FlexPlane™ Optical Circuitry

106401 Standard
106404 Flame-Retardant
106406 3D Compact Substrates

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

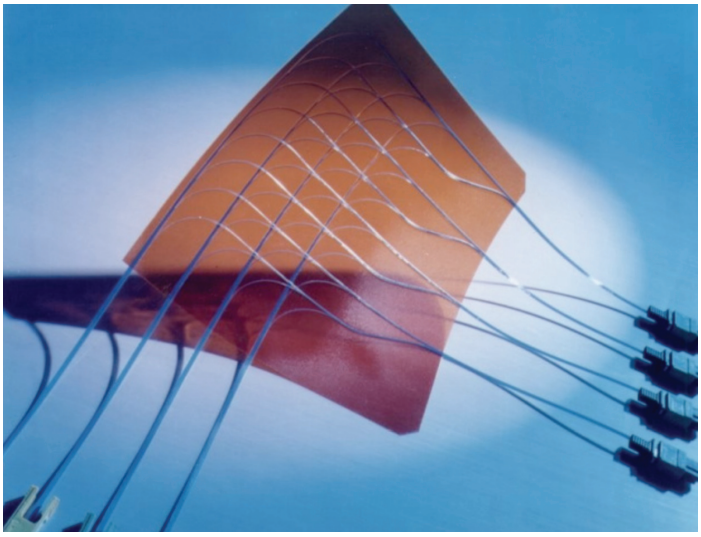
Molex's FlexPlane optical flex circuitry provides one of the highest density and versatile interconnect systems on the market today. For high fiber-count interconnects in backplanes and cross-connect systems, Molex's FlexPlane provides a manageable means of fiber routing from card-to-card or shelf-to-shelf. Designed for versatility, the standard FlexPlane (Series 106401) provides high-density routing on a flexible, flame-resistant substrate. Additional options are now available including flame-retardant assemblies and 3D versions.

As the industry requirements for flammability have become more stringent, Molex developed a custom flame-retardant FlexPlane assembly. The flame-retardant FlexPlane assembly (Series 106404) meets the UL Optical Branching Device Flammability requirements.

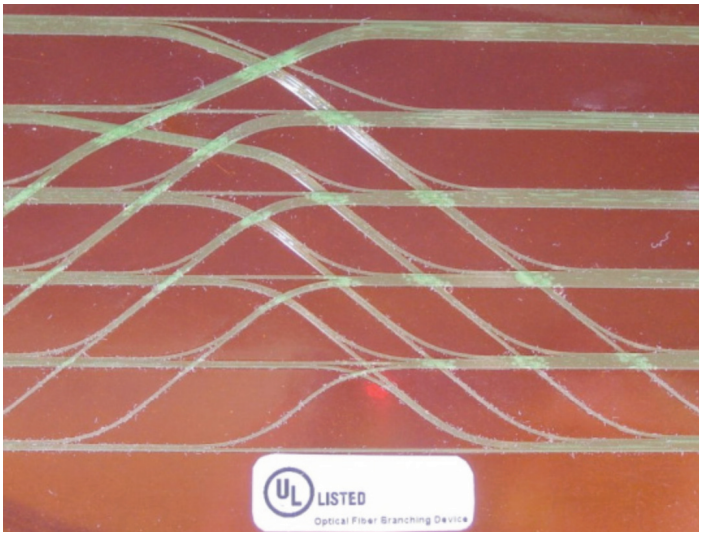
The 3D FlexPlane (Series 106406) provides almost a 50% substrate size reduction compared to the standard FlexPlane. This is critical, as board space and air flow continue to become a stringent part of OEM design requirements. Traditional FlexPlane flex circuits are routed on a single substrate. The 3D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

A variety of interconnects, including Blind Mate MTP (BMTP™), 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.

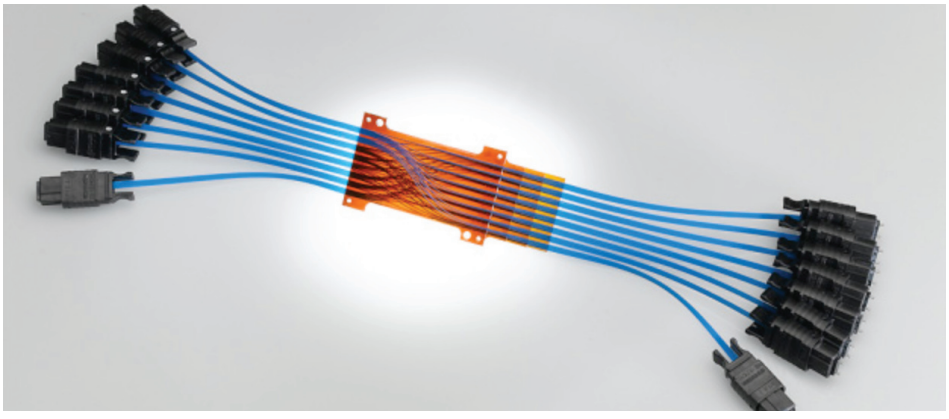
Packaging alternatives include standard bare flexible substrate, sandwiched in FR-4 or custom laminating. Each FlexPlane circuit can be fully tested down to the per port insertion loss and return loss. For more information on Molex's FlexPlane offering, visit: www.molex.com/fiber/flexplane.html.



Standard FlexPlane (Series 106401)



Flame-Retardant FlexPlane (Series 106404)



3D FlexPlane (Series 106406)

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106401 Standard
106404 Flame-Retardant
106406 3D Compact Substrates

Features and Benefits

- Diverse substrate size, shape and packaging provides efficient and manageable solutions to high-fiber count systems
- Compatible with mass and discrete-fiber terminations to ensure customized solutions
- Available in virtually any routing scheme to provide a variety of design alternatives
- Direct or fusion splice terminations available to eliminate additional insertion loss
- Compatible with MT ferrules, an ideal solution for high-density applications using Molex's backplane HBMT and BMTP interconnect systems
- Singlemode, multimode or hybrid versions provide a variety of options
- Entire circuit is 100% insertion loss (IL) and continuity tested to ensure correct pin-out prior to shipment

SPECIFICATIONS

Reference Information

Packaging: Packaged flat in a box
Flame Retardant FlexPlane (Series 106404):
Meets UL Optical Fiber Branching Device (File # E236312)
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

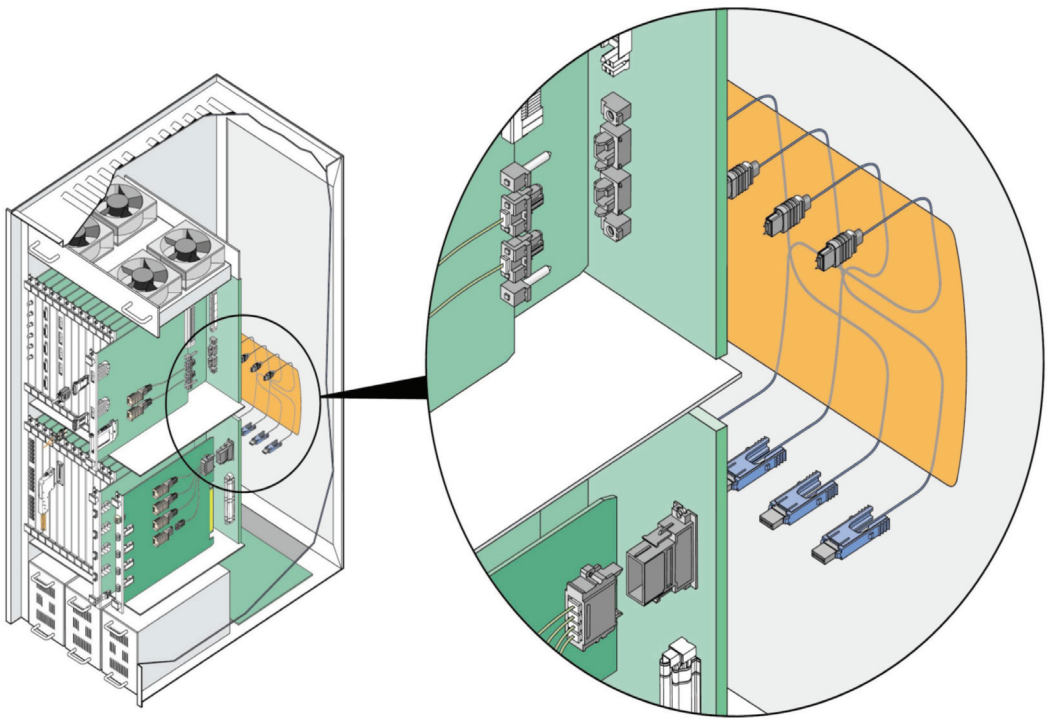
Physical

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

APPLICATIONS

- Telecommunication
  - Hubs
  - Servers
  - Routers
  - Switches



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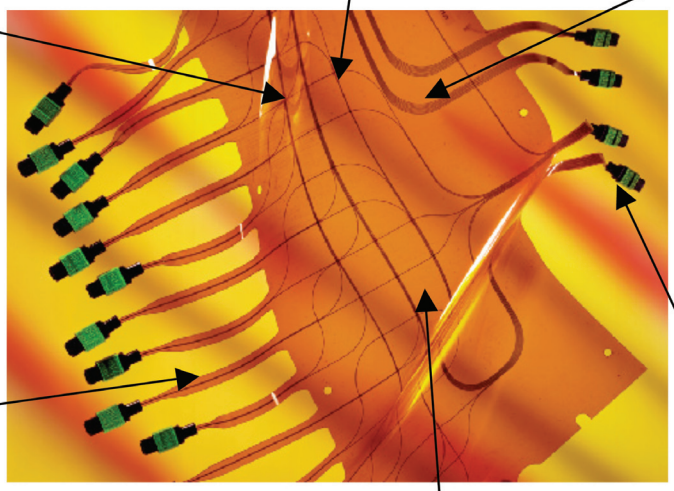
Key Design Properties



CROSS SECTION ILLUSTRATION

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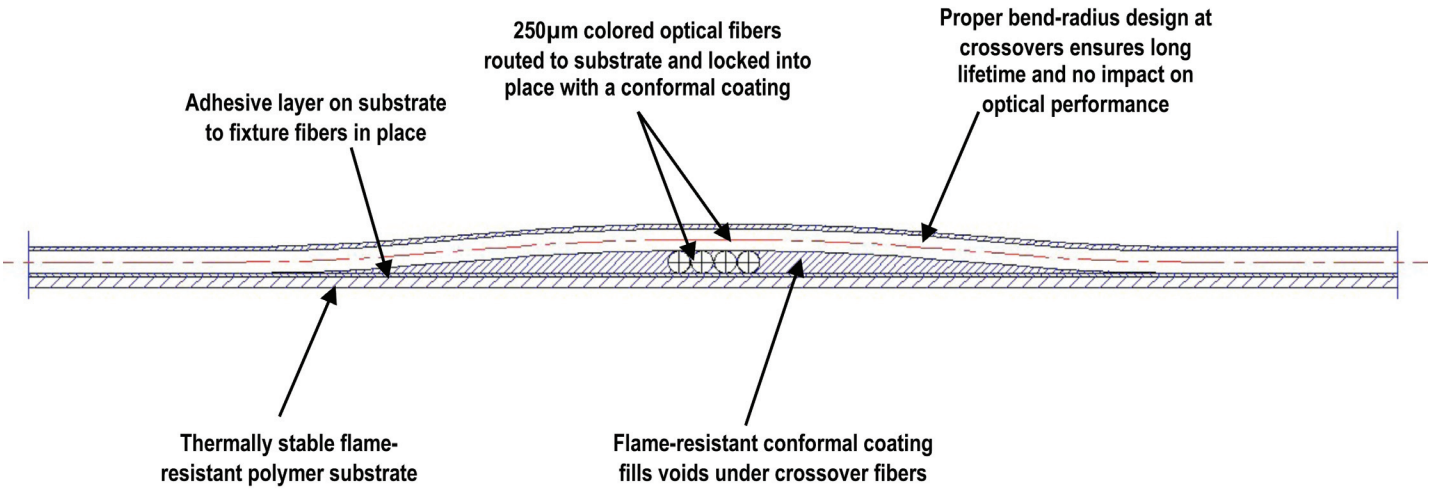
Cross Section of a Typical FlexPlane Layer with Single Fiber Crossing



ORDERING INFORMATION

Order No.	Description	Substrate Width	Substrate Length	Substrate Height
106401-0000†	Standard Routing 8-by-8 Perfect Shuffle	74.00mm (2.193″)	137.00mm (5.394″)	1.50mm (.059″)
106404†	Flame-Retardant Standard Shuffle Series	Standard or 3D versions are also available as Flame-Retardant FlexPlane assemblies		
106406-0000†	3D Routing 8-by-8 Perfect Shuffle	32.00mm (1.260″)	71.00mm (2.795″)	3.00mm (.118″)
106404†	Flame-Retardant 3D Shuffle Series	Standard or 3D versions are also available as Flame-Retardant FlexPlane assemblies		

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

www.molex.com/fiber/flexplane.html

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