

Application

These products are needed when an optical splitter or combiner is required in a central office environment. They are used in CATV headends and telephone company central offices.

Description

Clearfield® provides Planar Lightwave Circuit (PLC) and Fused Biconic Taper (FBT) Splitters in a variety of optical component packages for the network and application need allowing carriers the ability to provide uniform fully passive signal splitting to multiple premises.

Planar Lightwave Circuit (PLC or Planar)

A light circuit on an 'optical chip' is mounted on a carrier and fibers, usually in ribbon form, are bonded to the edges of the chip. The assembly is encapsulated in a protective enclosure. PLC devices support direct split counts up to 64. In planar fabrication technology, devices are made using ion-exchange or photo-lithography techniques that replicate solid-state circuit methods. Ultimately, the per-unit cost for the expected high volumes will become advantageous for planar technology, especially for higher port devices. A difficult manufacturing problem involves a low-loss method for attaching the optical fibers to the chip and then passing the market's qualification and reliability requirements.

Fused Biconic Taper (FBT)

Two or more fibers are twisted together, heated and drawn to bring the optical cores into near contact. The combined fibers are mounted on a low-expansion carrier and encapsulated in a low expansion tube. FBT devices allow direct splitting up to 32 ways. Higher split counts are achieved by splicing multiple devices to form multi-stage, concatenated splitters. Concatenated splitters are also called tree splitters. The fused biconic tapered technology directly bonds or melts the fibers together so that the final splitter can be mounted in small diameter (approximately 3-millimeter) stainless-steel tubes. This technology produces small, low-cost, high-performance devices. A tough fabrication obstacle involves the small and delicate final coupling region. However, when properly mounted and packaged, these devices meet long-term stability and reliability requirements.



1RU Splitter/Pizza Box

Packaging Options

- Clearview® Cassette
- Clearview xPAK
- Discrete (unpackaged solution)
- 1 RU Splitter/Pizza Box
- LGX

Features and Benefits

Integrity

- RUS listed
- Terminations are designed and tested to Telcordia GR-326
- Supports industry standard SC and LC singlemode and multimode connectors
- 100% performance tested for insertion loss, return loss and final mechanical inspect

Protection

- Ruggedized, secure packaging
- Non-removable adapter plates

Access

- Front and rear access to panel

Investment

- FieldSmart® Optical Components offer an economical, dense and user-friendly solution for deploying splitters or WDMs in a central office design
- Virtually any combination of split ratios and number of components can be achieved in one of the four Clearview Cassette sizes
- Clearfield supports legacy splitter deployments by offering optical components in LGX footprint
- 1 RU optical components available for smaller, limited deployments
- Environmentally stable, high isolation, low insertion loss
- Compliant to Telcordia GR-1221 and GR-1209

Technical Specifications

Planar Lightwave Circuit Splitters

| Type | Insertion Loss | Return Loss | PDL | Uniformity | Directivity | Operating/ Storage Temperature | Wavelength Range |
|--------|----------------|-------------|----------|------------|-------------|--------------------------------------|---------------------|
| 1 x 64 | < 20.6dB | > 50 dB | < 0.3dB | < 1.8dB | > 55dB | -40°C to 85°C | 1260 to 1650nm |
| 1 x 32 | < 16.8 dB | > 50 dB | < 0.3 dB | < 1.7 dB | > 55 dB | -40°C to 85°C | 1260 to 1650nm |
| 1 x 16 | < 13.8 dB | > 50 dB | < 0.3 dB | < 1.2 dB | > 55 dB | -40°C to 85°C | 1260 to 1650nm |
| 1 x 8 | < 10.8 dB | > 50 dB | < 0.3 dB | < 0.8 dB | > 55 dB | -40°C to 85°C | 1260 to 1650nm |
| 1 x 4 | < 7.5 dB | > 50 dB | < 0.3 dB | < 0.6 dB | > 55 dB | -40°C to 85°C | 1260 to 1650nm |

Fused Biconic Taper Splitters

| Dual Window - Wavelength Flattened (Terminated Specs) | 1 x 2 | 1 x 4 | 1 x 8 | 1 x 16 | 1 x 32 |
|---|--------|--------|---------|--------|---------|
| Maximum Insertion Loss | 3.6 dB | 7.2 dB | 10.7 dB | 14 dB | 17.6 dB |
| Maximum Uniformity | 0.8 dB | 1 dB | 1.3 dB | 1.6 dB | 1.9 dB |
| Maximum PDL | 0.2 dB | 0.3 dB | 0.4 dB | 0.5 dB | 0.6 dB |

Packaging Dimensions

| Optical Component Type | Dimensions |
|------------------------------------|---|
| One High Clearview Blue Cassette | 0.8" H x 8.6" W x 7.06" D (20.32 mm x 218.44 mm x 179.32 mm) |
| Two High Clearview Blue Cassette | 1.6" H x 8.6" W x 7.06" D (40.64 mm x 218.44 mm x 179.32 mm) |
| Three High Clearview Blue Cassette | 2.41" H x 8.6" W x 7.06" D (61.21 mm x 218.44 mm x 179.32 mm) |
| Six High Clearview Blue Cassette | 4.84" H x 8.6" W x 7.06" D (122.94 mm x 218.44 mm x 179.32 mm) |
| LGX One Wide Box | 1.15" H x 5.12" W x 6.25" D (29.21 mm x 130.05 mm x 158.75 mm) |
| LGX Two Wide Box | 2.27" H x 5.12" W x 6.25" D (57.66 mm x 130.05 mm x 158.75 mm) |
| LGX Four Wide Box | 4.55" H x 5.12" W x 6.25" D (115.57 mm x 130.05 mm x 158.75 mm) |
| One Rack Unit (19") | 1.75" H x 19" W x 15.02" D (44.45 mm x 482.60 mm x 381.50 mm) |
| One Rack Unit (23") | 1.75" H x 23" W x 15.02" D (44.45 mm x 584.20 mm x 381.51 mm) |

Configured Part Numbers

M _____ - _____ E S - _____ Z - Z Z Z

1 2 3 4 5

1 Select Packaging

A = LGX – vertical - 1 wide
 B = LGX – vertical - 2 wide
 D = LGX – vertical - 4 wide
 E = FieldSmart FxMP – 6 high
 G = 1.75" (44.45 mm)(1 RU) - 19" brackets
 (482.60 mm)
 H = 3.50" (88.90 mm)(2 RU) - 23" brackets
 (584.20 mm)
 S = Clearview Blue – 1 high
 T = Clearview Blue – 2 high
 U = Clearview Blue – 3 high
 Y = Clearview Blue – 6 high
 7 = FieldSmart FxMP – 1 high
 8 = FieldSmart FxMP – 2 high
 9 = FieldSmart FxMP – 3 high

2 Select Input / Output

A = 1 x 2 H = 1 x 16
 B = 1 x 3 J = 1 x 24
 C = 1 x 4 K = 1 x 32
 D = 1 x 5 L = 2 x 2
 E = 1 x 6 M = 2 x 16
 F = 1 x 8 N = 2 x 32
 G = 1 x 12 P = 1 x 64

3 Select Optical Type

P = Planar splitter
 F = FBT splitter

4 Select Connector

A = SC/UPC G = LC/APC
 B = SC/UPC DX J = FC/UPC
 C = SC/APC K = FC/APC
 D = SC/APC DX M = ST/UPC
 E = LC/UPC

5 # of Components Per Package

A = 1 G = 7
 B = 2 H = 8
 C = 3 J = 9
 D = 4 K = 10
 E = 5 M = 11
 F = 6