High-density FlexPlane™ Optical Circuitry provides high-density optical routing on PCBs or backplanes

Molex’s FlexPlane™ optical flex circuitry provides one of the highest density and versatile interconnect systems on the market today. For high fiber-count interconnects in backplanes and cross-connect systems, Molex’s FlexPlane provides a manageable means of fiber routing from card-to-card or shelf-to-shelf. Designed for versatility, the standard FlexPlane (Series 106401) provides high-density routing on a flexible, flame-resistant substrate.

To achieve higher density, the 3D FlexPlane (Series 106406) provides almost a 50% substrate size reduction compared to the standard FlexPlane. This is critical, as board space and air flow continue to become a stringent part of OEM design requirements. Traditional FlexPlane flex circuits are routed on a single substrate. The 3D FlexPlane routes the fiber on multiple stacked substrates to achieve a compact routing area.

A variety of interconnects, including Blind Mate MTP (BMT™), High Density Blind Mate MT (HBMT™), Blind Mate LC (BLC™) and Blind Mate SC (BSC™) can be used to connect the optical flex circuits to individual cards in a shelf. Available in any routing scheme, fiber can be routed point-to-point, in a shuffle, or in a logical pattern to meet specific requirements. Direct or fusion-spliced terminations are available.

Packaging alternatives include standard bare flexible substrate, sandwiched in FR-4 or custom laminating. Each FlexPlane circuit can be fully tested down to the per port insertion loss and return loss.

For more information on Molex’s FlexPlane offering, visit: www.molex.com/fiber/flexplane.html

Features and Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse substrate size, shape and packaging</td>
<td>Provides efficient and manageable solutions to high-fiber count systems</td>
</tr>
<tr>
<td>Compatible with mass and discrete-fiber terminations</td>
<td>Ensures customized solutions</td>
</tr>
<tr>
<td>Available in virtually any routing scheme</td>
<td>Provides a variety of design alternatives</td>
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<tr>
<td>Direct or fusion splice terminations available</td>
<td>Eliminates additional insertion loss</td>
</tr>
<tr>
<td>Compatible with MT ferrules</td>
<td>Ideal solution for high-density applications using Molex’s backplane HBMT and BMT interconnect systems</td>
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<tr>
<td>Singlemode, multimode or hybrid versions</td>
<td>Provides a variety of options</td>
</tr>
<tr>
<td>Entire circuit is 100% insertion loss (IL) and continuity tested</td>
<td>Ensures correct pin-out prior to shipment</td>
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</tbody>
</table>
**Specifications**

**Reference Information**
Packaging: Packaged flat in a box
Mates With-Terminate with:
   - MT based connectors (MTP, HBMT™, BMTP™)
   - Single-fiber connectors (Series LC, SC, BLC™, BSC™)

**Optical**
Insertion Loss (IL):
Dependant on terminated connector type
Fiber Type:
   - Singlemode – 9/125μm
   - Multimode – 50/125μm
   - Multimode – 62.5/125μm

**Physical**
Substrate: Kapton*
Thickness:
   - Typical is less than 1.50mm (.059”)
   - per layer
Mounting:
   - Mounting holes or devices are designed to customer requirements

*Kapton is a registered trademark of DuPont

**Product Features**

**Cross Section of a Typical FlexPlane Layer with Single Fiber Crossing**

- Adhesive layer on substrate to fixture fibers in place
- Thermally stable flame-resistant polymer substrate
- 250μm colored optical fibers routed to substrate and locked into place with a conformal coating
- Proper bend-radius design at crossovers ensures long lifetime and no impact on optical performance
- Flame-resistant conformal coating fills voids under crossover fibers

**Key Design Features**

- Optical fibers are routed to a substrate and locked into place with conformal coating
- Proper bend-radius design ensures long lifetimes and no impact on optical performance
- Circuit shapes are fully customized to the mechanical requirements of the application
- Ribbonized leads up to 2 meters long eliminate the need for splicing
- Ribbon-fiber based interconnects such as MTP and HBMT are best suited for connecting the flex to other systems
- Flame-resistant substrate and materials meet UL-V1 (or better) flame ratings
### Applications

Telecommunication
- Hubs
- Servers
- Routers
- Switches

### Ordering Information

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Description</th>
<th>Substrate Width</th>
<th>Substrate Length</th>
<th>Substrate Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>106401-0000†</td>
<td>Standard Routing 8-by-8 Perfect Shuffle</td>
<td>74.00mm (2.193&quot;)</td>
<td>137.00mm (5.394&quot;)</td>
<td>1.50mm (.059&quot;)</td>
</tr>
<tr>
<td>106406-0000†</td>
<td>3D Routing 8-by-8 Perfect Shuffle</td>
<td>32.00mm (1.260&quot;)</td>
<td>71.00mm (2.795&quot;)</td>
<td>3.00mm (.118&quot;)</td>
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</tbody>
</table>

† Only sold as terminated assemblies. Part numbers and sales drawings will be established based on specific customers’ design requirements.

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