



HYC
HYC CO., LTD

**Innovative ODM/JDM of
Passive Optical Components**



国内販売代理店

サンインストルメント株式会社



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HP : www.sun-ins.com



HYC
HYC CO., LTD



➤ Global Layout



- ★ **Headquarters | Qingyuan China**
Manufacturing Base



- **Branch | Shenzhen China**
R&D & NPI & Sales & Marketing

Qingyuan
★
Shenzhen
●
Thailand



- **Thailand**
Manufacturing Base



HYC



Since
2000



50,000+ m²
Manufacturing Base

➤ HYC Company

HYC Co., Ltd. (HYC), established in 2000, is a leading global ODM/JDM manufacturer of passive optical devices, specializing in the design, R&D, and manufacturing of fiber optic products.

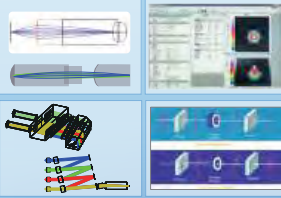
HYC has consistently adhered to the principle of “High-Quality Intelligent Manufacturing.” With production facilities in Qingyuan, China, and Thailand, along with marketing and R&D center in Shenzhen, China, we have built a robust and competitive system for independent R&D, large-scale production, and global delivery. Through strict quality control and an efficient supply chain, we deliver high-performance, fast-response solutions to customers, with products widely used in markets across Asia, Europe, North America, and other regions worldwide.

Guided by the core values of “Customer-orientated; Collaborative Co-Creation; Continuous Improvement; Honest and Responsible.” HYC continues to invest in and focus on innovation, offering advanced, competitive products for global data communication customers and remaining committed to becoming a leader player in the global passive optical communication field.

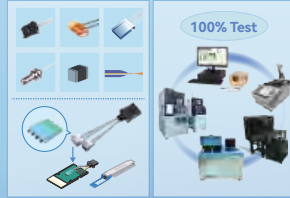
➤ R&D Capabilities

7 Core Technology Platforms

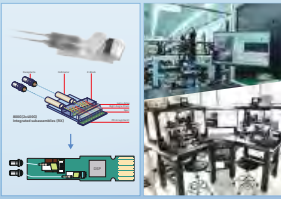
01 Optical design, simulation and ray tracing capabilities



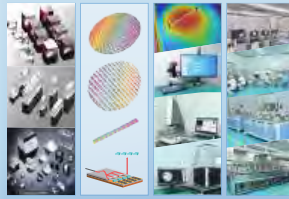
02 High density parallel optics design/ manufacturing capabilities



03 Free space optics design, sub-micron alignment/ assembly capabilities



04 Precision back-end processing and optical analysis capabilities



05 High-precision mold design and precision injection molding capabilities



06 Adhesive management capabilities and failure analysis capabilities



07 Automatic precision assembly/testing capabilities, and software programming



➤ Rigorous Quality Management

HYC consistently implements stringent quality control inspections to ensure the delivery of high-quality products to our customers. Quality management is applied at every stage, from raw materials and semi-finished products to finished products and the delivery process.

Fully Equipped Reliability Laboratory



International Certifications



ISO9001, ISO14001, ISO45001

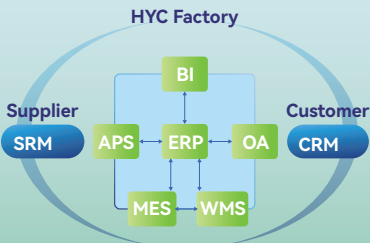


CSR / RBA Certification

REACH RoHS



➤ Intelligent Information Management



➤ Contents

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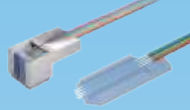
8 Basic Components

MT/Mini MT



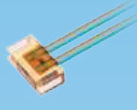
SM/MM
12/24F, 16/32F

Fiber Array Unit



(6/8/42.5/90-degree FAU,
FAU with pitch < 125μm, etc.)

Jumper

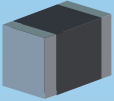


Laser cutting
/Grinding

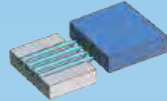
Receptacle



Free-space
Isolator (FSI)



Fiber Lens Array



Z-Block



Prism



HYC is dedicated to developing the eight basic components of high-speed optical subassemblies and offers flexible customization for various combinations:

01

Parallel Optical Subassemblies
for 800G/1.6T DR/PSM Transceivers

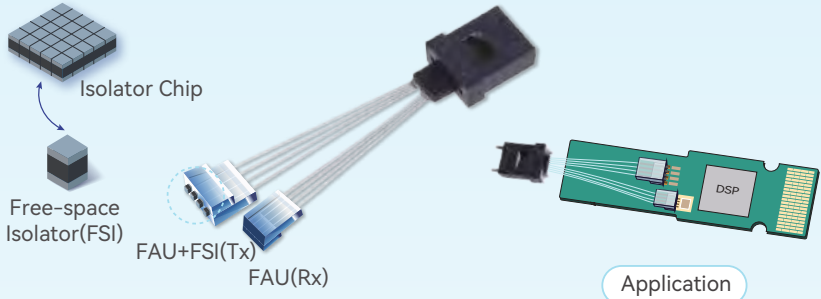
02

WDM Optical Subassemblies
for 800G/1.6T FR/LR Transceivers

Parallel Optical Subassemblies for DR/PSM Transceivers

MT-FAU Series

FAU+Free-space Isolator for 400G/800G



Features:

- Return loss (Tx) ≥ 32 dB (FA angle is 6-degree)
- 168h PCT (Tested at 105°C, 0.12MPa, 100%RH)
- The shear force exceeds the 2x shear strength criteria defined in MIL-STD-883L

FAU+Lens Array for 800G/1.6T



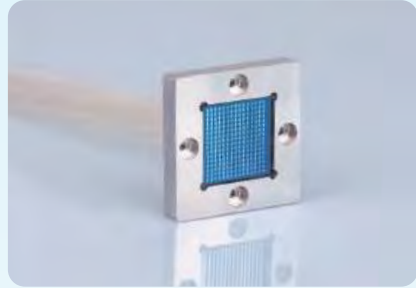
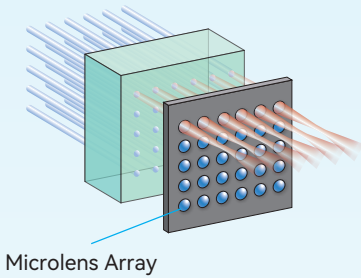
Features:

- Focused Spot $\leq 9\mu\text{m}$ (Compatible with $\phi 16\mu\text{m}$ PDs or backside-illuminated $\phi 10\mu\text{m}$ PDs with lens)
- The shear force exceeds the 2x shear strength criteria defined in MIL-STD-883L

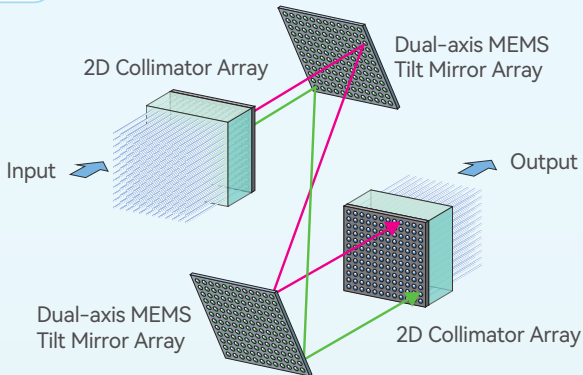
Parallel Optical Subassemblies

Specialty FAU Series

2D Collimator Array for Optical Circuit Switch (OCS)



Application



Features:

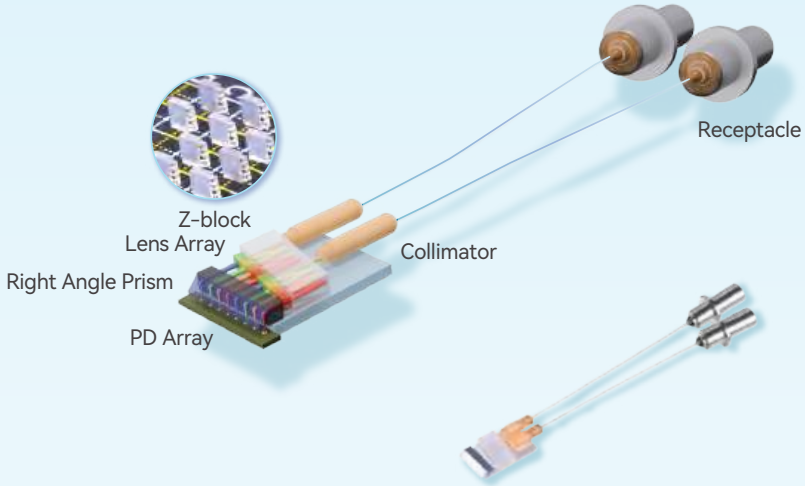
- Fiber core offset <math>< 1\mu\text{m}</math>
- Parallelism: Typ. <math>< 0.15^\circ</math>

- Point accuracy: Typ. <math>< 0.3^\circ</math>
- Lens: $R = 0.333\text{mm}$, $K = -0.455$,
 $L = 1\text{mm}$, Material = fused silica

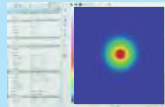
WDM Optical Subassemblies for FR/LR Transceivers

Z-block Integrated Subassemblies

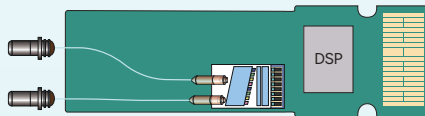
800G/1.6T 2xFR4 Rx



168h PCT
(Tested at 105°C,
0.12MPa, 100%RH)



- Focused spot $\leq 11\mu\text{m}$ (Compatible with $\phi 16\mu\text{m}$ PDs or backside-illuminated $\phi 10\mu\text{m}$ PDs with lens)
- X/Y pitch tolerance $\pm 3\mu\text{m}$
- Z pitch tolerance $\pm 30\mu\text{m}$

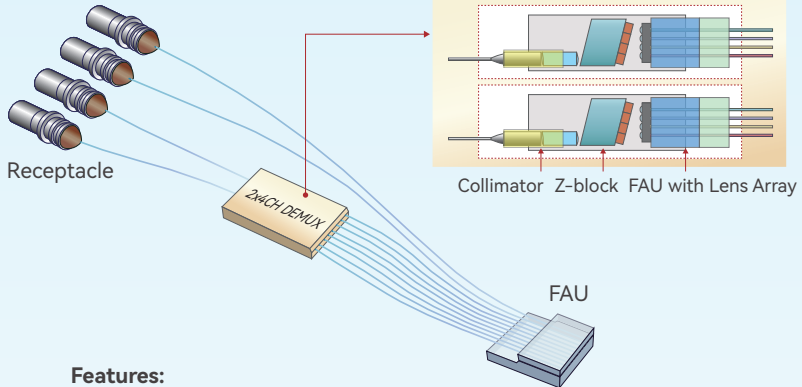


Application

WDM Optical Subassemblies for FR/LR Transceivers

Z-block Integrated Subassemblies

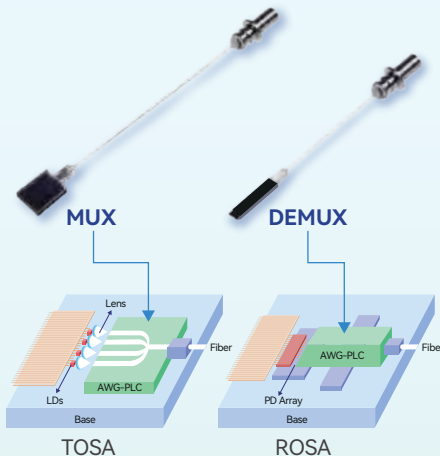
800G/1.6T 2×FR4



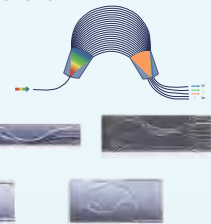
Features:

- Integrated with Receptacle, Collimator, Z-Block, Lens Array
- Used for silicon photonics transceivers

PLC-based CWDM/MWDM/LWDM



Strategic chip partner

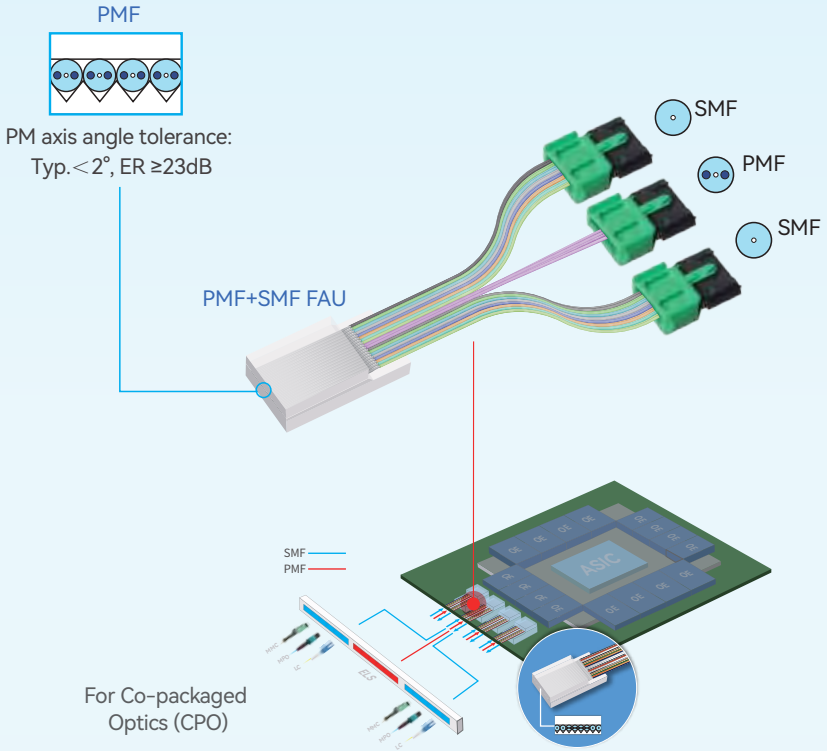


Features:

- Customizable: wavelength, size, pitch
- Collaborating with leading global chip manufacturers
- Joint custom chip capability

CPO-Related Subassemblies

High-Precision Pitch FAU

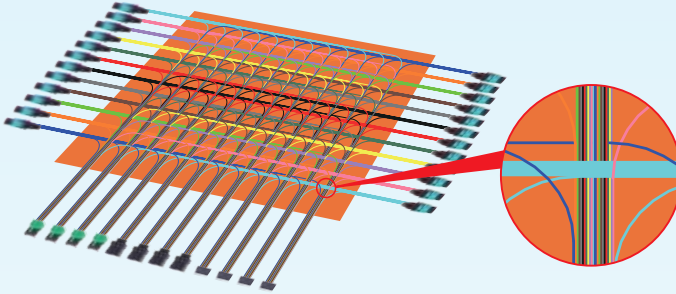


Features:

- Core offset: Max. $0.7\mu\text{m}$ @42 channels (based on Best Fit algorithm);
Max. $1.2\mu\text{m}$ @42 channels (based on MEC method)
- Effective delamination control via adhesive & process control

CPO-Related Subassemblies

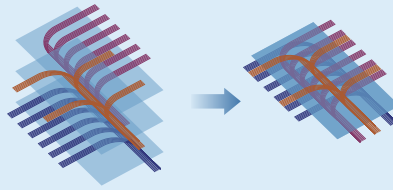
Fiber Shuffle



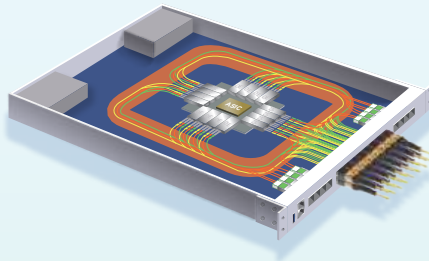
✓ Fully automated testing platform supporting up to 288 channels for IL, RL, and polarity testing

✓ Automated Fiber Routing Design & Fiber Laying

✓ Flexible thin film substrates
Multi-layer design



For Co-packaged Optics (CPO)



Fiber Connectivity

Patch Cords

MMC-MMC Trunks



Optional Connector Types

MMC Connector



SN-MT Connector



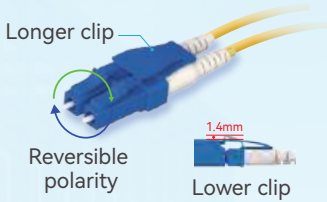
MTP/MPO Connector



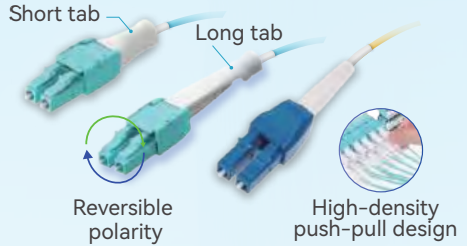
Fiber Connectivity

Connectors

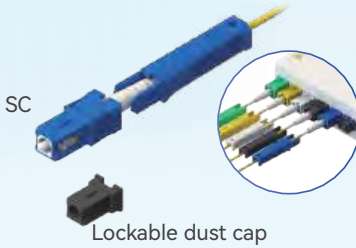
LC Duplex Connector



LC Uniboot Connector



Secure Lockable Connector

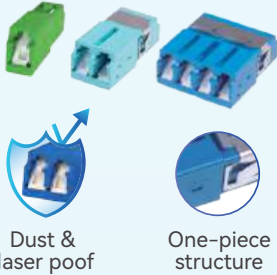


PM (Polarization Maintaining) Connector



Adapters

LC Adapter with Inner Shutter



LC Compact Adapter



HD Patch Panel



Customized Cassettes

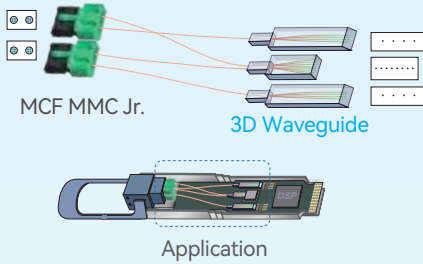


1U	2U	4U
144F LC	288F LC	576F LC

Multi-Core Fiber Subassemblies

MCF Fan-in/Fan-out

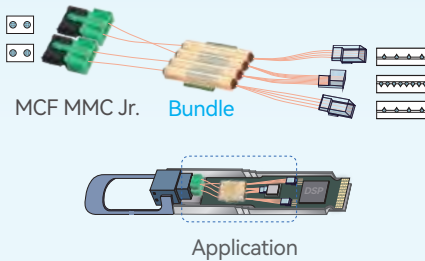
MMC + MCF FIFO (Based on 3D Waveguide)



Features:

- Insertion Loss:
 - Tx < 1.05dB (MMC 0.35dB + FIFO 0.7dB)
 - Rx < 1.35dB (MMC 0.35dB + FIFO 1.0dB)
- Return Loss > 45dB
- Crosstalk < -45dB
- Operating Temperature: -10°C to +70°C

MMC + FIFO + FAU



Features:

- Insertion Loss < 0.7dB
(MMC 0.35dB + bundle 0.35dB)
- Return Loss > 45dB
- Crosstalk < -45dB
- Operating Temperature: -10°C to +70°C

MCF FIFO (External applications)

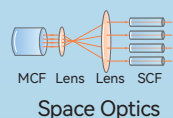
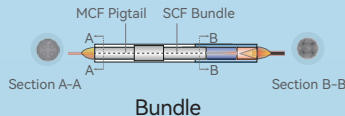
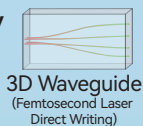
4-core or 7-core
Multi-Core Fiber (MCF)



Features:

- Insertion Loss < 0.35dB (Bundle@4-core)
- Return Loss > 50dB
- Crosstalk < -45dB
- Operating Temperature: -40°C to +85°C

Three Technology Platforms



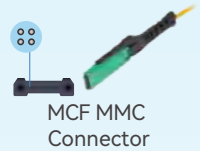
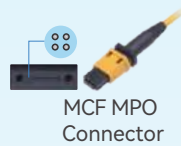
Multi-Core Fiber Subassemblies

MCF Patch Cords/Connectors

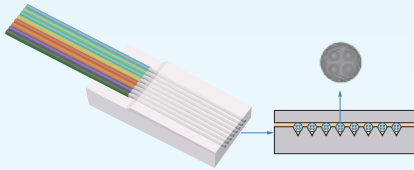


Features:

- Insertion Loss < 0.35dB
- Return Loss > 50dB(APC)
- Crosstalk < -45dB



MCF FAU

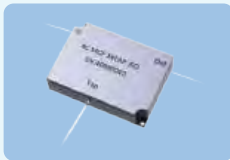


Features:

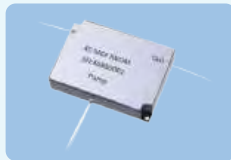
- Pitch Tolerance: < 0.5 μ m @ 8CH
- MCF Angle: < 1° (typical < 0.4°)

MCF Hybrid Subassemblies for EDFA

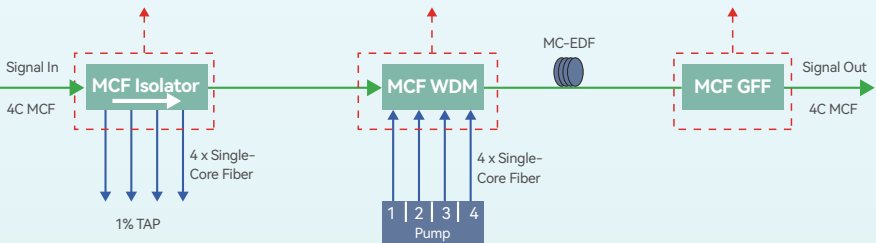
✓ MCF Isolator + TAP



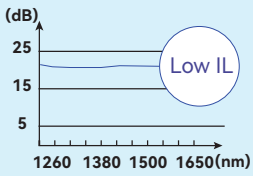
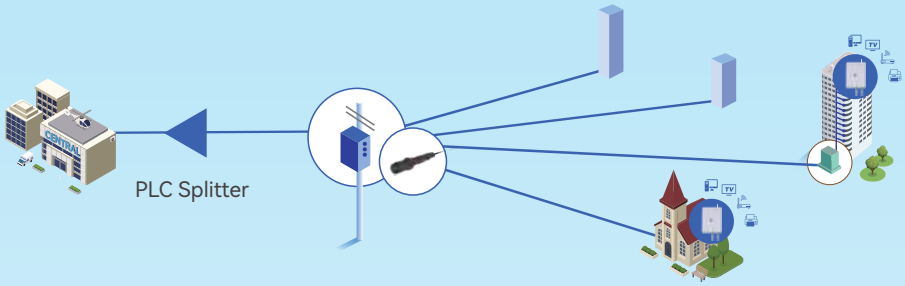
✓ MCF 980/1550 WDM



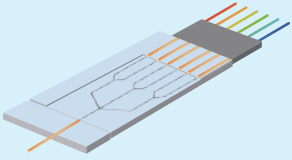
✓ MCF GFF



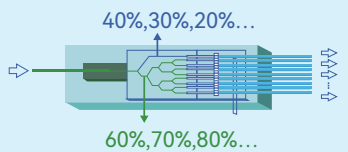
PLC Splitter



1×128CH Typ. IL 22.5dB
1×32CH Typ. IL 15.9dB



Special splitting-ratio
1×3,1×6,1×9...



Asymmetric PLC splitter
ratio (%)60/40, 70/30, 80/20...

Device/ABS/LGX/Rack Type



Device



ABS Module

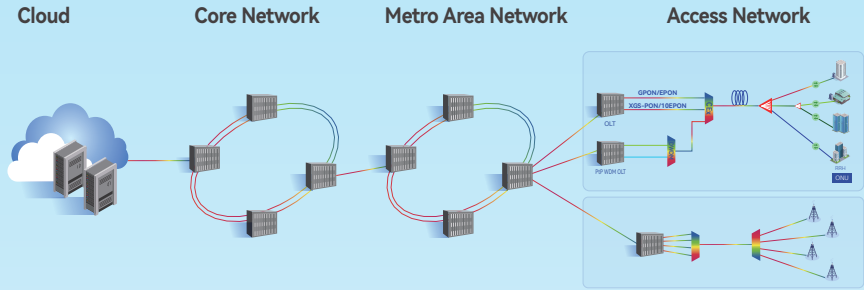


LGX Module



19" Rack

WDM(Wavelength Division Multiplex)



DWDM(TFF/AWG)



Up to 40CH/48CH

Monitoring or testing extension ports can be added

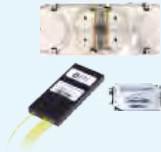
DWDM



Up to 32CH

Any combination of 1/3U patch panels

CWDM(CCWDM)



Up to 18CH

Various packaging structures
Free-space technology

PON WDM



Supports co-existence with GPON XGS-PON and NG-PON2

Supports various 5G fronthaul networking modes

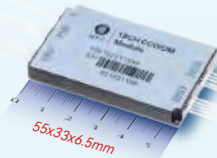
Miniaturized WDM



CLWDM (12CH)
CCWDM (8+1CH)

Typical value (-40°C)
IL<0.9dB

Suitable for 5G or other low-latency scenarios



CCWDM (18CH)

Typical value (-40°C)
IL<0.9dB

Suitable for 5G or other low-latency scenarios



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