

New Options for the Electronics Industry

WeLDS combines molded interconnect devices and laser plastic welding

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With LPKF's well-known laser direct structuring (LDS) technology, conductive traces can be produced on the surfaces of injection-molded (3D) parts. This enables miniaturization of products and optimizes circuits for special tasks. Laser plastic welding by LPKF provides visually and functionally outstanding weld seams for permanent and reliable joints in plastics with practically no design limitations. With WeLDS, LPKF has developed a new technology that combines both 3D MIDs and laser plastic welding. This creates unprecedented opportunities for function integration in electronics applications. Although new, WeLDS technology has already proven highly efficient in large series production.

The expertise in both welding and LDS leads to substantial new opportunities for electronics manufacturers. The LDS process realizes electrical circuits directly on parts with very fine resolution, whether in two- or three-dimensional designs. Increased function integration, e.g., 3D trace structures, antennas, switches, connectors, and sensors, enables miniaturization and weight reduction with very few limitations on the component design.

WeLDS realizes sealing and protection of those parts, which can have complex geometries. In addition, the possibility of taking advantage of LPKF's welding solution enables the manufacturer to save LDS material. Due to the perfect welding process, high pressure resistance and vacuum-tight protection can be implemented. The clean joining does not release particles; no solvents or chemical treatments are necessary. The surface of the welded part remains damage-free. Precisely placed weld seams are possible close to electronic parts. Therefore, even sensitive elements can benefit from welding as a joining technique.

The production of welded LDS parts is highly economical. The initial costs are low, and mass production is highly cost-effective. For safety-relevant applications, a flexible system for monitoring during the welding process can be installed.



Fig.: Laser-welded LDS sample with integrated LED lights

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 and operates worldwide through subsidiaries and agencies. Around 20 percent of the workforce is engaged in research and development.