

## Fewer parts, lower weight and design flexibility

Plastic PCBs boost design flexibility and cut manufacturing cost

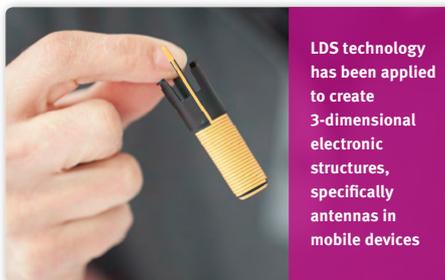
**The key trend in mobile devices such as smart phones, tablets, and notebooks is the continuous increase in content and functionality. Ease of use is a critical success factor as is the ability to transfer data at high speeds. The challenge in mobile devices is weight and thickness reduction. Integration of functionalities and lighter materials are the obvious solutions.**

Traditional wired and sheet metal antennas wrapped around plastic frames can be replaced by plastic structural parts with electronic tracks which function as aerial receiver or transmitter. For some years now Laser Direct Structuring (LDS) technology has been applied to create 3-dimensional electronic structures, specifically antennas in mobile devices, as well as electromechanical parts such as sensors, connectors, MEMS, and LED carriers.

### Surviving high temperatures during lead-free reflow soldering

Further integration of electronic components or wire attachments soldered onto the tracks on the LDS part require the use of high temperature materials. DSM Engineering Plastics has introduced a range of Stanyl® ForTii™ grades compatible with LDS technology.

Stanyl ForTii is highly suited for the reflow soldering process because unlike PC/ABS it can withstand the high temperatures of lead-free reflow soldering without loss of properties. The high strength and stiffness at both room temperature and elevated ranges limit the warpage during and after the soldering process.



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During its operational life at its end users, the strong structural parts secure mobile device robustness. The materials facilitate high performance designs for high-end applications, resulting in a smaller mobile device with more functionality. The UL94 flammability rating of 5VA is extremely high. So Stanyl ForTii can be used in applications in which higher than UL94 V0 ratings are required or preferred, for example in LED lighting. Overall, Stanyl ForTii outperforms LCPs and PPAs on thermal and mechanical properties.

For more information, please turn page.

“Development of several wireless communication standards has contributed to the broad use and mass application of mobile devices. As the development of new - and higher - standards continues, ForTii is the material of choice, with a superior mechanical and thermal performance.”

**Paul Potters**  
Business Development Manager  
DSM Engineering Plastics

## Advantages for the Automotive industry

The continuous and fast increasing level of electronics in cars requires innovative designs and LDS reflow soldering solutions can make a significant contribution in the Automotive industry. Cable harnesses can be replaced by LDS designs with advanced features increasing comfort and safety.

LDS technology can deliver benefits by making parts more compact with higher functionality, wherever electronic automotive systems require input via sensors and/or generate output to activators and other components, parts of sensors (tire pressure, oil pressure, motion, gravity, inclination, flow, temperature, gas, speed, parking) and activator components (switches, stepper motors, solenoids). Moreover, the technology can help LED lighting in head lamps, rear lights, dashboard and compartment to become smart, smooth and interactive.

Stanyl ForTii represents a more sustainable solution because it is a halogen free and red phosphorus free material. High allowable regrind levels reduce waste. Compatibility to lead-free soldering (ROHS) allows manufacturers to avoid hazardous soldering paste. Compared to common solutions, LDS technology reduces dimensions and weight by its integration of components. Faster development cycles and on-the-spot design flexibility help to reduce waste.

## DSM Engineering Plastics

For further information, please see:  
[www.dsmep.com](http://www.dsmep.com) or contact:

### Europe

Tel +31 46 47 73796  
Info-Europe.DEP@dsm.com

### Americas

Tel +1 800 333 4237  
Info-Americas.DEP@dsm.com

### Asia Pacific

Tel +86 21 6141 8188  
Info-Asia.DEP@dsm.com

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