

# HIGH DENSITY VERSATILE OPTICAL FLEX CIRCUIT CABLE ASSEMBLIES

## *Customizable packages for both card to card and backplane applications*

In today's Aerospace environment there is an ever increasing need for smaller size, lighter weight and faster speeds. That clearly can be seen with the ever increasing use of fiber optics, particularly in advanced systems such as C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance). The backbone of these interconnect systems calls for high density, robust, multipurpose cable assemblies that helps allow the design engineer the flexibility to maximize performance in a minimal amount of space.

TE Connectivity (TE) has long been one of the industry leaders in fiber optics and our optical flex cable assemblies adds to our family of fiber optic capabilities. Fiber optical flex circuit assemblies were developed with the design engineer in mind. They can be utilized for card to card or backplane applications and offer the designer multiple options in cable assembly design, connectorization, and routing.

### Product Features

#### MODULAR

- Customizable design to specific substrate size, shape and packaging
- Pre-selected breakout positions for routing

#### RUGGED

- Thin film encapsulated fibers for enhanced protection
- Crossovers that minimize stress while maximizing complex routing
- Allows for high density packaging

#### VERSATILE

- Cable assemblies can be routed
- Point-to-point
- Shuffle or logical pattern
- Cross connect

#### DYNAMIC PACKAGING

- Up to 12 layers stacked
- Up to 6 level fiber crossings
- Maximum size: 900 mm x 1300 mm
- Broad range of fiber selections

#### ROBUST OPTICAL PERFORMANCE

- <.05 dB loss



## Target Markets

- Aerospace
- Commercial Air
- Military Air
- Ground Defense
- Data Centers

## Specifications

### MATERIALS

- Fibers: Single mode, multi-mode, radiation hardened, bend insensitive
- Fiber type: ISO grade
- Fiber diameter: 125/250  $\mu\text{m}$ , 80/125  $\mu\text{m}$  and specialty fibers
- Optical flex protection: Conformal coating, thin film encapsulate

### ENVIRONMENTAL

- Operating temperature range:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Extended temperature range:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Humidity: Up to 95%

### MECHANICAL

- Fiber retention: 44N per IEC 61300-2-4
- Vibration: 10Hz to 55Hz per IEC 61300-2-1

### OPTICAL INSERTION LOSS

- $<0.05$  dB typically

### OPTICAL CONNECTORIZATION

- Pre-terminated to customer specifications
- Multi-fiber, MT based connector( MTP, MPX, MC6 and MT ferrules)
- Single fiber connectors including LightCrimp (LC) and Standard Crimp (SC)

## Overmolding and Optical Lead Positioning Solutions



## Intra-System Mating Solutions



## Multilayer Board Solutions



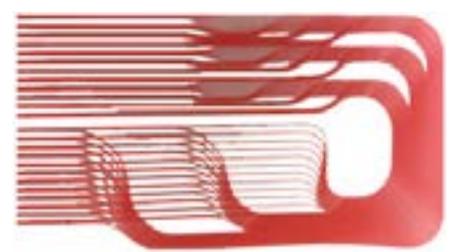
## Flex on Backplane Connector Solutions



## Embedded Fiber Protection Solutions



## Extensive Optical Shuffle Solutions



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