



MID/LDS AUTOMOTIVE

Automotive Technology Design Considerations Advance with Rising Need for Integrated In-Vehicle Functionality

BUSINESS CHALLENGE

Automotive wireless antennas are increasing with the popularity of Wifi, Bluetooth, GPS, cellular service, AM/FM/satellite radio and TV, in addition to wireless sensor and safety systems. There are limitations to traditional technologies. Cost, space and weight are primary design considerations with the proliferation of bumper-to-bumper electronic-enabled features. As functionality increases, two-dimensional (2D) wired processors and circuit boards require more components and longer development cycles at a higher price.

A decade ago, the cost for electronics represented less than 20% of total vehicle cost. Today that figure pushes 30% or more. Electronic components typically weigh less than their equivalent mechanical parts, which translate directly into better fuel efficiency and emissions reductions. Even a relatively small weight reduction of 10% can yield 6-7% lower fuel usage and emissions. Manufacturers face the added pressure of stricter regulations around automotive energy efficiency and CO2 emissions.

SOLUTION

Molex molded interconnect device and laser direct structuring (MID/LDS) technology delivers on the promise of enhanced connectivity, cost-control and space and weight reduction for in-vehicle electronics and wireless interfaces. MID/LDS enables smaller wireless antennas and sensors, and reduces components and processes. The manufacturing processes support surface-mount technology (SMT), insert molding, wire bonding, plastic welding, two-shot molding and overmolding, plated through-hole vias, and cosmetic painting. While flex and PCB yield 2D flat designs, three-dimensional (3D) MID/LDS designs minimize wasted space. Integrating antennas into plastic substantially reduces assembly

weight. Wireless technologies can reduce the requirement for wiring harnesses.

MID/LDS technology enables rapid prototyping and optimizes design freedom in compact and complex applications. Automotive manufacturers and suppliers need better design solutions to balance performance, weight, space savings, fuel efficiency and manufacturing costs. Molex MID/LDS technology lowers barriers to the integration of complex electronic components. As the proportion of electronics used in automobiles rises, 3D MID/LDS is an excellent value proposition. Additionally, Molex MID/LDS technology permits rapid prototyping, pattern

modification and design changes. For customers this means faster development cycles, and higher functionality and reliability in an easy to install automotive package, without costly and bulky electronic wiring assemblies.



FEATURES AND BENEFITS

MID Technology

- Enables electronic circuitry on molded plastic, which eliminates expensive tooling
- Full 3D selective plating consolidates circuitry (antennas, LED lighting, sensors, etc.) into single assembly
- Delivers significant space savings over PCB, flex circuit and insert molding

LDS Technology

- Greater flexibility and geometric 3D design freedom over flex-antenna technologies
- Enables micro-line electronic circuitry imaged using a 3D axis laser
- Transfer of antenna design from CAD data directly onto molded antenna carrier or device structure
- Support for multiple antennas on the same structure

To learn more www.molex.com/ab/3dmidlds.html