

FIBER OPTIC
COMPONENTS
光器件产品手册

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SUBSIDIARIES

Hechuan Powder
AuspChip
TASLO

子公司

景德镇和川粉体技术有限公司 (和川粉体)
广东瑞芯源技术有限公司 (瑞芯源)
深圳市特思路精密科技有限公司 (特思路)





公司简介 Company Profile

深圳太辰光通信股份有限公司
T&S COMMUNICATIONS CO., LTD.

深圳太辰光通信股份有限公司成立于2000年，于2016年12月在深圳证券交易所创业板上市，证券代码300570。公司的主营业务为各种光通信器件及其集成功能模块的研发、生产和销售。光通信器件主要包括高密度光纤连接器、常规光纤连接器件、PLC光分路器、波分复用器等无源光器件、光模块、有源光缆等有源光器件以及陶瓷插芯、MT插芯、平面光波导晶圆和芯片等基础元器件。此外，公司被认定为“广东省光纤传感(太辰光)工程技术研究中心”，专门从事光纤光栅产品及光纤传感监测系统产品的研发与制造。公司下有瑞芯源、和川粉体和特思路精密三家子公司。公司通过了包括ISO9001、ISO14001、ISO45001体系认证及相关产品广电入网认证、泰尔认证及IECQ QC080000等在内的多项权威认证。

T&S, established in 2000 and located in Shenzhen, is one of the leading optical communication component manufacturers in China, specializing in developing, manufacturing, marketing an extensive range of fiber optical communication products from passive components to active categories for optical communications networks and data centers especially. T&S went public at Shenzhen Stock Exchange with stock code 300570 in 2016. Our products include high density fiber optical cable assemblies, fiber optical connectivity components, couplers, PLC splitters, WDM series, fiber optical transceivers, AOC, ceramic ferrules, MT ferrule, PLC wafer & chip, integrated functional modules and FBG sensors, interrogators and monitoring system etc. T&S has been granted a number of authoritative certifications including ISO9001, ISO14001, ISO45001 system certifications and radio & television network access certifications, TLC certifications and IECQ QC080000 etc.

陶瓷插芯
Ceramic Ferrule

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波分复用器1310/1490/1550/1625nm
1310/1490/1550/1625nm FWDM

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100GHz DWDM OADM Module

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共存波分复用模块
Cex-WDM Module

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紧凑型粗波分复用模块
CCWDM

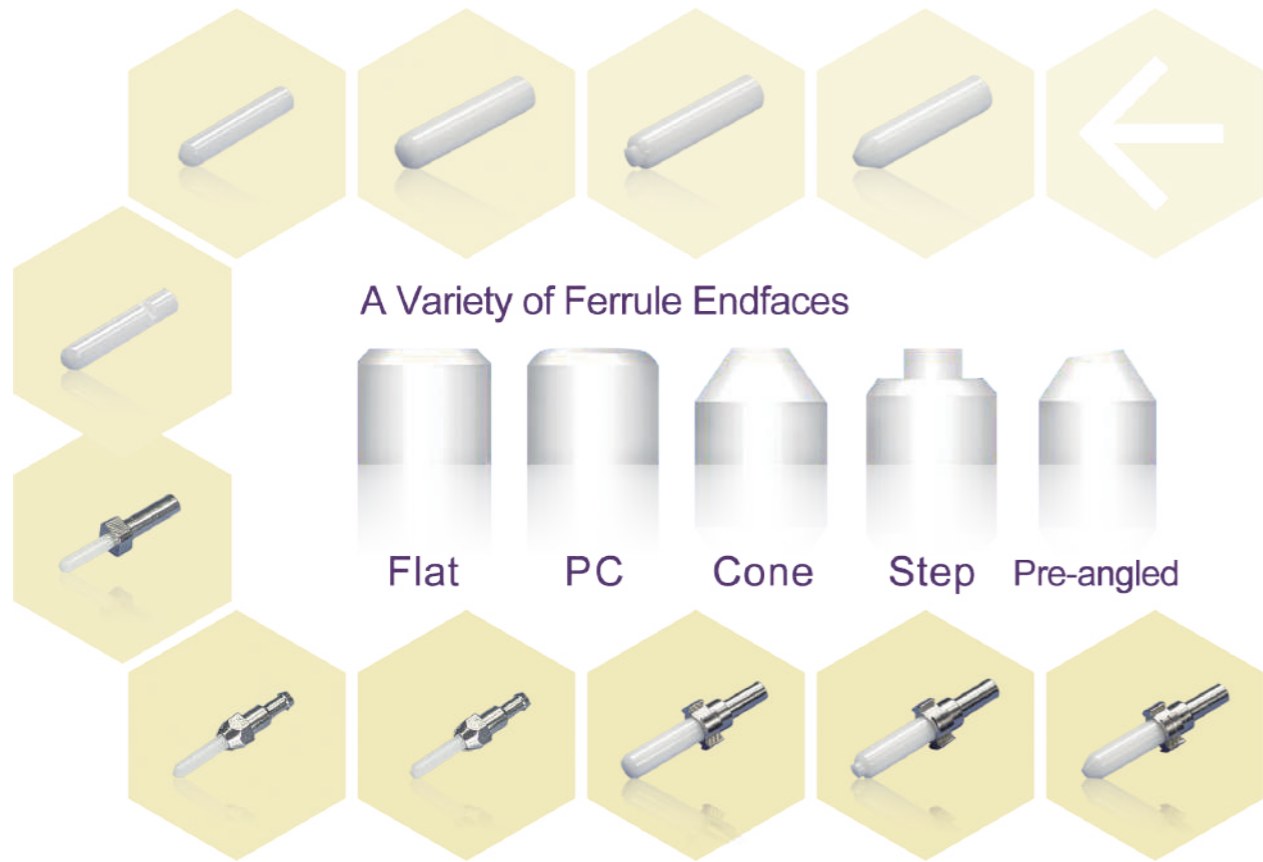
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无热AWG波分复用模块
Athermal AWG WDM Module

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波分复用器
WDM



A Variety of Ferrule Endfaces



特点
Features

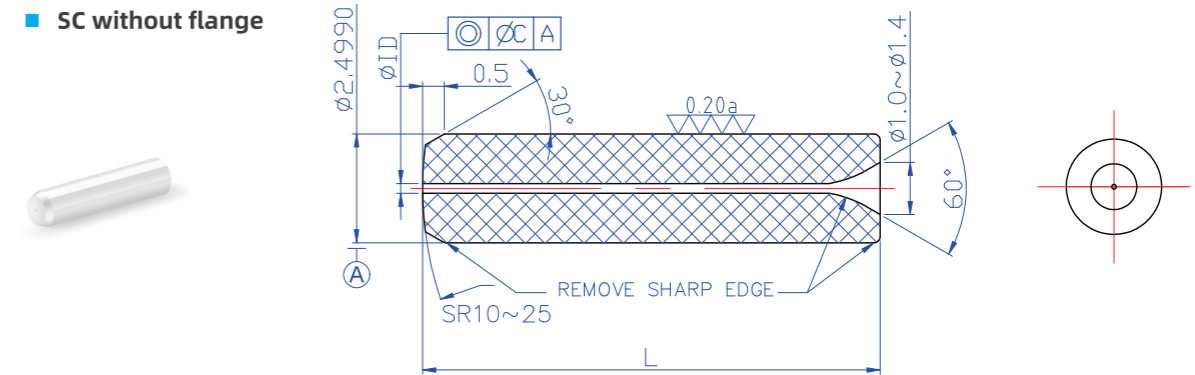
高精度和高可靠性
各种规格标准陶瓷插芯
多种插芯端面形式

High precision and reliability
Varieties of ferrule: SC, ST, LC, MU, SMA
Varieties of endface: Flat, PC, Cone, Step, Pre-angled

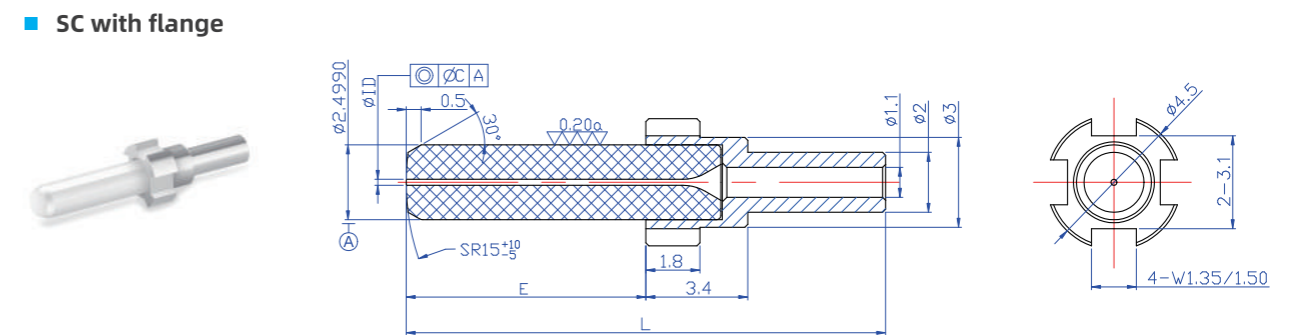
技术规格
Specification

SC & LC Ferrule		Singlemode	Multimode	Grade B	Master
外径	Outside Diameter	(mm)	SC $\phi 2.4990$ /LC $\phi 1.2490$		
外径公差	OD Tolerance	(mm)	± 0.0005	± 0.001	± 0.0003
同芯度	Concentricity	(mm)	≤ 0.001	≤ 0.004	≤ 0.0003
内径	Inner Diameter	(mm)	$\phi 0.125 \sim \phi 0.127$		$\phi 0.125$
内径公差	ID Tolerance	(mm)	$+0.001/-0$	$+0.004/-0$	$+0.0005/-0$
插芯长度	Ferrule Length	(mm)	SC: 10.50 ± 0.05 /LC: 6.45 ± 0.05		
端面曲率半径	End Curve Radius	(mm)	SC: $20+5/-10$		
突出长度	Protrusion Length	(mm)	FLAT/PC: $7.95-8.00$	CONE/STEP: $8.10-8.15$	

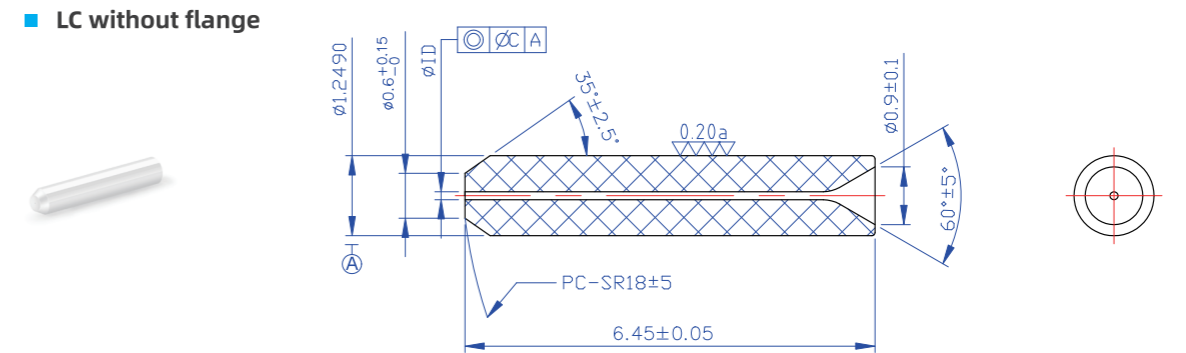
SC without flange



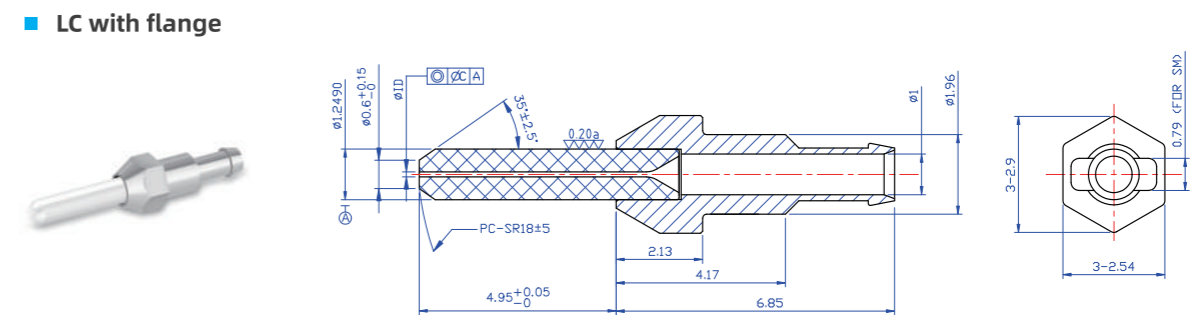
SC with flange



LC without flange



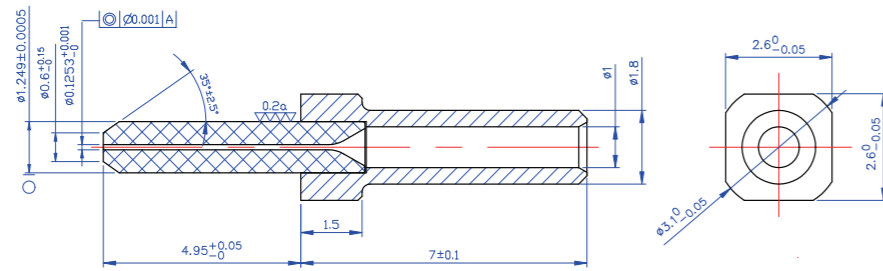
LC with flange



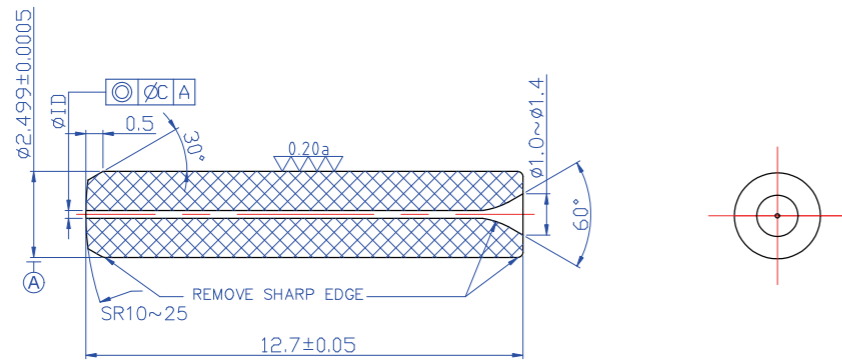
Standard Ferrule 标准插芯

Non-standard Ferrule 非标插芯

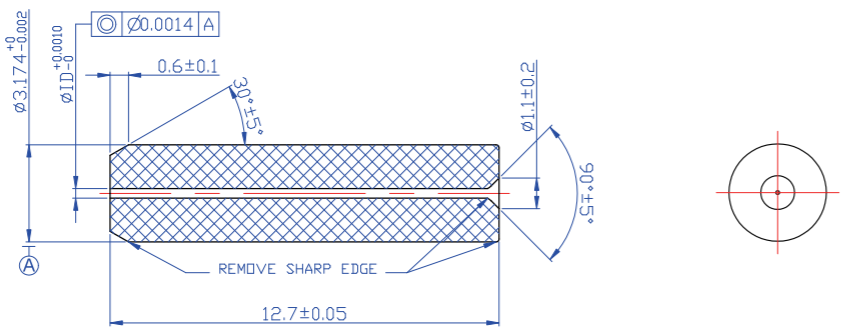
MU/SM



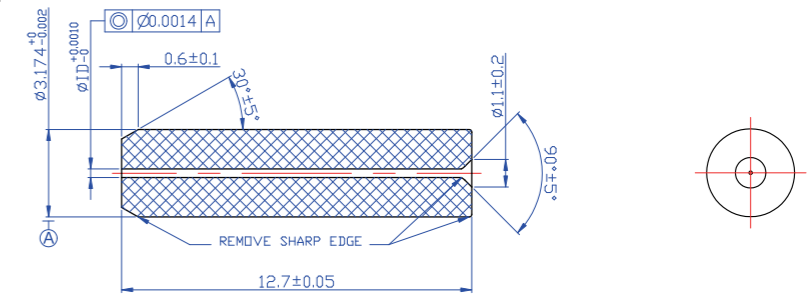
ST/SM/PC



SMA/SM

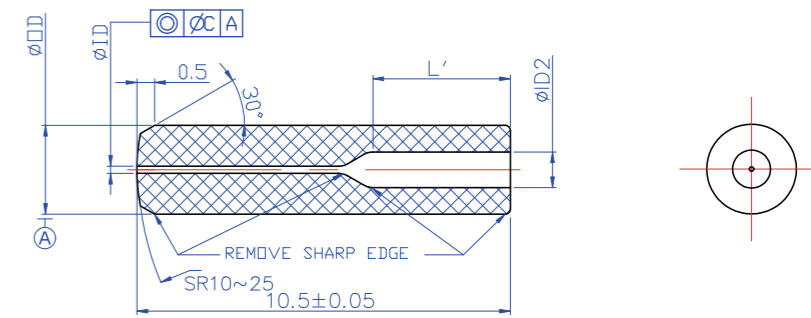


大内孔插芯 Large Hole Ferrule



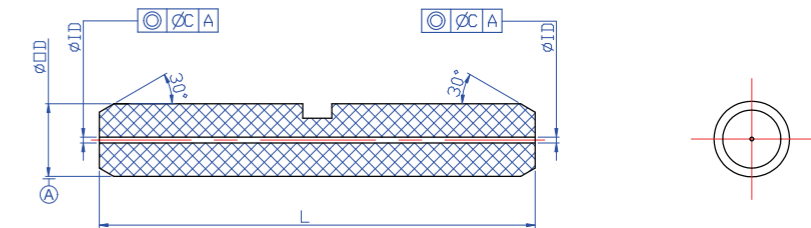
型号	Part No.	FEN-LH-SC	FEN-LH-LC	FEN-LH-SMA	FEN-LH-SDL
外径	Outside Diameter (mm)	φ2.4990	φ1.2490	φ3.1740	φ0.7~φ3.0
外径公差	OD Tolerance (mm)	±0.001	+0.005/-0.0015	+0/-0.004	±0.001
长度	Length (mm)	10.50±0.05	6.40+0.1/-0	12.70±0.05	2.50~14.50
内径区间	ID Range (μm)	128~200	201~400	401~600	601~750
内径公差	ID Tolerance (μm)	≤5	≤10	≤10	≤20
同芯度	Concentricity (μm)	≤10	≤20	≤40	NA

长尾椎插芯 Funnel Ferrule



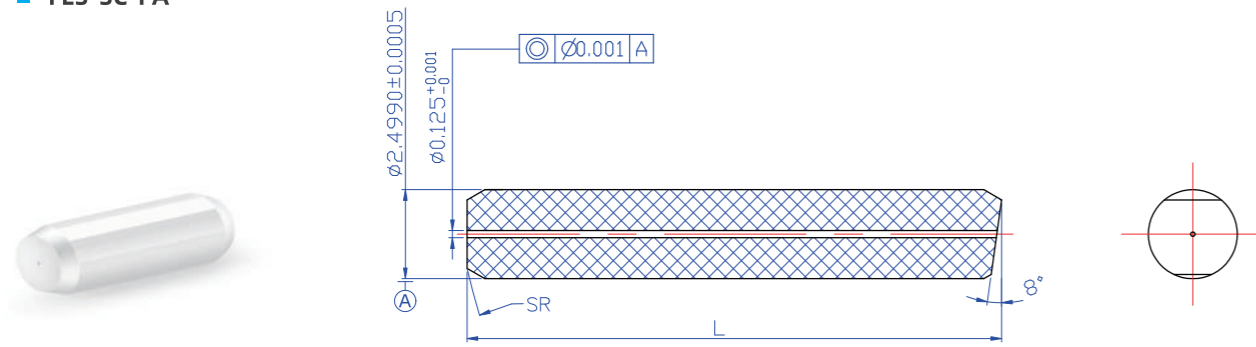
型号	Part No.	FEN-SC-Funnel-1	FEN-SC-Funnel-2
外径	Outside Diameter (mm)	φ1.8~φ2.50	φ1.00~φ1.40
内径	Inner Diameter (mm)	φ0.125~φ0.127	
尾椎长度	ID Range (mm)	φ1.00	φ0.42
同芯度	Concentricity (mm)	≤0.001(Single mode); ≤0.004(Multi mode)	
深孔长度	Inner Hole Length (mm)	0~5	

其他非标插芯 Other Specified Ferrule

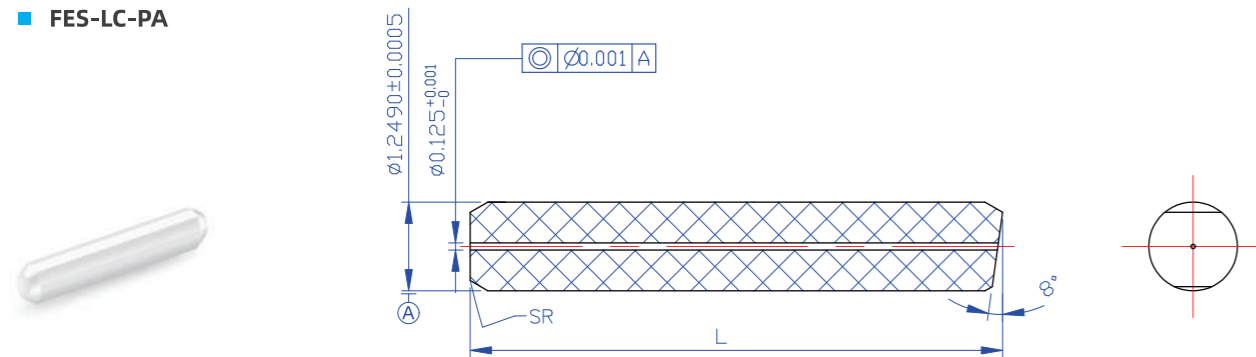


型号	Part No.	FEN-SC-1	FEN-LC-2
外径	Outside Diameter (mm)	φ2.4990±0.0005	φ1.2490±0.0005
内径	Inner Diameter (mm)	φ0.125~φ0.127	
同芯度	Concentricity (mm)	≤0.001(Concentricity assurance at both ends)	
开槽	Slot	Slot or no slot	
长度	Length (mm)	2.0 - 14.5	

■ FES-SC-PA



■ FES-LC-PA



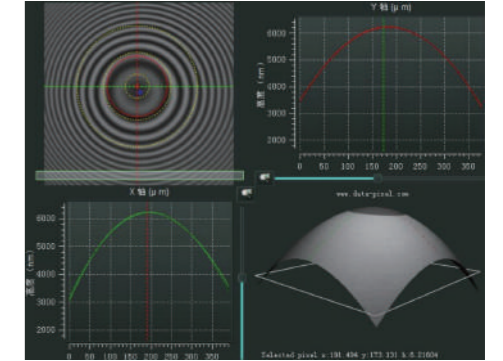
类型	Type	SC SM Stub	LC SM Stub
外径	Outside Diameter (mm)	2.4990±0.0005	1.2490±0.0005
内径	Inner Diameter (mm)	0.125 ^{+0.001} / ₋₀	
同芯度	Concentricity (mm)	≤0.001	
长度	Length (mm)	5~22	

特点

- 符合Telcordia、IEC、TIA 标准
- 100% 光学性能测试以及良好的插芯端面几何参数控制
- 低插入损耗和高回波损耗
- 各类光纤连接器，规格齐全
- 符合RoHS要求

Features

- Telcordia, IEC, TIA Standard Compliant
- 100% optical performance inspection and endface geometric parameter control
- Low insertion loss and high return loss
- Varieties of cable assemblies
- RoHS Compliant



规格参数
Specification

光学性能 Fiber Optic Performance

连接头 Connector	-	FC, SC, ST, LC, MU			
模式 Mode	-	SM			MM
端面 Endface	-	PC	UPC	APC	PC
插入损耗 Insertion Loss	dB	≤0.3	≤0.2	≤0.3	≤0.2
回波损耗 Return Loss	dB	≥45	≥50	≥65	--
光缆外径 Cable Diameter	mm	φ3, φ2, φ0.9			

端面几何参数 Geometric Parameters of Endface

端面 Endface Polishing	-	PC	APC
曲率半径 Radius of Curvature (mm)	SC	10~25	5~12
	LC	7~25	5~12
顶点偏移 Apex Offset	μm	≤70	
光纤高度 Fiber Spherical Height	nm	-125(凹), +100(凸)	
角度偏差 Angular Error	°	0±0.5	8±0.5

产品
Product



单/双芯连接器
Simplex/Duplex Patchcord



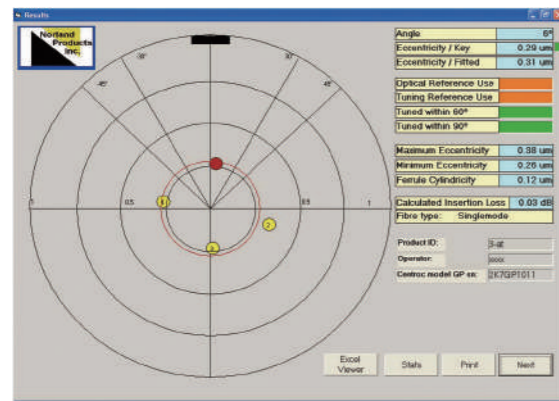
多芯扇出型连接器
Multi-fiber Fanout Cable Assembly

特点

- IEC分级跳线符合IEC61753、61755系列标准
- 随机对接IL性能好，回损高
- 高标准的端面几何参数
- 纤芯偏心检测与调点工艺
- 各种规格接头FC, SC, MU, LC

Features

- IEC graded patchcord complies with IEC61753, 61755 standards
- Good random mating IL performance & high return loss
- Excellent endface geometry parameters
- Fiber core eccentricity test & tuning process
- Varieties of connectors FC, SC, MU, LC



规格参数 Specification

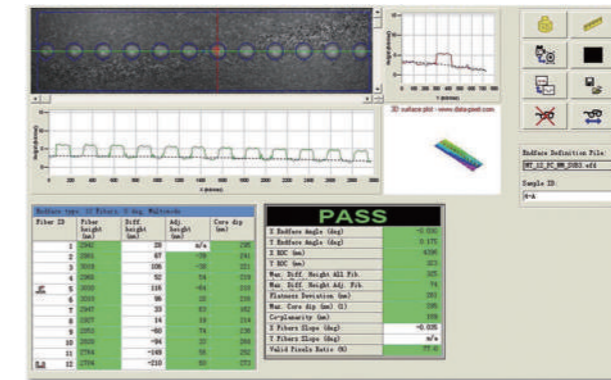
等级 Grade	任意对接 Random Mating (IEC61300-3-34)
Grade B	IL ≤0.12dB (mean) IL Max 0.25dB for 97% samples
Grade C	IL ≤0.25dB (mean) IL Max 0.50dB for 97% samples
Grade D	IL ≤0.50dB (mean) IL Max 1.00dB for 97% samples

特点

- 符合IEC、TIA系列标准
- 多芯光纤接头
- 精密多芯插芯
- 可选用公/母接头
- 可选用带状光缆及迷你缆

Features

- Compliant with IEC and TIA standards
- Multi-fiber termination of 2F, 4F, 8F, 12F, 16F, 24F, 32F, 48F, 72F
- Precision multi-fiber MT ferrule
- Male and female connector type
- Bare & ruggedized ribbon fiber or mini round cable



规格参数 Specification

光学性能 Fiber Optic Performance

接头 MPO/MTP Connector	单模常规插芯 Standard SM MT Ferrule		单模低插损插芯 Low Loss(Elite) SM MT Ferrule		多模常规插芯 Standard MM MT Ferrule		多模低插损插芯 Low Loss MM MT Ferrule	
	Typical	dB						
插入损耗 Insertion Loss			0.35	0.20	0.35	0.20		
	Maximum	dB	0.75	0.35	0.60	0.35		
回波损耗 Return Loss	dB		≥60 of APC (8°Polish)		≥20 for PC			
公 / 母 Male/Female			Male:With Pins, Female:Without Pins					

端面几何参数 Geometric Parameter of Endface

项目 Item	Specification		
	SM	MM	
X轴曲面率半径 RX	mm	Min 2000	
Y轴曲面率半径 RY	mm	Min 5	
光纤高度 Fiber Height	nm	1000 ~ 3500	
总体光纤高度差 Max.Diff.Height All	nm	MAX: 500	
相邻光纤高度差 Max.Diff.Height Adj.	nm	MAX: 300	
X轴角度 X Axis Angle	°	-0.15 ~ 0.15	-0.20 ~ 0.20
Y轴角度 Y Axis Angle	°	APC: 7.80 ~ 8.20	-0.20 ~ 0.20
光纤凹陷 Core Dip	nm	N/A	

注意 Note :
以上数据仅适用于2F, 4F, 8F, 12F, 16F, 24F, 32F, 48F, 72芯产品相关技术规格另行说明。
Data above apply to 2F, 4F, 8F, 12F, 16F, 24F, 32F, 48F MTP/MPO termination products only. Specifications of 72F MTP/MPO termination products are subject to separate explanation.

8F/12F/24F/48F/72F MPO/MTP多芯连接器系列 Multi-fiber Cable Assembly

典型结构
 Typical Structure



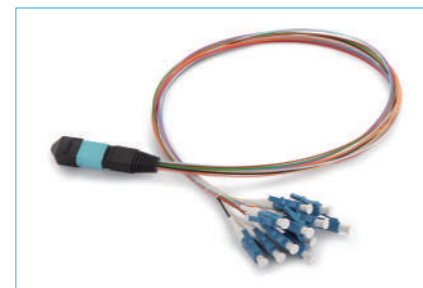
MPO/MTP Harness Fanout Cable Assembly



MPO/MTP Trunk Cable Assembly

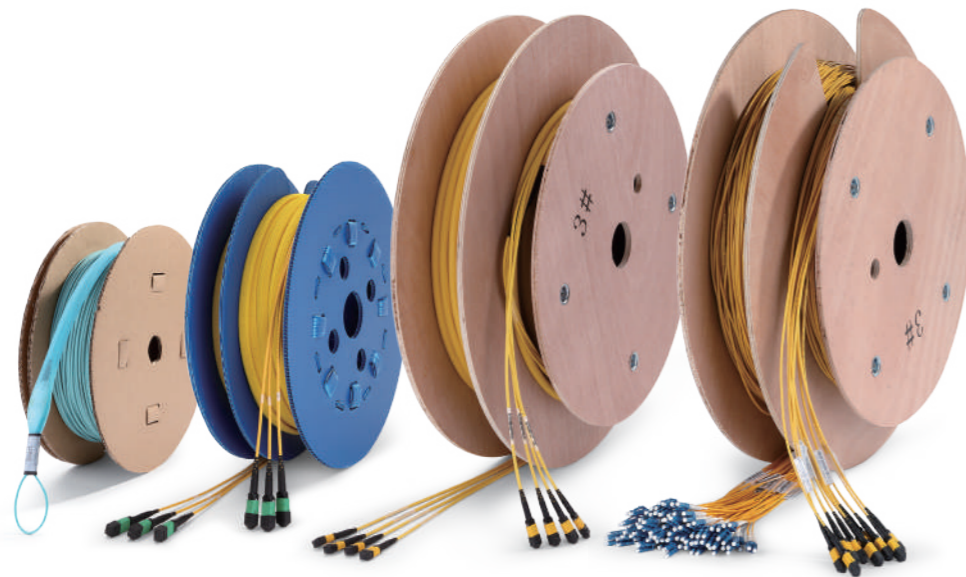


MPO/MTP Shuffle Cable Assembly



MPO/MTP Hydra Cable Assembly

卷轴包装
 Spool Packing



16F/32F MPO/MTP多芯连接器 Multi-fiber Cable Assembly

特点

- 符合最新TIA 604-18-A标准
- 100%光学性能测试以及良好的插芯端面几何尺寸控制
- 插芯外形与传统12芯 MPO/MTP保持一致
- 光纤以16芯为增加数
- 用于下一代并行光传输
- 符合RoHS要求

Features

- Compliant with the latest TIA-604-18-A standard
- Optical performance 100% factory tested and endface geometry polishing controlled
- Same external ferrule footprint as traditional 12-fiber ferrule
- Fiber quantity is a multiple of 16
- Used in next generation parallel transmission
- RoHS compliant



1×16 Fibers



2×16 Fibers



技术指标
 Specification

IL≤0.35dB, RL≥20dB

- 端面、3D标准与12芯MPO/MTP产品保持一致;
- 可提供MM Low Loss 16F/32F系列产品。

IL≤0.35dB, RL≥20dB

- Other standards(endface,3D etc.) are the same as those of 12F MPO/MTP products;
- MM low loss of 16F/32F products are available.

UltraX Series



PLC LGX Enclosure and Accessories



PLC Splitter Enclosure and Accessories



TS-FD1/TS-FD2/TS-RD1 Series



标准测试线(常规接头) Master Cord (Standard Connector)

特点

- 标准测试线符合IEC61754、IEC61755标准
- 随机对接IL性能好，回损高
- 高标准的端面几何参数
- 纤芯偏心检测与调点工艺
- 各种规格连接头：FC, SC, ST, MU, LC, E2000等

Features

- Master cord is in accordance with IEC61754, IEC61755 standards
- Good random mating IL performance & High return loss
- Excellent endface geometry parameter
- Fiber core eccentricity test & Tuning process
- Varieties of connectors: FC, SC, ST, MU, LC, E2000 etc.

技术规格 Specification

参数 Parameters		UPC		APC	
光学性能 Optical Performance	插入损耗 Insertion Loss SM & MM	dB	≤0.10	≤0.10	
	回波损耗 Return Loss	dB	SM	≥55	≥65
MM			≥40	-	
端面几何参数 Geometric Parameter	曲率半径 Radius of Curvature	mm	SC	10 ~ 25	6 ~ 11
			LC	7 ~ 20	6 ~ 11
	顶点偏移 Apex Offset	μm	≤30	≤30	
	光纤凹陷 Fiber Height (Spherical)	nm	±50		
调点参数 Tuning Parameter	纤芯偏心量 Eccentricity (Fiber Core to Ferrule)	μm	≤0.3 (Grade P); ≤0.6 (Grade A)		
			调点角度 Fiber Core Polar Angular	°	±50

标准测试线(MPO/MTP接头) Master Cord (MPO/MTP Connector)

技术规格 Specification

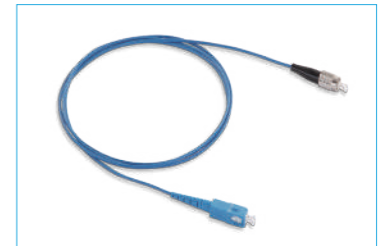
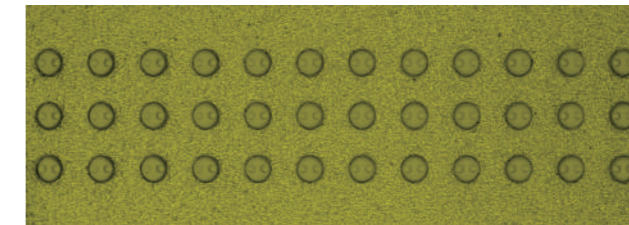
参数 Parameters		SM		MM	
		PC	APC	PC	APC
插入损耗 Insertion Loss	dB	≤0.35	≤0.35	≤0.35	≤0.35
回波损耗 Return Loss	dB	≥50	≥60	≥25	≥25
插芯X轴角度 X Axis Angle	°	+/-0.10 (PC and APC)		+/-0.15	
插芯Y轴角度 Y Axis Angle	°	7.85~8.15 or 0+/-0.15			
插芯X轴曲率半径 RX	mm	≥2000			
插芯Y轴曲率半径 RY	mm	> 60			
光纤曲率半径 Fiber Curvature Radius	mm	> 1			
光纤高度 Fiber Height	nm	1000~2500			
最大光纤高度差 Max.Diff.Height All	nm	Max: <400			
相邻光纤高度差 Max.Diff.Height Adj.	nm	Max: <200			
共面度 Coplanarity	nm	≤200 (单排纤插芯 single-row fiber); ≤100 (双排纤插芯 double-row fiber)			
纤芯凹陷 Core Dip	nm	N/A		-50 ~ +100	

特点

- 单芯/多芯保偏光纤连接器均可提供
- UPC/APC端面研磨
- 插入损耗低
- 高消光比
- 多种保偏光纤可选
- 符合RoHS要求

Features

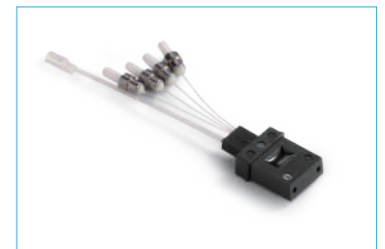
- Single fiber connector or multi-fiber connector available
- UPC APC end face polish
- Low insertion loss
- High extinction ratio
- Multiple PM optical fibers optional
- RoHS compliant



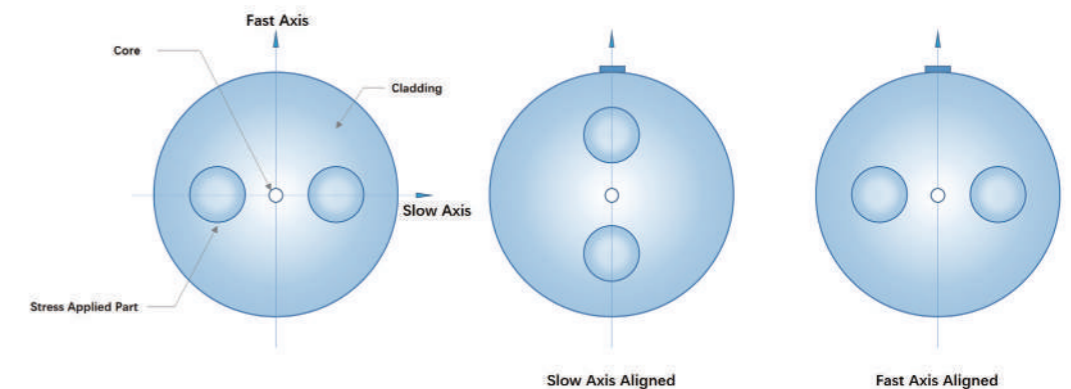
单芯保偏光纤连接器
Simplex PM Patchcord



多芯保偏光纤连接器
Multi-fiber PM Patchcord (MPO/MTP)



多芯 (MT-FA) 保偏光纤连接器
Multi-fiber PM Patchcord (MT-FA)

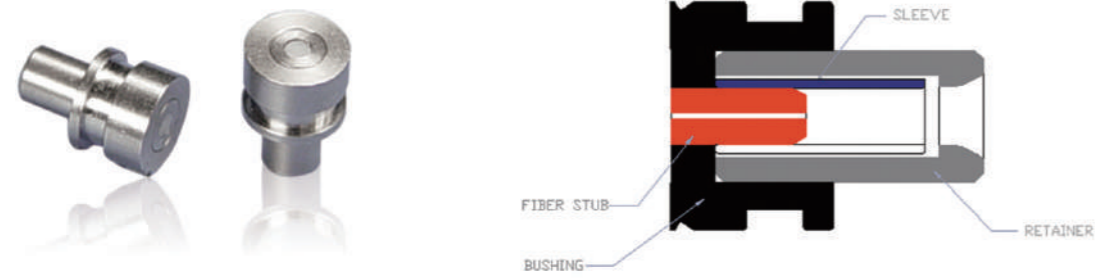


技术规格 Specification

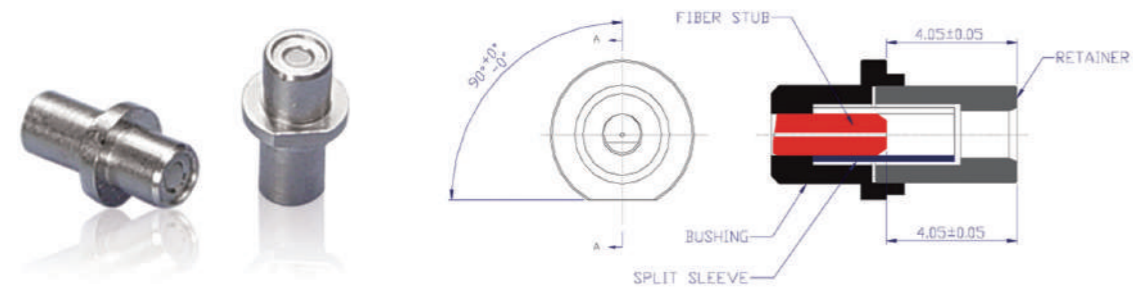
		Multi-fiber Connector	Single Fiber Connector
插入损耗	Insertion Loss (dB)	Low loss≤ 0.35 Standard loss≤ 0.75	UPC≤ 0.2 APC≤ 0.3
回波损耗	Return Loss (dB)	UPC≥50; APC≥60	UPC≥50; APC≥60
消光比	Extinction Ratio (dB)	≥23	≥23
波长	Wavelength (nm)	PM850: 850 PM980: 980 PM1310: 1310 PM1550: 1550	

注意 Note:
IL Test method: IEC 61300-3-4 insertion method B.

光接收组件 ROSA LC Receptacle



光发射组件 TOSA Receptacle



技术规格
Specification

同心度	Stub Concentricity	(μm)	≤ 0.7
插入损耗	Insertion Loss	(dB)	≤ 0.2
回波损耗	Return Loss	(dB)	≥ 45
开口套管	Split Sleeve		Ceramic
外套	Bushing		SUS 316F
支承	Retainer		SUS 316F
摆动测试	Wiggling Test		IEC 62150-3-2015

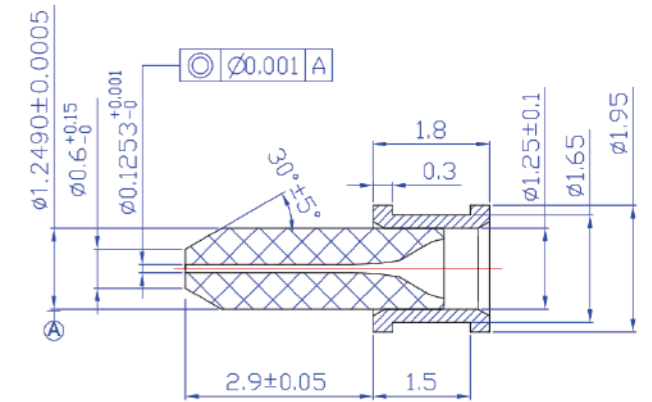
良好的稳定性, 可靠性, 重复性和互换性
Excellent stability, Reliability and Exchangeability

储存温度: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Storage Temperature Range: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

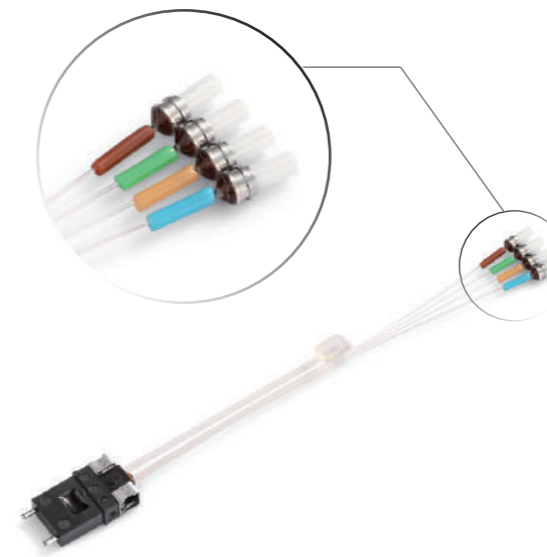
可选SC和LC型组件
Both SC and LC receptacle are available

可按客户要求设计和制造
Customized design and production are available

模块插芯 Module Ferrule



MT短跳线 MT Jumper



T&S生产的MT短跳线用于光模块中器件与外部端口的连接。

我们使用低损耗的MT插芯和康宁抗弯光纤实现低衰减, 满足模块内小空间的耦合。

T&S MT jumper is used to connect the components inside fiber optic transceiver and external port.

We use low loss MT ferrule and Corning bend-insensitive fiber to achieve low attenuation and meet the coupling requirements within small space inside the module.

技术规格
Specification

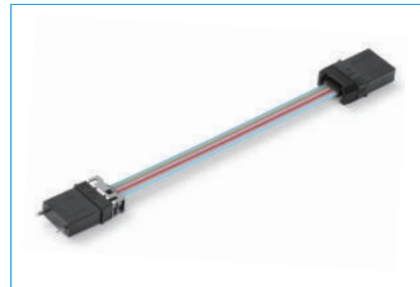
			SM	MM
插芯损耗	Insertion Loss	(dB)	0.6 (MT)	0.5 (MT)
回波损耗	Return Loss	(dB)	50	20
光纤类型	Fiber Type	-	A2/B3	OM3
工作温度	Operating Temperature	($^{\circ}\text{C}$)	$-20 \sim +70$	

特点

符合IEC、TIA 系列标准
100%光学性能测试以及良好的插芯端面几何尺寸控制
高精度、低损耗MT插芯配合小弯曲半径光纤实现低对接损耗
完美配合有源光模块 (SFP、CFP、QSFP)、AOC等的使用
符合RoHS要求

Features

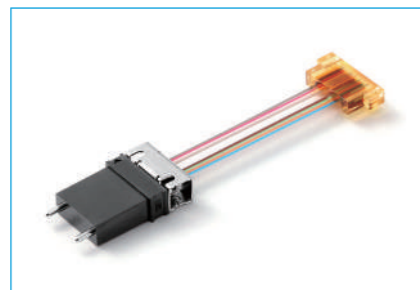
Compliant with Telcordia IEC, TIA standards
Optical performance 100% factory tested and endface geometry controlled
Use high-precision and elite MT ferrule, small bending radius fiber to achieve low loss
Good performance when works with SFP, CFP, QSFP and AOC
RoHS Compliant



MT-MT Short Patchcord
(For 100G QSFP Transceiver)



LC-LC Patchcord
(For 10G/25G SFP AOC)



MT-Jumper
(For 40G QSFP Transceiver)



Jumper Patchcord
(For 200G QSFP56 AOC)

技术规格 Specification

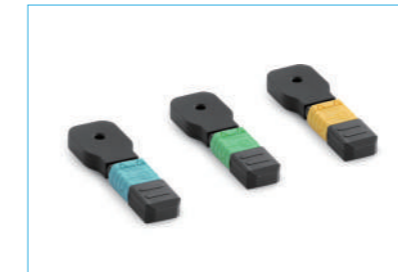
连接头 Connector Type		SC, LC			MT		
		SM	MM	MM	SM	MM	MM
模式 Mode							
端面 Endface		UPC	APC	PC	PC (low loss)	APC (low loss)	PC (low loss)
插入损耗 Insertion Loss	dB	≤0.2	≤0.3	≤0.2	≤0.5	≤0.35	≤0.5
回波损耗 Return Loss	dB	≥50	≥65	--	≥50	≥60	--

光纤回路器 Fiber Optic Loopback

特点 Features

符合IEC、TIA标准
低插损、高回损
可提供各种规格型号的光纤回路器:SC, LC, MPO/MTP等
符合RoHS要求

Compliant with IEC, TIA standards
Low insertion loss and high return loss
Loopback types: SC, LC, MPO/MTP etc.
RoHS Compliant



MPO Loopback



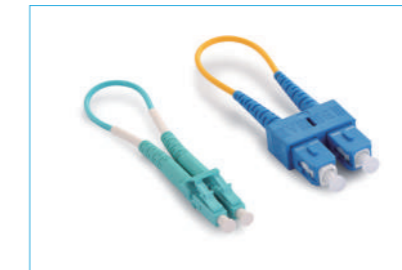
MTP Loopback with Tab



LC Loopback



SC Loopback

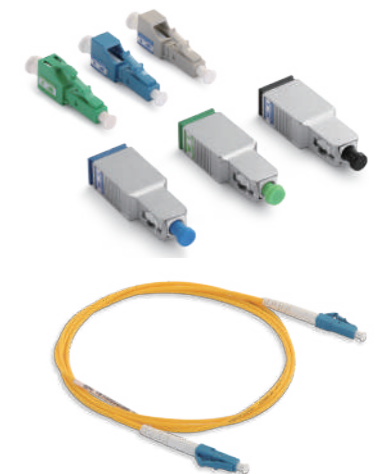


LC / SC Loopback

插头式/在线式固定衰减器 Fixed Plug-in/In-line Attenuator

特点

符合Bellcore (GR-910-Core) 标准
采用衰减光纤
易于安装
误差小, 回波损耗高



Features

In accordance with Bellcore (GR-910-Core) standard
Attenuation fiber
Easy connection
Precise attenuation and high return loss

Connector/Adapter/Terminator 连接头/适配器/终端器

FBT Coupler 熔融拉锥耦合器

连接头 Connector

特点

型号及组合丰富
低插损
符合RoHS要求



Features

Various types available
Low insertion loss
RoHS compliant

适配器 Adapter

特点

低插损
符合IEC和TIA标准
优良的重复性
优质耐用



Features

Low Insertion Loss
Comply with IEC and TIA standards
Excellent repeatability
Good durability

光纤终端器 Fiber Optic Terminator

特点

TS提供的光纤终端器（SC型、LC型、FC型）符合IEC61754系列之相关尺寸要求
特殊工艺保障高的回波损耗要求
适用于1260nm ~ 1640nm全带宽
符合RoHS要求



Features

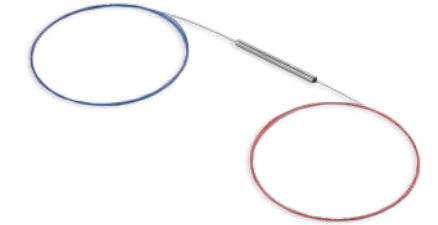
Dimension of optical fiber terminator (SC, LC, FC) supplied by T&S is compliant with requirements in IEC61754-XX
Special crafts make high return loss attainable
Complete bandwidth from 1260nm to 1640nm
RoHS Compliant

熔融拉锥耦合器 FBT Coupler

特点

通过Telcordia GR-1221-CORE可靠性试验，其中85℃、85%RH试验超过1500小时。

低附加损耗



Features

Passed Telcordia GR-1221-CORE reliability tests (Over 1500 hours tests under 85℃, 85%RH)

Low excess loss

技术规格 Specification

类型 Type	-	1x2 Single Mode Coupler		
工作波长 Wavelength	nm	1310 & 1550		
带宽 Bandwidth	nm	±40		
等级 Grade	-	P	S	
插入损耗 Insertion Loss	dB(max)	1/99	22.5/0.25	23.5/0.3
		2/98	18.8/0.3	19.5/0.35
		5/95	14.6/0.4	15.5/0.5
		10/90	11.5/0.65	12.0/0.8
		20/80	7.9/1.2	8.0/1.4
		30/70	5.9/1.9	6.0/2.1
		40/60	4.7/2.7	4.9/2.9
50/50	3.6/3.6	3.8/3.8		
均匀性 Uniformity	dB(max)	50/50	0.5	0.7
偏振损耗 PDL	dB(max)	0.2		
回波损耗 Return Loss	dB(max)	55		
工作温度 Operating Temperature	℃	50/50	-40 ~ +85	

类型 Type	-	1x2 Multi Mode Coupler		
工作波长 Wavelength	nm	850/1300		
带宽 Bandwidth	nm	±20		
等级 Grade	-	P	S	
插入损耗 Insertion Loss	dB(max)	20/80	7.8/1.4	8.1/1.7
		30/70	6.0/2.1	6.3/2.4
		40/60	4.7/2.7	5.0/3.0
		50/50	3.7/3.7	4.0/4.0
均匀性 Uniformity	dB(max)	50/50	0.5	0.7
方向性 Directivity	dB(max)	35		
工作温度 Operating Temperature	℃	-40 ~ +85		

PLC分路器 PLC Splitter

特点

- 工作波长宽
- 插入损耗低
- 偏振相关损耗低
- 小型化设计
- 通道间一致性良好
- 高可靠性和稳定性
- 通过GR-1209-CORE和GR-1221-CORE
- 符合RoHS标准



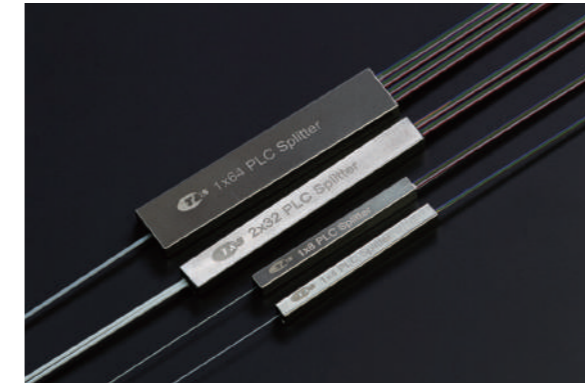
Features

- Broad operating wavelength range
- Low insertion loss
- Low PDL
- Compact design
- Good channel-to-channel uniformity
- High reliability and stability
- Passed Telcordia GR-1209-Core and GR-1221-Core reliability test
- RoHS compliant

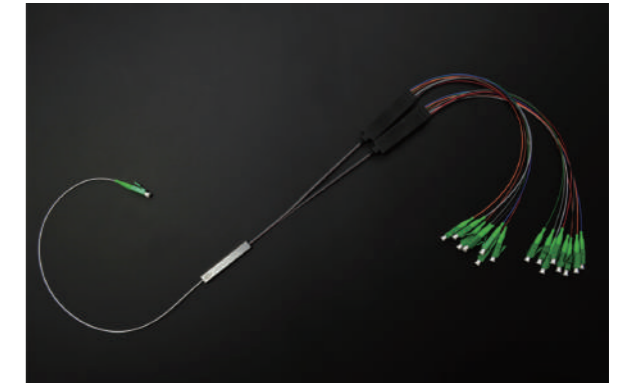
技术规格
Specification

工作波长 Operating Wavelength(nm)		1260~1650							
1xN PLC Splitter			1x2	1x4	1x8	1x16	1x32	1x64	1x128
插入损耗 Insertion Loss	(dB)	MAX(P/S)	3.8/4.0	7.0/7.4	10.5/10.7	13.6/13.9	16.6/16.9	21/21.5	24/24.5
均匀性 Uniformity	(dB)	MAX(P/S)	0.6/0.6	0.6/0.7	0.8/1.0	0.9/1.2	1.2/1.4	1.7/1.9	2.2/2.5
回波损耗 Return Loss	(dB)	MIN	55						
偏振相关损耗 PDL	(dB)	MAX(P/S)	0.15/0.25	0.15/0.25	0.2/0.25	0.2/0.3	0.25/0.3	0.25/0.35	0.4/0.45
2xN PLC Splitter			2x2	2x4	2x8	2x16	2x32	2x64	-
插入损耗 Insertion Loss	(dB)	MAX(P/S)	4.0/4.3	7.4/7.6	10.7/11.0	14/14.5	17.5/18	21.4/21.9	-
均匀性 Uniformity	(dB)	MAX(P/S)	0.9/1.1	1.0/1.2	1.0/1.2	1.2/1.5	1.5/1.8	2.0/2.3	-
回波损耗 Return Loss	(dB)	MIN	55						
偏振相关损耗 PDL	(dB)	MAX(P/S)	0.25/0.3	0.25/0.3	0.25/0.3	0.3/0.35	0.3/0.35	0.35/0.4	-
光纤类型 Fiber Type			ITU-T G657A1, G657A2						
温度稳定性 Temperature Stability	(dB)	MAX	0.5 (Typical 0.3)						
工作温度 Operation Temperature (°C)			-40~+85						
储存温度 Storage Temperature (°C)			-40~+85						

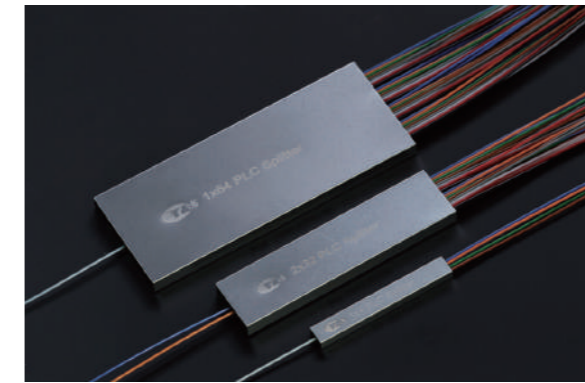
PLC 分路器 PLC Splitter



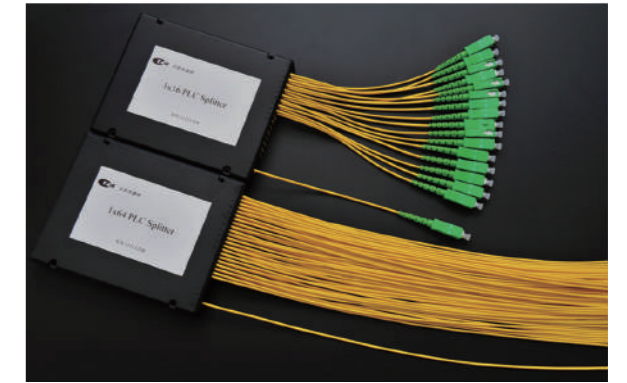
裸纤型光分路器 Bare Type PLC Splitter



裸纤型光分路器 Bare Type PLC Splitter



微型光分路器 Mini Type PLC Splitter



盒式光分路器 Module Type PLC Splitter

技术规格 Specification

1xN Splitter

封装类型尺寸 Package Type & Size	单位 Unit (mm)	1x2	1x4	1x8	1x16	1x32	1x64
I - 裸纤型光分路器 Bare Type PLC Splitter	长×宽×高 L × W × H	40×4×4	40×4×4	40×4×4	45×5×4	55×7×4	60×12×4
II - 微型光分路器 Mini Type PLC Splitter		60×7×4	60×7×4	60×7×4	60×12×4	80×20×6	100×40×6
III - 盒式分路器 Module Type PLC Splitter		90×20×10	100×80×10	100×80×10	120×80×18	120×80×18	140×114×18

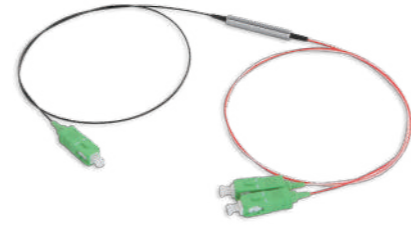
2xN Splitter

封装类型尺寸 Package Type & Size	单位 Unit (mm)	2x2	2x4	2x8	2x16	2x32	2x64
I - 裸纤型光分路器 Bare Type PLC Splitter	长×宽×高 L × W × H	50×5×4	50×5×4	50×5×4	55×7×4	60×7×4	65×12×4
II - 微型光分路器 Mini Type PLC Splitter		65×7×4	65×7×4	65×7×4	80×20×6	80×20×6	100×40×6
III - 盒式分路器 Module Type PLC Splitter		90×20×10	100×80×10	100×80×10	120×80×18	140×114×18	140×114×18

波分复用器 1310/1490/1550/1625nm FWDM

特点

- 自动耦合
- 光路无胶
- 低损耗 & 高隔离度
- 符合Telcordia GR-1209-Core 要求
- 符合RoHS要求



- PON 系统
- FTTx网络
- CATV系统

Features

- Automatic alignment
- Optical path epoxy free
- Low insertion loss & High isolation
- Telcordia GR-1209-Core qualified
- RoHS compliant

- PON System
- FTTx Network
- CATV System

技术规格
Specification

参数 Parameters		单位 Unit	规格 Specification				
			FWDM13/15	FWDM35/6 (3 port)	FWDM35/6 (2 port)	FWDM345/6 (3 port)	FWDM345/6 (2 port)
工作波长 Operating Wavelength	透射 Transmission	nm	1520-1600	1610-1650			
	反射 Reflection	nm	1260-1350	1280-1340	1260-1580		
透射端 Transmission Port	插损 Insertion Loss	dB	≤0.6				
	隔离度 Isolation	dB	≥40				
反射端 Reflection Port	插损 Insertion Loss	dB	≤0.4				
	隔离度 Isolation	dB	≥15				
回损 Return Loss		dB	≥45				
插损热稳定性 Insertion Loss Thermal Stability		dB/°C	≤0.005				
偏振相关损耗 Polarization Dependent Loss		dB	≤0.15				
偏振模色散 Polarization Mode Dispersion		Ps	≤0.15				
方向性 Directivity		dB	≥45				
最大输入功率 Power Handling		mW	300				
工作温度 Operating Temperature		°C	-5 ~ +70				
存储温度 Storage Temperature		°C	-40 ~ +85				
封装尺寸 Package Dimension		mm	裸纤出纤尺寸φ5.5x34 φ5.5x34 for 250μm bare fiber 900μm套管出纤尺寸φ5.5x38 φ5.5x38 for 900μm loose tube				

注意 Note:
 不包含连接器损耗; Insertion loss excludes connector loss;
 可按客户要求定制尺寸; Customized dimension is available;
 除非特别说明, 一般光纤类型为康宁SMF-28 Ultra光纤; Fiber type is Corning SMF-28 Ultra optical fiber unless otherwise specified;
 可按照客户要求定制其他工作波长的FWDM。The FWDM device with other operating wavelength can be customized.

3端口粗波分复用器件 CWDM 3-Port Device

特点
Features

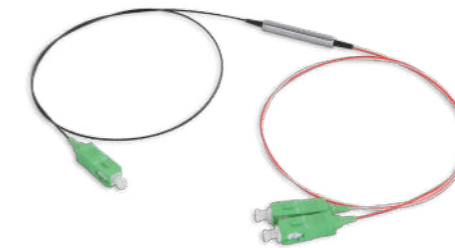
- 自动耦合
- 光路无胶
- 低损耗 & 高隔离度
- 符合Telcordia GR-1209-Core 要求
- 符合RoHS要求

- Automatic alignment
- Optical path epoxy free
- Low insertion loss & High isolation
- Compliant with Telcordia GR-1209-Core requirements
- RoHS compliant

应用
Applications

- PON系统
- FTTx网络
- CWDM系统
- 上行和下行通道

- PON System
- FTTx Network
- CWDM System
- Add/Drop Channel



技术规格
Specification

参数 Parameters	单位 Unit	规格 Specification
通道中心波长 Channel Central Wavelength λc	nm	1270~1610 or 1271~1611
波长精度 Wavelength Accuracy	nm	± 0.5
通道间隔 Channel Spacing	nm	20
带宽 Bandwidth	nm	ITU±7
插损 Insertion Loss	透射端 Pass Channel	dB
	反射端 Reflect Channel	dB
	平坦度 Ripple	dB
	热稳定性 Thermal Stability	dB/°C
隔离度 Isolation	相邻通道 Adjacent Channel	dB
	非相邻通道 Non-adjacent Channel	dB
	反射端 Reflect Channel	dB
波长热稳定性 Wavelength Thermal Stability	nm/°C	≤0.005
回损 Return Loss	dB	≥45
偏振相关损耗 Polarization Dependent Loss	dB	≤0.15
偏振模色散 Polarization Mode Dispersion	Ps	≤0.15
方向性 Directivity	dB	≥45
最大输入功率 Power Handling	mW	300
工作温度 Operating Temperature	°C	-5 ~ +70
存储温度 Storage Temperature	°C	-40 ~ +85
封装尺寸 Package Dimension	mm	裸纤出纤尺寸φ5.5x34 φ5.5x34 for 250μm bare fiber 900μm套管出纤尺寸φ5.5x38 φ5.5x38 for 900μm loose tube

注意 Note:
 不包含连接器损耗; Insertion loss excludes connector loss;
 除非特别说明, 一般光纤类型为康宁SMF-28 Ultra光纤。Fiber type is Corning SMF-28 Ultra fiber unless otherwise specified.

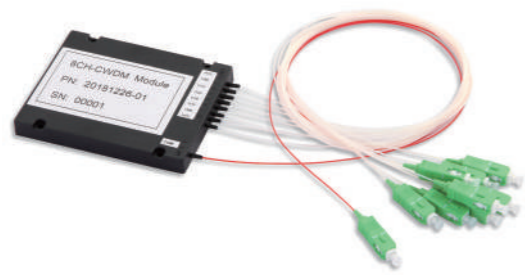
粗波分复用器模块 CWDM Module

特点 Features

自动耦合	Automatic alignment
光路无胶	Optical path epoxy free
低损耗 & 高隔离度	Low insertion loss & High isolation
符合Telcordia GR-1209-Core 要求	Telcordia GR-1209-Core qualified
符合RoHS要求	RoHS compliant

应用 Applications

CWDM复用和解复用	CWDM Mux / Demux
FTTx网络	FTTx Network
大型光网络	Mega Optical Network
移动前传	Mobile Front-haul



技术规格 Specification

参数 Parameters	单位 Unit	规格 Specification						
通道数 Channel Count	-	2	4	6	8	12	16	
通道中心波长 Channel Central Wavelength λ_c	nm	1270~1610 or 1271~1611						
通道间隔 Channel Spacing	nm	20						
带宽 Bandwidth	nm	ITU±7						
插损 Insertion Loss	dB	≤0.9	≤1.5	≤2.5	≤2.5	≤3.0	≤3.5	
隔离度 Isolation	相邻通道 Adjacent Channel	dB	≥30					
	非相邻通道 Non-adjacent Channel	dB	≥45					
平坦度 Ripple	dB	≤0.5						
回损 Return Loss	dB	≥45						
偏振相关损耗 Polarization Dependent Loss	dB	≤0.2						
方向性 Directivity	dB	≥50						
最大输入功率 Power Handling	mW	300						
工作温度 Operating Temperature	°C	-5 ~ +70 (Commercial)						
存储温度 Storage Temperature	°C	-40 ~ +85						
封装尺寸 Package Dimension	mm	L100 x W80 x H10				L120 x W80 x H18		

注意 Note:
不包含连接器损耗; Insertion loss excludes connector loss;
模块可以带监控或扩展。 Tap monitoring port and extending port are optional.

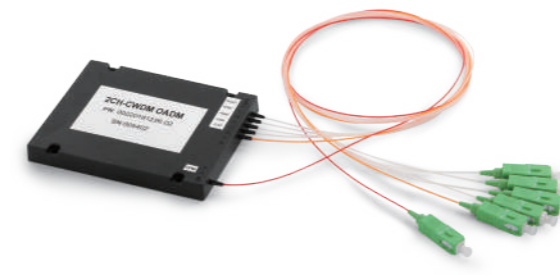
粗波分复用的光分插复用模块 CWDM OADM Module

特点 Features

自动耦合	Automatic alignment
光路无胶	Optical path epoxy free
低损耗 & 高隔离度	Low insertion loss & High isolation
符合Telcordia GR-1209-Core 要求	Compliant with Telcordia GR-1209-Core requirements
符合RoHS要求	RoHS compliant

应用 Applications

CWDM复用和解复用	CWDM Mux / Demux
FTTx网络	FTTx Network
大型光网络	Mega Optical Network
移动前传	Mobile Front-haul



技术规格 Specification

参数 Parameters	单位 Unit	规格 Specification				
通道中心波长 Channel Central Wavelength λ_c	nm	1270 ~1610 or 1271~1611				
通道间隔 Channel Spacing	nm	20				
波长精度 Wavelength Accuracy	nm	±0.5				
通带 Pass Band @0.5dB	nm	ITU±7				
通道数 Channel Count	-	1	2	4	8	
插损 Insertion Loss	输入到下载@下载端波长 In to Drop@ λ_{drop}	dB	≤0.6	≤1.0	≤1.5	≤2.5
	上载到输出@上载端波长 Add to Out@ λ_{add}	dB	≤0.6	≤1.0	≤1.5	≤2.5
	输入到输出@其他波长 In to Out@ λ_{other}	dB	≤0.6	≤1.2	≤2.4	≤4.8
通道均匀性 Channel Uniformity for CWDM channel	dB	-	≤0.5	≤1.2	≤1.5	
通带平坦度 Pass Band Ripple	dB	≤0.5				
隔离度 Isolation	相邻通道 Adjacent Channel	dB	≥30			
	非相邻通道 Non-adjacent Channel	dB	≥45			
	In to Out @CWDM channel	dB	≥24			
回损 Return Loss	dB	> 45				
偏振相关损耗 Polarization Dependent Loss	dB	≤0.2				
方向性 Directivity	dB	≥45				
最大输入功率 Power Handling	mW	300				
工作温度 Operating Temperature	°C	-5 ~ +70				
存储温度 Storage Temperature	°C	-40 ~ +85				
封装尺寸 Package Dimension	mm	L100 x W80 x H10			L120 x W80 x H18	

注意 Note:
不包含连接器损耗; Insertion loss excludes connector loss;
可按客户要求定制尺寸。 Customized dimension is available.

密集波分复用模块 100GHz DWDM Module

技术规格 Specification

参数 Parameters	单位 Unit	规格 Specification			
中心波长 Central Wavelength λ_c	nm	ITU Grid			
通道间隔 Channel Spacing	GHz	100			
通带 Pass Band @0.5dB	nm	ITU±0.11			
通道数 Channel Count	-	4	8	16	
插损 Insertion Loss	dB	≤2.0	≤3.0	≤5.5	
平坦度 Ripple	dB	≤0.5			
隔离度 Isolation	相邻通道 Adjacent Channel	dB	> 25		
	非相邻通道 Non-adjacent Channel	dB	> 40		
回损 Return Loss	dB	≥45			
偏振相关损耗 Polarization Dependent Loss	dB	≤0.15			
方向性 Directivity	dB	≥45			
最大输入功率 Power Handling	mW	300			
工作温度 Operating Temperature	°C	-5 ~ +70 (Commercial)			
存储温度 Storage Temperature	°C	-40 ~ +85			
封装尺寸 Package Dimension	mm	L100 x W80 x H10		L120 x W80 x H18	

注意 Note:

不包含连接器损耗; Insertion loss excludes connector loss;
 可按客户要求定制尺寸; Customized dimension is available;
 8通道和16通道模块可按客户要求定制; Insertion loss optimized for 8ch or 16ch module is available on request;
 模块可以带监控或扩展端口。 Modules with tap monitoring port and extending port are optional.

密集波分复用的光分插复用模块 100GHz DWDM OADM Module

技术规格 Specification

参数 Parameters	单位 Unit	规格 Specification				
中心波长 Central Wavelength λ_c	nm	ITU-T Grid				
通道间隔 Channel Spacing	nm	100				
通带 Pass Band	nm	ITU±0.11				
通道数 Channel Count	-	1	2	4	8	
插损 Insertion Loss	输入到下载@下载端波长 In to Drop@ λ_{drop}	dB	≤1.0	≤1.3	≤2.0	≤3.0
	上载到输出@上载端波长 Add to Out@ λ_{add}	dB	≤1.0	≤1.3	≤2.0	≤3.0
	输入到输出@其他波长 In to Out@ λ_{other}	dB	≤0.8	≤1.6	≤3.2	≤4.5
通道均匀性 Channel Uniformity for DWDM Channel	dB	-	≤0.5	≤1.2	≤2.0	
通带平坦度 Pass Band Ripple	dB	≤0.5				
隔离度 Isolation	相邻通道 Adjacent Channel	dB	> 25			
	非相邻通道 Non-adjacent Channel	dB	> 40			
	In to Out @DWDM Channel	dB	≥24			
回损 Return Loss	dB	≥45				
偏振相关损耗 Polarization Dependent Loss	dB	≤0.2				
方向性 Directivity	dB	≥45				
最大输入功率 Power Handling	mW	300				
工作温度 Operating Temperature	°C	-5 ~ +70				
存储温度 Storage Temperature	°C	-40 ~ +85				
封装尺寸 Package Dimension	mm	L100 x W80 x H10		L120 x W80 x H18		

注意 Note:

不包含连接器损耗; Insertion loss excludes connector loss;
 可按客户要求定制尺寸。 Customized dimension is available.

共存波分复用模块 Cex-WDM Module

特点 Features

自动耦合
 光路无胶
 低损耗 & 高隔离度
 采用薄膜滤波技术
 双向
 符合RoHS要求

Automatic alignment
 Optical path epoxy free
 Low insertion loss & High isolation
 Thin film filter technology
 Bi-directional
 RoHS compliant

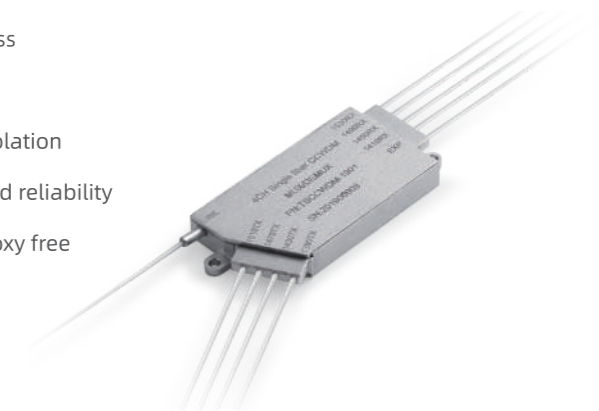


紧凑型粗波分复用模块 CWDM Module

特点 Features

低插损
 宽通带
 高隔离度
 高稳定性和可靠性
 光路无胶

Low insertion loss
 Wide pass band
 High channel isolation
 High stability and reliability
 Optical path epoxy free



无热AWG波分复用模块 Athermal AWG WDM Module

特点 Features

无热设计
 大信道数
 结构紧凑
 高稳定性和可靠性
 低插损、高隔离度
 符合CR-1221-CORE, CR-1209-CORE及RoHS要求

Athermal
 Big signal channel quantity
 Compact structure
 High stability and reliability
 Low insertion loss & high isolation
 CR-1221-CORE, CR-1209-CORE and RoHS compliant



Fiber Optical Transceiver 光模块系列

10G 光模块



特点	Features
采用可热插拔的SFP+封装 采用LC光口 符合SFP+ MSA和10G以太网标准 符合SFF-8472和SFF-8431协议 最大速率11.3Gbps 内置数字诊断功能 商业级工作温度0°C~70°C 工业级工作温度-40°C~85°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable SFP+ footprint LC connector Compliant with SFP+ MSA and 10G Ethernet standard Compliant with SFF-8472 and SFF-8431 Transmission rate up to 11.3Gbps Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C Industrial operating temperature: -40°C~85°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSSL5-NAACB1C/TSSL5-NAACB1T	10G SFP+ SR	VCSEL	PIN	300m
TSSL5-NCNCE3C/TSSL5-NCNCE3T	10G SFP+ LR	DFB	PIN	10km
TSSL5-CXXCE3C	10G SFP+ CWDM	DFB	PIN	10km
TSSL5-DXXCH4C/TSSL5-DXXCK8C	10G SFP+ DWDM	EML	PIN/APD	40km/80km
TSSL5-NCNCH4C	10G SFP+ ER	EML	PIN	40km
TSSL5-NCNCK8C	10G SFP+ ZR	EML	APD	80km
TSSL5-NXXCE3C/TSSL5-NXXCE3T	10G SFP+ BIDI	DFB	PIN	10km

25G 光模块



特点	Features
采用可热插拔的SFP28封装 采用LC光口 符合SFP+ MSA和25G以太网标准 符合SFF-8472和SFF-8431协议 最大速率25.78Gbps 内置数字诊断功能 商业级工作温度0°C~70°C 工业级工作温度-40°C~85°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable SFP28 footprint LC connector Compliant with SFP+ MSA and 25G Ethernet standard Compliant with SFF-8472 and SFF-8431 Transmission rate up to 25.78Gbps Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C Industrial operating temperature: -40°C~85°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSSL5-NAAEA1C/TSSL5-NAAEA1T	25G SFP28 SR	VCSEL	PIN	100m
TSSL5-NCNEE3C/TSSL5-NCNEE3T	25G SFP28 LR	DFB	PIN	10km
TSSL5-CXXEE3C	25G SFP28 CWDM	DFB	PIN	10km
TSSL5-DXXEE4C	25G SFP28 DWDM	EML	PIN	10km
TSSL5-NCNEH8C	25G SFP28 ER	EML	APD	40km
TSSL5-NXXEE3C/TSSL5-NXXEE3T	25G SFP28 BIDI	DFB	PIN	10km

40G 光模块



特点	Features
采用可热插拔的QSFP+封装 采用LC或MPO光口 符合QSFP+ MSA和40G以太网标准 符合SFF-8436和SFF-8636协议 最大速率10.3125Gbps每通道 内置数字诊断功能 商业级工作温度0°C~70°C 工业级工作温度-40°C~85°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable QSFP+ footprint LC connector or MPO connector Compliant with QSFP+ MSA and 40G Ethernet standard Compliant with SFF-8436 and SFF-8636 Transmission rate up to 10.3125Gbps per channel Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C Industrial operating temperature: -40°C~85°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSQM4-NAAGB1C/TSQM4-NAAGB1T	40G QSFP+ SR4	VCSEL	PIN	300m
TSQL4-E11GE3C	40G QSFP+ LR4	DFB	PIN	10km
TSQL4-E11GH7C	40G QSFP+ ER4	DFB	APD	40km
TSQM4-NCNGC3C	40G QSFP+ PSM4	DFB	PIN	500m

Fiber Optical Transceiver 光模块系列

100G 光模块



特点	Features
采用可热插拔的QSFP28封装 采用LC或MPO光口 符合QSFP28 MSA和100G以太网标准 符合SFF-8636协议 通过单模光纤传输距离最高可达40km 内置数字诊断功能 商业级工作温度0°C~70°C 工业级工作温度-40°C~85°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable QSFP28 footprint LC connector or MPO connector Compliant with QSFP28 MSA and 100G Ethernet standard Compliant with SFF-8636 Reach up to 40Km at single fiber Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C Industrial operating temperature: -40°C~85°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSQM4-NAAJB1C/TSQM4-NAAJB1T	100G QSFP28 SR4	VCSEL	PIN	300m
TSQL4-F22JE3C	100G QSFP28 LR4	DFB	PIN	10km
TSQL4-F22JH4C	100G QSFP28 ER4	EML	PIN	40km
TSQL4-E11JE3C	100G QSFP28 CWDM4	DFB	PIN	10km
TSQM4-NCNJC3C	100G QSFP28 PSM4	DFB	PIN	500m

200G 光模块



特点	Features
采用可热插拔的QSFP56封装 采用LC或MPO光口 符合QSFP56 MSA和200G以太网标准 符合SFF-8636协议 最大速率53.125Gbps每通道 内置数字诊断功能 商业级工作温度0°C~70°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable QSFP56 footprint LC connector or MPO connector Compliant with QSFP56 MSA and 200G Ethernet standard Compliant with SFF-8636 Transmission rate up to 53.125Gbps per channel Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSQM4-NAALA1C	200G QSFP56 SR4	VCSEL	PIN	100m
TSQL4-E11LD3C	200G QSFP56 FR4	DFB	PIN	2km

400G 光模块



特点	Features
采用可热插拔的QSFP-DD封装 采用LC或MPO光口 符合QSFP-DD MSA和400G以太网标准 符合CMIS 版管理接口标准 最大速率425Gbps 内置数字诊断功能 商业级工作温度0°C~70°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable QSFP-DD footprint LC connector or MPO connector Compliant with QSFP-DD MSA and 400G Ethernet standard Compliant with CMIS standard Transmission rate up to 425Gbps Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSDR8-NAAMA1C	400G QSFP-DD SR8	VCSEL	PIN	100m
TSDL4-E11MD3C	400G QSFP-DD FR4	DFB	PIN	2km
TSDM4-NCNMC3C	400G QSFP-DD DR4	DFB	PIN	500m

800G 光模块



特点	Features
采用可热插拔的SFP封装 采用MPO光口 符合QSFP-DD MSA和800G以太网标准 符合CMIS 版管理接口标准 最大速率850Gbps 内置数字诊断功能 商业级工作温度0°C~70°C 电源电压3.3V 符合RoHS环保标准	Hot-pluggable QSFP-DD footprint MPO connector Compliant with QSFP-DD MSA and 800G Ethernet standard Compliant with CMIS standard Transmission rate up to 850Gbps Built-in digital diagnostic function Commercial operating temperature: 0°C~70°C 3.3V power supply RoHS compliant

PN	产品型号	发射端	接收端	传输距离
TSDR8-NAANA1C	800G QSFP-DD SR8	VCSEL	PIN	100m

Active Optical Cable 有源光缆系列

10G AOC



特点

热插拔SFP+ MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合10G以太网标准
符合SFF-8431协议
最大速率10.3125Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable SFP+ MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 10G Ethernet standard
Compliant with SFF-8431
Transmission rate up to 10.3125Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSSSS-85C-XXXX	产品型号 10G SFP+ AOC	最大功耗 1W	传输距离 300m OM3/400m OM4
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25G AOC



特点

热插拔SFP28 MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合25G以太网标准
符合SFF-8431协议
最大速率25.78125Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable SFP28 MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 25G Ethernet standard
Compliant with SFF-8431
Transmission rate up to 25.78125Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSSSS-85E-XXXX	产品型号 25G SFP28 AOC	最大功耗 1W	传输距离 70m OM3/100m OM4 (with FEC)
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40G AOC



特点

热插拔QSFP+ MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合40G以太网标准
符合SFF-8431协议
最大速率41.25Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable QSFP+ MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 40G Ethernet standard
Compliant with SFF-8431
Transmission rate up to 41.25Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSQSQ-85G-XXXX TSQ4S-85G-XXXX	产品型号 40G QSFP+ AOC 40G QSFP+ to 4x10G SFP+ AOC	最大功耗 1.5W 1.5W/1W	传输距离 300m OM3/400m OM4 300m OM3/400m OM4
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56G AOC



特点

热插拔SFP56/QSFP+ MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合50G以太网标准
符合Infiniband FDR
最大速率53.125/56.25Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable SFP56/QSFP+ MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 50G Ethernet standard
Compliant with Infiniband FDR
Transmission rate up to 53.125/56.25Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSSSS-85H-XXXX TSQSQ-85H-XXXX	产品型号 50G SFP56 AOC 56G QSFP+ AOC	最大功耗 1.5W 1.5W	传输距离 70m OM3/100m OM4 (with FEC) 300m OM3/400m OM4
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Active Optical Cable 有源光缆系列

100G AOC



特点

热插拔QSFP28/SFP-DD MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合100G以太网标准
符合Infiniband QDR/EDR
最大速率103.125/106.25Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable QSFP28/SFP-DD MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 100G Ethernet standard
Compliant with Infiniband QDR/EDR
Transmission rate up to 103.125/106.25Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSQSQ-85J-XXXX TSTST-85K-XXXX TSQ2Q-85J-XXXX TSQ4S-85J-XXXX	产品型号 100G QSFP28 AOC 100G SFP-DD AOC 100G QSFP28 to 2x50G QSFP28 AOC 100G QSFP28 to 4x25G SFP28 AOC	最大功耗 2W 2W 2W/1.5W 2W/1W	传输距离 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC)
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200G AOC



特点

热插拔QSFP56/QSFP-DD MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合200G以太网标准
符合SFF-8636协议
最大速率206.25/212.50Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable QSFP56/QSFP-DD MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 200G Ethernet standard
Compliant with SFF-8636
Transmission rate up to 206.25/212.50Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSQSQ-85L-XXXX TSQ4S-85L-XXXX TSD2Q-85L-XXXX TSD8S-85L-XXXX	产品型号 200G QSFP56 AOC 200G QSFP56 to 4x50G SFP56 AOC 200G QSFP-DD to 2x100G QSFP28 AOC 200G QSFP-DD to 8x25G SFP28 AOC	最大功耗 4W 4W/1.5W 4W/2W 4W/1W	传输距离 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC)
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400G AOC



特点

热插拔QSFP-DD MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合400G以太网标准
符合CMIS 版管理接口标准
最大速率425Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable QSFP-DD MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 400G Ethernet standard
Compliant with CMIS standard
Transmission rate up to 425Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSDSD-85M-XXXX TSD8S-85M-XXXX TSD4Q-85M-XXXX TSD2Q-85M-XXXX	产品型号 400G QSFP-DD AOC 400G QSFP-DD to 8x50G SFP56 AOC 400G QSFP-DD to 4x100G QSFP56 AOC 400G QSFP-DD to 2x200G QSFP56 AOC	最大功耗 8W 8W/1.5W 8W/2W 8W/4W	传输距离 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC) 70m OM3/100m OM4 (with FEC)
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800G AOC



特点

热插拔QSFP-DD MSA兼容接口
850nm VCSEL发射器和PIN接收器
符合800G以太网标准
符合CMIS 版管理接口标准
最大速率850Gbps
内置数字诊断功能
商业级工作温度0°C~70°C
符合RoHS环保标准

Features

Hot-pluggable QSFP-DD MSA footprint
850nm VCSEL transmitter and PIN receiver
Compliant with 800G Ethernet standard
Compliant with CMIS standard
Transmission rate up to 850Gbps
Built-in digital diagnostic function
Commercial operating temperature: 0°C~70°C
RoHS compliant

PN TSDSD-85N-XXXX	产品型号 800G QSFP-DD AOC	最大功耗 13W	传输距离 70m OM3/100m OM4 (with FEC)
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1X1 Direct Attach Cable 1X1 高速线缆系列

SFP to SFP 10G/25G/50G DAC



特点

单通道全双工无源铜缆
24/26/30 AWG可选
热插拔SFP MSA兼容接口
符合SFF-8402, SFF-8431和SFF-8432协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

Single-channel full-duplex passive copper cable
24/26/30 AWG
Hot-pluggable SFP MSA-compatible connectors
Compliant with SFF-8402, SFF-8431 and SFF-8432
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compatible (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSSP-PC192-XXM	10G SFP+ DAC	10.52	10GBASE-CR	7
TSSP-PC25G-XXM	25G SFP28 DAC	25.78125	25GBASE-CR	5
TSSP-PC56G-XXM	50G SFP56 DAC	53.125	50GBASE-CR	3

QSFP to QSFP 40G/56G/100G/200G DAC



特点

4通道全双工无源铜缆
26/30 AWG可选
热插拔QSFP MSA兼容接口
符合SFF-8636和SFF-8665协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

4-channel full-duplex passive copper cable
26/30 AWG
Hot-pluggable QSFP MSA-compatible connectors
Compliant with SFF-8636 and SFF-8665
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compatible (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSQS-PC40G-XXM	40G QSFP+ DAC	41.25	40GBASE-CR4/QDR	7
TSQS-PC56G-XXM	56G QSFP+ DAC	56.25	FDR	7
TSQS-PC1HG-XXM	100G QSFP28 DAC	103.125	100GBASE-CR4/EDR	5
TSQS-PC2HG-XXM	200G QSFP56 DAC	212.5	200GBASE-CR4/HDR	3

QSFP-DD to QSFP-DD 400G DAC



特点

8通道全双工无源铜缆
26/30 AWG可选
热插拔QSFP-DD MSA兼容接口
符合CMIS协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

8-channel full-duplex passive copper cable
26/30 AWG
Hot-pluggable QSFP-DD MSA-compatible connectors
Compliant with CMIS
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compliant (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSQD-PC4HG-XXM	400G QSFP-DD DAC	425	400GBASE-CR8	3

1XN Direct Attach Cable 1XN 高速线缆系列

QSFP to SFP 40G/100G/200G Breakout DAC



特点

4通道全双工无源铜缆
26/28/30 AWG可选
热插拔QSFP/SFP MSA兼容接口
符合SFF-8636和SFF-8665协议
符合SFF-8402, SFF-8431和SFF-8432协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

4-channel full-duplex passive copper cable
26/28/30 AWG
Hot-pluggable QSFP/SFP MSA-compatible connectors
Compliant with SFF-8636 and SFF-8665
Compliant with SFF-8402, SFF-8431 and SFF-8432
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compliant (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSQSS-PC40G-XXM	40G QSFP+ to 4x10G SFP+ DAC	41.25/4x10.3125	40GBASE-CR4/10GBASE-CR	7
TSQSS-PC1HG-XXM	100G QSFP28 to 4x25G SFP28 DAC	103.125/4x25.78125	100GBASE-CR4/25GBASE-CR	5
TSQSS-PC2HG-XXM	200G QSFP56 to 4x50G SFP56 DAC	212.5/4x53.125	200GBASE-CR4/50GBASE-CR	3

QSFP56 to QSFP56 200G Breakout DAC



特点

4通道全双工无源铜缆
26/30 AWG可选
热插拔QSFP MSA兼容接口
符合CMIS, SFF-8636和SFF-8665协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

4-channel full-duplex passive copper cable
26/30 AWG
Hot-pluggable QSFP MSA-compatible connectors
Compliant with CMIS, SFF-8636 and SFF-8665
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compliant (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSQSQ-PC2HG-XXM	200G QSFP56 to 2x100G QSFP56 DAC	212.5/2x106.25	200GBASE-CR4/100GBASE-CR4	3

QSFP-DD to QSFP56 400G Breakout DAC



特点

8通道全双工无源铜缆
26/30 AWG可选
热插拔QSFP-DD/QSFP MSA兼容接口
符合CMIS, SFF-8636和SFF-8665协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

8-channel full-duplex passive copper cable
26/30 AWG
Hot-pluggable QSFP-DD/QSFP MSA-compatible connectors
Compliant with CMIS, SFF-8636 and SFF-8665
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compliant (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSQDQ-4PC1HG-XXM	400G QSFP-DD to 4x100G QSFP56 DAC	425/1x106.25	400GBASE-CR8/100GBASE-CR2	3
TSQDQ-2PC2HG-XXM	400G QSFP-DD to 2x200G QSFP56 DAC	425/2x212.5	400GBASE-CR8/200GBASE-CR4	3

QSFP-DD to SFP56 400G Breakout DAC



特点

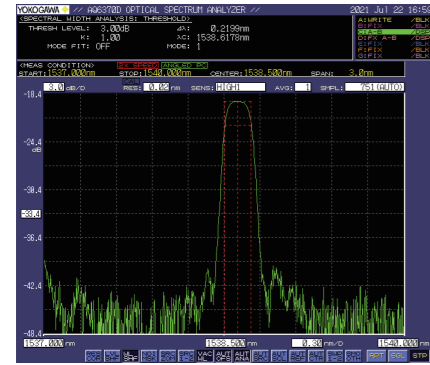
8通道全双工无源铜缆
26/30 AWG可选
热插拔QSFP-DD/SFP MSA兼容接口
符合CMIS, SFF-8636和SFF-8665协议
符合SFF-8402和SFF-8432协议
工作温度范围0°C到70°C
I2C接口定制EPPROM
EMI/EMC性能增强
符合RoHS环保标准 (无铅)

Features

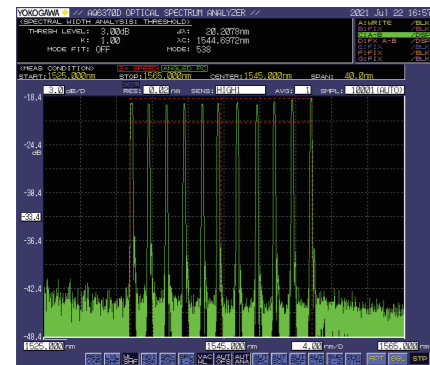
8-channel full-duplex passive copper cable
26/30 AWG
Hot-pluggable QSFP-DD/SFP MSA-compatible connectors
Compliant with CMIS, SFF-8636 and SFF-8665
Compliant with SFF-8402 and SFF-8432
Commercial operating temperature: 0°C to 70°C
EPPROM customized with I2C interface
Enhanced EMI/EMC performance
RoHS compliant (lead free)

PN	型号	最大传输速率 (Gbps)	标准	最大长度 (M)
TSQDS-8PC50G-XXM	400G QSFP-DD to 8x50G SFP56 DAC	425/8x53.125	400GBASE-CR8/50GBASE-CR	3

Fiber Bragg Grating/Fiber Bragg Grating String for Sensing 传感用光纤光栅/光纤光栅串



传感用光纤光栅
Fiber Bragg Grating For Sensing



传感用光纤光栅串
Fiber Bragg Grating String For Sensing

光纤光栅是通过紫外光，利用相位掩模板技术在光纤上制作的一种波长反射型光器件，是基本光纤传感元件，被广泛用于通信和传感器等多种领域。太辰光可为客户提供各种标准或定制化的、高性能的切趾光纤光栅。

光纤光栅串是在单根光纤上连续写入多个标准光栅来满足长距离测量或多点测量需要，并提高测量系统的可靠性及稳定性。太辰光可依靠客户的需要定制各种不同的光栅串。

Fiber Bragg grating (FBG) is a type of wavelength reflective optical device made on optical fiber based on ultraviolet light and phase mask technology. It is a basic optical fiber sensing element and is widely used in many fields such as communication and sensing. T&S provides customers with various standard or customized high-performance apodized fiber gratings.

Multiple standard gratings are continuously inscribed on a single fiber to meet the needs of long-distance measurement or multi-point measurement, and improve the reliability and stability of the measurement system. T&S customizes various grating strings according to the needs of customers.

特点

高稳定性和高可靠性
光栅长度可定制
高边模抑制比
无需熔接
位置精确

Features

High stability and reliability
Customized grating length
High SMSR
No need for splicing
Accurate position

应用

各种光纤光栅传感器
波长参考

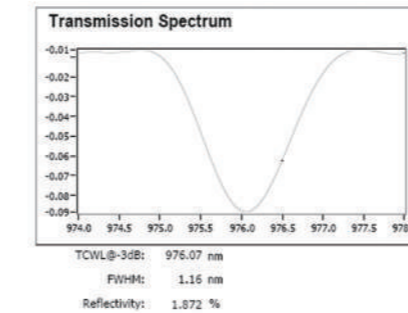
Applications

Various fiber bragg grating sensors
Wavelength reference

中心波长	Center Wavelength	nm	1510~1590			
波长公差	Wavelength Tolerance	nm	±0.5			
光栅长度	Grating Length	mm	3	5	10	15
反射率	Reflectivity	-	≥70%	≥75%	≥90%	≥90%
3dB 带宽	3dB Band Width	nm	≤0.7	≤0.7	≤0.3	≤0.3
边模抑制比	Side Mode Suppression Ratio	dB	≥15			
最小间距	Minimum Spacing	mm	5			
再涂覆材料	Recoating	-	Acrylate / Polyimide			
抗拉力	Tensile Resistance	Kpsi	≥100			
光纤类型	Fiber Type	-	SMF-28e / Polyimide coated optical fiber			
连接头类型	Connector Type	-	FC/APC or Customized			
工作温度	Operating Temperature	°C	SMF-28e Fiber: -20~120; Polyimide coated optical fiber: -40~300			

FBG Wavelength Stabilizer/Chirped Grating 锁模光栅/啁啾光栅

锁模光栅 FBG Wavelength Stabilizer



具有低反射的光栅能用来稳定泵浦激光器的波长和功率。太辰光通信能根据客户的要求定制具有不同波长、带宽和反射率的光纤光栅锁模器。

The stabilizer based on FBG with low reflectivity can be used to stabilize the wavelength and power of optical amplifier pump laser. T&S can customize different center wavelength, bandwidth and reflectivity of FBG stabilizer.

特点

Telcordia 1221 认证
高抗拉性
单光栅或双光栅

Features

Telcordia 1221 qualified
High Mechanical Strength
Single Grating or Double Gratings

应用

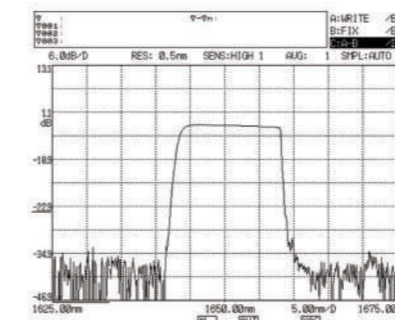
泵浦激光器的稳频
波长锁定

Applications

Pump Laser
Wavelength Locking

中心波长	Center Wavelength	nm	974, 976 or 980
波长公差	Wavelength Tolerance	nm	±0.25
半高全宽	FWHM	nm	>0.02
反射率	Reflectivity	%	>1
涂覆	Recoating	-	Acrylate / Polyimide
抗拉力	Tensile Resistance	kpsi	>150
光纤类型	Fiber Type	-	H11060

啁啾光栅 Chirped Grating



啁啾光栅是一种非均匀周期的布拉格光栅，它的周期沿光纤轴向逐渐变大或变小。啁啾光栅具有更宽的反射谱，可以应用于线路追踪器和色散补偿等场合。

Chirped FBG is a non-uniformly periodic FBG. Period of chirped FBG gradually increases or decreases along the fiber axis. Chirped FBG has a wider reflection spectrum, which can be used in ID reflector and dispersion compensation.

特点

宽带宽
低插入损耗

Features

Wide Bandwidth
Low Insertion Loss

应用

增益平均过滤器

Applications

Gain flattening filter for EDFA and ASE light source

色散补偿

Dispersion Compensation

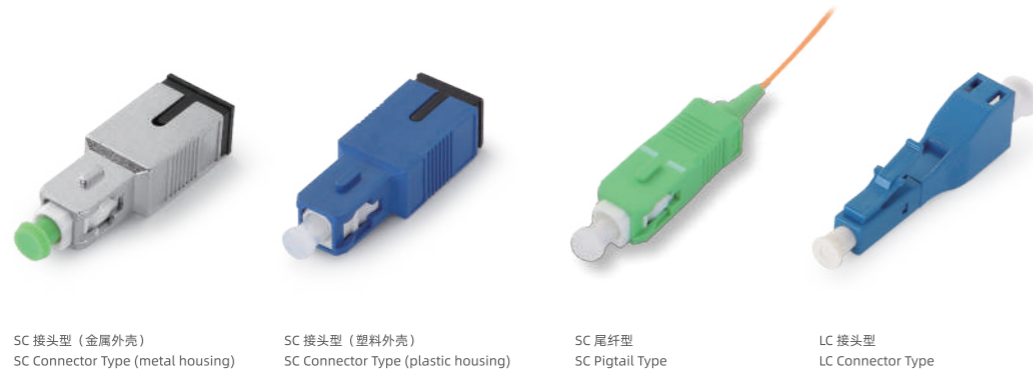
中心波长	Center Wavelength	-	1550nm/1625nm/1650nm
3dB 带宽	Bandwidth at 3dB	nm	>2
反射率	Reflectivity	%	>90 or customized
典型插损	Typical Insertion Loss	dB	0.5
连接头	Fiber Termination	-	Bare Fiber, FC/UPC or FC/APC
光纤类型	Fiber Type	-	Customized

U-Band Reflector for Fiber Monitoring 用于光纤监测的U-Band 反射器

产品描述 Description

U-Band反射器可用于光纤通断的检测，适用于移动前传和PON等各种网络。OTDR和U-Band反射器组成的系统可以快速检测光纤故障位置，从而降低维护成本。

FBG reflector can be used in FTTX fiber trouble-shooting monitoring. The combination of the OTDR and FBG reflector can detect and locate fiber faults quickly, and reduce the cost of maintenance.



SC 接头型 (金属外壳)
SC Connector Type (metal housing)

SC 接头型 (塑料外壳)
SC Connector Type (plastic housing)

SC 尾纤型
SC Pigtail Type

LC 接头型
LC Connector Type

特点

内置啁啾光栅
通信波段插损 < 1dB，回损 > 35dB
遵从ITU-T G.982
性能稳定可靠
接头可选SC/LC

Features

Chirped FBG
IL < 1dB and RL > 35dB at pass band
Compliant with ITU-T G.982
Stable and reliable
SC & LC connector type are available