

Case Study

Steering wheel control switch in Pocan® DP T 7140 LDS



Grade: Pocan® DP T 7140 LDS

Manufacturer: TRW, Germany

Fig. 1 Steering wheel with right and left steering wheel control switch

TRW Automotive Safety Systems GmbH, based in Aschaffenburg, is one of the world's leading companies for integrated vehicle control systems on the automotive market. One of its focuses is the production of steering wheels. TRW is the first company to use the laser direct structuring process* (LDS) for the production of a steering wheel control switch. The injection molded circuit substrates, also known as MIDs (Molded Interconnect Devices) for short, are made of Pocan® DP T 7140 LDS. The steering wheel is used on the BMW Z4 Roadster.

The LPKF-LDS®** process (developed by LPKF Laser & Electronics AG) is a particularly innovative method for the production of MIDs. It allows circuit tracks to be applied to plastic parts both simply and cost-effectively, offering flexibility in the event of changed layouts.

The steering wheel control switches are the first big, series-produced LDS parts for a car. They display many of the advantages opened up by laser direct

structuring with our specially tailored Pocan. These include the minimal space requirements of LDS parts, a high level of component functionality and a high weight-saving potential. In addition, savings can be made on assembly components, thus simplifying the structure of the LDS part. Hence, it is possible to dispense with printed circuit boards and cables in the switches.

One strong point of the Pocan® DP T 7140 LDS high-heat grade is its very high heat distortion temperature HDT (Bf) of 250 °C. It is thus particularly suitable for lead-free soldering in the "vapor phase". Different transistors, resistors, capacitors and SMD connectors are applied to the two control switches through vapor phase soldering at 235 °C.

TRW Automotive Systems GmbH has been awarded the "MID Industry Prize 2009" by the "Research Association Molded Interconnect Devices 3D-MID e. V." for its innovative development of the steering wheel control switch.

* The use of the laser direct structuring process for the manufacture of MID's may be dependent on third-party industrial property rights, such as EP 1191127 B1, EP 1274288 and EP 0 917597 B1.

** LPKF-LDS[®] is a registered trade mark of LPKF Laser & Electronics AG.

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