research with thermally sensitive materials, as lowest possible heat input is the ultimate in laser micro material processing.

The new laser system with picosecond short laser pulses process the materials "cold" and thus particularly gentle. This allows the structuring of sensitive substrates as well as the cutting of hardened or fired technical substrates. The precision laser system thus opens up new possibilities for micro-processing in laboratory experiments with completely new materials.

In laser technology, the shorter the processing pulse, the lower the heat input into the adjacent material. With a picosecond laser, there is practically no heat transfer and the material that is hit evaporates directly. This thermal effect is important for both cutting and surface treatment of temperature-sensitive materials.

Processing modern materials for tomorrow's applications

The laser used in the ProtoLaser R4 offers a high-pulse energy for cutting ceramic materials such as AL_2O_3 or GaN without discoloring the materials in the machining process. Due to the low heat input there are no microcracks in the material.

For applications in surface processing - such as ablating transparent thin films or removing metal layers from plastic films - a very stable laser input with low laser power is required. The LPKF ProtoLaser R4 manages this balancing act. Standard FR4 and laminated HF materials can also be processed with the system.

The ProtoLaser R4 is designed as a ready-to-use laboratory system in laser class 1. It is used without additional safety effort and fits through any laboratory door. The high-precision hardware and integrated camera are

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supported by the easy-to-use LPKF CircuitPro software. This allows projects such as high-end processing of thin layers on demanding substrates to be implemented in the shortest possible time in the in-house laboratory.

The advantages of the system at a glance:

- Pico-second laser for innovative research
- gentle processing even of thermally sensitive materials
- ready-to-use laser class 1 laboratory system
- intuitively operable CAM software
- Encapsulated system - no security effort, no assembly of individual components

Figures:

Fig. 1: The advantages of the USP Laser system ProtoLaser R4 at a glance

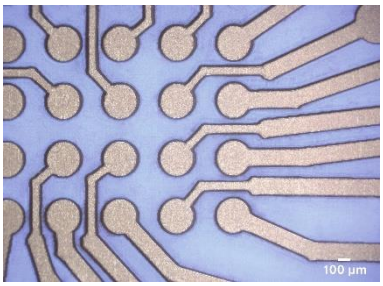

Fig. 2: Copper removal from transparent PET foil

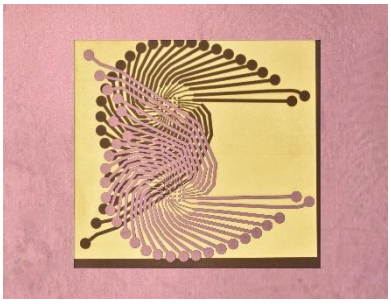

Fig. 3: Double-sided machined DuPont© CG185018E

Fig. 4: LPKF ProtoLaser R4

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About LPKF

LPKF Laser & Electronics AG is a leading provider of laser-based solutions for the technology industry. Laser systems from LPKF are of central importance for the manufacturing of printed circuit boards, microchips, automotive parts, solar modules and many other components. Founded in 1976, the company has its headquarters in Garbsen near Hanover, Germany, and operates worldwide through subsidiaries and agencies. Around 20 percent of the workforce is engaged in research and development.