GECL™ is Molex’s patented pedestal connector that incorporates one or more Grouped Element Channel Link capability, please contact a Molex sales representative.

If you have a medical application that can leverage Molex’s MID/LDS and support services to ensure the customer’s product quality, reliability and the medical industry. Molex has a full spectrum of MID reliability test facilities to address miniaturization, convergence and well-being enhancement trends in the medical device market.

MID is a versatile, multi-function technology that offers the benefits of scalability. LDS allows micro-line electronic circuitry to be imaged onto a variety of RoHS-compliant molded plastics using a 3-axis laser with the added flexibility of making pattern changes. Lines and spaces down to 0.40mm (.016") are achievable (subject to limitations of molding technologies)

A host of other multi-function features including laser-drill via holes, switches, sensors, or even antennas can be added using LDS if needed. The power of MID/LDS technology continues to grow in popularity as a means to address miniaturization, convergence and well-being enhancement trends in the medical industry. Molex has a full spectrum of MID reliability test facilities and support services to ensure the customer’s product quality, reliability and mission-critical needs are met.

If you have a medical application that can leverage Molex’s MID/LDS capability, please contact a Molex sales representative.

**FEATURES AND BENEFITS**

**3D-Molded Interconnect Device (MID)**

- A versatile, multi-function technology with benefits of scalability, it enables production of 3D interconnect packaging, integrating both electrical and mechanical designs into a single molded device; is effective for miniaturization strategies; reduces components and processes, and is easy to prototype; is scalable from small to large volume production quantities and cost-effective in total applied value.

- Two methods of plating on plastic material are achievable: 2-shot molding process and Laser Directed Structuring (LDS). Materials can be RoHS-compliant and components can be attached to the MID through normal SMT reflow processes; medical-grade materials tested to USP and ISO10993 standards are available (for 2-shot molding processes only); lines and spaces down to 0.40mm (.016") achievable (subject to limitations of molding technologies)

- Numerous configuration options are available. 3D MID features design flexibility with option to select plating and materials especially for small form factor applications where space is a premium; material combinations of SPS/SPS, LCP/LCP, LCP/SPS, PC-ABS/PC are possible with 2-shot molded plastics

- Multiple potential applications possible. These include 3D “Circuit Board”; chip, sensor or LED application packaging; antennas; connector Interfaces and connector components; high speed signal applications; switch circuitry and other combinations

**Laser Direct Structuring (LDS)**

- Excellent for miniaturization strategies. With LDS, circuitry can be imaged with a 3-axis laser on a variety of RoHS-compliant plastics with pattern modification. Lines and spaces down to 0.10mm (.004") and circuitry pitch down to 0.35mm (.014") are possible in high-volume applications that meet medical-grade, electronic device guidelines required by the customer.

- Numerous configuration options are available. 3D MID features design flexibility with option to select plating and materials especially for small form factor applications where space is a premium; material combinations of SPS/SPS, LCP/LCP, LCP/SPS, PC-ABS/PC are possible with 2-shot molded plastics

- Multiple potential applications possible. These include 3D “Circuit Board”; chip, sensor or LED application packaging; antennas; connector Interfaces and connector components; high speed signal applications; switch circuitry and other combinations

**Versatile design features are possible with LDS. It allows integration of connectors with immovable contacts; laser-drilled holes or vias as small as 50 microns; structural features such as cantilever beam contacts or integral switch contacts; and antenna construction. By increasing copper plating thicknesses, effective heatsinks or EMI-shielded connectors can be developed

- Realizes greater cost savings since developer can create prototypes of injection-molded circuit carriers without having to invest in expensive tooling. LDS reduces assembly, logistics, testing, development costs and shortens process chains

*MID and LDS demo coupon

**MIDI™ MID/LDS Capabilities for High-Density Medical and other Applications**

Molded Interconnect Device (MID)/Laser Directed Structuring (LDS) Custom Capabilities under MediSpec™

**Molex GECL™+ (Grouped Element Channel Link) Technology Application**

*GECL™* is Molex’s patented pedestal connector that incorporates one or more Grouped Element Channel Link transmission lines comprising a dielectric body and two opposing contact ends intended to contact opposing contacts or traces. Refer to patent document (US Patent Number US7,699,672 B2 dated 20 April 2010) for more details.
APPLICATIONS

• Medical Applications
  - Blood glucose meters
  - Drug delivery systems
  - Home healthcare telemetry
  - Telehealth - remote patient monitoring systems
  - Disposable catheter interfaces
  - Neurostimulation controllers
  - Pulse oximetry sensors
  - Continuous Positive Airway Pressure (CPAP) devices
  - Integrated Radio-Frequency Identification (RFID) solutions

• Other Markets
  - Telecommunications antennas and portable devices
  - Military vision systems and unmanned aerial vehicles
  - Industrial and commercial lighting applications

MediSpec™ MID/LDS Capabilities for High-Density Medical and other Applications

Molded Interconnect Device (MID)/Laser Directed Structuring (LDS) Custom Capabilities under MediSpec™

MID/LDS PRODUCT EXAMPLES

Integrated 0.40mm (.0157") pitch SlimStack™ Connector using laser-imaging

Integrated-connector LDS/MID sample

Plated connectors provide EMI shielding

Plastic EBBI™ connectors

2-shot MID antennas

LDS-designed switch circuits

Copper-plated MID/LDS Heatsink

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