

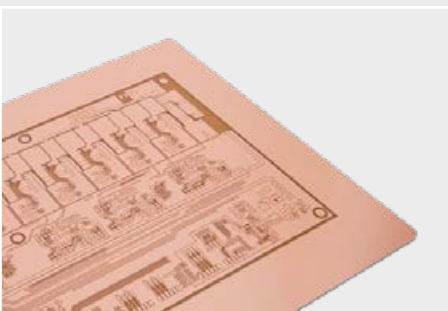
# Laser Processing of PCBs

## LPKF ProtoLaser S4

- Surface processing, suitable for the circuit, precise full section cuts and drill holes
- Compact and safe: lab-ready
- Optimized for circuit board materials from the electroplating process
- Prototyping and on-demand processing of custom small batches



**LPKF ProtoLaser S4:**  
**Specialist for PCB Prototyping**



# Laser Processing of PCBs

With the LPKF ProtoLaser S4, only a couple of minutes are needed from the layout to a structured circuit board – with exact geometries and drill holes for through-hole plating or cutouts.

ProtoLaser S4 uses a laser source (532 nm, green) that, despite its high cutting capacity for copper, places hardly any stress on the substrate. Therefore, this lab laser can also safely process copper surfaces with inhomogeneities of up to 6 µm and is also suitable for the production of galvanic through-hole plating circuit boards as well as multilayer components. Fast processing, a wide choice of materials, safe process results in the lab!

ProtoLaser S4 is a solution for efficient prototyping of complex digital and analogue circuits, RF and microwave circuit boards with a size of up to 229 mm x 305 mm (9" x 12"). It is ideal for the production of single- or double-sided circuit boards, antennas, filters, and numerous applications featuring precise, steep flanks. In addition, it provides exact geometries on technical ceramic materials.

This laser system features the Advanced version of the LPKF CircuitPro software, which boasts various handy extras in addition to the necessary features.

## LPKF ProtoLaser S4

<b>Max. layout area (X/Y/Z)</b>	229 mm x 305 mm x 7 mm (9" x 12" x 0.28")
<b>Max. material size (X/Y/Z)</b>	239 mm x 315 mm x 7 mm (9.4" x 12.4" x 0.28")
<b>Laser wavelength</b>	532 nm
<b>Max. laser power</b>	12 W
<b>Laser pulse frequency</b>	25 – 300 kHz
<b>Diameter of focused laser beam</b>	20 ± 2 µm (0.78 ± 0.08 mil)
<b>Structuring speed</b>	12 cm <sup>2</sup> /min (1.9 in <sup>2</sup> /min) <sup>a</sup> on laminated substrates 18 µm (0.5 oz) Cu
<b>Minimum line/space</b>	75 µm / 25 µm (2.9 mil / 0.9 mil) <sup>a</sup> on FR4 18 µm (0.5 oz) Cu
<b>Positioning accuracy in the scan field</b>	± 10 µm (± 0.39 mil)
<b>Repeatability in the scan field</b>	± 2.2 µm (± 0.09 mil)
<b>Dimensions (W x H x D)</b>	910 mm x 1650 mm x 795 mm (35.8" x 64.9" x 31.3") <sup>b</sup>
<b>Weight</b>	350 kg (772 lbs)
<b>Power supply</b>	110 – 230 V, 50 – 60 Hz, 1.5 kW
<b>Compressed air supply</b>	Min. 6 bar; 185 l/min (min 87 psi; 185 l/min)
<b>Cooling</b>	Air-cooled (internal cooling cycle)
<b>Ambient temperature; humidity</b>	22 °C ± 2 °C (71.6 °F ± 4 °F); < 60 %
<b>Software</b>	LPKF CircuitPro Advanced
<b>Options and accessories</b>	Dust extraction unit, compressor, starter set

<sup>a</sup> Depending on material and laser beam parameters

<sup>b</sup> Height with open hood: 1765 mm (69.5")

