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CATALOG

COMPONENTS FOR OPTICAL NETWORK





COMPANY INTRODUCTION

Advanced Fiber Resources (AFR), established in 2000, is a leading supplier of fiber optical components. With its strong R&D and design capabilities, high efficient manufacturing process and strict quality control, AFR designs and manufactures standard and custom components, modulators, and provides contract manufacturing solutions to our customers. Our products are widely used in fiber laser, telecom, data center, fiber sensing, autonomous driving, biomedical equipment, as well as research institutes and universities around the globe. AFR's products have been sold to customers in more than 40 countries and regions worldwide.




24
Years of History



2017
IPO in China




2,000+
Employees



1,186,000+
Sq-ft Floor Space



175+
Patents



600+
Customers



QUALITY

At AFR, quality is our top priority and an integral part of everything we do. The product quality management covers from product development, supply chain management, manufacturing to after-sales. AFR's quality management system fulfills the requirements of ISO 9001:2015, ISO 14001:2015 and IATF 16949, and all products are qualified with Telcordia GR-468 and GR-1221-CORE reliability test.

The company currently has seven dedicated laboratories and equipped with many high precision instruments, to ensure excellent reliability of our products. We have built an optical precision processing center and a machining center, manufacturing crystals, mirrors, PBS, other flat surface optics and mechanical components in-house, the key material production capability makes us more competitive.

We strive to continuously improve our products with proactive, data driven, quality first systems and processes.



CONTENT

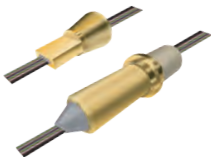
Passive Components for Telecom (P5-P8)

- Components for EDFA
- High Reliability Components
- Polarization Maintaining Components
- Electric Driven Components



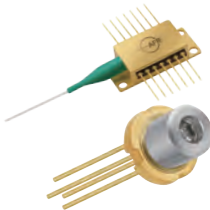
Fiber Assembly (P9)

- Lensed Fiber
- Fiber Metallization
- Fiber Feedthrough



Active Components Packaging (P10)

- Butterfly Packaging
- TO-CAN Packaging

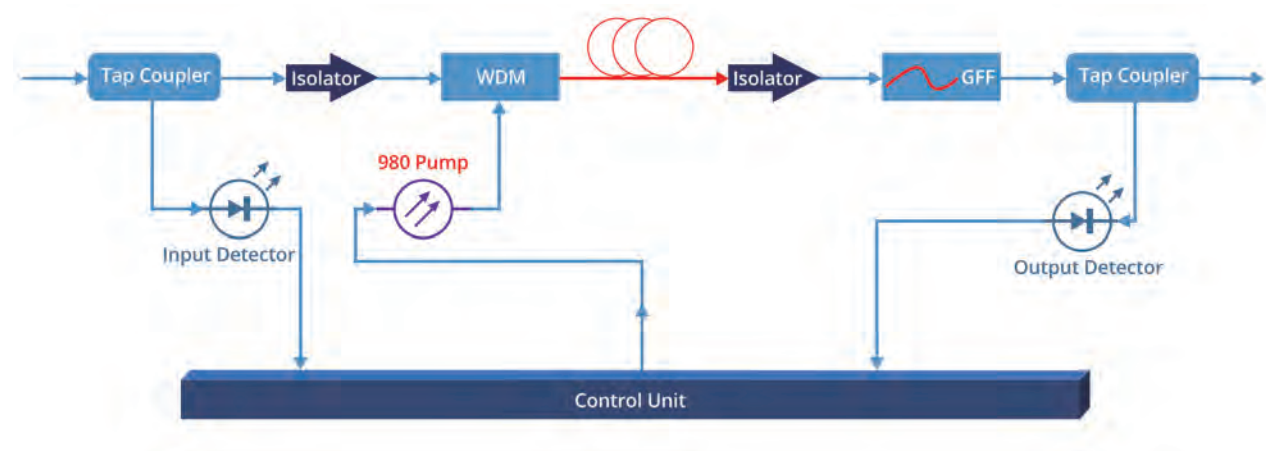


Components for Data Center (P11-P13)

- 800G Multimode DR8
- 90° Fiber Array
- 400G/800G DR4/DR8 Assembly
- TFF CWDM/LAN-WDM Module
- PM Fiber Array and Fiber Pigtail
- High Density Fiber Array



Typical Structure of EDFA



Components for EDFA

Discrete Components for EDFA

- Tap Coupler
- Isolator
- WDM
- Photodiode

Hybrid Components for EDFA

- Tap + PD
- Isolator + GFF
- Tap + Isolator + WDM

Available Package

Standard Package

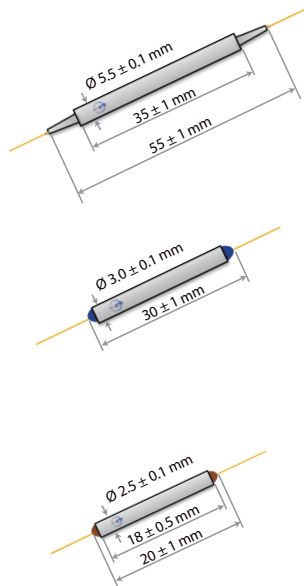
Can be used for single function or hybrid function
Isolator, WDM + Isolator, Tap + Isolator, GFF + Isolator
WDM + Tap + Isolator

Mini-Package

Can be used for single function or hybrid function
Isolator, WDM + Isolator, Tap + Isolator, GFF + Isolator
WDM + Tap + Isolator

Ultra Mini-Package

Can be used for single function or limited choice of hybrid function
Isolator, WDM + Isolator, Tap + Isolator



High-Reliability Components



Products

- Filter WDM
- Isolator
- GFF
- GFF + Isolator
- PBC/S
- Fiber Feedthrough

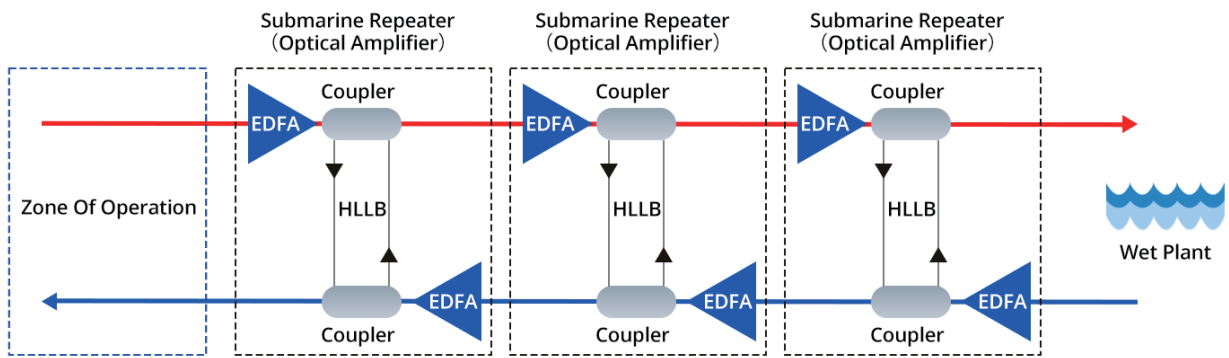
Performance of Hi-Rel Components

- Started Volume Shipping in 2013
- Shipped 20,000 + pcs to the US and Europe
- FIT < 0.1
- 25 Years Lifetime Warranty



Standards

- GR-1221-CORE
- GR-1209-CORE



Submarine Network System Structure Diagram

Polarization Maintaining Components

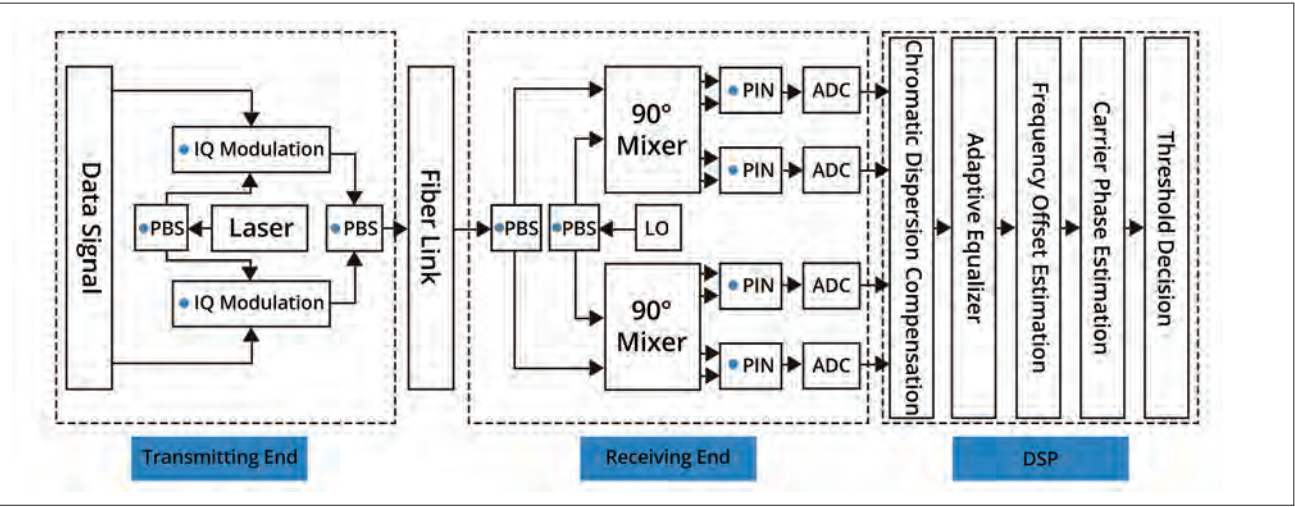


Products

- PM Tap Coupler (PMTc)
- PM Isolator
- Polarization Beam Combiner/Splitter (PBC/PBS)
- PM Circulator
- PM WDM (Fused/Filter)
- PM In-Line Polarizer
- Faraday Mirror

Applications

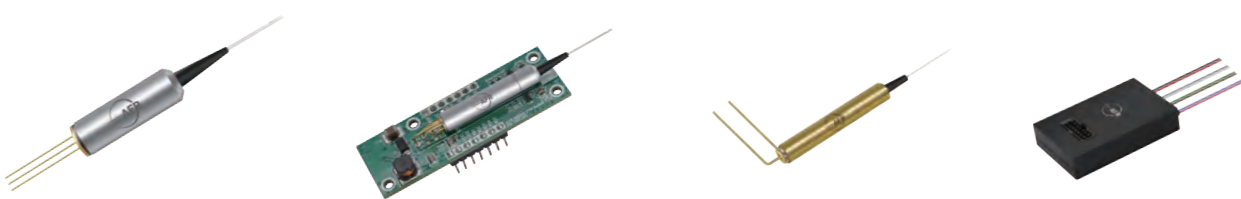
- Optical Amplifiers
- ACO/DCO
- ICR/ICT
- Coherent Module and Transponder



Coherent Optical Communication System Structure Diagram

Over 20 Years of Experience with PM Fiber Optic Components
Comprehensive Product Line Covering a Wide Range of Applications

Electric Driven Components



Products

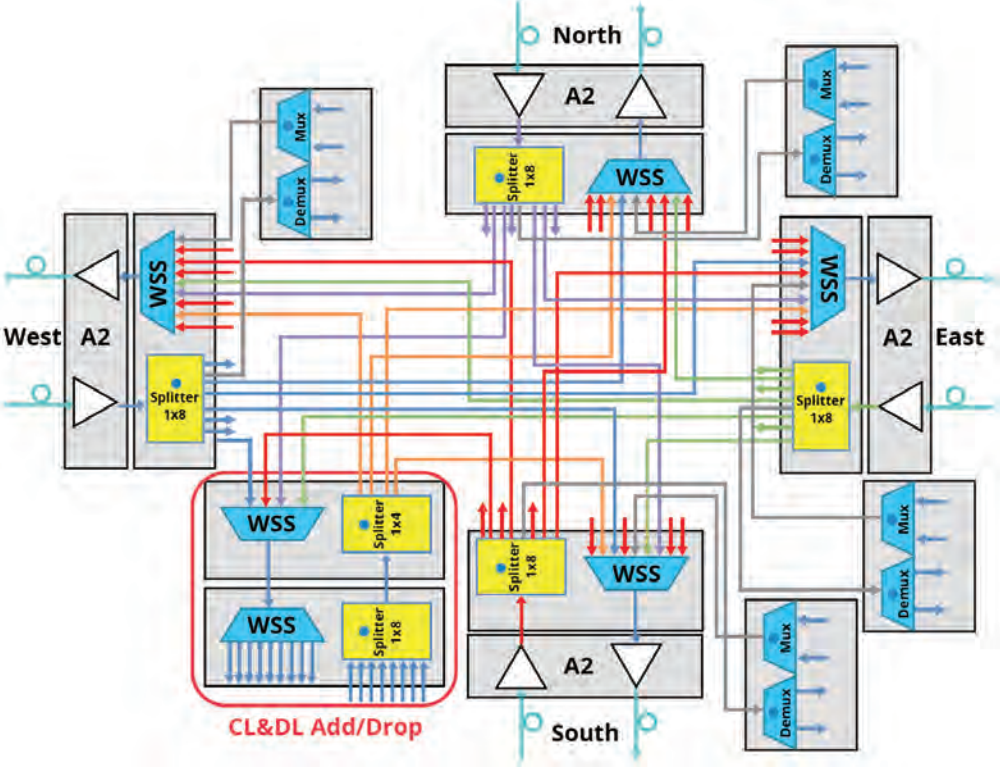
- Low WDL MEMS VOA and Array
- PM MEMS Switch 1x2/2x2/1xN
- Unidirectional Tap PD and Array
- Fiber Pigtailed PD and Array
- TAP + Isolator + PD Hybrid

Features

- Low WDL: < 0.5 dB (VOA)
- Low IL: < 0.7 dB (VOA/Switch)
- Fast Response: < 2 ms (VOA), < 10 ms (Switch)
- Low Dark Current: < 2 nA (PD)
- High Directivity: > 35 dB (PD)
- Compact Size

Applications

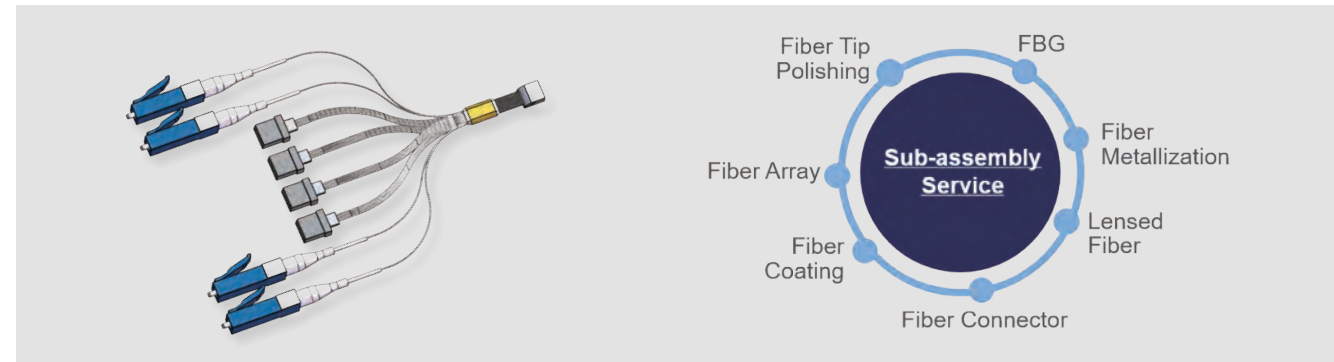
- Fiber Amplifiers
- WSS
- V-MUX
- MCS
- Optical Channel Monitoring



Optical Cross Connection

FIBER ASSEMBLY

AFR can provide One-Stop Fiber Assembly Service according to the requirements of customers. Our products and services include Lensed Fiber, Fiber Metallization, Fiber Feedthrough, Fiber Coating, Fiber End Face Polishing, Fiber Array, Fiber Connector, Fiber Bragg Grating, etc.



Applications

- 400G, 800G System, WSS

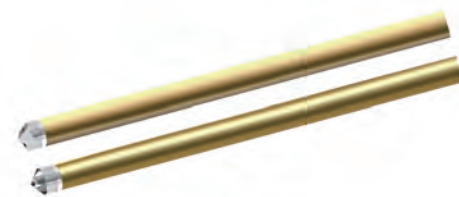
Lensed Fiber

Features

- Wedge or Conical Lens Available
- Customized Lens
- High Coupling Efficiency
- High Reliability in Hermetic Packaging

Applications

- Pump Lasers, SLEDs, etc.
- DFB Laser
- Optical Waveguide Coupling



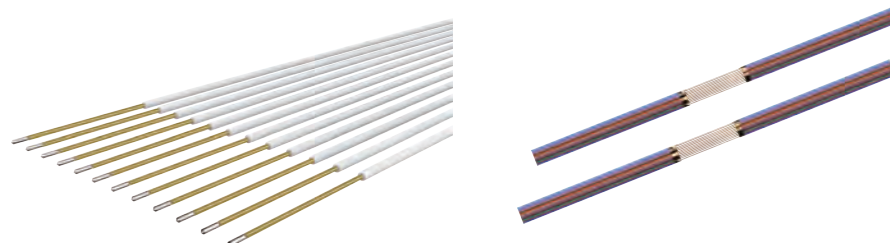
Fiber Metallization

Products

- Metalized Single Fiber
- Metalized Ribbon Fiber

Features

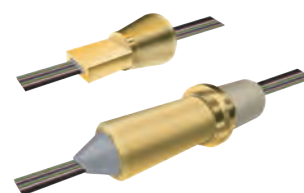
- Excellent Solderability
- High Hermetic Sealing Guarantee
- High Reliability



Fiber Feedthrough

Features

- Glass Solder and Metal Solder are Both Available
- Single Fiber and Ribbon Fiber are Both Available
- Passed 10000 m Hydraulic Press Test
- Hermetic Sealing Guarantee



ACTIVE COMPONENTS PACKAGING

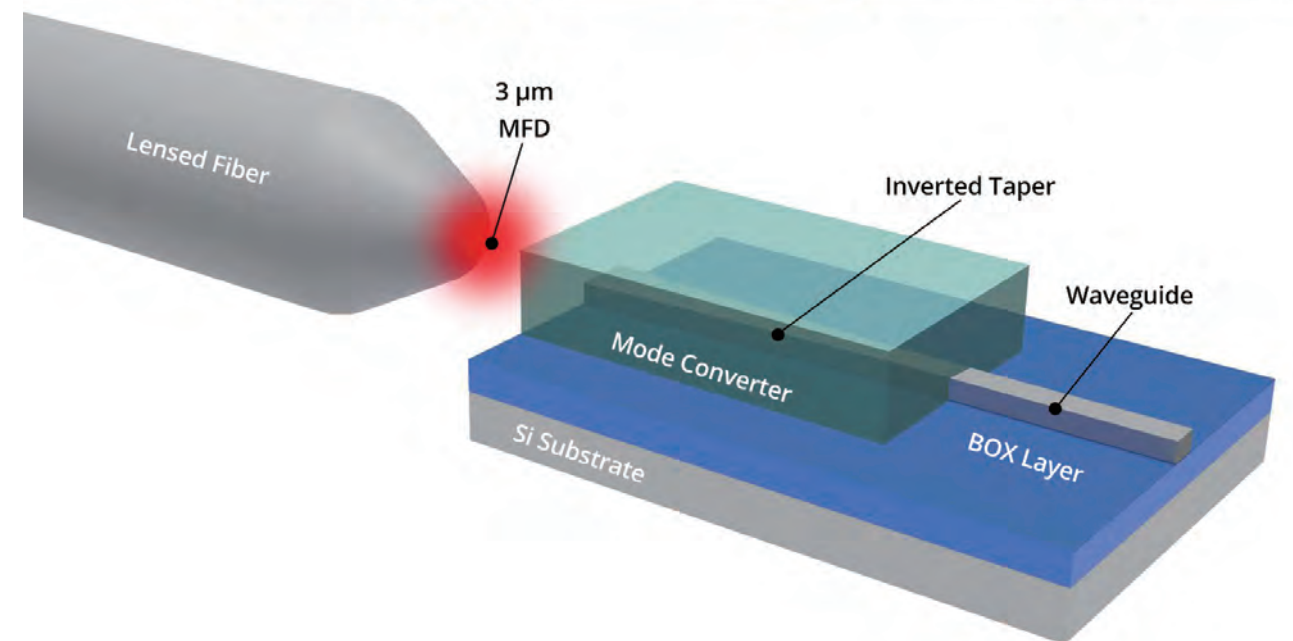
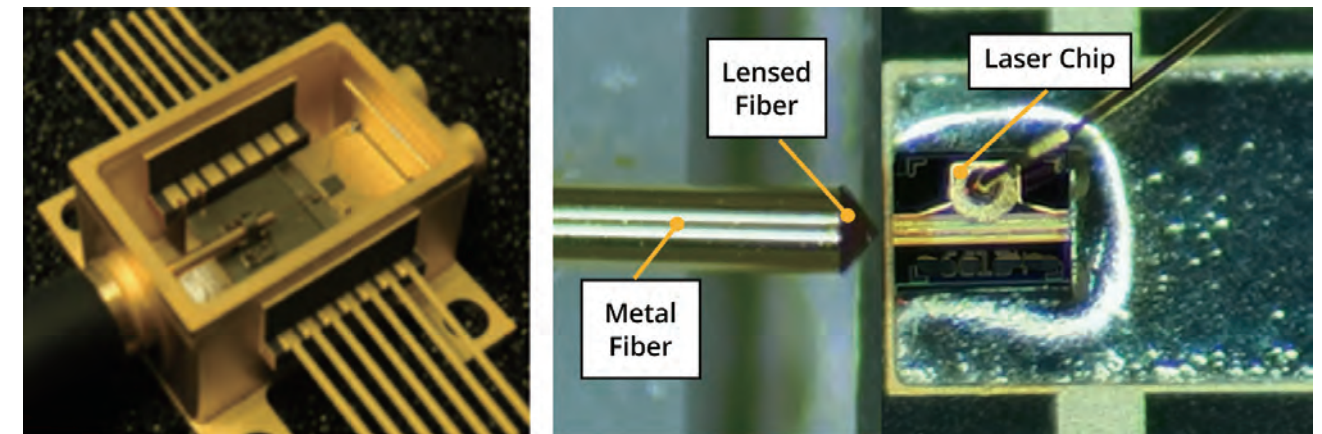
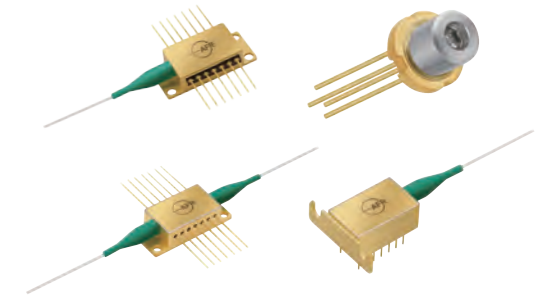
Laser Packaging

Products

- H8/14 Pin Butterfly Packaging
- TO-CAN Packaging

Features

- DFB, SLED, and Pump LD Packaging
- OEM Business Available
- Hermetic Sealing
- High Reliability



800G Multimode DR8

With robust process and mass production experience, Vlink provides customers with all types of short reach jumpers used in SR4/SR8 modules. Customers can choose between MT polishing and laser cleaving process based on different structures. Fiber length tolerance of ± 0.1 mm is available.

Features

- 24-24 Channel or 24-16 Channel
- High Accuracy of Fiber Length Control

Applications

- 400G/800G Short Reach Solution (SR4/SR8)



90° Fiber Array

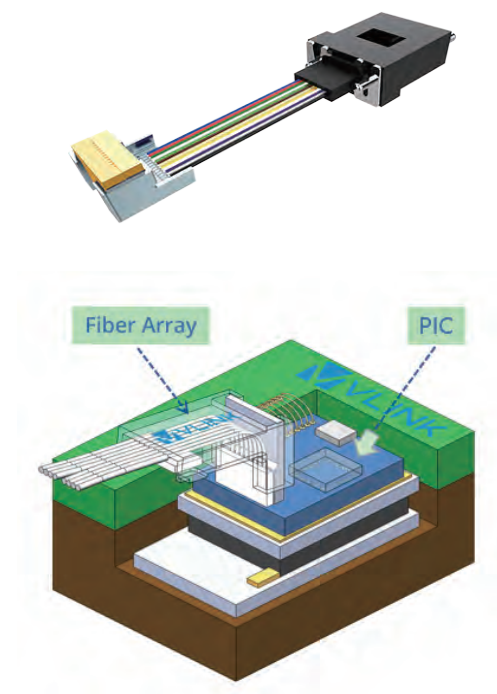
Vlink's 90 Degree Bending Fiber Arrays are fabricated with high precision V-Groove substrate with Vlink special bend, assembly and polish process to get low insertion loss, high accuracy of fiber core pitch and excellent quality of polished surface. The compact products with height less than 3.5 mm are ideal for connection in high speed silicon photonics transceiver modules.

Features

- High Coupling Efficiency Connectivity in Silicon Photonics Assembly
- Patented Vlink Technology for Low Stress and High Reliability
- 12-Channel, 24-Channel or on Request
- Fiber Height 3.5 mm or less
- Low Bending Loss < 0.1 dB
- Low Coupling Loss < 0.35 dB
- High PER > 25 dB

Applications

- Grating Coupling in Silicon Photonics Connection



400G/800G DR4/DR8 Assembly

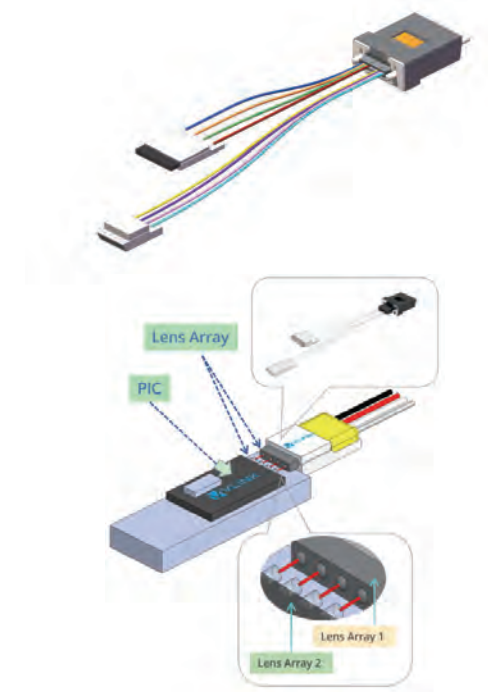
The 400G/800G DR4/DR8 jumper consists of MT, and FAU with isolators/lens array attached. Fiber length is accurately controlled by special fixtures. Isolator/lens array attachment and Isolation testing are accomplished by automatic machines. The products are compliant with GR-468-Core requirements.

Features

- Fiber Array with Lens Array Packaging Fit to Small MFD PIC Application
- High Coupling Efficiency for Fiber Array to PIC Packaging
- High Power Handling Property

Applications

- 400G/800G Parallel Single Mode Solution



TFF CWDM/LAN-WDM Module

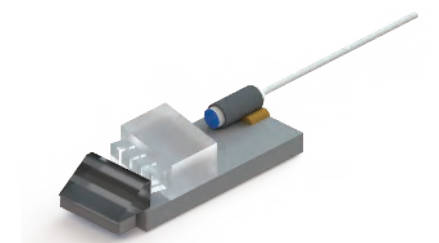
The Vlink's Thin Film Filter CWDM and LAN WDM Block has compact size, high effective aperture, accurate pointing angle, and is suited for QSFP28 transceiver modules. Filters attachment is accomplished by automatic machine.

Features

- Mass Production, Cost Effective
- Automatic Manufacturing Process
- Typical Output Light Parallelism $< 0.1^\circ$

Applications

- CWDM4/LAN WDM4 Module



COMPONENTS FOR DATA CENTER

PM Fiber Array and Fiber Pigtail

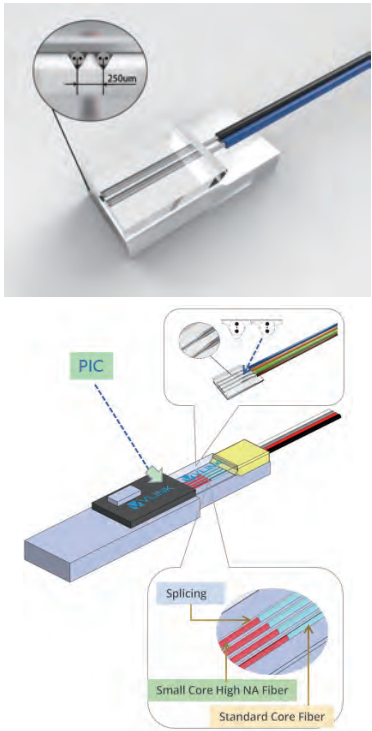
The Vlink's PM Fiber Pigtail and Fiber Array are ideally suitable for coherent application, fiber sensor systems. With our professional design and manufacturing capability, Vlink can provide customers various types of PM pigtails. Our products are of high quality, cost effective, GR-1221/1209 and RoHS compliant.

Features

- High PER up to 30 dB
- Low Stress on PM Fiber with Vlink Packing Process
- Low PER Degradation After Laser Welding/Soldering
- SSC Function by Fusing Different Core Spot Size Fibers for Small MFD PIC Application
- Different Cladding/Core/Brand Fibers are Optional
- Low Loss and Reflow High Power Handling

Applications

- ICR/iTLA Module
- LiDAR Devices



High Density Fiber Array

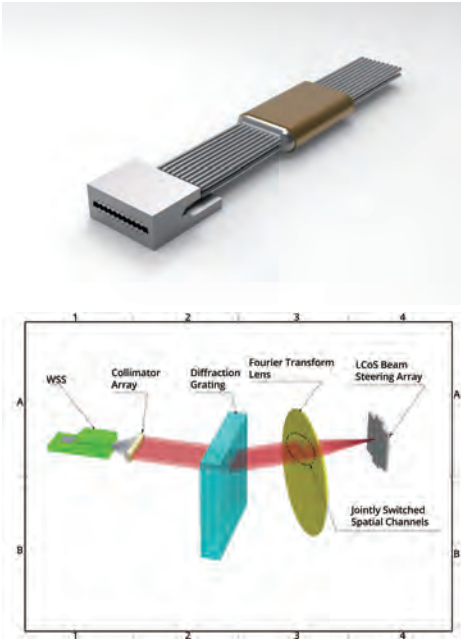
Vlink's High Density Fiber Arrays are widely used in DWDM modules and ROADM WSS modules. High pitch accuracy is controlled by V-Groove material and assembly processes. Pitch in X or Y direction can be customized and asymmetrical. With AR coating and feed-through assembly capability, Vlink can provide customers one-stop solutions.

Features

- Multi-Channel Fiber Array up to 256F
- Fiber Core Pitch 250 µm, 127 µm, 84 µm or Special
- Typical Pitch Error 0.5 µm
- 2D FAU is Available

Applications

- Application for DWDM AWG, WSS



Brochure version: JAN, 2024

Every effort has been made to ensure the accuracy of the information contained in this catalog at the time of publication. As part of our policy of continuous product improvement, we reserve the right to change specifications at any time. For the most up-to-date information, please refer to our website. www.fiber-resources.com