

# 产品手册

Product Catalogue

*Explore the Way of Optics*

深圳市光为光通信科技有限公司  
SHENZHEN OPWAY COMMUNICATION CO., LTD.



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**Aug**  
**2013**

荣获深圳高新技术企业证书

Awarded "Shenzhen High-tech Enterprise"

**Sep**  
**2014**

荣获国家高新技术企业证书

Awarded "National High-tech Enterprise"



**Dec**  
**2018**

荣获面向“5G和大型数据中心高速光模块工程技术研究中心”称号

Awarded "High-speed Optical Transceiver Engineering Research Center for 5G and IDC"





# Company Profile

## 公司介绍

OPWAY Communication has been dedicated to the optical transceiver design and manufacture since 2010. Now it is one of the mainstream optical transceiver suppliers with 5 million units of annual shipment.

OPWAY is a holding company of Tongyu Communication (Stock code: 002792). The headquarters is located in Shenzhen and owns 4500m<sup>2</sup> manufacture center in Wuhan.

We provide a broadest range of products from 52M to 400G different packages and reaches. The products are widely deployed worldwide along with Huawei/-Nokia/Cisco/Ericsson systems.

Our company has established ISO 9001, ISO 14001 and ISO45001 management system. We provide high quality optical transceiver and professional ODM/OEM service.

深圳市光为光通信科技有限公司成立于2010年，致力于打造光模块行业一流品牌，成为国内外主流光模块供应商。自成立以来，光为光通信以先进的技术和优质的服务赢得了全球客户的青睐，模块年销量高达五百万只，产品广泛应用于华为 / 诺基亚 / 思科 / 爱立信等交换机系统中。

光为光通信是通宇通讯(股票代码：002792)的全资子公司，总部坐落于深圳市南山区，在深圳和武汉两地拥有超过4500平方米的净化生产车间。公司先后通过了ISO9001、ISO14001、ISO45001三大体系及CE、FCC、RoHS、TUV、FDA等产品认证，严格执行相关行业国际标准，技术指标达行业领先水平。公司不仅为客户提供优质的产品，还有专业的ODM/OEM服务。



# Optical Transceiver

光模块

# 400G / 200G / 50G SOLUTIONS



400G QSFP-DD SR8



50G QSFP28 LR

## 特性\Features

- ❖ 热插拔QSFP-DD/QSFP28封装
- ❖ 符合IEEE 802.3bs 标准
- ❖ 400G/200G/50G 模块支持 425/212.5/53.125Gb/s 速率
- ❖ +3.3V 单电源供电
- ❖ 400G / 200G最高传输距离可达 10km (SMF)
- ❖ 50G最高传输距离可达40km (SMF)
- ❖ 工作温度: 0~70°C
- ❖ 内置数字诊断功能
- ❖ 符合RoHS 6 标准
- ❖ Hot pluggable QSFP-DD/QSFP28 MSA form factor
- ❖ Compliant to IEEE 802.3bs
- ❖ Supports 425/212.5/53.125Gb/s aggregate bit rate
- ❖ Single +3.3V power supply
- ❖ 400G / 200G up to 10km on SMF
- ❖ 50G up to 40km on SMF
- ❖ Operating temperature range: 0~70°C
- ❖ Built-in digital diagnostic functions
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OPDJ01-8	400Gb/s	QSFP-DD	100M	850nm	MPO-16/24	VCSEL	PIN	MM	-6.0~+4.0dBm	≧-7.9dBm
OPDJ05-4	400Gb/s	QSFP-DD	500M	1310nm	MPO-12	EML	PIN	SM	-2.9~+4.0dBm	≧-4.4dBm
OPDJ02	400Gb/s	QSFP-DD	2KM	CWDM	Dual LC	EML	PIN	SM	-3.3~+3.5dBm	≧-4.6dBm
OPDH01	200Gb/s	QSFP-DD	100M	850nm	MPO-16/24	VCSEL	PIN	MM	-7.6~+2.4dBm	≧-10.3dBm
OPDH02	200Gb/s	QSFP-DD	2KM	CWDM	Dual LC	EML	PIN	SM	-4.2~+4.7dBm	≧-6.0dBm
OPDH10	200Gb/s	QSFP-DD	10KM	LWDM	Dual LC	EML	PIN	SM	-3.4~+5.3dBm	≧-7.7dBm
OPQG10	50Gb/s	QSFP28	10KM	1310nm	Dual LC	DML	PIN	SM	-4.5~+4.2dBm	≧-8.4dBm
OPQG40	50Gb/s	QSFP28	40KM	1310nm	Dual LC	EML	PIN	SM	+0.4~+6.6dBm	≧-15.1dBm
OPEG10-2733	50Gb/s	QSFP28	10KM	Tx1270 / Rx1330	Single LC	DML	PIN	SM	-4.5~+4.2dBm	≧-8.4dBm
OPEG10-3327	50Gb/s	QSFP28	10KM	Tx1330 / Rx1270	Single LC	DML	PIN	SM	-4.5~+4.2dBm	≧-8.4dBm

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# 100G SOLUTIONS



100G QSFP28 ER4



100G CFP2 ER4

## 特性\Features

- ❖ 支持 103.1Gb/s和112Gb/s 速率
- ❖ 最高传输距离可达40千米（SMF）
- ❖ 内置数字诊断功能
- ❖ MPO-12 / 双纤 LC 接口
- ❖ 符合 RoHS 6 标准
- ❖ 工作温度范围:0~70°C

- ❖ Supports 103.1Gb/s and 112Gb/s aggregate bit rates
- ❖ Maximum link up to 40km on SMF
- ❖ Built-in digital diagnostic functions
- ❖ MPO-12 / Dual LC receptacles
- ❖ RoHS 6 compliant (lead free)(lead free)
- ❖ Operating temperature range:0~70°C

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OPQE01	100Gb/s	QSFP28	100M	850nm	MPO-12	VCSEL	PIN	MM	-6.0~+2.0dBm	≧-9.2dBm
OPQE02	100Gb/s	QSFP28	2KM	CWDM	Dual LC	DFB	PIN	SM	-6.5~+2.5dBm	≧-11.5dBm
OPQE02-4	100Gb/s	QSFP28	2KM	1310nm	MPO-12	DFB	PIN	SM	-4.3~+4.5dBm	≧-9.0dBm
OPQE10	112Gb/s	QSFP28	10KM	LWDM	Dual LC	DML	PIN	SM	-0.6~+4.0dBm	≧-8.4dBm
OPQE10-S	100Gb/s	QSFP28	10KM	LWDM	Dual LC	DML	PIN	SM	-4.5~+4.5dBm	≧-8.6dBm
OPQE10-RX	100Gb/s	QSFP28	10KM	/	Single LC	/	PIN	SM	/	≧-8.6dBm
OPQE30	112Gb/s	QSFP28	30KM	LWDM	Dual LC	DML	PIN	SM	-0.6~+4.0dBm	≧-12.5dBm
OPQE40	112Gb/s	QSFP28	40KM	LWDM	Dual LC	DML	APD	SM	-2.5~+4.5dBm	≧-19.0dBm
OPQE40-E	112Gb/s	QSFP28	40KM	LWDM	Dual LC	EML	APD	SM	-2.5~+4.5dBm	≧-21.0dBm
OPC4E10	112Gb/s	CFP4	10KM	LWDM	Dual LC	EML	PIN	SM	-4.3~+4.5dBm	≧-10.3dBm
OPC2E10	112Gb/s	CFP2	10KM	LWDM	Dual LC	EML	PIN	SM	-0.5~+4.5dBm	≧-10.3dBm
OPC2E10-RX	112Gb/s	CFP2	10KM	/	Single LC	/	PIN	SM	/	≧-10.6dBm
OPC2E40	112Gb/s	CFP2	40KM	LWDM	Dual LC	EML	SOA+PIN	SM	-2.9~+2.9dBm	≧-21.4dBm
OPCFE10	112Gb/s	CFP	10KM	LWDM	Dual LC	EML	PIN	SM	-4.3~+4.5dBm	≧-10.6dBm
OPCFE40	112Gb/s	CFP	40KM	LWDM	Dual LC	EML	SOA+PIN	SM	-4.3~+4.5dBm	≧-21.4dBm
<b>Adapter</b>										
OPCFE-QSFP28	CFP to QSFP28 Adapter									
OPC2E-QSFP28	CFP2 to QSFP28 Adapter									

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# 40G QSFP+



40G QSFP+ SR4



40G QSFP+ ER4

## 特性\Features

- ❖ 热插拔QSFP+封装
  - ❖ 4个独立全双工通道
  - ❖ 单通道最高支持11.2Gb/s
  - ❖ 符合QSFP+ MSA 标准
  - ❖ VCSEL / DFB 激光器
  - ❖ 内置数字诊断功能
  - ❖ MPO-12 / 双纤 LC 接口
  - ❖ +3.3V单电源供电
  - ❖ 工作温度范围: 0~70°C
  - ❖ 符合 RoHS 6 标准
- ❖ Hot-pluggable QSFP+ form factor
  - ❖ 4 independent full-duplex channels
  - ❖ Up to 11.2Gbps per channel bandwidth
  - ❖ QSFP+ MSA compliant
  - ❖ VCSEL / DFB transmitter
  - ❖ Built-in digital diagnostic functions
  - ❖ MPO-12 / Dual LC receptacles
  - ❖ Single +3.3V power supply operating
  - ❖ Operating temperature range: 0~70°C
  - ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OPQC01	40Gb/s	QSFP+	100M	850nm	MPO-12	VCSEL	PIN	MM	-7.6~+2.4dBm	≤-11.1dBm
OPQC03	40Gb/s	QSFP+	300M	850nm	MPO-12	VCSEL	PIN	MM	-7.5~+2.4dBm	≤-11.1dBm
OPQC02	40Gb/s	QSFP+	2KM	CWDM	Dual LC	DFB	PIN	SM	-7.5~+2.5dBm	≤-10.0dBm
OPQC02-4	40Gb/s	QSFP+	2KM	1310nm	MPO-12	DFB	PIN	SM	-5.5~+1.5dBm	≤-12.5dBm
OPQC02-M	40Gb/s	QSFP+	2KM/100M	CWDM	Dual LC	DFB	PIN	SM/MM	-7.5~+3.5dBm	≤-10.0dBm
OPQC10	40Gb/s	QSFP+	10KM	CWDM	Dual LC	DFB	PIN	SM	-7.0~+2.3dBm	≤-9.6dBm
OPQC10-4	40Gb/s	QSFP+	10KM	1310nm	MPO-12	DFB	PIN	SM	-5.5~+1.5dBm	≤-12.6dBm
OPQC40	40Gb/s	QSFP+	40KM	CWDM	Dual LC	DFB	APD	SM	-2.7~+4.5dBm	≤-19.0dBm

### Adapter

OPQSFP-SFP

QSFP+ to SFP or SFP+ Adapter

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# 25G SFP28



25G SFP28



25G Bi-Di SFP28

## 特性\Features

- ❖ 热插拔SFP+封装
- ❖ 最高支持 25.78Gb/s 速率
- ❖ CWDM / DWDM 最长传输距离高达10千米
- ❖ 内置数字诊断功能
- ❖ 符合 RoHS 6 标准
- ❖ 工作温度范围:0~70°C 或 -40~85°C
- ❖ Hot-pluggable SFP+ footprint
- ❖ Supports 25.78Gb/s data rate
- ❖ Maximum link up to 10km on SMF(CWDM / DWDM)
- ❖ Built-in digital diagnostic functions
- ❖ RoHS 6 compliant (lead free)
- ❖ Operating temperature range:0~70°C or -40~85°C

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP3001D	25Gb/s	SFP28	100M	850nm	Dual LC	VCSEL	PIN	MM	-7.6~+2.4dBm	≦-10.3dBm
OP3001C*	25Gb/s / 10Gb/s	SFP28	100M	850nm	Dual LC	VCSEL	PIN	MM	-7.0~+2.4dBm	25G: ≦-10.3dBm 10G: ≦-11.0dBm
OP3003D	25Gb/s	SFP28	300M	1310nm	Dual LC	DFB	PIN	SM	-6.8~+2.0dBm	≦-10.5dBm
OP3010D	25Gb/s	SFP28	10KM	1310nm	Dual LC	DFB	PIN	SM	-7.0~+2.0dBm	≦-12.0dBm
OP3010C*	25Gb/s / 10Gb/s	SFP28	10KM	1310nm	Dual LC	DFB	PIN	SM	-7.0~+2.0dBm	25G: ≦-12.0dBm 10G: ≦-12.6dBm
OP3030D	25Gb/s	SFP28	30KM	1310nm	Dual LC	DFB	APD	SM	-3.0~+6.0dBm	≦-19.0dBm
OP3040D	25Gb/s	SFP28	40KM	1310nm	Dual LC	EML	APD	SM	-3.0~+6.0dBm	≦-19.0dBm
OP5010D-2733	25Gb/s	SFP28	10KM	Tx1270 / Rx1330	Single LC	DFB	PIN	SM	-5.0~+2.0dBm	≦-12.0dBm
OP5010D-3327	25Gb/s	SFP28	10KM	Tx1330 / Rx1270	Single LC	DFB	PIN	SM	-5.0~+2.0dBm	≦-12.0dBm
OP5030D-2731	25Gb/s	SFP28	30KM	Tx1270 / Rx1310	Single LC	DFB	APD	SM	0~+6.0dBm	≦-19.0dBm
OP5030D-3127	25Gb/s	SFP28	30KM	Tx1310 / Rx1270	Single LC	DFB	APD	SM	0~+6.0dBm	≦-19.0dBm
OP3010D-XX	25Gb/s	SFP28	10KM	1270~1370nm	Dual LC	DFB	PIN	SM	0~+6.0dBm	≦-14.0dBm
OP3010D-XX	25Gb/s	SFP28	10KM	1470~1570nm	Dual LC	EML	PIN	SM	-3.0~+6.0dBm	≦-12.0dBm
OP3010D-DXX	25Gb/s	SFP28	10KM	DWDM ITU	Dual LC	EML	PIN	SM	-3.0~+6.0dBm	≦-10.0dBm
OP3030D-DXX	25Gb/s	SFP28	10KM	DWDM ITU	Dual LC	EML	APD	SM	-3.0~+6.0dBm	≦-14.0dBm
OP3010D-LXXX	25Gb/s	SFP28	10KM	LWDM	Dual LC	DFB	PIN	SM	0~+6.0dBm	≦-12.0dBm
OP3040D-LXXX	25Gb/s	SFP28	40KM	LWDM	Dual LC	EML	APD	SM	+2.0~+7.0dBm	≦-20.0dBm
OP3010D-MXXX	25Gb/s	SFP28	10KM	MWDM	Dual LC	DFB	PIN	SM	+2.0~+7.0dBm	≦-14.0dBm

“\*” Define “dual rate” “\*” 代表双速率模块

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Explore the Way of Optics



# 16G SFP+



16G SFP+

## 应用\Application

- ❖ 4.25/8.5/14.025 Gb/s 光纤通道
- ❖ Tri-rate 4.25/8.5/14.025 Gb/s fibre channel

## 特性\Features

- ❖ 双纤 LC 接口
- ❖ I2C管理接口
- ❖ +3.3V单电源供电
- ❖ 符合SFP+ MSA 标准
- ❖ 可选光纤通道速率:4.25 / 8.5 / 14.025 Gb/s
- ❖ 支持4倍 / 8倍 / 16倍光纤通道
- ❖ 符合IEEE 802.3ae标准
- ❖ 符合SONET OC-192 / SDH STM-64标准
- ❖ 工作温度范围: 0°C to 70°C
- ❖ 低功耗
- ❖ 符合 RoHS 6 标准
- ❖ Dual LC connector
- ❖ I2C management interface
- ❖ Single +3.3V power supply
- ❖ Compliant with SFP+ MSA
- ❖ Tri-rate 4.25/8.5/14.025 Gb/s rate select
- ❖ 4x / 8x / 16x fibre channel compliant
- ❖ Compliant with IEEE 802.3ae
- ❖ Compliant with SONET OC-192 / SDH STM-64
- ❖ Operating temperature range: 0~70°C
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP3F01	16Gb/s	SFP+	100M	850nm	Dual LC	VCSEL	PIN	MM	-7.8 ~ +2.0dBm	≤ -10.5dBm
OP3F10	16Gb/s	SFP+	10KM	1310nm	Dual LC	DFB	PIN	SM	-4.0 ~ +2.0dBm	≤ -10.5dBm

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# 10G SFP+ DUAL FIBER



10G SFP+

## 应用\Application

- ❖ 10G 以太网  
10GBASE Ethernet
- ❖ 光纤网络 OC-192 /同步数字体系 STM-64  
SONET OC-192 / SDH STM-64

## 特性\Features

- ❖ 支持多速率协议 (9.9Gb/s ~ 11.3Gb/s)
- ❖ 双纤 LC 接口
- ❖ IIC管理接口
- ❖ 内置数字诊断功能
- ❖ 符合SFP+ MSA 标准
- ❖ 符合 IEEE 802.3ae 10GBASE 标准
- ❖ 工作温度范围: 0~70°C 或 -40~85°C
- ❖ 低功耗
- ❖ 符合RoHS 6标准
- ❖ Support multi protocol from 9.9Gb/s to 11.3Gb/s
- ❖ Dual LC connector
- ❖ 2-wire interface for management and diagnostic monitor
- ❖ Build-in digital diagnostic functions
- ❖ Compliant with SFP+ MSA
- ❖ Compliant with IEEE 802.3ae 10GBASE
- ❖ Operating temperature range: 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP3902D	10Gb/s	SFP+	220M	1310nm	Dual LC	FP	PIN	MM	-7.3~-1.0dBm	≧-11.1dBm
OP3903D	10Gb/s	SFP+	300M	850nm	Dual LC	VCSEL	PIN	MM	-6.0~-1.0dBm	≧-11.1dBm
OP3904D	10Gb/s	SFP+	2KM	1310nm	Dual LC	FP	PIN	SM	-8.2~+0.5dBm	≧-12.6dBm
OP3910D	10Gb/s	SFP+	10KM	1310nm	Dual LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-12.6dBm
OP3940D-13	10Gb/s	SFP+	40KM	1310nm	Dual LC	DFB	PIN	SM	-1.0~+4.0dBm	≧-16.0dBm
OP3940D	10Gb/s	SFP+	40KM	1550nm	Dual LC	EML	PIN	SM	-1.0~+4.0dBm	≧-16.0dBm
OP3980D	10Gb/s	SFP+	80KM	1550nm	Dual LC	EML	APD	SM	0~+5.0dBm	≧-23.0dBm
OP390AD	10Gb/s	SFP+	100KM	1550nm	Dual LC	EML	APD	SM	+1.0~+5.0dBm	≧-24.0dBm
10G SFP+ With CDR										
OP3910S	10Gb/s	SFP+	10KM	1310nm	Dual LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-12.6dBm
OP3940S	10Gb/s	SFP+	40KM	1550nm	Dual LC	EML	PIN	SM	-1.0~+4.0dBm	≧-16.0dBm
OP3980S	10Gb/s	SFP+	80KM	1550nm	Dual LC	EML	APD	SM	0~+5.0dBm	≧-23.0dBm
OP390AS	10Gb/s	SFP+	100KM	1550nm	Dual LC	EML	APD	SM	0~+5.0dBm	≧-25.0dBm

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# 10G SFP+ Bi-Di



10G Bi-Di SFP+

## 应用\Application

- ❖ 10G 以太网  
10GBASE Ethernet
- ❖ 光纤网络 OC-192 /同步数字体系 STM-64  
SONET OC-192 / SDH STM-64

## 特性\Features

- ❖ 支持多速率协议 (9.9Gb/s ~ 11.3Gb/s)
- ❖ IIC管理接口
- ❖ 内置数字诊断功能
- ❖ 符合SFP+ MSA 标准
- ❖ 符合IEEE 802.3ae 10GBASE标准
- ❖ 支持10G光纤通道
- ❖ 符合SONET OC-192 / SDH STM-64标准
- ❖ 工作温度范围:0~70°C 或 -40~85°C
- ❖ 低功耗
- ❖ 符合RoHS 6标准
- ❖ Support multi protocol from 9.9Gb/s to 11.3Gb/s
- ❖ Interface for management and diagnostic monitor
- ❖ Build-in digital diagnostic functions
- ❖ Compliant with SFP+ MSA
- ❖ Compliant with IEEE 802.3ae 10GBASE
- ❖ Compliant with 10G FC
- ❖ Compliant with SONET OC-192 / SDH STM-64
- ❖ Operating temperature range: 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP5910D-2733	10Gb/s	SFP+	10KM	Tx1270 / Rx1330	Single LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-14.0dBm
OP5910D-3327	10Gb/s	SFP+	10KM	Tx1330 / Rx1270	Single LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-14.0dBm
OP5920D-2733	10Gb/s	SFP+	20KM	Tx1270 / Rx1330	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≧-15.0dBm
OP5920D-3327	10Gb/s	SFP+	20KM	Tx1330 / Rx1270	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≧-15.0dBm
OP5940D-2733	10Gb/s	SFP+	40KM	Tx1270 / Rx1330	Single LC	DFB	PIN	SM	0~+5.0dBm	≧-15.0dBm
OP5940D-3327	10Gb/s	SFP+	40KM	Tx1330 / Rx1270	Single LC	DFB	PIN	SM	0~+5.0dBm	≧-15.0dBm
OP5960D-2733	10Gb/s	SFP+	60KM	Tx1270 / Rx1330	Single LC	DFB	APD	SM	+1.0~+5.0dBm	≧-20.0dBm
OP5960D-3327	10Gb/s	SFP+	60KM	Tx1330 / Rx1270	Single LC	DFB	APD	SM	+1.0~+5.0dBm	≧-20.0dBm
OP5980D-2733	10Gb/s	SFP+	80KM	Tx1270 / Rx1330	Single LC	DFB	APD	SM	+2.0~+5.0dBm	≧-22.0dBm
OP5980D-3327	10Gb/s	SFP+	80KM	Tx1330 / Rx1270	Single LC	DFB	APD	SM	+2.0~+5.0dBm	≧-22.0dBm
OP5980D-45	10Gb/s	SFP+	80KM	Tx1490 / Rx1550	Single LC	EML	APD	SM	+2.0~+6.0dBm	≧-23.0dBm
OP5980D-54	10Gb/s	SFP+	80KM	Tx1550 / Rx1490	Single LC	EML	APD	SM	+2.0~+6.0dBm	≧-23.0dBm

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# 10G SFP+ (x)WDM



10G (x)WDM SFP+

## 应用\Application

- ❖ 10G 以太网  
10GBASE Ethernet
- ❖ 光纤网络 OC-192 /同步数字体系 STM-64  
SONET OC-192 / SDH STM-64

## 特性\Features

- ❖ 支持多速率协议 (9.9Gb/s ~ 11.3Gb/s)
- ❖ 双纤 LC 接口
- ❖ IIC管理接口
- ❖ 内置数字诊断功能
- ❖ 符合SFP+ MSA 标准
- ❖ 支持10G光纤通道
- ❖ 符合SONET OC-192 / SDH STM-64标准
- ❖ 工作温度范围:0~70°C 或 -40~85°C
- ❖ 低功耗
- ❖ 符合RoHS 6标准
- ❖ Support multi protocol from 9.9Gb/s to 11.3Gb/s
- ❖ Dual LC connector
- ❖ 2-wire interface for management and diagnostic monitor
- ❖ Build-in digital diagnostic functions
- ❖ Compliant with SFP+ MSA
- ❖ Compliant with 10G FC
- ❖ Compliant with SONET OC-192 / SDH STM-64
- ❖ Operating temperature range: 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP3910D-XX	10Gb/s	SFP+	10KM	1270-1610nm	Dual LC	DFB	PIN	SM	-4.0~+4.0dBm	≧ -14.0dBm
OP3920D-XX	10Gb/s	SFP+	20KM	1270-1450nm	Dual LC	DFB	PIN	SM	-1.0~+5.5dBm	≧ -15.0dBm
OP3940D-XX	10Gb/s	SFP+	40KM	1270-1450nm	Dual LC	DFB	PIN	SM	-0.5~+5.5dBm	≧ -16.0dBm
OP3940D-XX	10Gb/s	SFP+	40KM	1470-1610nm	Dual LC	EML	PIN	SM	0~+5.5dBm	≧ -16.0dBm
OP3960D-XX	10Gb/s	SFP+	60KM	1270-1450nm	Dual LC	DFB	APD	SM	+1.0~+5.5dBm	≧ -20.0dBm
OP3980D-XX	10Gb/s	SFP+	80KM	1470-1610nm	Dual LC	EML	APD	SM	0~+5.5dBm	≧ -23.0dBm
OP3940D-DXX	10Gb/s	SFP+	40KM	DWDM ITU	Dual LC	EML	PIN	SM	-1.0~+4.0dBm	≧ -16.0dBm
OP3980D-DXX	10Gb/s	SFP+	80KM	DWDM ITU	Dual LC	EML	APD	SM	-1.0~+5.0dBm	≧ -23.0dBm
OP390AD-DXX	10Gb/s	SFP+	100KM	DWDM ITU	Dual LC	EML	APD	SM	+1.0~+5.0dBm	≧ -24.0dBm

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# 10G XFP DUAL FIBER



10G XFP

## 应用\Application

- ❖ 10G 以太网  
10GBASE Ethernet
- ❖ 光纤网络 OC-192 / 同步数字体系 STM-64  
SONET OC-192 / SDH STM-64

## 特性\Features

- ❖ 支持多速率协议 (9.9Gb/s ~ 11.3Gb/s)
- ❖ IIC管理接口
- ❖ 内置数字诊断功能
- ❖ 符合XFP MSA 标准
- ❖ 符合IEEE 802.3ae 10GBASE标准
- ❖ 支持10G光纤通道
- ❖ 符合SONET OC-192 / SDH STM-64标准
- ❖ 工作温度范围: 0~70°C 或 -40~85°C
- ❖ 低功耗
- ❖ 符合RoHS 6标准
- ❖ Support multi protocol from 9.9Gb/s to 11.3Gb/s
- ❖ 2-wire interface for management and diagnostic monitor
- ❖ Build-in digital diagnostic functions
- ❖ Compliant with XFP MSA
- ❖ Compliant with IEEE 802.3ae 10GBASE
- ❖ Compliant with 10G FC
- ❖ Compliant with SONET OC-192 / SDH STM-64
- ❖ Operating temperature range: 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP8902	10Gb/s	XFP	220M	1310nm	Dual LC	FP	PIN	MM	-7.3~-1.0dBm	≧ -11.1dBm
OP8903	10Gb/s	XFP	300M	850nm	Dual LC	VCSEL	PIN	MM	-6.0~-1.0dBm	≧ -11.1dBm
OP8904	10Gb/s	XFP	2KM	1310nm	Dual LC	FP	PIN	SM	-8.2~+0.5dBm	≧ -12.6dBm
OP8910	10Gb/s	XFP	10KM	1310nm	Dual LC	DFB	PIN	SM	-6.0~0dBm	≧ -14.0dBm
OP8940-13	10Gb/s	XFP	40KM	1310nm	Dual LC	DFB	PIN	SM	0~+5.0dBm	≧ -16.0dBm
OP8940	10Gb/s	XFP	40KM	1550nm	Dual LC	EML	PIN	SM	-1.0~+4.0dBm	≧ -16.0dBm
OP8980	10Gb/s	XFP	80KM	1550nm	Dual LC	EML	APD	SM	0~+5.0dBm	≧ -23.0dBm

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# 10G XFP Bi-Di



10G Bi-Di XFP

## 应用\Application

- ❖ 10G 以太网  
10GBASE Ethernet
- ❖ 光纤网络 OC-192 /同步数字体系 STM-64  
SONET OC-192 / SDH STM-64

## 特性\Features

- ❖ 支持多速率协议 (9.9Gb/s ~ 11.3Gb/s)
- ❖ 单纤 LC 接口
- ❖ IIC管理接口
- ❖ 内置数字诊断功能
- ❖ 符合XFP MSA 标准
- ❖ 符合IEEE 802.3ae 10GBASE标准
- ❖ 支持10G光纤通道
- ❖ 工作温度范围:0~70°C 或 -40~85°C
- ❖ 低功耗
- ❖ 符合RoHS 6标准
- ❖ Support multi protocol from 9.9Gb/s to 11.3Gb/s
- ❖ Single LC connector
- ❖ Interface for management and diagnostic monitor
- ❖ Build-in digital diagnostic functions
- ❖ Compliant with XFP MSA
- ❖ Compliant with IEEE 802.3ae 10GBASE
- ❖ Compliant with 10G FC
- ❖ Operating temperature range: 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OPP910-2733	10Gb/s	XFP	10KM	Tx1270 / Rx1330	Single LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-14.0dBm
OPP910-3327	10Gb/s	XFP	10KM	Tx1330 / Rx1270	Single LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-14.0dBm
OPP940-2733	10Gb/s	XFP	40KM	Tx1270 / Rx1330	Single LC	DFB	PIN	SM	0~+5.0dBm	≧-15.0dBm
OPP940-3327	10Gb/s	XFP	40KM	Tx1330 / Rx1270	Single LC	DFB	PIN	SM	0~+5.0dBm	≧-15.0dBm
OPP960-2733	10Gb/s	XFP	60KM	Tx1270 / Rx1330	Single LC	DFB	APD	SM	+1.0~+5.0dBm	≧-20.0dBm
OPP960-3327	10Gb/s	XFP	60KM	Tx1330 / Rx1270	Single LC	DFB	APD	SM	+1.0~+5.0dBm	≧-20.0dBm
OPP980-45	10Gb/s	XFP	80KM	Tx1490 / Rx1550	Single LC	EML	APD	SM	+1.0~+5.0dBm	≧-23.0dBm
OPP980-54	10Gb/s	XFP	80KM	Tx1550 / Rx1490	Single LC	EML	APD	SM	+1.0~+5.0dBm	≧-23.0dBm

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# 10G XFP (x)WDM



10G (x)WDM XFP

## 应用\Application

- ❖ WDM networks  
波分复用网络
- ❖ 10G 光纤通道  
10G Fibre channel

## 特性\Features

- ❖ 支持多速率协议 (9.9Gb/s ~ 11.3Gb/s)
- ❖ IIC管理接口
- ❖ 内置数字诊断功能
- ❖ 符合XFP MSA 标准
- ❖ 符合IEEE 802.3ae 10GBASE标准
- ❖ 支持10G光纤通道
- ❖ 符合SONET OC-192 / SDH STM-64标准
- ❖ 工作温度范围: 0~70°C 或 -40~85°C
- ❖ 低功耗
- ❖ 符合RoHS 6标准
- ❖ Support multi protocol from 9.9Gb/s to 11.3Gb/s
- ❖ 2-wire interface for management and diagnostic monitor
- ❖ Build-in digital diagnostic functions
- ❖ Compliant with XFP MSA
- ❖ Compliant with IEEE 802.3ae 10GBASE
- ❖ Compliant with 10G FC
- ❖ Compliant with SONET OC-192 / SDH STM-64
- ❖ Operating temperature range: 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP8910-XX	10Gb/s	XFP	10KM	1270-1610nm	Dual LC	DFB	PIN	SM	-6.0~-1.0dBm	≧-14.6dBm
OP8940-XX	10Gb/s	XFP	40KM	1270-1450nm	Dual LC	DFB	PIN	SM	0~+5.0dBm	≧-15.0dBm
OP8940-XX	10Gb/s	XFP	40KM	1470-1610nm	Dual LC	EML	PIN	SM	-1.0~+5.0dBm	≧-16.0dBm
OP8960-XX	10Gb/s	XFP	60KM	1270-1450nm	Dual LC	DFB	APD	SM	0~+5.0dBm	≧-22.0dBm
OP8980-XX	10Gb/s	XFP	80KM	1470-1610nm	Dual LC	EML	APD	SM	-1.0~+4.0dBm	≧-23.0dBm
OP8940-DXX	10Gb/s	XFP	40KM	DWDM ITU	Dual LC	EML	PIN	SM	-1.0~+4.0dBm	≧-16.0dBm
OP8980-DXX	10Gb/s	XFP	80KM	DWDM ITU	Dual LC	EML	APD	SM	0~+5.0dBm	≧-23.0dBm

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# 155M~2.5G CSFP



2.5G CSFP

## 应用\Application

- ❖ 点对点光纤到户应用  
Point to point FTTH application
- ❖ 光纤通道  
Fibre channel

## 特性\Features

- ❖ 与普通SFP一样的结构尺寸下具有两个通道, 每个通道均可独立实现单纤双向传输
- ❖ 符合 IEEE802.3ah, 1000Base-BX20 标准
- ❖ 符合SFF-8472 标准
- ❖ 符合CSFP MSA Option2 标准
- ❖ 内置数字诊断功能
- ❖ 工作温度范围: 0~70°C or -40~85°C
- ❖ 低功耗
- ❖ 符合 RoHS 6 标准
- ❖ Same compact package with SFP, with Dual LC two channels  
Each channel can achieve Bi-Di transmission
- ❖ Compliant with IEEE 802.3ah, 1000Base-BX20
- ❖ Compliant with SFF-8472
- ❖ Compliant with CSFP MSA Option2
- ❖ Built-in digital diagnostic functions
- ❖ Operating temperature range 0~70°C or -40~85°C optional
- ❖ Low power consumption
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OPS220D-35	155Mb/s	CSFP	20KM	Tx1310 / Rx1550	Dual LC	FP	PIN	SM	-15.0~-8.0dBm	≧-34.0dBm
OPS220D-53	155Mb/s	CSFP	20KM	Tx1550 / Rx1310	Dual LC	FP	PIN	SM	-15.0~-8.0dBm	≧-34.0dBm
OPS420D-35	1.25Gb/s	CSFP	20KM	Tx1310 / Rx1550	Dual LC	FP	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OPS420D-53	1.25Gb/s	CSFP	20KM	Tx1550 / Rx1310	Dual LC	DFB	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OPS420D-34	1.25Gb/s	CSFP	20KM	Tx1310 / Rx1490	Dual LC	FP	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OPS420D-43	1.25Gb/s	CSFP	20KM	Tx1490 / Rx1310	Dual LC	DFB	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OPS420D-35	2.5Gb/s	CSFP	20KM	Tx1310 / Rx1550	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧-18.0dBm
OPS420D-53	2.5Gb/s	CSFP	20KM	Tx1550 / Rx1310	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧-18.0dBm

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# 2.5G SFP



2.5G SFP

## 应用\Application

- ❖ 城域网 / 传输网络  
Metro / Access Network
- ❖ 光纤网络/传输模块, 2x光纤通道  
SONET OC-48 / SDH STM-16 / 2xFC

## 特性\Features

- ❖ 热插拔SFP封装
- ❖ 符合 SFP MSA标准
- ❖ 内置数字诊断功能
- ❖ 符合 RoHS 6 标准
- ❖ Hot-pluggable SFP footprint
- ❖ Compliant with SFP MSA
- ❖ Built-in digital diagnostic functions
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
OP3603D	2.5Gb/s	SFP	300M	850nm	Dual LC	VCSEL	PIN	MM	-10.0~3.0dBm	≤-17.0dBm
OP3602D	2.5Gb/s	SFP	2KM	1310nm	Dual LC	FP	PIN	SM	-10.0~3.0dBm	≤-18.0dBm
OP3620D	2.5Gb/s	SFP	20KM	1310nm	Dual LC	DFB	PIN	SM	-5.0~0dBm	≤-18.0dBm
OP3640D	2.5Gb/s	SFP	40KM	1550nm	Dual LC	DFB	PIN	SM	-2.0~+3.0dBm	≤-18.0dBm
OP3680D	2.5Gb/s	SFP	80KM	1550nm	Dual LC	DFB	APD	SM	-2.0~+3.0dBm	≤-28.0dBm
OP360CD	2.5Gb/s	SFP	120KM	1550nm	Dual LC	DFB	APD	SM	-1.0~+5.0dBm	≤-31.0dBm
OP5602D-35	2.5Gb/s	SFP	2KM	Tx1310 / Rx1550	Single LC	FP	PIN	SM	-10.0~3.0dBm	≤-18.0dBm
OP5602D-53	2.5Gb/s	SFP	2KM	Tx1550 / Rx1310	Single LC	DFB	PIN	SM	-10.0~3.0dBm	≤-18.0dBm
OP5620D-35	2.5Gb/s	SFP	20KM	Tx1310 / Rx1550	Single LC	DFB	PIN	SM	-5.0~0dBm	≤-18.0dBm
OP5620D-53	2.5Gb/s	SFP	20KM	Tx1550 / Rx1310	Single LC	DFB	PIN	SM	-5.0~0dBm	≤-18.0dBm
OP5640D-45	2.5Gb/s	SFP	40KM	Tx1490 / Rx1550	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≤-19.0dBm
OP5640D-54	2.5Gb/s	SFP	40KM	Tx1550 / Rx1490	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≤-19.0dBm
OP5680D-45	2.5Gb/s	SFP	80KM	Tx1490 / Rx1550	Single LC	DFB	APD	SM	-2.0~+3.0dBm	≤-28.0dBm
OP5680D-54	2.5Gb/s	SFP	80KM	Tx1550 / Rx1490	Single LC	DFB	APD	SM	-2.0~+3.0dBm	≤-28.0dBm
OP560CD-45	2.5Gb/s	SFP	120KM	Tx1490 / Rx1550	Single LC	DFB	APD	SM	-1.0~+5.0dBm	≤-30.0dBm
OP560CD-54	2.5Gb/s	SFP	120KM	Tx1550 / Rx1490	Single LC	DFB	APD	SM	-1.0~+5.0dBm	≤-30.0dBm
OP3640D-XX	2.5Gb/s	SFP	40KM	1270~1610nm	Dual LC	DFB	PIN	SM	-2.0~+3.0dBm	≤-18.0dBm
OP3680D-XX	2.5Gb/s	SFP	80KM	1270~1610nm	Dual LC	DFB	APD	SM	0~+5.0dBm	≤-28.0dBm
OP360CD-XX	2.5Gb/s	SFP	120KM	1270~1610nm	Dual LC	DFB	APD	SM	0~+5.0dBm	≤-31.0dBm
OP3640D-DXX	2.5Gb/s	SFP	40KM	DWDM ITU	Dual LC	DFB	PIN	SM	0~+5.0dBm	≤-18.0dBm
OP3680D-DXX	2.5Gb/s	SFP	80KM	DWDM ITU	Dual LC	DFB	APD	SM	0~+5.0dBm	≤-28.0dBm
OP360CD-DXX	2.5Gb/s	SFP	120KM	DWDM ITU	Dual LC	DFB	APD	SM	0~+5.0dBm	≤-30.0dBm

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# 1.25G SFP



1.25G SFP

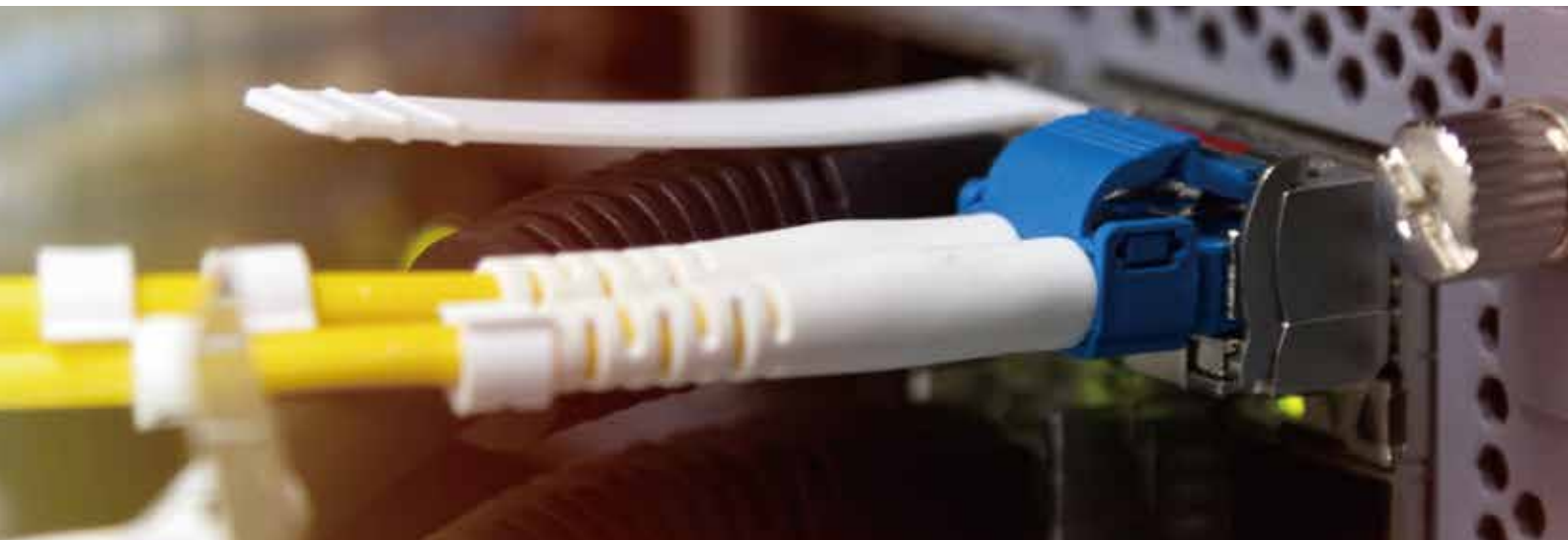
## 应用\Application

- ❖ 1.25Gb/s 以太网  
1.25Gb/s 1000Base Ethernet
- ❖ 1x光纤通道  
1x Fibre channel

## 特性\Features

- ❖ 热插拔 SFP 封装
- ❖ 单纤 LC / 单纤 SC / 双纤 LC 接口
- ❖ 传输距离支持从550米到120千米
- ❖ 内置数字诊断功能
- ❖ 符合SFP MSA 标准
- ❖ 提供 CWDM 18波 (1270~1610nm) 选择
- ❖ 提供 DWDM 100GHz ITU Grid C 选择
- ❖ 工作温度范围: 0~70°C 或 -40~85°C
- ❖ +3.3V单供电电压
- ❖ 符合RoHS 6标准
- ❖ Hot-pluggable SFP footprint
- ❖ Single LC / Single SC / Dual LC connector
- ❖ Wide distance supported from 550m to 120km
- ❖ Built-in digital diagnostic functions
- ❖ Compliant with SFP MSA
- ❖ 18-wavelength CWDM 1270nm to 1610nm available
- ❖ DWDM 100GHz ITU Grid C Band available
- ❖ Operating temperature range 0~70°C or -40~85°C optional
- ❖ Single +3.3V power supply
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
1.25Gb/s Duplex SFP										
OP3405D	1.25Gb/s	SFP	550M	850nm	Dual LC	VCSEL	PIN	MM	-9.0~-3.0dBm	≧ -17.0dBm
OP3402D	1.25Gb/s	SFP	2KM	1310nm	Dual LC	FP	PIN	MM	-9.0~-3.0dBm	≧ -17.0dBm
OP3420D	1.25Gb/s	SFP	20KM	1310nm	Dual LC	FP	PIN	SM	-9.0~-3.0dBm	≧ -24.0dBm
OP3440D	1.25Gb/s	SFP	40KM	1310nm	Dual LC	DFB	PIN	SM	-2.0~+3.0dBm	≧ -24.0dBm
OP3440D-15	1.25Gb/s	SFP	40KM	1550nm	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧ -24.0dBm
OP3480D	1.25Gb/s	SFP	80KM	1550nm	Dual LC	DFB	PIN	SM	-2.0~+3.0dBm	≧ -24.0dBm
OP340CD	1.25Gb/s	SFP	120KM	1550nm	Dual LC	DFB	APD	SM	0~+5.0dBm	≧ -32.0dBm



P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
<b>1.25Gb/s Bi-Di LC SFP</b>										
OP5405D-35	1.25Gb/s	SFP	500M	Tx1310 / Rx1550	Single LC	FP	PIN	MM	-9.0~-3.0dBm	≧-21.0dBm
OP5405D-53	1.25Gb/s	SFP	500M	Tx1550 / Rx1310	Single LC	FP	PIN	MM	-9.0~-3.0dBm	≧-21.0dBm
OP5403D-35	1.25Gb/s	SFP	3KM	Tx1310 / Rx1550	Single LC	FP	PIN	SM	-9.0~-3.0dBm	≧-21.0dBm
OP5403D-53	1.25Gb/s	SFP	3KM	Tx1550 / Rx1310	Single LC	FP	PIN	SM	-9.0~-3.0dBm	≧-21.0dBm
OP5420D-35	1.25Gb/s	SFP	20KM	Tx1310 / Rx1550	Single LC	FP	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OP5420D-53	1.25Gb/s	SFP	20KM	Tx1550 / Rx1310	Single LC	DFB	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OP5420D-34	1.25Gb/s	SFP	20KM	Tx1310 / Rx1490	Single LC	FP	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OP5420D-43	1.25Gb/s	SFP	20KM	Tx1490 / Rx1310	Single LC	DFB	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OP5440D-35	1.25Gb/s	SFP	40KM	Tx1310 / Rx1550	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≧-23.0dBm
OP5440D-53	1.25Gb/s	SFP	40KM	Tx1550 / Rx1310	Single LC	DFB	PIN	SM	-5.0~0dBm	≧-23.0dBm
OP5480D-45	1.25Gb/s	SFP	80KM	Tx1490 / Rx1550	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≧-24.0dBm
OP5480D-54	1.25Gb/s	SFP	80KM	Tx1550 / Rx1490	Single LC	DFB	PIN	SM	-2.0~+3.0dBm	≧-24.0dBm
OP540CD-45	1.25Gb/s	SFP	120KM	Tx1490 / Rx1550	Single LC	DFB	APD	SM	-1.0~+4.0dBm	≧-32.0dBm
OP540CD-54	1.25Gb/s	SFP	120KM	Tx1550 / Rx1490	Single LC	DFB	APD	SM	-1.0~+4.0dBm	≧-32.0dBm
<b>1.25Gb/s Bi-Di SC SFP</b>										
OP4403D-35	1.25Gb/s	SFP	3KM	Tx1310 / Rx1550	Single SC	FP	PIN	SM	-9.0~-3.0dBm	≧-21.0dBm
OP4403D-53	1.25Gb/s	SFP	3KM	Tx1550 / Rx1310	Single SC	FP	PIN	SM	-9.0~-3.0dBm	≧-21.0dBm
OP4420D-35	1.25Gb/s	SFP	20KM	Tx1310 / Rx1550	Single SC	FP	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
OP5420D-53	1.25Gb/s	SFP	20KM	Tx1550 / Rx1310	Single SC	DFB	PIN	SM	-9.0~-3.0dBm	≧-23.0dBm
<b>1.25Gb/s CWDM SFP</b>										
OP3440D-XX	1.25Gb/s	SFP	40KM	1270~1610nm	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧-24.0dBm
OP3480D-XX	1.25Gb/s	SFP	80KM	1270~1610nm	Dual LC	DFB	PIN	SM	0~+4.0dBm	≧-24.0dBm
OP340CD-XX	1.25Gb/s	SFP	120KM	1270~1610nm	Dual LC	DFB	APD	SM	0~+4.0dBm	≧-32.0dBm
<b>1.25Gb/s DWDM SFP</b>										
OP3440D-DXX	1.25Gb/s	SFP	40KM	DWDM ITU	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧-24.0dBm
OP3480D-DXX	1.25Gb/s	SFP	80KM	DWDM ITU	Dual LC	DFB	PIN	SM	0~+5.0dBm	≧-25.0dBm
OP340CD-DXX	1.25Gb/s	SFP	120KM	DWDM ITU	Dual LC	DFB	APD	SM	0~+5.0dBm	≧-32.0dBm

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# 155M SFP



155M SFP

## 应用\Application

- ❖ 快速以太网  
Fast ethernet
- ❖ 光纤网络 OC-3 /同步数字体系 STM-1  
SONET OC-3 / SDH STM-1

## 特性\Features

- ❖ 热插拔 SFP 封装
- ❖ 符合SFP MSA 标准
- ❖ 符合RoHS 6标准
- ❖ Hot-pluggable SFP footprint
- ❖ Compliant with SFP MSA
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Connector 接口	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
<b>155Mb/s DUPLEX SFP</b>										
OPE202	FI: 155Mb/s MI: 1.25Gb/s	SFP	2KM	1310nm	Dual LC	FP	PIN	MM	-18.0~-10.0dBm	≧ -31.0dBm
OPE210	FI: 155Mb/s MI: 1.25Gb/s	SFP	10KM	1310nm	Dual LC	FP	PIN	SM	-9.0~-3.0dBm	≧ -33.0dBm
OP3202D-85	155Mb/s	SFP	2KM	850nm	Dual LC	VCSEL	PIN	MM	-10.0~-3.0dBm	≧ -24.0dBm
OP3202D	155Mb/s	SFP	2KM	1310nm	Dual LC	FP	PIN	MM	-15.0~-8.0dBm	≧ -32.0dBm
OP3220D	155Mb/s	SFP	20KM	1310nm	Dual LC	FP	PIN	SM	-15.0~-8.0dBm	≧ -34.0dBm
OP3240D	155Mb/s	SFP	40KM	1310nm	Dual LC	FP	PIN	SM	-5.0~0dBm	≧ -34.0dBm
OP3280D	155Mb/s	SFP	80KM	1550nm	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧ -34.0dBm
<b>155Mb/s Bi-Di LC SFP</b>										
OP5202D-35	155Mb/s	SFP	2KM	Tx1310 / Rx1550	Single LC	FP	PIN	MM	-15.0~-8.0dBm	≧ -28.0dBm
OP5202D-53	155Mb/s	SFP	2KM	Tx1550 / Rx1310	Single LC	FP	PIN	MM	-15.0~-8.0dBm	≧ -28.0dBm
OP5220D-35	155Mb/s	SFP	20KM	Tx1310 / Rx1550	Single LC	FP	PIN	SM	-15.0~-8.0dBm	≧ -34.0dBm
OP5220D-53	155Mb/s	SFP	20KM	Tx1550 / Rx1310	Single LC	FP	PIN	SM	-15.0~-8.0dBm	≧ -34.0dBm
OP5240D-35	155Mb/s	SFP	40KM	Tx1310 / Rx1550	Single LC	FP	PIN	SM	-5.0~0dBm	≧ -34.0dBm
OP5240D-53	155Mb/s	SFP	40KM	Tx1550 / Rx1310	Single LC	DFB	PIN	SM	-5.0~0dBm	≧ -34.0dBm
OP5280D-45	155Mb/s	SFP	80KM	Tx1490 / Rx1550	Single LC	DFB	PIN	SM	-5.0~0dBm	≧ -34.0dBm
OP5280D-54	155Mb/s	SFP	80KM	Tx1550 / Rx1490	Single LC	DFB	PIN	SM	-5.0~0dBm	≧ -34.0dBm
<b>155Mb/s Bi-Di SC SFP</b>										
OP4220D-35	155Mb/s	SFP	20KM	Tx1310 / Rx1550	Single SC	FP	PIN	SM	-15.0~-8.0dBm	≧ -34.0dBm
OP4220D-53	155Mb/s	SFP	20KM	Tx1550 / Rx1310	Single SC	FP	PIN	SM	-15.0~-8.0dBm	≧ -34.0dBm
<b>155Mb/s CWDM SFP</b>										
OP3280D-XX	155Mb/s	SFP	80KM	1270-1610nm	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧ -34.0dBm
<b>155Mb/s DWDM SFP</b>										
OP3280D-DXX	155Mb/s	SFP	80KM	DWDM ITU	Dual LC	DFB	PIN	SM	-5.0~0dBm	≧ -34.0dBm

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# COPPER SFP



Copper SFP

## 应用\Application

- ❖ 文件服务器高速输入输出  
High speed I/O for files server
- ❖ 交换机 / 路由器互联  
Switch / router to switch / router link

## 特性\Features

- ❖ 热插拔 SFP 封装
- ❖ 低功耗
- ❖ 紧凑型RJ-45连接器组件
- ❖ 低电磁干扰全金属外壳
- ❖ IIC管理接口
- ❖ +3.3V单电源供电
- ❖ 通过串行总线连接物理层芯片
- ❖ 符合 SFP MSA 标准
- ❖ 符合 IEEE Std 802.3 TM-2002 标准
- ❖ 符合RoHS 6标准
- ❖ 工作温度范围: 0~70°C
- ❖ Hot-pluggable SFP footprint
- ❖ Low power consumption
- ❖ Compact RJ-45 connector assembly
- ❖ Fully metallic enclosure for low EMI
- ❖ Interface for management and diagnostic monitor
- ❖ Single +3.3V power supply
- ❖ Access to physical layer IC via 2-wire serial bus
- ❖ Compliant with SFP MSA
- ❖ Compliant with IEEE Std 802.3TM-2002
- ❖ RoHS 6 compliant (lead free)
- ❖ Operating temperature range 0~70°C

P/N 型号	Data Rate 速率	Distance 距离	Connector 接口	Operating Temperature 工作温度	Link Indicator on Rx_Los Pin Rx_Los链接指示器	1000BASE-X Auto -Negotiation Enabled 启用1000BASE-X自动协商
OP3201	100Mb/s	100M	RJ-45	0~70°C	●	
OP3401G	1,000Mb/s	100M	RJ-45	0~70°C	●	
OP3401G-1	1,000Mb/s	100M	RJ-45	0~70°C		
OP3401G-2	1,000Mb/s	100M	RJ-45	0~70°C	●	●
OP3401G-3	1,000Mb/s	100M	RJ-45	0~70°C		●
OP3401-2	10 / 100 / 1,000Mb/s	100M	RJ-45	0~70°C	●	●
OP3401-3	10 / 100 / 1,000Mb/s	100M	RJ-45	0~70°C		●
OP3901	10Gb/s	30M	RJ-45	0~70°C	●	

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# PON SERIES



PON

## 应用\Application

- ❖ 城域网 / 传输网络  
Metro / Access network
- ❖ 光纤网络/传输模块, 2x光纤通道  
SONET / SDH STM 16 / 2xFC

## 特性\Features

- ❖ 单纤Bi-Di数据链路
- ❖ 可选SC插拔或带尾纤连接器
- ❖ ONU 工业标准 SFP 封装
- ❖ OLT 工业标准20 PIN SFP 封装
- ❖ LVPECL兼容的数据输入/输出接口
- ❖ 符合1类激光安全标准IEC-60825
- ❖ 符合RoHS 6标准
- ❖ Single fiber Bi-Di data link
- ❖ SC receptable or pigtail optional
- ❖ Industry standard SFP footprint fo ONU
- ❖ Industry standard 20 PIN SFP footprint for OLT
- ❖ LVPECL compatible data input / output interface
- ❖ Class 1 laser safety standard IEC-60825 compliant
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Class 等级	Package 封装	Data Rate 速率	Wavelength 波长	Tx 激光器	Rx 接收器	Cable 线缆	Output Power 输出功率	Sensitivity 灵敏度
<b>EPON ONU / OLT Module</b>									
OP44P1-EU	PX-20+	SFP	1.25G Tx / 1.25G Rx	Tx1310 / Rx1490	FP	PIN	SM	-1.0~+4.0dBm	≧ -26.0dBm
OP44P1-ET	PX-20+	SFP	1.25G Tx / 1.25G Rx	Tx1490 / Rx1310	DFB	APD	SM	+2.0~+7.0dBm	≧ -30.0dBm
OP89N1-ET	N1	XFP	10G Tx / 2.5G Rx	Tx1577 / Rx1270	DFB	APD	SM	+2.0~+5.0dBm	≧ -28.0dBm
<b>GPON ONU/OLT Module</b>									
OP44B1-GU	B+	SFP	1.25G Tx / 1.25G Rx	Tx1310 / Rx1490	DFB	APD	SM	+0.5~+5.0dBm	≧ -28.0dBm
OP46B1-GT	B+	SFP	2.5G Tx / 1.25G Rx	Tx1490 / Rx1310	DFB	APD	SM	+1.5~+5.0dBm	≧ -28.0dBm
OP46C1-GT	C+	SFP	2.5G Tx / 1.25G Rx	Tx1490 / Rx1310	DFB	APD	SM	+3.0~+7.0dBm	≧ -30.0dBm
OP46C2-GT	C++	SFP	2.5G Tx / 1.25G Rx	Tx1490 / Rx1310	DFB	APD	SM	+5.5~+10.0dBm	≧ -33.0dBm
<b>XGPON Module</b>									
OP49N1-GT	N1	SFP+	10G Tx / 2.5G Rx	Tx1577 / Rx1270	EML	APD	SM	+2.5~+6.0dBm	≧ -27.5dBm
OP89N2-GT	N2	XFP	10G Tx / 2.5G Rx	Tx1577 / Rx1270	DFB	APD	SM	+2.0~+7.0dBm	≧ -28.0dBm
OP49N2-SU	N1 / N2	SFP+	10G Tx / 2.5G Rx	Tx1270 / Rx1577	DFB	APD	SM	+2.0~+5.0dBm	≧ -28.0dBm
OP49DC-GT	D2	SFP+	10G Tx / 2.5G Rx	Tx1577 / Rx1490	DFB	APD	SM	+5.0~+8.0dBm	≧ -29.5dBm
<b>XGSPON Combo</b>									
OP49BD-ST	D1	SFP+	XGPON:10G Tx / 2.5G Rx	Tx1577 / Rx1270	EML	APD	SM	+1.0~+5.0dBm	≧ -26.5dBm
	B+	SFP+	GPON:2.5G Tx / 1.25G Rx	Tx1490 / Rx1310	DFB	APD	SM	+1.5~+5.0dBm	≧ -28.0dBm

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**AOC & DAC**  
有源光缆&直连铜缆

# ACTIVE OPTICAL CABLE



400G QSFP-DD AOC

## 应用\Application

- ❖ 数据中心  
Data center
- ❖ 高性能计算机互联  
HPC interconnection

## 特性\Features

- ❖ 全双工有源光缆
- ❖ 热插拔封装
- ❖ 高可靠性 850nm 垂直腔面发射激光器技术
- ❖ 内置数字诊断功能
- ❖ 3.3V供电电压
- ❖ 低功耗
- ❖ 工作温度范围:0~70°C
- ❖ 符合RoHS 6标准 (无铅)
- ❖ Full-duplex active optical cable
- ❖ Hot pluggable form factor
- ❖ High reliable 850nm VCSEL technology
- ❖ Built-in digital diagnostic functions
- ❖ 3.3V power supply voltage
- ❖ Low power consumption
- ❖ Operating temperature range:0~70°C
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Wavelength 波长	Tx 激光器	Rx 接收器	Cable 线缆
OPDJTx-AOC	400Gb/s	QSFP-DD	0.5-100M	850nm	VCSEL	PIN	MM
OPQETx-AOC	100Gb/s	QSFP28	0.5-100M	850nm	VCSEL	PIN	MM
OPQETx-4-AOC	100Gb/s	QSFP28 / SFP28	0.5-100M	850nm	VCSEL	PIN	MM
OPQCTx-AOC	40Gb/s	QSFP+	0.5-150M	850nm	VCSEL	PIN	MM
OPQCTx-4-AOC	40Gb/s	QSFP+ / SFP+	0.5-150M	850nm	VCSEL	PIN	MM
OP30Tx-AOC	25Gb/s	SFP28	0.5-100M	850nm	VCSEL	PIN	MM
OP39Tx-AOC	10Gb/s	SFP+	0.5-300M	850nm	VCSEL	PIN	MM

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# DIRECT ATTACH CABLE



400G QSFP-DD DAC

## 应用\Application

- ❖ 数据中心  
Data center
- ❖ 企业网络  
Enterprise network

## 特性\Features

- ❖ 全双工直连铜缆
- ❖ 热插拔封装
- ❖ 3.3V供电电压
- ❖ 低串扰
- ❖ 低功耗
- ❖ 符合 QSFP-DD / QSFP+ / SFP+ MSA 标准
- ❖ 工作温度范围:-40~85°C
- ❖ 符合RoHS 6标准 (无铅)
- ❖ Full-duplex direct attach cable
- ❖ Hot pluggable form factor
- ❖ 3.3V power supply voltage
- ❖ Low crosstalk
- ❖ Low power consumption
- ❖ Compliant with QSFP-DD / QSFP+ / SFP+ MSA
- ❖ Operating temperature range:-40~85°C
- ❖ RoHS 6 compliant (lead free)

P/N 型号	Data Rate 速率	Package 封装	Distance 距离	Cable 线缆
OPDJTx	400Gb/s	QSFP-DD	0.5-3M	Copper
OPDJTx-8	400Gb/s	QSFP-DD / SFP56	0.5-3M	Copper
OPDHTx	200Gb/s	QSFP-DD	0.5-3M	Copper
OPDHTx-2	200Gb/s	QSFP-DD / QSFP28	0.5-3M	Copper
OPQHTx	200Gb/s	QSFP56	0.5-3M	Copper
OPQHTx-4	200Gb/s	QSFP56 / SFP56	0.5-3M	Copper
OPQETx	100Gb/s	QSFP28	0.5-5M	Copper
OPQETx-4	100Gb/s	QSFP28 / SFP28	0.5-5M	Copper
OPQCTx	40Gb/s	QSFP+	0.5-7M	Copper
OPQCTx-4	40Gb/s	QSFP+ / SFP+	0.5-7M	Copper
OP30Tx	25Gb/s	SFP28	0.5-5M	Copper
OP39Tx	10Gb/s	SFP+	0.5-7M	Copper

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## 50GHz ITU Grid DWDM Wavelength

Channel No.	Central Wavelength (nm)	Frequency (THz)	Channel No.	Central Wavelength (nm)	Frequency (THz)
21	1560.61	192.10	41	1544.53	194.10
21.5	1560.20	192.15	41.5	1544.13	194.15
22	1559.79	192.20	42	1543.73	194.20
22.5	1559.39	192.25	42.5	1543.33	194.25
23	1558.98	192.30	43	1542.94	194.30
23.5	1558.58	192.35	43.5	1542.54	194.35
24	1558.17	192.40	44	1542.14	194.40
24.5	1557.77	192.45	44.5	1541.75	194.45
25	1557.36	192.50	45	1541.35	194.50
25.5	1556.96	192.55	45.5	1540.95	194.55
26	1556.55	192.60	46	1540.56	194.60
26.5	1556.15	192.65	46.5	1540.16	194.65
27	1555.75	192.70	47	1539.77	194.70
27.5	1555.34	192.75	47.5	1539.37	194.75
28	1554.94	192.80	48	1538.98	194.80
28.5	1554.54	192.85	48.5	1538.58	194.85
29	1554.13	192.90	49	1538.19	194.90
29.5	1553.73	192.95	49.5	1537.79	194.95
30	1553.33	193.00	50	1537.40	195.00
30.5	1552.93	193.05	50.5	1537.00	195.05
31	1552.52	193.10	51	1536.61	195.10
31.5	1552.12	193.15	51.5	1536.22	195.15
32	1551.72	193.20	52	1535.82	195.20
32.5	1551.32	193.25	52.5	1535.43	195.25
33	1550.92	193.30	53	1535.04	195.30
33.5	1550.52	193.35	53.5	1534.64	195.35
34	1550.12	193.40	54	1534.25	195.40
34.5	1549.72	193.45	54.5	1533.86	195.45
35	1549.32	193.50	55	1533.47	195.50
35.5	1548.91	193.55	55.5	1533.07	195.55
36	1548.51	193.60	56	1532.68	195.60
36.5	1548.11	193.65	56.5	1532.29	195.65
37	1547.72	193.70	57	1531.90	195.70
37.5	1547.32	193.75	57.5	1531.51	195.75
38	1546.92	193.80	58	1531.12	195.80
38.5	1546.52	193.85	58.5	1530.72	195.85
39	1546.12	193.90	59	1530.33	195.90
39.5	1545.72	193.95	59.5	1529.94	195.95
40	1545.32	194.00	60	1529.55	196.00
40.5	1544.92	194.05	60.5	1529.16	196.05

## 100GHz ITU Grid DWDM Wavelength

Channel No.	Central Wavelength (nm)	Frequency (THz)	Channel No.	Central Wavelength (nm)	Frequency (THz)
17	1563.86	191.7	40	1545.32	194.0
18	1563.05	191.8	41	1544.53	194.1
19	1562.23	191.9	42	1543.73	194.2
20	1561.42	192.0	43	1542.94	194.3
21	1560.61	192.1	44	1542.14	194.4
22	1559.79	192.2	45	1541.35	194.5
23	1558.98	192.3	46	1540.56	194.6
24	1558.17	192.4	47	1539.77	194.7
25	1557.36	192.5	48	1538.98	194.8
26	1556.55	192.6	49	1538.19	194.9
27	1555.75	192.7	50	1537.40	195.0
28	1554.94	192.8	51	1536.61	195.1
29	1554.13	192.9	52	1535.82	195.2
30	1553.33	193.0	53	1535.04	195.3
31	1552.52	193.1	54	1534.25	195.4
32	1551.72	193.2	55	1533.47	195.5
33	1550.92	193.3	56	1532.68	195.6
34	1550.12	193.4	57	1531.90	195.7
35	1549.32	193.5	58	1531.12	195.8
36	1548.51	193.6	59	1530.33	195.9
37	1547.72	193.7	60	1529.55	196.0
38	1546.92	193.8	61	1528.77	196.1
39	1546.12	193.9			

## CWDM Bail Color Remarks

Channel No.	Central Wavelength (nm)	Bail Color	Channel No.	Central Wavelength (nm)	Bail Color
27	1270	Light Purple	45	1450	Yellow Orange
29	1290	Sky Blue	47	1470	Gray
31	1310	Yellow Green	49	1490	Violet
33	1330	Yellow Ocher	51	1510	Blue
35	1350	Pink	53	1530	Green
37	1370	Beige	55	1550	Yellow
39	1390	White	57	1570	Orange
41	1410	Silver	59	1590	Red
43	1430	Black	61	1610	Brown

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