



◆ CISCO-COMPATIBLE DATA SHEET:

10G SFP+ PRODUCT FAMILY

DESCRIPTION

The 10GBASE SFP+ modules allow a wide variety of 10 Gigabit Ethernet connectivity options for enterprise, data center, and service provider transport applications. Our 10G SFP+ modules are supported on a comprehensive suite of switches and routers.

FEATURES & BENEFITS

- ◆ Industry's smallest 10G form factor for greatest density per chassis
- ◆ Hot-swappable 10G SFP+ modules allow for quick additions/changes into an available 10G Ethernet SFP+ port
- ◆ "Pay as you Populate" model lowers initial costs
- ◆ Digital optical monitoring capability for strong diagnostic capabilities as supported by the OEM
- ◆ Optical interoperability allows for 10GBASE XENPAK, 10GBASE X2, and 10GBASE XFP optical interfaces on the same link

SFP-10G-SR, SFP-10G-SR-S

The 10GBASE-SR SFP+ module supports a link length of up to 26m on standard Fiber Distributed Data Interface (FDDI)-grade multimode fiber (MMF). A link length of up to 300m is possible using 2000MHz*km MMF (OM3). Using 4700MHz*km MMF (OM4), up to 400m link lengths are possible.

SFP-10G-LRM

The 10GBASE-LRM SFP+ module supports a link length of 220m on standard Fiber Distributed Data Interface (FDDI) grade multimode fiber (MMF). The transmitter should be coupled through a mode conditioning patch cord to make sure that specifications are met over FDDI-grade OM1 and OM2 fibers. For applications over OM3 or OM4 fibers mode conditioning patch cords are not required.

SFP-10G-LR, SFP-10G-LR-S, SFP-10G-LR-X

The 10GBASE-LR SFP+ module supports a link length of up to 10km on standard single-mode fiber (SMF, G.652). 10GBASE-LW and OTU2/OTU2e protocols are additionally supported on the multi-rate SFP-10G-LR-X transceiver.

SFP-10G-ER, SFP-10G-ER-S

The 10GBASE-ER SFP+ module supports a link length of up to 40km on standard single-mode fiber (SMF, G.652).

SFP-10G-ZR, SFP-10G-ZR-S

The 10GBASE-ZR SFP+ module supports a link length of up to 80km on standard single-mode fiber (SMF, G.652). The ZR interface is not specified as part of the 10 Gigabit Ethernet standard and is instead built according to OEM specifications. 10GBASE-ZW and OTU2/OTU2e protocols are additionally supported on the multi-rate SFP-10G-ZR transceiver.



ORDERING INFORMATION

SFP-10G-SR	Cisco Compatible 10GBASE-SR SFP+ Transceiver for MMF
SFP-10G-SR-S	Cisco Compatible 10GBASE-SR SFP+ Transceiver for MMF, S-Class
SFP-10G-LRM	Cisco Compatible 10GBASE-LRM SFP+ Transceiver for MMF
SFP-10G-LR	Cisco Compatible 10GBASE-LR SFP+ Transceiver for SMF
SFP-10G-LR-S	Cisco Compatible 10GBASE-LR SFP+ Transceiver for SMF, S-Class
SFP-10G-LR-X	Cisco Compatible 10GBASE-LR, 10GBASE-LW, and OTU2/OTU2e SFP+ Transceiver for SMF, Extended Temperature
SFP-10G-ER	Cisco Compatible 10GBASE-ER SFP+ Transceiver for SMF
SFP-10G-ER-S	Cisco Compatible 10GBASE-ER SFP+ Transceiver for SMF, S-Class
SFP-10G-ZR	Cisco Compatible 10GBASE-ZR, 10GBASE-ZW, and OTU2/OTU2e SFP+ Transceiver for SMF
SFP-10G-ZR-S	Cisco Compatible 10GBASE-ZR SFP+ Transceiver for SMF, S-Class

PART NUMBER	CONNECTION TYPE	WAVELENGTH (nm)	CABLE TYPE	CORE SIZE (um)	MODAL BANDWIDTH (MHz*km)	MAXIMUM OPERATING DISTANCE
SFP-10G-SR SFP-10G-SR-S	LC - Duplex	850	MMF	62.5	160 (FDDI)	26m
				62.5	200 (OM1)	33m
				50	400 (400/400)	66m
				50	500 (OM2)	82m
				50	2000 (OM3)	300m
				50	4700 (OM4)	400m
SFP-10G-LRM	LC - Duplex	1310	MMF	62.5	500 (OM2)	220m
				50	400 (400/400)	100m
				50	500 (OM2)	220m
SFP-10G-LR SFP-10G-LR-S SFP-10G-LR-X	LC - Duplex	1310	SMF	G.652	N/A	10km
SFP-10G-ER SFP-10G-ER-S	LC - Duplex	1550	SMF	G.652	N/A	40km
SFP-10G-ZR SFP-10G-ZR-S	LC - Duplex	1550	SMF	G.652	N/A	80km

PART NUMBER	PHY TYPE	TX POWER (dBm) Max-Min	RX POWER (dBm) Max - Min	TEMPERATURE RANGE	OPERATING TEMPERATURE
SFP-10G-SR SFP-10G-SR-S	10GBASE-SR	-1.2 to -7.3	-1.0 to -9.9	COM	0 to 70 °C
SFP-10G-LRM	10GBASE-LRM	0.5 to -6.5	0.5 to -6.4 (OMA)	COM	0 to 70 °C
SFP-10G-LR SFP-10G-LR-S	1000BASE- 10GBASE-LR BX10-D	0.5 to -8.2	-3.0 to -19 0.5 to -14.4.5	COM	0 to 70 °C
SFP-10G-LR-X	10GBASE-LR, 10GBASE-LW, and OTU2/OTU2e	-1.0 to -6.0	0.5 to -14.4	EXT	-5 to 85 °C
SFP-10G-ER SFP-10G-ER-S	10GBASE-ER	4.0 to -4.7	-1 to -15.8	COM	0 to 70 °C
SFP-10G-ZR-S	10GBASE-ZR	4.0 to 0.0	-7.0 to -24.0	COM	0 to 70 °C
SFP-10G-ZR	10GBASE-ZR, 10GBASE-ZW, and OTU2/OTU2e	4.0 to 0.0	-7.0 to -24.0	COM	0 to 70 °C

PHYSICAL DIMENSIONS (HxWxD)

SFP+ Module: 8.5 x 13.7 x 56.5mm

POWER REQUIREMENTS (TYPICAL)

SFP+ Module: 1 W (10GBASE-SR, LR)

SFP+ Module: 1.5 W (10GBASE-ER, ZR)

WARRANTY

Standard: 3 Year

Extended: Optional, up to 5 Years

SAFETY

Laser Class 1: 21CFR-1040.10 LN#50

Laser Class 1: IEC60825-1

STANDARDS COMPLIANCE

IEEE 802.3ae: 10 Gigabit Ethernet

GR-20-CORE: Generic Requirements for Optical Fiber and Optical Fiber Cable

GR-326-CORE: Generic Requirements for Single-mode Optical Connectors

and Jumper Assemblies

GR-1435-CORE: Generic Requirements for Multi-Fiber Optical Connectors

SFP+ Module: MSA SFF-8431, MSA SFF-8472 (for DDM/DOM capable transceivers)