

Global Leader
in Specialty Fibers

OptoNest



OptoNest

www.optonest.com

About OptoNest

광통신용 특수 광섬유와 광섬유 소자의 선두주자인 (주)옵토네스트는 2000년도 설립 이후 광 전자기술을 기초로 광 감식기용 및 광 증폭용 기능성 특수광섬유, 광통신용 광섬유 소자, 광섬유 센서 등 광자(Photonics)기술 응용에 많은 기여를 하고 있습니다.

(주)옵토네스트는 20여개의 국내 외 발명특허 등록 및 NT마크인증, 장영실(IR-52)상과 한국 100대 특허 기술상 수상 등으로 기술력을 인정받았으며, 이를 바탕으로 최고의 제품으로 고객에게 다가가고자 합니다. (주)옵토네스트는 광통신용 특수광섬유, 광 센서 네트워크 시스템, 산업용 및 의료용 레이저 제품을 고객 여러분께 제공하고자 최선을 다하겠습니다.

Founded in 2000, OptoNest Corp. is a leader in the field of specialty optical fiber for optical communication use and optical fiber device. OptoNest Corp. is making a big contribution to the application of the technology of photonics, such as functional specialty optical fiber for optical attenuation and optical amplification, optical fiber device for optical communication, optical fiber sensor based on the technology of optoelectronics.

OptoNest Corp. has been awarded 20 domestic and overseas patents, NT mark, IR-52 and Korea's 100 Best Patented Technology Award. OptoNest Corp. will get close to the customers with new technical development and best products based on its distinguished technologies.

OptoNest Corp. will do its best to supply new and efficient products to customers such as specialty optical fiber for optical communication, optical sensor network system and laser for industrial and medical.

OptoNest成立于2000年，光通信用特殊光纤与光纤元器件领先者的 OptoNest是以光电子技术为基础正为光衰减器类及光增幅类功能性特殊光纤，光通信用光纤元器件，光纤维传感器等光子技术应用正投入更多的贡献。

OptoNest拿到20多个国家国内外发明专利及NT商标认证，张英实（IR-52）奖，韩国100种类专利技术奖中获优秀奖等并得到了技术力的肯定，以此将做出最专业最完美的产品服务全人类。OptoNest把光通信用特殊光纤，光传感器网络管理系统，产业用及医疗用激光产品方面提供给客户并会尽最大能力服务于客户。



History

History 2000 ~ Now

- The development of sealing glass of fibers type that can be melted by infrared lasers
- The development of optical fiber (EY-FPDCF) of fluoro-phosphates double-clad structure with doped Erbium/Ytterbium
- Selected as of 18th High-Tech Company by Innopolis Foundation
- MPO Attenuator & MPO Loopback Attenuator launch for the first time in the world 2015
- Agreement on National Defense Business
- Awarded Tower of Export 2010
- KOTRA Certificate
- Acquired the certificate of INNO-BIZ (Gwangju and Jeonnam Office)
- Received 100 Best Patented Technology Award (Optical Fiber for Optical Attenuation Use; Hankuk Ilbo)
- Received the New Technology Business Award (Gwangju Metropolitan Government)
- Received Industrial Research-52 (Ministry of Science and Technology) 2004
- Approved as the company specialized in parts (Ministry of Commerce, Industry, and Energy)
- Acquired the certification of New Technology (Ministry of Commerce, Industry, and Energy)
- Acquired ISO 9001 certification (DMV Certification Center)
- Selected as a business for top-ranking products of new technologies (Ministry of Commerce, Industry, and Energy)
- Developed specialty optical fiber for optical attenuation use for WDM
- Founded OptoNest Corp. : 2000

Attenuation Fiber

04

Attenuation Fiber

Product Description



옵토네스트의 감쇠용 광섬유는 DWDM 어플리케이션에 적합하도록 넓은 파장범위에서 평탄한 감쇠특성을 가지도록 제작 되었습니다. 옵토네스트의 감쇠용 광섬유는 높은 신뢰성과 입력 광파위에 안정된 내구력을 가집니다. 옵토네스트의 감쇠용 광섬유는 1~40dB의 넓은 감쇠범위와 더불어 안정된 기하구조로 설계되어 고정형 플러그 및 인라인 광감쇠기와 Terminator 생산에 적합합니다.

OptoNest's optical fiber for attenuation is designed to have flat attenuation characteristics over the wide wavelength range for DWDM applications.

OptoNest's optical fiber for attenuation has high reliability and stable durability in relation to input optical power.

OptoNest's optical fiber for attenuation is designed with stable geometry with a wide attenuation range of 1~40dB, making it suitable for the manufacturing of fixed plugs and inline optical attenuators and terminators.

OptoNest의 감쇠광섬유 설계는 DWDM 응용의 평탄 감쇠 특성을 갖도록 제작되었습니다.

OptoNest의 감쇠광섬유는 높은 신뢰성과 입력 광파위에 안정된 내구력을 가집니다.

OptoNest의 감쇠광섬유 설계는 안정적인 기하구조로 설계되어 고정형 플러그 및 인라인 광감쇠기와 Terminator 생산에 적합합니다.

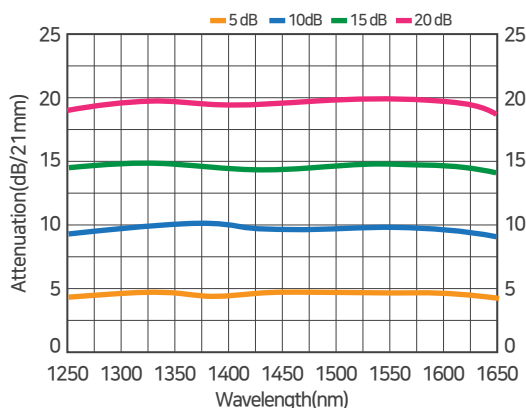
Features

- Flat Attenuation Value over 1250~1650nm
- Precise Attenuation Control for DWDM System Application
- Durability for High Input Power Applications
- High Reliability (GR-910 Satisfaction)
- Wide Range of Attenuation for a Variety of Applications(1~40dB)

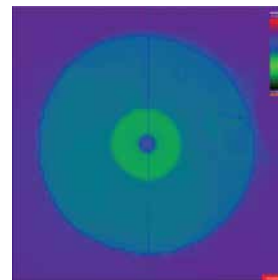
Application

- EDFA Optical Power Adjustment
- Operation Power Equalization for DWDM Systems
- CATV Systems
- Bi-directional Communication Systems
- Fixed Plug and Inline Optical Attenuators

Attenuation Curves(1250~1650nm)



Fiber Geometry Measurement



Clad Center	0.25	μm
Core Diameter	9.91	μm
Core Center	-0.12	μm
Concentricity	0.37	μm

Specification

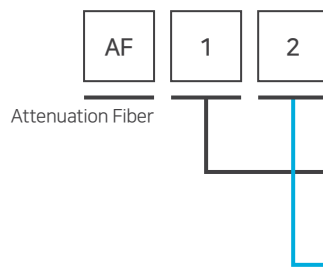
Optical		
Operating Wavelength	1250 ~1650 nm	
Attenuation Range	10 mm	1~20 dB
	15.4 mm	1~30 dB
	21 mm, 22.4 mm	1~40 dB
Attenuation Tolerance (@1310nm&1550nm)	1-10 dB	±0.2 dB
	11-14 dB	±0.3 dB
	15-19 dB	±0.4 dB
	20-29 dB	±0.5 dB
	≥ 30 dB	±0.6 dB
Cutoff Wavelength	1200±20 nm	
Numerical Aperture	0.12	
Max Input Power	1W	

Geometrical		
Core Diameter	8~10 μm	
Cladding Diameter	125±0.5 μm	
Coating Diameter	250±15 μm	
Core/Clad Concentricity Error	≤ 0.8 μm	

Environmental & Mechanical		
Operating Temperature Range	-40°C ~ 85°C	
Storage Temperature Range	-40°C ~ 85°C	
Proof Test	≥100kpsi	

Ordering Information

Ordering number shall be named in the following format.



Example Ordering Code : AF2B
(Attenuation Fiber : 2dB, 15.4mm type)

Number	Code	Description
1 (Attenuation Value in dB)	1~40	1~40dB
	A	10mm Type
2 (Attenuation Length in nm)	B	15.4mm Type
	C	21mm Type
	D	22.4mm Type
	O	Others

*For other products, please contact us.

EY-FPDCF

06

EY-FPDCF

Product Description



옵토네스트의 어븀/이트륨이 첨가된 불소인산염계 이중 클래드 구조의 광섬유는 기존 규산염계 광섬유보다 짧은 길이로 고출력이 가능한 고이득(High gain) 구조를 갖도록 설계되어 1550nm 파장에서 고출력 발진이 가능한 레이저용 광원 소재로 개발되었습니다. 이중 클래드 구조를 적용하여 고출력 Pump 광의 흡수효율이 매우 높고, 고농도로 도핑이 가능한 불소인산염계 유리의 특성을 이용하여 높은 이득 특성을 구현하여, 수십 나노초 이하의 매우 짧은 펄스폭과 수십 kW급 순간 파워를 가진 펄스광섬유 레이저용 광원에 적합하도록 설계된 광섬유입니다.

OptoNest's Erbium/Ytterbium Co-doped Fluoro-phosphate Double Clad Fiber(EY-FPDCF) for lasers has been developed as a material for lasers capable of high output oscillation at a wavelength of 1550 nm, which has a high gain structure that allows high output with a shorter length than conventional silicate-based optical fiber. By adopting the double clad structure, the absorption efficiency of high power pumped light is very high. It is an optical fiber designed to be suitable for a pulsed optical fiber laser with a very short pulse width of tens nanoseconds and tens of kW of instantaneous power through the use of the characteristics of fluoro-phosphate glass, which can be doped at a high concentration in order to realize high gain characteristics.

掺铒/铽的氟磷酸盐双包层光纤

OptoNest의基于氟磷酸盐的激光光纤被开发为能够在1550nm波长下产生高输出振荡的激光源材料，其具有高增益结构，能够以比传统硅酸盐基光纤更短的长度输出。采用双包层结构，利用氟磷酸盐玻璃的特性，实现了高增益特性，具有高输出泵浦光的高吸收效率，可以高浓度掺杂，脉冲宽度非常短，几十纳秒，瞬时功率为几十千瓦。其设计适用于脉冲光纤激光器的光源。

Specifications

Optical Specifications

Operating Wavelength	1530 - 1560nm
Core Numerical Aperture	0.12±0.01
Cladding Numerical Aperture	0.5
Mode Field Diameter	25±2μm
Cladding Absorption	18±0.5dB/m at 975nm
Core Absorption	400±10dB/m near 1535nm

Geometrical Specifications

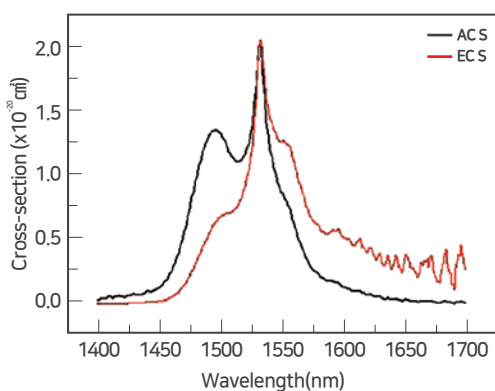
Core Diameter	25.0±2.0 μm
Cladding Diameter	125.0±5.0 μm
Coating Outer Diameter	300.0±15.0 μm

Mechanical Specifications

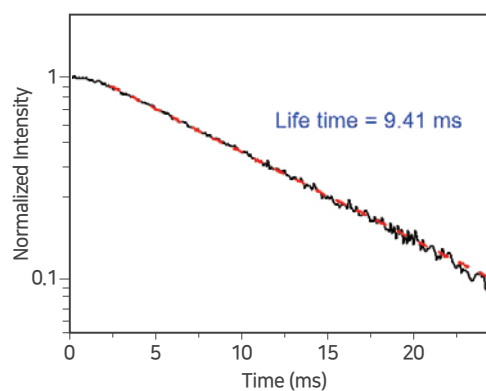
Coating Material	UV Curable Acrylate
Proof Test Level	100 kpsi

Features

- Light Source of Fiber Laser within Short Length of 30cm
- Double Clad Design – High Power Performance and High Power Conversion Efficiency
- Large Core Fiber Design High Power Output
- Polymer Acrylate Dual Coating – Strong Durability and Resistance to Extreme Environmental Conditions
- High Fiber Proof Test > 100 kpsi



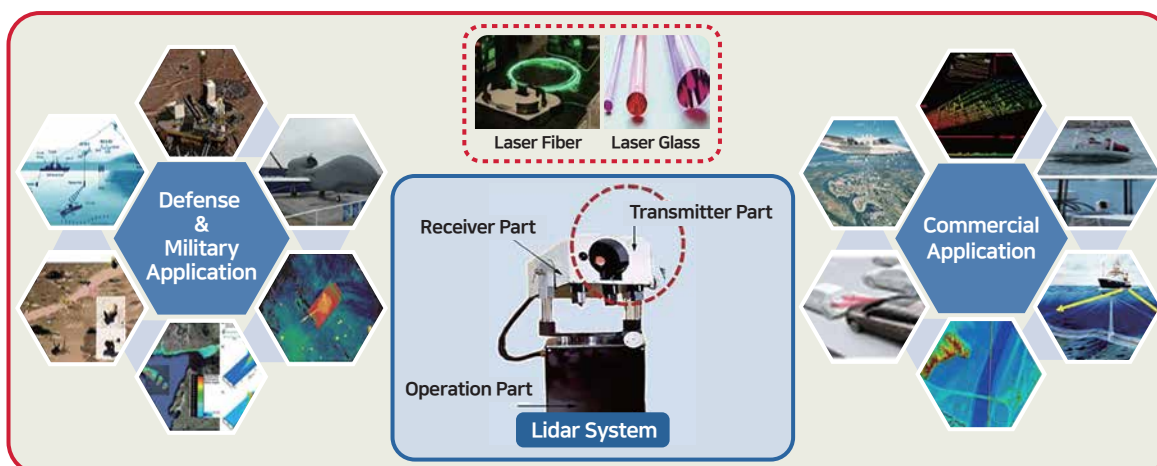
< Light Emission & Absorption
Cross-Section Area of Core >



< Fluorescence Lifetime of Core >

Application

- High Power Fiber Lasers
- CW and Pulsed Amplifiers
- Military, Industrial and Medical Fiber Lasers
- Eye-Safe Lasers and Amplifier (Emitting around 1.5 μ m)
- Military and Commercial LiDAR (Light Detection and Ranging)
- Range Finder



Attenuator

08

Attenuator

Product Description



옵토네스트의 광감쇠기는 수입검사부터 철저한 품질관리를 통해 국제 규격인 GR-910 Core에 맞는 End-face Condition, Mechanical/Environmental Characteristics에 부합되게 제작 되었으며, 이를 통해 세계적인 광통신관련 업체에 납품을 하고 있습니다.

OptoNest's optical attenuators are manufactured under the quality control throughout whole manufacturing process including IQC, end-face condition, mechanical/ environmental characteristics which comply to the international standard GR-910 Core and OptoNest has been supplying the attenuators globally based on its distinguished performance.

OptoNest의衰减器从入库检查通过彻底的品质管理适用于国际规格GR-910 Core的End-face Condition, Mechanical/Environmental Characteristics所制作而成, 亦是通过此项提供给世界光通信企业。



< Fixed Attenuators >



< Inline Attenuators >



< Loopback Attenuators >

Features

- Ideal for DWDM Application
- Precise Attenuation Control
- High Return Loss
- High Reliability

Application

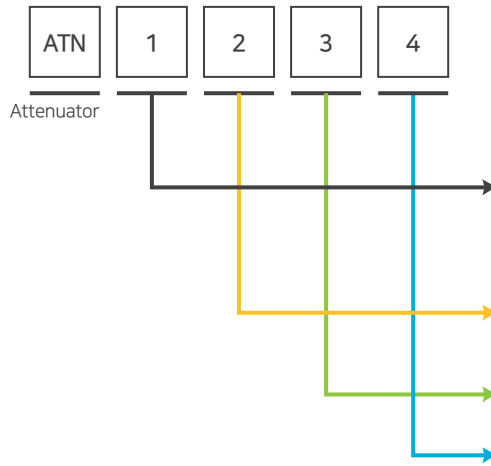
- Dynamic Power Leveling in Optical Add/Drop Multiplexing
- EDFA
- Dynamic Power Balancing in DWDM Systems
- CATV Systems
- Optical Network Equipment
- Bi-directional Systems

Specifications

Parameter	
Operating Bandwidth	1250 ~ 1650nm
Connector Type	SC, FC, ST, LC
Attenuation Range	1 ~ 30dB
Attenuation Tolerance	1 ~ 10dB±0.5dB, 11 ~ 30dB±10%
Return Loss	UPC≥55dB, APC≥60dB
Polarization Dependent Loss	0.2dB
Operating Temperature Range	-40°C ~ 75 °C
Storage Temperature Range	-40°C ~ 85°C

Ordering Information

Ordering number shall be named in the following format.



Example Ordering Code : ATNLCAFA5
 (Attenuator : LC Type, Fixed Attenuator, APC, 5dB)

Number	Code	Description
1 (Connector Type)	LC	LC Type
	SC	SC Type
	FC	FC Type
	ST	ST Type
2 (Attenuator Type)	F	Fixed Attenuator
	I	In-line Attenuator
	L	Loopback
3 (Polishing Type)	U	UPC
	A	APC
4 (Attenuation Value in dB)	1~40	1~40dB

* For other products, please contact us.

GR-910 Core Compliance(Full Test: Pass)



MPO Jumper Cord

Product Description



옵토네스트의 MPO 점퍼코드는 8심, 12심, 24심으로 된 MT 페룰을 사용하여 집적도를 향상시킨 다중광섬유 점퍼코드입니다. MPO 점퍼코드는 고밀도 연결, 낮은 삽입손실과 반사를 제공합니다.

OptoNest's MPO Jumper Cords are Multi-fiber jumper Cords using the MPO in fiber counts of 8, 12 or 24. MPO Jumper Cords provide high-density connections and offers low insertion loss and reflectance.

OptoNest의 MPO跳线以8芯, 12芯, 24芯为MT插芯所使用并提高集积度的多模光纤跳线。MPO跳线提供高密度连接, 低插损及反射。

Features

- High Density
- Push/Pull Mating for Quick Installation
- Environmentally Stable

Application

- Telecommunications
- Local Area Network
- Fiber to the Home
- Testing Instruments

Specifications

Parameter				
Type	Standard		Super Low Loss	
	Single-Mode	Multi-Mode	Single-Mode	Multi-Mode
Typical Insertion Loss	0.25dB	0.20dB	0.10dB	0.08dB
Max. Insertion Loss	0.70dB	0.50dB	0.35dB	0.25dB
Return Loss	≥60dB(Angle)	≥25dB(Flat)	≥60dB(Angle)	≥25dB(Flat)
Repeatability	≤0.3dB	≤0.2dB	≤0.3dB	≤0.2dB
	(500 Matings)	(500 Matings)	(500 Matings)	(500 Matings)
Operating Temperature	-20 ~ 75°C			

MPO Attenuator

Product Description



옵토네스트의 MPO Attenuator는 MPO Interconnection을 이용한 40/100G Parallel Optic Transmission 등에서 모든 채널의 광 신호 세기를 일정하게 감소시키는데 사용됩니다. MPO Attenuator를 사용하면 기존의 각 채널에 개별적으로 감쇠기를 연결하는 방식에서 벗어날 수 있어 시간과 부피를 획기적으로 줄일 수 있어 네트워크 구성을 보다 간결하게 만들어 줍니다. 옵토네스트의 MPO Attenuator는 TIA/EIA 604-5, IEC 61754-7를 충족하며 RoHS를 준수합니다.

OptoNest MPO Attenuator is used to reduce optical-signal power in all channels of 40/100G parallel optic transmission, with using MPO Interconnection.

Technique of this product makes network's composition more concise than those of conservative way which is the connection method of attenuator separately in each channel, as downsizing the volume and saving time. This MPO Attenuator meets TIA/EIA 604-5, and IEC 61754-7 with compliance for RoHS.

OptoNest의 MPO衰减器用于通过MPO互连在40/100G并行光纤传输中不断降低所有通道的光信号功率。MPO衰减器无需将独立衰减器连接到每个现有通道，大大减少了时间和体积，从而简化了网络配置。OptoNest的MPO衰减器符合TIA / EIA 604-5, IEC 61754-7, 符合RoHS标准。

Features

- 1~20dB Attenuation Level
- High Durability
- Compact Housing Dimension
- QSFP Available
(Option of Female/Male Type of MTP Connector)
- RoHS Compliant

Application

- Data Center Infrastructure
- Storage Area Network and Fiber Channel
- Various 40G and 100Gbps Protocols

Specifications

Parameter	
Operating Wavelength	1310/1550nm(Single-Mode)
Attenuation Range	1~20dB
Attenuation Tolerance	1~10dB: ± 1 dB, 11~20dB: $\pm 10\%$ (for 2 Wavelengths)
Return Loss	≥ 60 dB (8°C Polishing, Single-Mode)
Operating Temperature	-20 ~ 75°C
Housing Dimension	Width 11.3mm / Length 80.0mm / Height 8.1mm

MPO Loopback

Product Description



옵토네스트의 MPO Loopback은 40/100G 네트워크에서 광링크(optical link)를 테스트하기 위하여 사용됩니다. 옵토네스트의 MPO Loopback은 TIA/EIA 604-5, IEC 61754-7를 충족하며 RoHS를 준수합니다. 또한 네트워크 구성요소의 Burn-In Test를 위한 동작특성 및 Compact한 Size를 제공합니다.

OptoNest's MPO Loopback is used optical link test at 40/100G network. The MPO Loopback which strictly complies with the RoHS, not only meets

the criteria of both TIA/EIA 604-5 and IEC 61754-7, but also provides compacted size for a test of Burn-In and network component.

OptoNest의 MPO Loopback은 40/100G 네트워크에서 광링크(optical link)를 테스트하기 위하여 사용됩니다.

OptoNest의 MPO Loopback은 TIA/EIA 604-5, IEC 61754-7를 충족하며 RoHS를 준수합니다. 또한 네트워크 구성요소의 Burn-In Test를 위한 동작특성 및 Compact한 Size를 제공합니다.

Features

- Compact Housing Design
- RoHS Compliant
- TIA / EIA 604-5, IEC 61754-7 Compliant
- 1~20dB Attenuation Level
- QSFP Available

Application

- Data Center Infrastructure
- Parallel Optics
- Storage Area Network, Fiber Channel
- 40 and 100Gbps Protocols

Specifications

Parameter		
Operating Wavelength	Single-Mode	Multi-Mode
	1310/1550nm	850nm
Insertion Loss	Single-Mode	Multi-Mode
	≤1.5dB	≤1.0dB
Attenuation Range	1~20dB(Single-Mode)	
Attenuation Tolerance	1~10dB: ±1dB, 11~20dB: ±10% (for 2 Wavelengths)	
Return Loss	Single-Mode	Multi-Mode
	≥60dB (8°C Polishing)	≥25dB
Operating Temperature	-20 ~ 75°C	
Housing Dimension	Width 16.2mm / Length 25.3mm / Height 5.9mm	

MPO Splitter

Product Description



옵토네스트의 MPO Splitter는 고밀도 MPO Connector를 이용하여 제작되어, 입력된 광 신호를 여러 포트에 분리하여 전달하는 Optical Splitter의 기능을 아주 작은 사이즈로 구현했습니다. MPO Connector의 장점을 활용한 옵토네스트의 MPO Splitter는 사용자의 시간 및 사용공간의 부피를 획기적으로 줄여주며, 다양한 Fan-out 및 Cable에 적용될 수 있어 재고 및 유지관리 비용의 절감을 이룰 수 있습니다.

OptoNest's MPO Splitter is made with a high-density MPO Connector, and it realizes the Optical Splitter's function which divides and delivers to optical signal into a number of ports with compact size. User can reduce their time and space volume from the advantage of MPO Connector, Further it can cut the cost for the maintenance and management of inventory due to customizing with various Fan-out or cables.

OptoNest의 MPO Splitter采用高密度MPO连接器制造, 实现了光分路器的功能, 可将输入的光信号传输到极小尺寸的多个端口。OptoNest의 MPO Splitter利用MPO连接器, 大大减少了用户的时间和空间, 可应用于各种扇出和电缆, 从而降低了库存和维护成本。

Features

- Low IL & PDL
- Compact Housing Design
- Easy Maintenance Used MPO Connector
- Quick Connection and Install

Application

- FTTx, CATV Networks
- Data Center Networks
- Telecommunication Networks

Specifications

Parameter				
Operating Wavelength	1260~1650nm(Single-Mode)			
Maximum Input Power	500mW			
Insertion Loss (All ports @1.31, 1.55 μ m)	1 x 4	1 x 8	1 x 16	1 x 32
	≤ 7.5 dB	≤ 10.8 dB	≤ 13.8 dB	≤ 17.5 dB
Uniformity of IL	1 x 4	1 x 8	1 x 16	1 x 32
	≤ 0.8 dB	≤ 1.0 dB	≤ 1.0 dB	≤ 1.3 dB
PDL	1 x 4	1 x 8	1 x 16	1 x 32
	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
Return Loss	≥ 55 dB			
Housing Dimension	Width 11.3mm / Length ≤ 65.0 mm(1x4 or 1x8) / Height 8.0mm			

MEMO





Connect the light

Lead the world

Global Leader

Photonics Technology



OptoNest

www.optonest.com

광주광역시 북구 추암로 149, 500-470

#149, Chuam-ro, Buk-gu, Gwangju, 500-470, Korea

T. +82-62-971-3955~6 F. +82-62-973-3835

500-470 韩国光州广域市北区鷺岩路 149

www.optonest.com