

A dark, monochromatic photograph of a server room with rows of server racks and overhead lighting. A red circle is positioned to the left of the title text.

SFP-1G34-BX10 Datasheet

1000BASE-BX SFP 1310nmTX/1490nmRX 10km DOM Transceiver

SFP-1G34-BX10



Application

- Switch to Switch Interface
- Fast Ethernet
- Switched Backplane Applications
- Router/Server Interface
- Other Optical Links

Features

- Operating data rate Up to 1.25Gb/s
- Two types:
 - A:1310nm FP transmitter /1490nm receiver
 - B:1490nm DFB transmitter/1310nm receiver
- Up to 10km on 9/125 μ m SMF
- Hot-pluggable SFP footprint
- BIDI LC/UPCtype pluggable optical interface
- Low power dissipation
- Metal enclosure, for lower EMI
- RoHS compliant and lead-free
- Support Digital Diagnostic Monitor interface
- Single +3.3V power supply
- Case operating temperature:
 - Commercial: 0 °C ~ 70 °C
 - Extended: -20 °C ~ 85 °C
 - Industrial: -40 °C ~ 85 °C
- Compliant with SFP MSA Specification

- Compliant with SFF-8472
- Compliant with IEEE 802.3ah

Description

FS.COM SFP-1G34-BX10 SFP transceiver is compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). The transceiver consists of five sections: the LD driver, the limiting amplifier, the digital diagnostic monitor, the 1310nm FP laser (the 1490nm DFB laser) and the PIN/TIA. The module data link up to 10km in 9/125um Single-mode fiber.

This transceiver meets the Small Form Pluggable (SFP) industry standard package utilizing an integral LC-Bi-directional optical interface connector. An enhanced Digital Diagnostic Monitoring Interface compliant with SFF-8472 has been incorporated into the transceiver. It allows realtime access to the transceiver operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage by reading a built-in memory with I²C interface.

The optical output can be disabled by a LVTTTL logic high-level input of TX Disable, and the system also can disable the module via I²C. TX Fault is provided to indicate that degradation of the laser. Loss of signal (LOS) output is provided to indicate the loss of an input optical signal of receiver or the link status with partner. The system can also get the LOS (or Link)/Disable/Fault information via I²C register access.

Product Specifications

I. General Specifications

Parameter	Symbol	Min	Typ.	Max	Unit
Bit Rate	BR			1.25	Gb/s ec
Max.Supported Link Length	Lmax			10	km

II. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Storage Temperature	TS	-40		85	°C	
Storage Ambient Humidity	HA	5		95	%	
Power Supply Voltage	VCC	-0.5		4	V	
Signal Input Voltage		-0.3		Vcc+0.3	V	
Receiver Damage Threshold		+3			dBm	
Lead Soldering Temperature/Time	Tsold			260/10	°C/sec	Note 1
Lead Soldering Temperature/Time	Tsold			360/10	°C/sec	Note 2

Notes:

1. Suitable for wave soldering.
2. Only for soldering by iron.

III. Electrical Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
	Tcase	0		70	°C	SFP-GE-BXF34(B43) (10)F34(B43)- C
		-20		85		SFP-GE-BXF34(B43) (10)F34(B43)- E

Case Operating Temperature		-40		85		SFP-GE-BXF34(B43) (10)F34(B43)- I
Ambient Humidity	HA	5		70	%	Non-condensing
Power Supply Voltage	VCC	3.13	3.3	3.47	V	
Power Supply Current	ICC			280	mA	
Data Rate			1250/1250		Mbps	TX Rate/RX Rate
Transmission Distance				10	km	
Coupled Fiber	Single mode fiber					9/125μm G.652
Transmitter						
Total Supply Current	ICC			A	mA	Note 1
Transmitter Disable Input-High	VDISH	2		V _{cc} +0.3	V	LVTTL
Transmitter Disable Input-Low	VDISL	0		0.8	V	LVTTL
Transmitter Fault Input-High	VTxFH	2		V _{cc} +0.3	V	LVTTL
Transmitter Fault Input-Low	VTxFL	0		0.8	V	LVTTL
Receiver						
Total Supply Current	ICC			B	mA	Note 1
LOS Output Voltage- High	VLOSH	2		V _{cc} +0.3	V	LVTTL
LOS Output Voltage- Low	VLOSL	0		0.8	V	LVTTL

Note:

1. A (TX) + B (RX) = 280mA (Not include termination circuit)

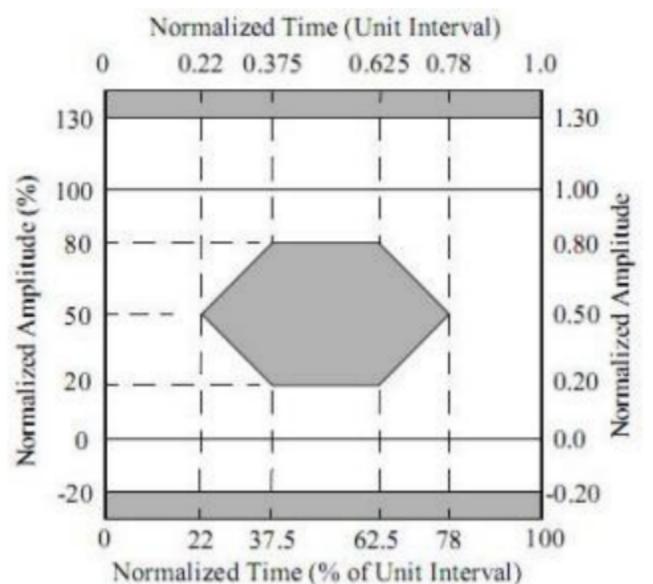
IV. Optical Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Transmitter (Tx)						
Average Output Power	POUT	-9		-3	dBm	SFP-GE-BXF34(B43) (20)F34(B43)
Extinction Ratio	ER	9			dB	
Center Wavelength	λ_c	1260	1310	1360	nm	SFP-GE-BXF34(B43) (20)F34
		1470	1490	1510		SFP-GE-BXF34(B43) (20)B43
Spectrum Width (RMS)	σ			3.5	nm	FP Laser(TX:1310nm)
Side Mode Suppression Ratio	SMSR	30			dB	DFB Laser(TX:1490nm)

Spectrum Bandwidth(-20dB)	σ			1	nm	
Transmitter OFF Output Power	P(OFF)			-45	dBm	
Jitter p-p	t(J)			0.1	UI	Note 1
Output Eye Mask	Compliant with IEEE802.3 z (class 1 laser safety)					Note 2
Receiver (Rx)						
Input Optical Wavelength	λ (IN)	1440	1490	1540	nm	SFP-GE-BXF34(B43) (20)F34
		1290	1310	1330		SFP-GE-BXF34(B43) (20)B43
Receiver Sensitivity	P(IN)			-20	dBm	Note 3
Input Saturation Power (Overload)	P(SAT)	-3			dBm	
Loss of Signal Assert	P(A)	-45			dBm	
Loss of Signal De- assert	P(D)			-23.5	dBm	Note 4
LOS Hysteresis	P(D)-P(A)			6	dB	

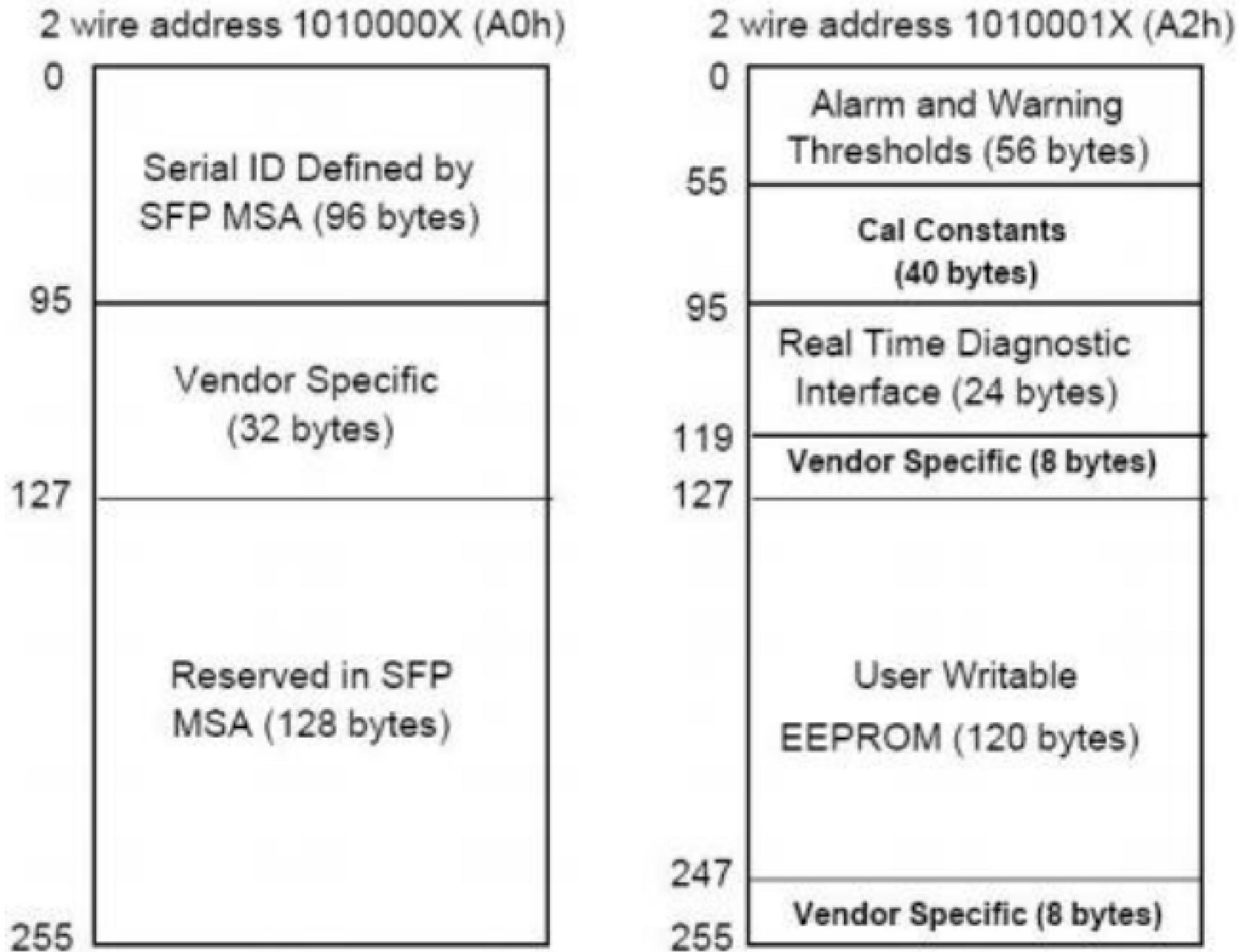
Notes:

1. Measure at 2⁷-1 NRZ PRBS pattern.
2. Transmitter eye mask definition.



3. Measured with Light source 1490nm(1310nm), ER=9dB; BER =<10⁻¹² @PRBS=2⁷-1 NRZ.
4. When LOS De-asserted, the RX data+/- output is signal output.

V. Digital Diagnostic Memory Map



VI. Digital Diagnostic Monitoring Information

Parameter	Unit	Accuracy
Case Temperature	°C	±3
Supply Voltage	V	±3%
TX Bias Current	mA	±10%
TX Optical Power	dB	±3
RX Optical Power	dB	±3

VII. Pin Description

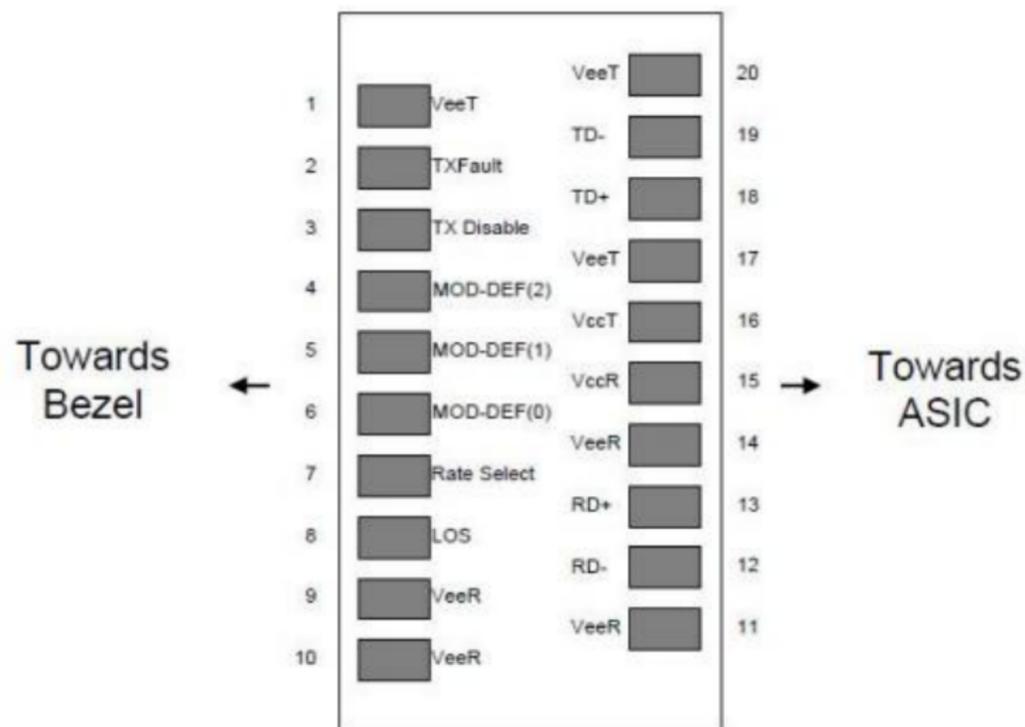
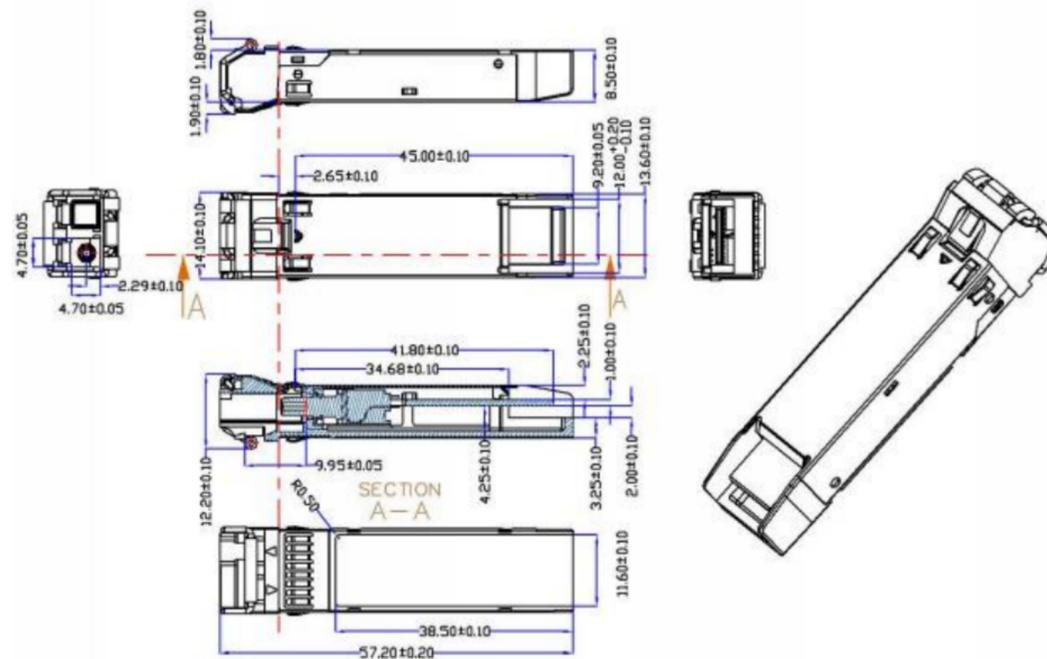


Figure 1. Pin out of Connector Block on Host Board

Pin	Symbol	Name/Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault.Open Drain. Logic "0" indicates normal operation.	2
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	3
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	4
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	4
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	4
7	Rate Select	No connection required.	
8	LOS	Loss of Signal indication. Open Drain. Logic "0" indicates normal operation.	5
9	VEER	Receiver Ground (Common with Transmitter Ground)	1
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out(CML). AC Coupled	
13	RD+	Receiver Non-inverted DATA out(CML). AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	1

Notes:



Test Center

FS.COM transceivers are tested to ensure connectivity and compatibility in our test center before shipped out. FS.COM test center is supported by a variety of mainstream original brand switches and groups of professional staff, helping our customers make the most efficient use of our products in their systems, network designs and deployments.

The original switches could be found nowhere but at FS.COM test center, eg: Juniper MX960 & EX 4300 series, Cisco Nexus 9396PX & Cisco ASR 9000 Series, HP 5900 Series & HP 5406R ZL2 V3(J9996A), Arista 7050S-64, Brocade ICX7750-26Q & ICX6610-48, Avaya VSP 7000 MDA 2, etc.



Cisco ASR 9000 Series(A9K-MPA-1X40GE)



ARISTA 7050S-64(DCS-7050S-64)



Juniper MX960



Brocade ICX 7750-26Q



Extreme Networks X670V VIM-40G4X



Mellanox M3601Q



Dell N4032F



HP 5406R ZL2 V3(J9996A)



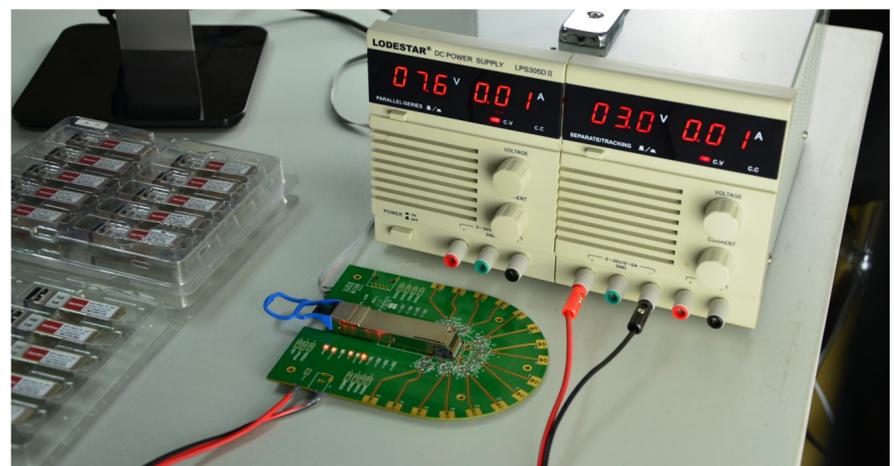
AVAYA 7024XLS(7002QQ-MDA)

Test Assured Program

FS.COM truly understands the value of compatibility and interoperability to each optics. Every module FS.COM provides must run through programming and an extensive series of platform diagnostic tests to prove its performance and compatibility. In our test center, we care of every detail from staff to facilities—professionally trained staff, advanced test facilities and comprehensive original-brand switches, to ensure our customers to receive the optics with superior quality



Our smart data system allows effective product management and quality control according to the unique serial number, properly tracking the order, shipment and every part.



Our in-house coding facility programs all of our parts to standard OEM specs for compatibility on all major vendors and systems such as Cisco, Juniper, Brocade, HP, Dell, Arista and so on.



With a comprehensive line of original-brand switches, we can recreate an environment and test each optics in practical application to ensure quality and distance.



The last test assured step to ensure our products to be shipped with perfect package.

Order Information

Part Number	Description
SFP-1G34-BX10	SFP, BIDI, 1000Base, 1310TX/1490nmRX, SMF, 10km, LC simplex, DOM
SFP-1G43-BX10	SFP, BIDI, 1000Base, 1490TX/1310nmRX, SMF, 10km, LC simplex, DOM
SFP-1G35-BX10	SFP, BIDI, 1000Base, 1310TX/1550nmRX, SMF, 10km, LC simplex, DOM
SFP-1G53-BX10	SFP, BIDI, 1000Base, 1550TX/1310nmRX, SMF, 10km, LC simplex, DOM
SFP-1G34-BX20	SFP, BIDI, 1000Base, 1310TX/1490nmRX, SMF, 20km, LC simplex, DOM
SFP-1G43-BX20	SFP, BIDI, 1000Base, 1490TX/1310nmRX, SMF, 20km, LC simplex, DOM
SFP-1G35-BX20	SFP, BIDI, 1000Base, 1310TX/1550nmRX, SMF, 20km, LC simplex, DOM
SFP-1G53-BX20	SFP, BIDI, 1000Base, 1550TX/1310nmRX, SMF, 20km, LC simplex, DOM
SFP-1G34-BX40	SFP, BIDI, 1000Base, 1310TX/1490nmRX, SMF, 40km, LC simplex, DOM
SFP-1G43-BX40	SFP, BIDI, 1000Base, 1490TX/1310nmRX, SMF, 40km, LC simplex, DOM
SFP-1G35-BX40	SFP, BIDI, 1000Base, 1310TX/1550nmRX, SMF, 40km, LC simplex, DOM
SFP-1G53-BX40	SFP, BIDI, 1000Base, 1550TX/1310nmRX, SMF, 40km, LC simplex, DOM
SFP-1G34-BX60	SFP, BIDI, 1000Base, 1310TX/1490nmRX, SMF, 60km, LC simplex, DOM
SFP-1G43-BX60	SFP, BIDI, 1000Base, 1490TX/1310nmRX, SMF, 60km, LC simplex, DOM
SFP-1G45-BX80	SFP, BIDI, 1000Base, 1490TX/1550nmRX, SMF, 80km, LC simplex, DOM
SFP-1G54-BX80	SFP, BIDI, 1000Base, 1550TX/1490nmRX, SMF, 80km, LC simplex, DOM
SFP-1G4957-BX80	SFP, BIDI, 1000Base, 1490TX/1570nmRX, SMF, 80km, LC simplex, DOM
SFP-1G5749-BX80	SFP, BIDI, 1000Base, 1570TX/1490nmRX, SMF, 80km, LC simplex, DOM
SFP-1G45-BX120	SFP, BIDI, 1000Base, 1490TX/1550nmRX, SMF, 120km, LC simplex, DOM
SFP-1G54-BX120	SFP, BIDI, 1000Base, 1550TX/1490nmRX, SMF, 120km, LC simplex, DOM
SFP-1G5159-BX120	SFP, BIDI, 1000Base, 1510TX/1590nmRX, SMF, 120km, LC simplex, DOM
SFP-1G5951-BX120	SFP, BIDI, 1000Base, 1590TX/1510nmRX, SMF, 120km, LC simplex, DOM
SFP-1G34-2BX10	CSFP, BIDI, 2-channel, 1000Base, 1310nmTX/1490nmRX, SMF, 10km, Dual LC, DOM

SFP-1G43-2BX10	CSFP, BIDI, 2-channel, 1000Base, 1490nmTX/1310nmRX, SMF, 10km, Dual LC, DOM
--------------------------------	---

Note:

1G SFP transceiver module is individually tested on corresponding equipment such as Cisco, Arista, Juniper, Dell, Brocade and other brands, and passes the monitoring of FS.COM intelligent quality control system.



Delaware, United States

Address: Delaware: 380 Centerpoint Blvd, New Castle, DE 19720, United States
Email: US@fs.com
Tel: +1 (888) 468-9910

Germany

Address: Röntgenstraße 18, 85757 Karlsfeld, Germany
Email: DE@fs.com
Tel: +49 (0) 8131 377 3008

Australia

Address: 57-59 Edison Rd, Dandenong South, VIC 3175, Australia
Email: AU@fs.com
Tel: +61 3 5909 9990

Japan

Address: JS Progress Building 5F, 4-1-23, Heiwajima, Ota Ku, Tokyo, 143-0006, Japan
Email: JP@fs.com
Tel: +81-3-6897-9438

California, United States

Address: California: 15241 Don Julian Rd, City of Industry, CA 91745, United States
Email: US@fs.com
Tel: +1 (888) 468-9910

United Kingdom

Address: Unit 8, Urban Express Park, Union Way, Aston, Birmingham B6 7FH, United Kingdom
Email: UK@fs.com
Tel: +44 (0) 121 726 4775

Singapore

Address: 7002 ANG MO KIO AVENUE 5 #05-02 Singapore 569914
Email: SG@fs.com
Tel: +65 31381992



FS has several offices around the world. Addresses, phone numbers are listed on the FS Website at https://www.fs.com/contact_us.html. FS and FS logo are trademarks or registered trademarks of FS in the U.S. and other countries.