



Shenzhen FB-LINK Technology Co., Ltd

## A full range of optical transceiver module products and solutions



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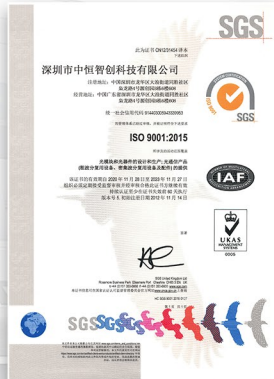
Address: 4th Floor, Building B, Yuanchuang Park, No. 4 Xiaolong Road, Tongsheng Community, Dalang Street, Longhua District, Shenzhen

Tel: + 86 13924586562/13631442493

Website: <https://www.100gmodule.com/>

Shenzhen FB-LINK Technology Co., Ltd

# Certificate



# Company Profile

FB-LINK is a high-tech enterprise specializing in the R&D, production, sales and service of optical communication products. Founded in 2012, the company has more than 200 employees and has gathered a large number of senior talents in the industry. With its high attention to the industry and years of rich experience, it provides customers with a full range of products, solutions and services. The company's main business covers optical communications. Source and passive products, including 155M/1.25G/10G/25G/40G/100G/200G/400G optical modules ,AOC,DAC,etc. Products are widely used in data center, metropolitan area network, local area network, storage network, fiber channel, fiber to the home and wireless network and other fields. The company insists on surviving by quality. With world-class production and testing equipment from Japan, the United States, etc., it has more than 1,600 square meters of 1,000,000-level clean workshops in Shenzhen, with a certain scale of mass production capacity; strict checks in all aspects of production to ensure the performance and quality of shipped products Reach the international first-class standard.

The company always adheres to the business philosophy of "people-oriented, honesty first" and the principle of "customer first" to provide customers with high-quality services. Based on the principle of win-win and mutual benefit with customers, we will continue to provide customers with cost-effective products with strong compatibility, high reliability and stable performance. Our goal is to become the winner of high-speed interconnection in data centers.

## 100Gb/s QSFP28 Optical Transceiver Module



### Features

- ◆ Hot-pluggable QSFP28 form factor
- ◆ Compliant with the QSFP28 MSA
- ◆ Support 103.123 and 111.81Gb/s bit rates
- ◆ RoHS-6 Compliant
- ◆ Single 3.3V power supply
- ◆ Power dissipation < 5W
- ◆ Built in full digital diagnostics functions
- ◆ I2C management interface
- ◆ 4×25G electrical interface
- ◆ Temperature range 0°C to 70°C(Business)
- ◆ Temperature range -40°C to 85°C(Industry)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
QSFP28-100G-CWDM4	100Gb/s	QSFP28	CWDM	2km	LC	DFP-PIN
QSFP28-100G-SR-BD	100Gb/s	QSFP28	850nm	150m	LC	VCSEL-PIN
QSFP28-100G-SR4	100Gb/s	QSFP28	850nm	100m	MPO/MTP	VCSEL-PIN
QSFP28-100G-LR4	100Gb/s	QSFP28	LWDM	10km	LC	DFP-PIN
QSFP28-100G-ZR4	100Gb/s	QSFP28	LWDM	80km	LC	SOA-PIN
QSFP28-100G-ER4	100Gb/s	QSFP28	LWDM	40km	LC	SOA-PIN
QSFP28-100G-BX20-U	100Gb/s	QSFP28	1310nm/1280nm	20km	LC	DFP-PIN
QSFP28-100G-BX20-D	100Gb/s	QSFP28	1280nm/1310nm	20km	LC	DFP-PIN

## 40G QSFP+ Optical Transceiver Module



### Features

- ◆ Hot-pluggable QSFP+ form factor
- ◆ Compliant with the QSFP MSA
- ◆ Support 41.25Gb/s bit rates
- ◆ RoHS-6 Compliant
- ◆ Single 3.3V power supply
- ◆ Built in full digital diagnostics functions
- ◆ Duplex LC receptacles/Single MPO-12 receptacle
- ◆ Temperature range 0°C to 70°C(Business)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
QSFP+ 40G-ZR4	40Gb/s	QSFP+	LWDM	80km	LC	DFP-APD
QSFP+ 40G-LR4	40Gb/s	QSFP+	CWDM	10km	LC	DFP-PIN
QSFP+ 40G-ER4	40Gb/s	QSFP+	CWDM	40km	LC	DFB-APD
QSFP+ 40G-SR4	40Gb/s	QSFP+	850nm	100m	MPO/MTP	VCSEL-PIN
QSFP+ 40G-SR4	40Gb/s	QSFP+	850nm	300m	MPO/MTP	VCSEL-PIN
QSFP+ 40G-SR-BD	40Gb/s	QSFP+	850nm	300m	LC	VCSEL-PIN
QSFP+ 40G-PSM4	40Gb/s	QSFP+	1310nm	10km	MPO	DFP-PIN

## 25Gb/s QSFP28 Optical Transceiver Module



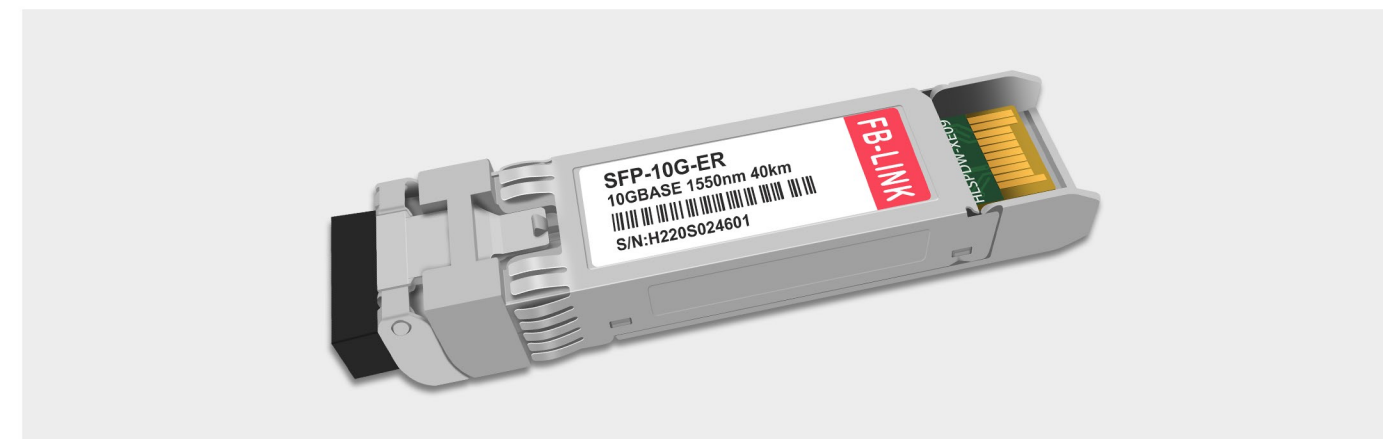
### Features

- Hot-pluggable SFP28 form factor
- Compliant with the SFP28 MSA/SFF-8472
- Support 25.78-28Gb/s bit rates
- RoHS-6 Compliant
- Single 3.3V power supply
- Built in full digital diagnostics functions
- Duplex LC receptacles
- TX input and RX output CDR retiming
- Temperature range 0°C to 70°C(Business)
- Temperature range-40°C to 85°C(Industry)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
QSFP28-25G-SR	25Gb/s	QSFP28	850nm	100m	LC	VCSEL-PIN
QSFP28-25G-LR	25Gb/s	QSFP28	1310nm	10Km	LC	DFB-PIN
QSFP28-25G-BX10-U	25Gb/s	QSFP28	1270/1330nm	10km	LC	DFB-PIN
QSFP28-25G-BX40-U	25Gb/s	QSFP28	1270/1330nm	40km	LC	DFB-APD
QSFP28-25G-BX10-D	25Gb/s	QSFP28	1330/1270nm	10km	LC	DFB-PIN
QSFP28-25G-BX40-D	25Gb/s	QSFP28	1330/1270nm	40km	LC	DFB-APD
QSFP28-25G-CW59	25Gb/s	QSFP28	1271/1371nm	10km	LC	DFB-PIN
QSFP28-25G-DW21	25Gb/s	QSFP28	DWMD	10km	LC	EML-PIN

## 10Gb/s SFP+ Optical Transceiver Module



### Features

- Hot-pluggable SFP+ form factor
- Compliant with the SFP+ MSA and SFF-8472
- Support 6-11.3Gb/s bit rates
- RoHS-6 Compliant
- Single 3.3V power supply
- Built in full digital diagnostics functions
- LC receptacles
- Temperature range 0°C to 70°C(Business)
- Temperature range-40°C to 85°C(Industry)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
10G-XGs PON ONU	10Gb/s	XGs	1270/1577nm	20km	SC	EML-APD
SFP-10G-DW33-L40	10Gb/s	SFP	DWDM	40km	LC	EML-PIN
SFP-10G-DW22-L80	10Gb/s	SFP	DWDM	80km	LC	EML-APD
SFP-10G-SR	10Gb/s	SFP	850nm	300m	LC	VCSEL-PIN
SFP-10G-LR	10Gb/s	SFP	1310nm	10km	LC	DFB-PIN
SFP-10G-ER	10Gb/s	SFP	1550nm	40km	LC	EML-PIN
SFP-10G-ZR	10Gb/s	SFP	1550nm	80km	LC	EML-PIN
SFP-10G-ZR+	10Gb/s	SFP	1550nm	100km	LC	EML-APD
SFP-10G-BX10-U	10Gb/s	SFP	1270/1330nm	10km	LC	DFB-PIN
SFP-10G-BX20-U	10Gb/s	SFP	1270/1330nm	20km	LC	DFB-PIN
SFP-10G-BX40-U	10Gb/s	SFP	1270/1330nm	40km	LC	DFB-PIN
SFP-10G-BX60-U	10Gb/s	SFP	1270/1330nm	60km	LC	DFB-APD
SFP-10G-BX80-U	10Gb/s	SFP	1490/1550nm	80km	LC	EML-APD
SFP-10G-BX10-D	10Gb/s	SFP	1330/1270nm	10km	LC	DFB-PIN
SFP-10G-BX20-D	10Gb/s	SFP	1330/1270nm	20km	LC	DFB-PIN
SFP-10G-BX40-D	10Gb/s	SFP	1330/1270nm	40km	LC	DFB-PIN
SFP-10G-BX60-D	10Gb/s	SFP	1330/1270nm	60km	LC	DFB-APD
SFP-10G-BX80-D	10Gb/s	SFP	1550/1490nm	80km	LC	EML-APD

## 10Gb/s XFP Optical Transceiver Module



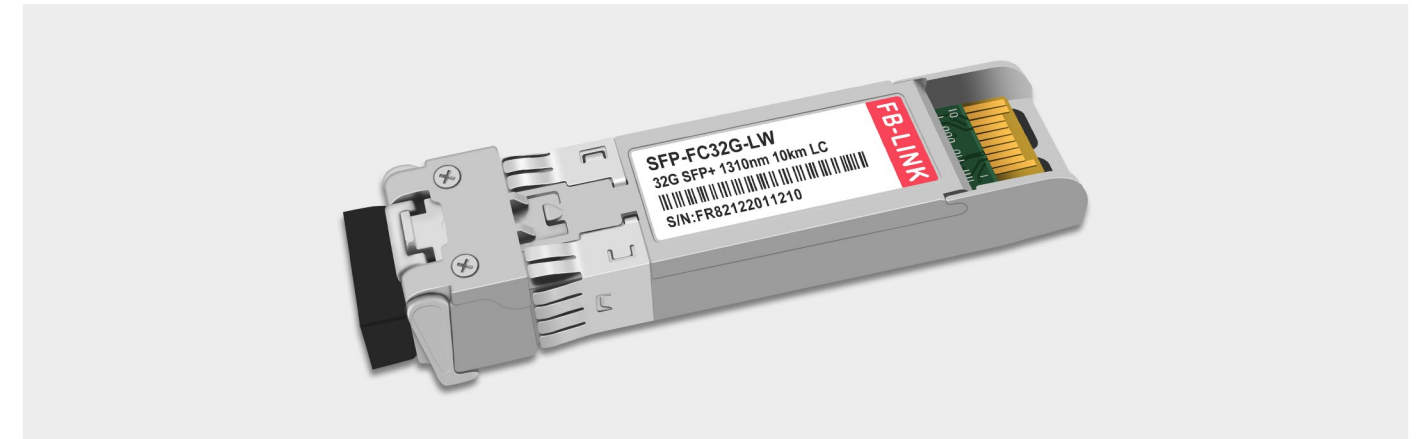
### Features

- ◆ Hot-pluggable 30 pin Connector
- ◆ Compliant with the XFP MSA
- ◆ Support 9.9-11.3Gb/s bit rates
- ◆ RoHS-6 Compliant
- ◆ Compliant with IEEE 802.3ae 10GBASE
- ◆ Duplex LC receptacles
- ◆ Temperature range 0°C to 70°C (Business)
- ◆ Temperature range -40°C to 85°C (Industry)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
XFP-10G-ER	10Gb/s	XFP	1550nm	40km	LC	EML-PIN
XFP-10G-SR	10Gb/s	XFP	850nm	300m	LC	VCSEL-PIN
XFP-10G-LR	10Gb/s	XFP	1330nm	10km	LC	DFB-PIN
XFP-10G-ZR	10Gb/s	XFP	1550nm	80km	LC	EML-APD
XFP-10G-DW21-40	10Gb/s	XFP	DWDM	40km	LC	EML-PIN
XFP-10G-CW59-40	10Gb/s	XFP	1470/1611nm	40km	LC	EML-PIN

## 6/16/32Gb/s SFP+ Optical Transceiver Module



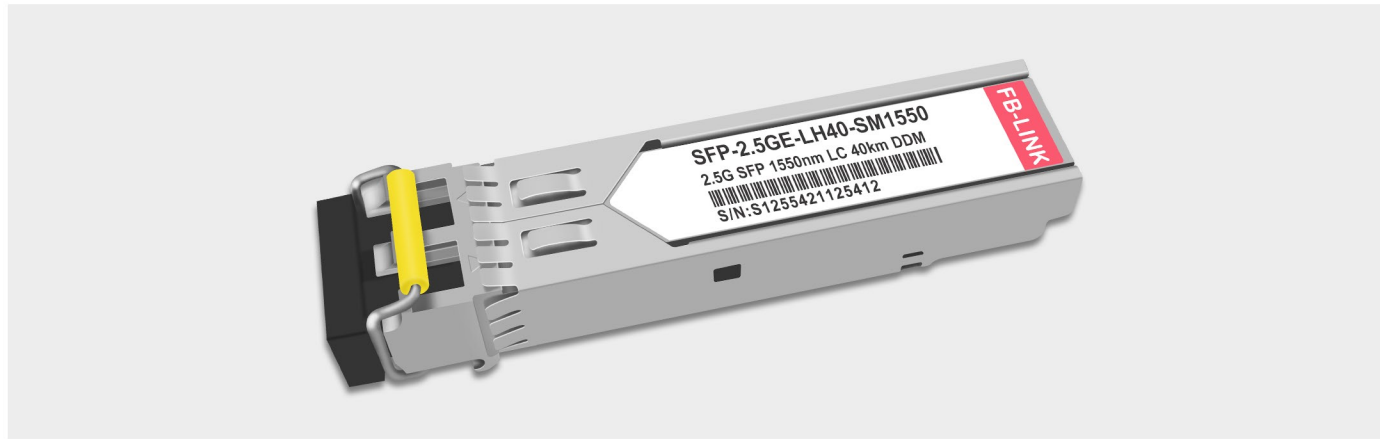
### Features

- ◆ Hot-pluggable SFP28 form factor
- ◆ Compliant with the SFP28 MSA/SFF-8472
- ◆ Supports 28.05Gb/s aggregate bit rate
- ◆ RoHS-6 Compliant
- ◆ Power dissipation <1w
- ◆ Built in full digital diagnostics functions
- ◆ Duplex LC receptacles
- ◆ Temperature range 0°C to 70°C (Business)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
SFP-FC6G-LW	6Gb/s	SFP	1310nm	10km	LC	DFB-PIN
SFP-FC6G-SW	6Gb/s	SFP	850nm	500m	LC	VCSEL-PIN
SFP-FC16G-LW	16Gb/s	SFP	1310nm	10km	LC	DFB-PIN
SFP-FC16G-SW	16Gb/s	SFP	850nm	100m	LC	VCSEL-PIN
SFP-FC32G-LW	32Gb/s	SFP	1310nm	10km	LC	DFB-PIN
SFP-FC32G-SW	32Gb/s	SFP	850nm	100m	LC	VCSEL-PIN

## 2.5Gb/s SFP Optical Transceiver Module



### Features

- ◆ Hot-pluggable SFP form factor
- ◆ Compliant with the SFP MSA
- ◆ Compliant with the IEEE Std 802.3
- ◆ RoHS-6 Compliant
- ◆ Single 3.3V power supply
- ◆ Built in full digital diagnostics functions
- ◆ Dual LC receptacles
- ◆ Temperature range 0°C to 70°C(Business)
- ◆ Temperature range-40°C to 85°C(Industry)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
SFP-2.5GE-LX-SM1310	2.5Gb/s	SFP	1310nm	15km	LC	DFB-PIN
SFP-2.5GE-LH40-SM1310	2.5Gb/s	SFP	1310nm	40Km	LC	DFB-PIN
SFP-2.5GE-LH40-SM1550	2.5Gb/s	SFP	1550nm	40km	LC	DFB-PIN
SFP-2.5GE-LH80-SM1550	2.5Gb/s	SFP	1550nm	80km	LC	DFB-APD

## 1.25Gb/s SFP Optical Transceiver Module



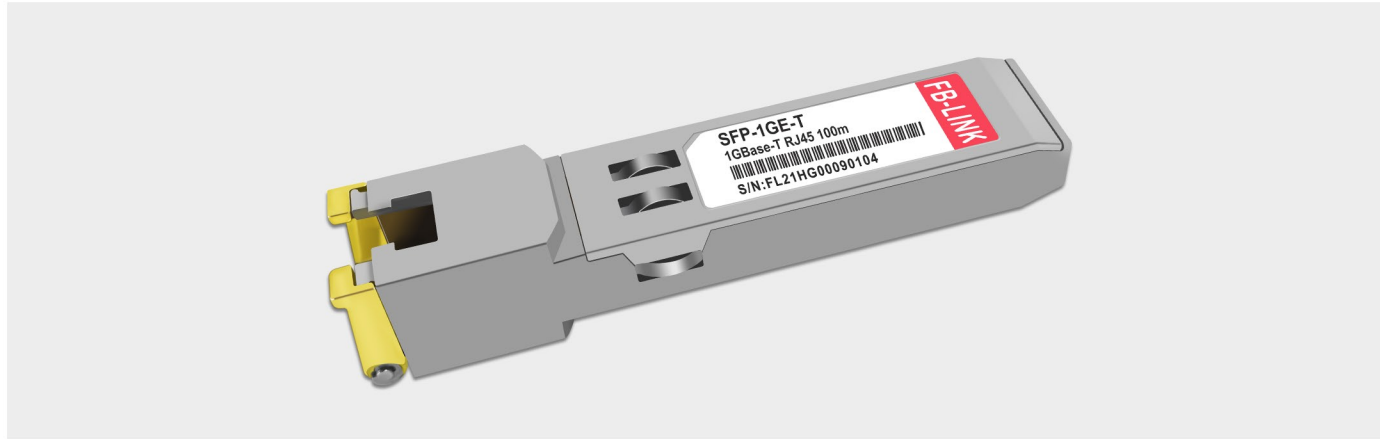
### Features

- ◆ Hot-pluggable SFP form factor
- ◆ Compliant with the SFP MSA
- ◆ Compliant with the IEEE Std 802.3
- ◆ RoHS-6 Compliant
- ◆ Single 3.3V power supply
- ◆ Dual LC/SC receptacles
- ◆ Temperature range 0°C to 70°C(Business)
- ◆ Temperature range-40°C to 85°C(Industry)

### Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
SFP-GE-LX-SCBD-SM1310	1.25Gb/s	SFP	1310/1550nm	20km	SC	FP-PIN
SFP-GE-LX-SCBD-SM1550	1.25Gb/s	SFP	1550/1310nm	20km	SC	FP-PIN
SFP-GE-EX	1.25Gb/s	SFP	1550nm	40km	LC	DFB-PIN
SFP-GE-ZX	1.25Gb/s	SFP	1550nm	80km	LC	DFB-PIN
SFP-GE-CW57-L40	1.25Gb/s	SFP	1270/1610nm	40km	LC	DFB-PIN
SFP-FE-LX-SM1310	155Mb/s	SFP	1310nm	20km	LC	FP-PIN
SFP-FE-LX-SM1310	155Mb/s	SFP	1310nm	10km	LC	FP-PIN
SFP-GE-SX-MM850	1.25Gb/s	SFP	850nm	550m	LC	VCSEL-PIN
SFP-GE-LH40-SM1310	1.25Gb/s	SFP	1310nm	40km	LC	DFB-PIN
SFP-GE-LX-SM1310	1.25Gb/s	SFP	1310nm	20km	LC	DFB-PIN
SFP-GE-LH20-SM1310-BIDI	1.25Gb/s	SFP	1310/1550nm	20km	LC	FP-PIN
SFP-GE-LH40-SM1310-BIDI	1.25Gb/s	SFP	1310/1550nm	40km	LC	DFB-PIN
SFP-FE-LX-SM1310-BIDI	155Mb/s	SFP	1310/1550nm	20km	LC	FP-PIN
SFP-GE-LH80-SM1550-BIDI	1.25Gb/s	SFP	1490/1550nm	80km	LC	DFB-PIN
SFP-GE-LH120-SM1490-BIDI	1.25Gb/s	SFP	1490/1550nm	120km	LC	DFB-APD
SFP-FE-LX-SM1550-BIDI	155Mb/s	SFP	1550/1310nm	20km	LC	FP-PIN
SFP-GE-LH20-SM1550-BIDI	1.25Gb/s	SFP	1550/1310nm	20km	LC	DFB-PIN
SFP-GE-LH40-SM1550-BIDI	1.25Gb/s	SFP	1550/1310nm	40km	LC	DFB-PIN
SFP-GE-LH80-SM1550-BIDI	1.25Gb/s	SFP	1550/1490nm	80km	LC	DFB-PIN
SFP-GE-LH120-SM1550-BIDI	1.25Gb/s	SFP	1550/1490nm	120km	LC	DFB-APD

## ➤ Copper RJ45 Optical Transceiver Module



### ➤ Features

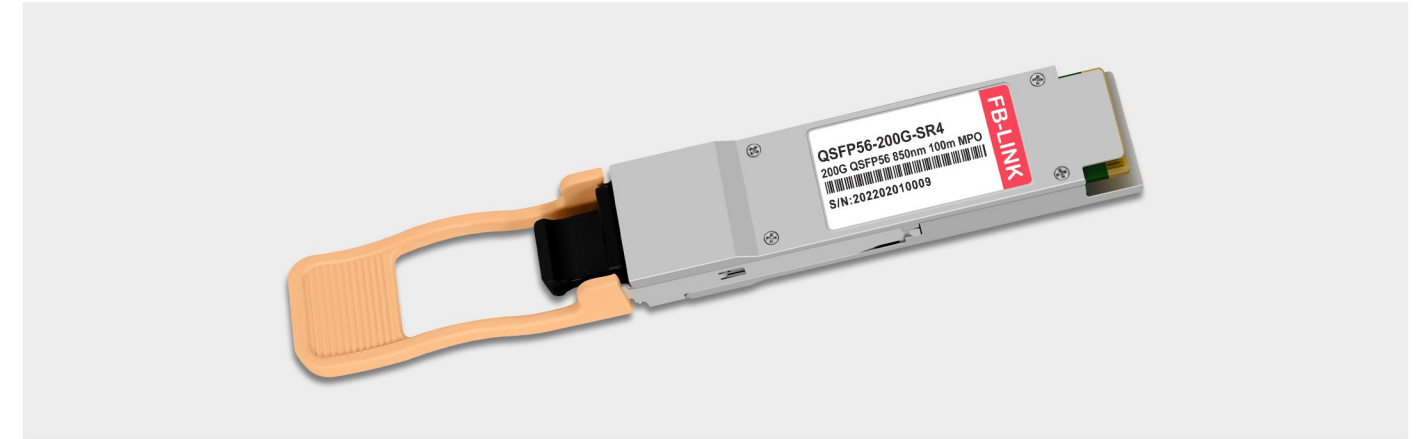
- ◆ Hot-pluggable SFP form factor
- ◆ Metal shell, reduce electromagnetic interference
- ◆ Two-way data link
- ◆ RoHS and lead-free compliant
- ◆ Single 3.3V power supply
- ◆ RJ45 interface

- ◆ Temperature range 0°C to 70°C(Business)
- ◆ Temperature range-40°C to 85°C(Industry)

### ➤ Standard Parts

Specification name	Rate	Form	Voltage	Reach	Port
SFP-1GE-T	1.25Gb/s	SFP	3.3V	100m	RJ45
SFP-2.5GE-T	2.5Gb/s	SFP	3.3V	300m	RJ45
SFP-10GE-T	10Gb/s	SFP	3.3V	30km	RJ45

## ➤ 200/400Gb/s SFP+ Optical Transceiver Module



### ➤ Features

- ◆ Hot-pluggable QSFP+ form factor
- ◆ Compliant with the QSFP MSA
- ◆ Supports 212.5Gb/425Gb aggregate bit rate
- ◆ RoHS-6 Compliant
- ◆ Single 3.3V power supply
- ◆ Built in full digital diagnostics functions

- ◆ Duplex LC receptacles/Single MPO-12 receptacle
- ◆ Temperature range 0°C to 70°C(Business)

### ➤ Standard Parts

Specification name	Rate	Form	Wave	Reach	Port	Laser Type
QSFP56-200G-SR4	200Gb/s	QSFP56	850nm	100m	MPO/MTP	VCSEL-PIN
QDD-200G-SR8	200Gb/s	QDD	850nm	100m	MPO/MTP	VCSEL-PIN
QDD-400G-DR4	400Gb/s	QDD	1310nm	500m	MPO/MTP	EML-PIN
QDD-400G-FR4	400Gb/s	QDD	CWDM	2km	LC	EML-PIN
QSFP-DD-SR8	400Gb/s	QSFP	850nm	100m	MPO/MTP	VCSEL-PIN

## Active Optical Cables



### Features

- ◆ Hot-pluggable SFP+ form factor
- ◆ Compliant with the MSA
- ◆ FS BOX-supports real-time configuration
- ◆ RoHS Compliant
- ◆ Maximum power consumption 1.5W
- ◆ First class FDA laser safety class

- ◆ Minimum bending radius 7.5mm
- ◆ Temperature range 0°C to 70°C(Business)

### Standard Parts

Specification name	Rate	Form	Wave	Fiber Type	Reach	Laser Type
SFP-10G-AOC05M	10Gb/s	SFP	850nm	OM2	1~100m	VCSEL-PIN
SFP-25G-AOC03M	25Gb/s	SFP	850nm	OM3	1~100m	VCSEL-PIN
SFP28-25G-AOC03M	25Gb/s	SFP28	850nm	OM3	1~100m	VCSEL-PIN
QSFP-40G-AOC03M	40Gb/s	QSFP	850nm	OM3	1~100m	VCSEL-PIN
QSFP28-100G-AOC03M	100Gb/s	QSFP28	850nm	OM3	1~100m	VCSEL-PIN
QSFP28-200G-AOC03M	200Gb/s	QSFP28	850nm	OM3	1~100m	VCSEL-PIN

## Direct Attach Cable



### Features

- ◆ Hot-pluggable SFP+ form factor
- ◆ Compliant with the MSA
- ◆ FS BOX-supports real-time configuration
- ◆ RoHS Compliant
- ◆ Maximum power consumption 0.1W
- ◆ Tested on real machines

- ◆ Minimum bending radius 23mm
- ◆ Temperature range 0°C to 70°C(Business)

### Standard Parts

Specification name	Rate	Form	Material	Wire diameter	Length
SFP-10G-DAC01M	10Gb/s	SFP	PVC	30AWG	1/2/3/5/7
QSFP-40G-DAC01M	40Gb/s	QSFP	PVC	24AWG	1/2/3/5/7
QSFP28-100G-CU03M	100Gb/s	QSFP28	PVC	24AWG	1/2/3/5/7

## Precautions for using optical modules

◆ Bidi optical module has only one optical interface, when using a pair of use, each pair of Bidi optical module is divided into A type and

B type, For example:

A type: transmitting wavelength is 1310nm receiving wavelength is 1490nm

B type: transmitting wavelength is 1490nm, receiving wavelength is 1310nm

Use A type at one end and B type at the other end

◆ Do not let the fiber optic tail is facing your eyes, do not look at the fiber optic tail directly or use the instrument, the laser is invisible light, but may cause permanent damage to the human eye.

◆ When the optical module is not in use, please put the dustproof adhesive into the optical port of the optical module to prevent the optical power from weakening due to the contamination of the optical port and affect the transmission performance.

◆ Pay attention to the actual fiber length when using, make sure the actual received optical power of the optical module is less than its saturation optical power, otherwise it may cause damage to the optical module.

◆ When selecting optical modules in the actual network, users need to calculate the actual transmit optical power/transmission attenuation/transfer attenuation and the receiving sensitivity of the optical module.

◆ Except for special instructions, the values of output optical power and receiving sensitivity range provided in this book are average values.

## Common Troubleshooting

Failure phenomenon	Possible cause of failure	Check	Solutions
Light output but no communication	Optical circuit failure	<ul style="list-style-type: none"> <li>★ Check if the fiber optic line is connected correctly</li> <li>★ Check whether the fiber optic head is contaminated or the optical module port is contaminated</li> </ul>	<ul style="list-style-type: none"> <li>★ Check the fiber optic link and correct the wrong connection</li> <li>★ Clean the jumper head with end-face cleaning tool or use special cleaning machine to clean the optical module port</li> </ul>
Port indicator does not light up	Compatibility	<ul style="list-style-type: none"> <li>★ See if you can read the optical module DDM information</li> <li>★ Use optical power meter to detect whether the transmitter there is optical power output</li> </ul>	<ul style="list-style-type: none"> <li>★ If there is no optical power output and the DDM information of the optical module cannot be read, please consult the supplier whether to write the code of the corresponding device.</li> </ul>
LINK is not on	Matching Failure	<ul style="list-style-type: none"> <li>★ Check the type of interconnected optical modules whether they match</li> <li>★ Check whether the rate of the optical module used is matched with the rate of the network equipment</li> </ul>	<ul style="list-style-type: none"> <li>★ Replace with the same type of optical module</li> <li>★ Select the optical module that matches the speed of the network equipment</li> </ul>

## Production workshop

