PON Transceiver Modules Data Sheet

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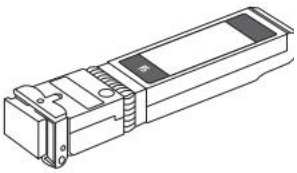
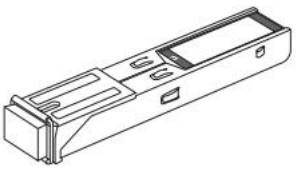
Product overview

Over the years, fiber-based access has proven to be a cost-effective way to reach customer premises to deliver managed business and residential services. Ethernet or Passive Optical Network (PON) technologies such as Gigabit PON (GPON) are supported by FS OLT/ONU. PON modules support fiber-based (FTTx) access scenarios, including Fiber To The Home (FTTH), Fiber To The Building (FTTB), Fiber To The Curb (FTTC), Fiber To The cell (FTTc), and Fiber To The business (FTTb).



- GSFP-43-20B



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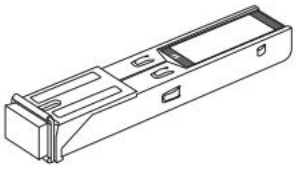

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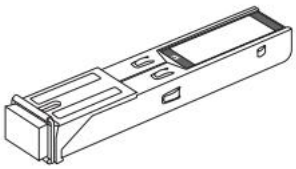

- ESFP-43-20

Figure 1.

PON Optical modules

Features and benefits

- Single fiber transceiver with single-mode SC receptacle
- Complies with ITU-T G.984.2 class B+ and C+
- DDM/DOM support
- Complies with RoHS directive
- High port density OLT at headend
- Low-cost ONT/ONU at home
- Primary market: FTTH for voice/data/video
- Low-cost passive optical splitter enables sharing of fiber, headend equipment

Table 1 describes the PON Optical module portfolio.

Table 1. PON Optical module portfolio

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Product	Description	Connector type	Fiber Type	Temperature Range (°C)
GSFP-43-20B	GPON OLT SFP Transceiver, SC, 20km over SMF	SC UPC	single mode	0 to 70° C / -40 to 85° C
GPON-ONU-34-20BI	GPON SFP ONU Stick Transceiver, SC, 20km over SMF	SC APC	single mode	-40 to 85° C
GSFP-43-20C	GPON OLT SFP Transceiver, SC, 20km over SMF	SC UPC	single mode	0 to 70° C / -40 to 85° C
GSFP-43-20B+L-I	GPON OLT SFP Transceiver, SC, 20km over SMF	SC APC	single mode	0 to 70° C / -40 to 85° C
GSFP-43-20C++L-I	GPON OLT SFP Transceiver, SC, 20km over SMF	SC APC	single mode	0 to 70° C / -40 to 85° C
ESFP-34-20N-I	EPON ONU SFP Transceiver, SC, 20km over SMF	SC APC	single mode	0 to 70° C / -40 to 85° C
XGS-SFP-25-20N2	XGSPON ONU SFP+ Transceiver, SC, 20km over SMF	SC UPC	single mode	-40 to 85° C
ESFP-43-20	EPON OLT SFP Transceiver, SC, 20km over SMF	SC APC	single mode	0 to 70° C
XG-SFP-25-20N2	XGPON ONU SFP+ Transceiver, SC, 20km over SMF	SC UPC	single mode	-40 to 85° C
XGS-SFP-52-20N1	XGSPON OLT SFP+ Transceiver, SC, 20km over SMF	SC UPC	single mode	0 to 70° C
XSG-SFP-C+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF	SC APC	single mode	-40 to 85° C
XSG-SFP-B+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF	SC APC	single mode	-40 to 85° C

GSFP-43-20B

Generic Compatible GPON OLT SFP transceiver provides an asymmetric 2.5Gbps upstream /1.25Gbps downstream , reaching a link up to 20km over SMF via SC connector. It is fully compliant with RoHS standar ds and is ideal for GPON system and FTTx applications.

GPON-ONU-34-20BI

The GPON Stick in SFP form factor provide an asymmetric 1.244Gbps upstream /2.488 Gbps downstream GPON uplink to the CPE without requiring separate power supply, reaching a link up to 20km over SMF via SC APC connector, is fully compliant with SFP MSA, SFF-8472, RoHS standards and ideal for GPON, FTTx, business service and wireless backhaul applications.

GSFP-43-20C

Generic Compatible GPON OLT SFP transceiver provides an asymmetric 2.5Gbps upstream /1.25Gbps downstream , reaching a link up to 20km over SMF via SC connector. It is fully compliant with RoHS standards and is ideal for GPON system and FTTx applications.

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GSFP-43-20B+L-I

The GPON OLT SFP transceiver provides up to 2.5G-TX/1.25G-RX up to 20km over single-mode fiber (SMF) using a wavelength of 1490nm-TX/1310nm-RX via an SC connector. It can operate at temperatures between -40° C and 85° C. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. It is fully compliant with SFF-8472, ITU-T G.984.2, and RoHS standards and is ideal for GPON system and FTTx applications.

GSFP-43-20C++L-I

The GPON OLT SFP transceiver provides up to 2.5G-TX/1.25G-RX up to 20km over single-mode fiber (SMF) using a wavelength of 1490nm-TX/1310nm-RX via an SC connector. It can operate at temperatures between -40° C and 85° C. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. It is fully compliant with ITU-T G.984.2 and RoHS standards and is ideal for GPON system and FTTx applications.

ESFP-34-20N-I

The EPON ONU SFP transceiver provides up to 1.25G-TX/1.25G-RX up to 20km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1490nmRx via an SC connector. It can operate at temperatures between -40° C and 85° C. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. It is fully compliant with IEEE802.3ah PX20+ 20km application and RoHS standards and is ideal for EPON system and FTTx applications.

XGS-SFP-25-20N2

Generic Compatible XGSPON ONU SFP+ transceiver provides a symmetric 9.953Gbps upstream and downstream, reaching a link up to 20km over SMF via SC connector. It is fully compliant with SFP+ MSA, SFF-8431, SFF-8432, SFF-8472 and RoHS standards and is ideal for symmetric 10Gigabit capable passive optical network (XGS-PON) system.

ESFP-43-20

Generic Compatible EPON OLT SFP transceiver provides a symmetric 1.25GGbps upstream and downstream, reaching a link up to 20km over SMF via SC connector. It is fully compliant with RoHS standards and is ideal for symmetric 10Gigabit capable passive optical network (EPON) system.

XG-SFP-25-20N2

Generic Compatible XGPON ONU SFP+ transceiver provides an asymmetric 2.488Gbps upstream and 9.953Gbps downstream, reaching a link up to 20km over SMF via SC connector. It is fully compliant with SFP+ MSA, SFF-8432, SFF-8472 and RoHS standards and is ideal for asymmetric 10-Gigabit capable passive optical network (XG-PON) system.

XGS-SFP-52-20N1

Generic Compatible XGSPON OLT SFP+ transceiver provides a symmetric 9.953Gbps upstream and downstream, reaching a link up to 20km over SMF via SC connector. It is fully compliant with SFP+ MSA, SFF-8472 and RoHS standards and is ideal for symmetric 10Gigabit capable passive optical network (XGS-PON) system.

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XSG-SFP-C+L-I

Generic Compatible XGS-PON&GPON OLT SFP+ transceiver provides an asymmetric 1G/10G rate, reaching a link up to 20km over SMF via SC connector. It is fully compliant with RoHS standards and is ideal for asymmetric 10Gigabit capable passive optical network (GPON) system.

XSG-SFP-B+L-I

Generic Compatible XGS-PON&GPON OLT SFP+ transceiver provides an asymmetric 1G/10G rate, reaching a link up to 20km over SMF via SC connector. It is fully compliant with RoHS standards and is ideal for asymmetric 10Gigabit capable passive optical network (GPON) system.

Product Specifications

Table 2 shows the key electrical characteristics for the PON modules.

Table 2. Electrical specifications

Product	Description	Nominal datarate (bps)	Typical Distance	DDM/DOM Support
GSFP-43-20B	GPON OLT SFP Transceiver, SC, 20km over SMF	2.5G-TX/1.25G-RX	20km	Yes
GPON-ONU-34-20BI	GPON SFP ONU Stick Transceiver, SC, 20km over SMF	1.25G-TX/2.5G-RX	20km	Yes
GSFP-43-20C	GPON OLT SFP Transceiver, SC, 20km over SMF	2.5G-TX/1.25G-RX	20km	Yes
GSFP-43-20B+L-I	GPON OLT SFP Transceiver, SC, 20km over SMF	2.5G-TX/1.25G-RX	20km	Yes
GSFP-43-20C++L-I	GPON OLT SFP Transceiver, SC, 20km over SMF	2.5G-TX/1.25G-RX	20km	Yes
ESFP-34-20N-I	EPON ONU SFP Transceiver, SC, 20km over SMF	1.25G-TX/1.25G-RX	20km	Yes
XGS-SFP-25-20N2	XGSPON ONU SFP+ Transceiver, SC, 20km over SMF	9.953G-TX/9.953G-RX	20km	Yes
ESFP-43-20	EPON OLT SFP Transceiver, SC, 20km over SMF	1.25G-TX/1.25G-RX	20km	Yes
XG-SFP-25-20N2	XGPON ONU SFP+ Transceiver, SC, 20km over SMF	2.488G-TX/9.953G-RX	20km	Yes
XGS-SFP-52-20N1	XGSPON OLT SFP+ Transceiver, SC, 20km over SMF	9.953G-TX/9.953G-RX	20km	Yes
XSG-SFP-C+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF	9.95328G-Tx/2.488G-Tx 9.95328G-Rx/2.488G-Rx/1.244G-Rx	20km	Yes
XSG-SFP-B+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF	9.95328G-Tx/2.488G-Tx 9.95328G-Rx/2.488G-Rx/1.244G-Rx	20km	Yes

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Table 3 shows the key optical characteristics for the PON modules.

Table 3. Optical specifications

Product	Description	Transmit Power (dBm)	Receive Power (dBm)	Transmit and Receive Wavelength (nm)	Extinction Ratio (dB)
GSFP-43-20B	GPON OLT SFP Transceiver, SC, 20km over SMF	1.5~5dBm	<-28dBm	1490nm (TX) 1310nm (RX)	>10dB
GPON-ONU-34-20BI	GPON SFP ONU Stick Transceiver, SC, 20km over SMF	0.5~5dBm	<-28dBm	1310nm (TX) 1490nm (RX)	>10dB
GSFP-43-20C	GPON OLT SFP Transceiver, SC, 20km over SMF	3~7dBm	<-32dBm	1490nm (TX) 1310nm (RX)	<8.2dB
GSFP-43-20B+L-I	GPON OLT SFP Transceiver, SC, 20km over SMF	1.5~5 dBm	<-28dBm	1490nm (TX) 1310nm (RX)	>8.2dB
GSFP-43-20C++L-I	GPON OLT SFP Transceiver, SC, 20km over SMF	4.5~8 dBm	<-33dBm	1490nm (TX) 1310nm (RX)	>8.2dB
ESFP-34-20N-I	EPON ONU SFP Transceiver, SC, 20km over SMF	0~4dBm	<-27dBm	1310nm (TX) 1490nm (RX)	>9dB
XGS-SFP-25-20N2	XGSPON ONU SFP+ Transceiver, SC, 20km over SMF	4~9dBm	＜-28dBm	1270nm (TX) 1577nm (RX)	＞6dB
ESFP-43-20	EPON OLT SFP Transceiver, SC, 20km over SMF	2~7dBm	＜-28dBm	1490nm (TX) 1310nm (RX)	>9dB
XG-SFP-25-20N2	XGPON ONU SFP+ Transceiver, SC, 20km over SMF	2~7dBm	＜-28dBm	1270nm (TX) 1577nm (RX)	＞8.2dB
XGS-SFP-52-20N1	XGSPON OLT SFP+ Transceiver, SC, 20km over SMF	2~5dBm	＜-26dBm	1577nm (TX) 1270nm (RX)	＞8.2dB
XSG-SFP-C+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF	9.953G: 5~8 dBm 2.488G: 3~7 dBm	9.953G: -29~0dBm 2.488G: -30.5~0 dBm 1.244G: -32~0dBm	1577nm (TX)/1270nm (RX) 1490nm (TX)/1310nm (RX)	＞8.2dB
XSG-SFP-B+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF	9.953G: 1~4 dBm 2.488G: 1.5~5 dBm	9.953G: >-25dBm 2.488G: >-26.5 dBm 1.244G: >-28dBm	1577nm(Tx)/1270nm(Rx) 1490nm(Tx)/1310nm(Rx)	＞8.2dB

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Table 4 shows the mechanical characteristics for the PON modules.

Table 4. Mechanical specifications

Parameter	Product	Weight
Module weight (Max)	GSFP-43-20B	80g
	GPON-ONU-34-20BI	20g
	GSFP-43-20C	20g
	GSFP-43-20B+L-I	28.8g
	GSFP-43-20C++L-I	28.8g
	ESFP-34-20N-I	28.8g
	XGS-SFP-25-20N2	64g
	ESFP-43-20	114.72g
	XG-SFP-25-20N2	28.8g
	XGS-SFP-52-20N1	31.2g
	XSG-SFP-C+L-I	29.28g
	XSG-SFP-B+L-I	29.8g

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Warranty

- Standard warranty: 5 years
- For more information for FS Returns & Refunds policy, visit https://www.fs.com/policies/warranty.html or https://www.fs.com/policies/day_return_policy.html

Ordering information

Table 5 provides the ordering information for PON modules.

Table 5. Ordering information

Part number	Description
PON optics modules	
GSFP-43-20B	GPON OLT SFP Transceiver, SC, 20km over SMF
GPON-ONU-34-20BI	GPON SFP ONU Stick Transceiver, SC, 20km over SMF
GSFP-43-20C	GPON OLT SFP Transceiver, SC, 20km over SMF
GSFP-43-20B+L-I	GPON OLT SFP Transceiver, SC, 20km over SMF
GSFP-43-20C++L-I	GPON OLT SFP Transceiver, SC, 20km over SMF
ESFP-34-20N-I	EPON ONU SFP Transceiver, SC, 20km over SMF
XGS-SFP-25-20N2	XGSPON ONU SFP+ Transceiver, SC, 20km over SMF
ESFP-43-20	EPON OLT SFP Transceiver, SC, 20km over SMF
XG-SFP-25-20N2	XGPON ONU SFP+ Transceiver, SC, 20km over SMF
XGS-SFP-52-20N1	XGSPON OLT SFP+ Transceiver, SC, 20km over SMF
XSG-SFP-C+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF
XSG-SFP-B+L-I	XGS-PON&GPON Combo OLT SFP+ Transceiver, SC, 20km over SMF

Regulatory and standards compliance

Standards

- Compliant with ITU-T G.984.2 Class C+
- Compliant with ITU-T G.984.2 Class B+

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Table 6. Laser class for the PON optical modules

Product	Laser class
GSFP-43-20B	Class B+
GPON-ONU-34-20BI	Class B+
GSFP-43-20C	Class C+
GSFP-43-20B+L-I	Class B+
GSFP-43-20C++L-I	Class C++
ESFP-34-20N-I	--
XGS-SFP-25-20N2	Class N2
ESFP-43-20	--
XG-SFP-25-20N2	Class N2
XGS-SFP-52-20N1	Class N1
XSG-SFP-C+L-I	Class C+
XSG-SFP-B+L-I	Class B+

Additional information

For more information about PON optics, contact your account manager or visit https://www.fs.com/c/fiber-optic-transceivers-9

Document history

New or revised topic	Described in	Date
PON Transceiver Modules Data Sheet	Updated all	10/24/2022
PON Transceiver Modules Data Sheet	Add new products (XSG-SFP-B+L-I)	12/21/2022

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