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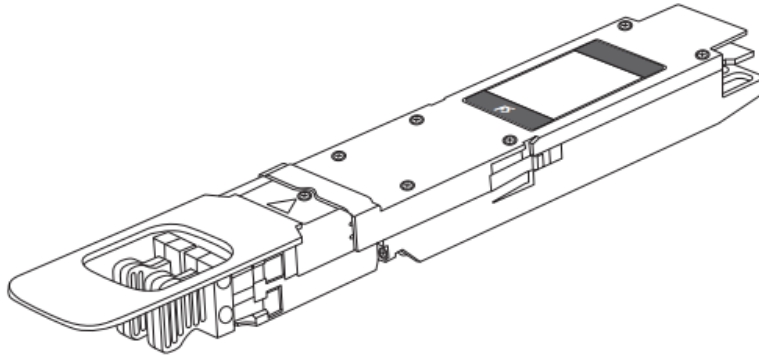
800G OSFP/QSFP-DD Cable and Transceiver Modules Data Sheet

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Product overview

The FS® 800GBASE Quad Small Form-Factor Pluggable (OSFP/QSFP-DD) portfolio offers customers a wide variety of high-density and low-power 800 Gigabit Ethernet connectivity options for data center, high-performance computing networks, enterprise core and distribution layers, and service provider applications. The OSFP/QSFP-DD 800G modules are our latest generation of 800G transceiver modules solution based on a OSFP/QSFP-DD form factor. (See Figure 1).



- QDD-2FR4-800G
- QDD-DR8-800G
- OSFP-2FR4-800G
- OSFP800-DR8-B1

Figure 1.

OSFP/QSFP-DD 800G Optical modules

Features and benefits

- Hot-swappable input/output device that plugs into a 800G Gigabit Ethernet OSFP/QSFP-DD port
- Interoperable with other IEEE-compliant 800GBASE interfaces where applicable
- High-speed electrical interface compliant to IEEE802.3ck and IEEE 802.3 cu-202

Table 1 describes the OSFP/QSFP-DD 800G portfolio.

Table 1. OSFP/QSFP-DD 800G portfolio

Product	Description	Connector type
QDD-DR8-800G	800GBASE DR8 QSFP-DD Transceiver, MTP/MPO, 500m over SMF	MTP/MPO-16 (16 fibers)
OSFP800-DR8-B1	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF	MTP/MPO-16 (16 fibers)
OSFP-DR8-800G	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF	MTP/MPO-12 (12 fibers)

Product	Description	Connector type
OSFP-2FR4-800G	800GBASE 2FR4 OSFP Transceiver, LC, 2km over SMF	LC
QDD-2FR4-800G	800GBASE 2FR4 QSFP-DD Transceiver, CS, 2km over SMF	CS
QDD800-XDR8-B1	800GBASE XDR8 QSFP-DD Transceiver, MTP/MPO, 2km over SMF	MTP/MPO-16 (16 fibers)
OSFP800-XDR8-B1	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF	MTP/MPO-16 (16 fibers)
OSFP800-XDR8-B2	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF	MTP/MPO-12 (12 fibers)
QDD800-PLR8-B1	800GBASE PLR8 QSFP-DD Transceiver, MTP/MPO, 10Km over SMF	MTP/MPO-16 (16 fibers)
QDD800-2LR4-C1	800GBASE 2LR4 QSFP-DD Transceiver, CS, 10Km over SMF	CS
OSFP800-2LR4-A2	800GBASE 2LR4 OSFP Transceiver, LC, 10Km over SMF	LC
OSFP800-PLR8-B1	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10Km over SMF	MTP/MPO-16 (16 fibers)
OSFP800-PLR8-B2	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10km over SMF	MTP/MPO-12 (12 fibers)
QDD-800G-PCxxx (0.5M, 1M, 1.5M)	800GBASE QSFP-DD Passive Copper Cable	-
QDD-800G-ACxxx (0.5M, 1M, 1.5M, 2M, 2.5M)	800GBASE QSFP-DD Active Copper Cable	-

QDD-DR8-800G

The QDD-DR8-800G Module supports link lengths of up to 500m over a standard pair of G.652 Single-Mode Fiber (SMF) with MPO-16 connectors. The built-in digital diagnostics monitoring (DDM) allows access to real-time operating parameters. It is suitable for 800G Ethernet, Data Center, Breakout 2x 400G DR4 or 8x 100G DR application.

OSFP800-DR8-B1

The 800GBASE-DR8 OSFP Optical Transceiver Module is designed for 800GBASE Ethernet throughput up to 500m over singlemode fiber (SMF) with MPO-16 connectors. This transceiver is compliant with IEEE P802.3ck, IEEE 802.3cu, OSFP MSA. It is suitable for 800G Ethernet, Data Center, Breakout 2x 400G DR4 or 8x 100G DR Application.

OSFP-DR8-800G

The OSFP-DR8-800G supports link lengths of up to 500m over a standard pair of G.652 single-mode fiber via dual MTP/MPO-12 connectors. It complies with the IEEE 802.3-2022, OSFP MSA and CMIS Rev 5.0 standards, suitable for 800G Ethernet, Breakout 2x 400G LR4 and Data Center applications.

OSFP-2FR4-800G

The OSFP-2FR4-800G Module supports link lengths of up to 2km over a standard pair of G.652 Single-Mode Fiber (SMF) with duplex LC connectors. The 800 Gigabit Ethernet signal is carried over four wavelengths at 1271, 1291, 1311, 1331 nm. It is suitable for 800G Ethernet, Data Center, Breakout 2x 400G FR4, Cloud Networks.

QDD-2FR4-800G

The QDD-2FR4-800G Module is designed for use in 800GBASE Ethernet throughput up to 2km over single-mode fiber (SMF) via duplex CS connectors. This transceiver is compliant with IEEE802.3ck, IEEE 802.3cu and QSFP-DD MSA standards, suitable for 800G Ethernet, Breakout 2x 400G FR4, Data Center and Cloud Networks.

QDD800-XDR8-B1

The QDD800-XDR8 Module supports link lengths of up to 2km over single-mode fiber (SMF) via MTP/MPO-16 connectors. This transceiver is compliant with IEEE802.3ck, IEEE 802.3cu, QSFP-DD MSA and CMIS Rev 5.0 standards, suitable for 800G Ethernet, Data Center, Breakout 2x 400G XDR4 or 8x 100G FR Application.

OSFP800-XDR8-B1

The OSFP800-XDR8 Module is designed for 800GBASE Ethernet throughput up to 2km over singlemode fiber (SMF) with MPO-16 connectors. It complies with IEEE802.3ck, IEEE 802.3cu, OSFP MSA, which supports RS-FEC function. It is suitable for 800G Ethernet, Data Center, Breakout 2x 400G XDR4 or 8x 100G FR Application.

OSFP800-XDR8-B2

The OSFP800-XDR8 supports link lengths of up to 2km over a standard pair of G.652 single-mode fiber via dual MTO/MPO-12 connectors. It is compliant with IEEE802.3ck, IEEE 802.3cu-2021, OSFP MSA and CMIS Rev 5.0 standards, suitable for 2x 400G XDR4 or 8x 100G FR, 800G Ethernet and Data Center applications.

QDD800-PLR8-B1

The QDD800-PLR8-B1 Module supports link lengths of up to 10km over single-mode fiber (SMF) with MTP/MPO-16 connectors. It is compliant with QSFP-DD MSA HW Rev 6.01, IEEE 802.3cu-2021 and CMIS Rev 5.0 standards, suitable for 800G Ethernet, Data Center, Breakout 2x 400G PLR4 or 8x 100G LR application.

QDD800-2LR4-C1

The QDD800-2LR4 Module is designed for use in 800GBASE Ethernet throughput up to 10km over single-mode fiber (SMF) via dual CS duplex connectors. This transceiver is compliant with IEEE P802.3ck D3.0, QSFP-DD800 MSA HW Rev 6.01 and CMIS Rev 5.0 standard. Digital diagnostics functions are also available via the I2C interface, as specified by the QSFP-DD MSA, to allow access to real-time operating parameters.

OSFP800-2LR4-A2

The OSFP800-2LR4 Module supports up to 10km link lengths over a standard pair of G.652 Single-Mode Fiber (SMF) via dual duplex LC connectors. It complies with the IEEE 802.3ck, OSFP MSA and CMIS Rev 5.0 standards, suitable for 800G Ethernet, Breakout 2x 400G LR4 and Data Center applications.

OSFP800-PLR8-B1

The OSFP800-PLR8-B1 Module supports link lengths of up to 10km over a standard pair of G.652 Single-mode fiber (SMF) with MTP/MPO-16 connectors. It is compliant with IEEE 802.3ck, IEEE 802.3cu-2021 and CMIS Rev 5.0 standards, suitable for 800G Ethernet, Data Center, Breakout 2x 400G PLR4 or 8x 100G LR application.

OSFP800-PLR8-B2

The OSFP800-PLR8-B2 Modules support link lengths of up to 10km over a standard pair of G.652 single-mode fiber via dual MTO/MPO-12 connectors. It complies with the IEEE 802.3ck, IEEE 802.3cu-2021 and OSFP MSA standards, suitable for Breakout 2x 400G PLR4 or 8x 100G LR, 800G Ethernet and Data Center Applications.

OSFP-800G-PCxxx

The 800G QSFP-DD DAC copper twinax cables (Figure 2) are suitable for very short links and offer a cost-effective way to establish a 800-Gigabit link between QSFP-DD 800G ports of switches within racks and across adjacent racks. FS currently offers passive copper cables in lengths of x=0.5, 1, 1.5 meters.



Figure 2.
OSFP-800G-PCxxx cables

QDD-800G-ACxxx

The 800G QSFP-DD DAC copper twinax cables (Figure 3) are suitable for very short links and offer a cost-effective way to establish a 800-Gigabit link between QSFP-DD 800G ports of switches within racks and across adjacent racks. FS currently offers passive copper cables in lengths of x=0.5, 1, 1.5, 2, 2.5 meters.



Figure 3.
QDD-800G-ACxxx cables

Product Specifications

Table 2 shows the key electrical characteristics for the 800G OSFP/QSFP-DD modules.

Table 2. Electrical specifications

Product	Description	Nominal data rate (Gbs)	High-speed electrical	Link meter
QDD-DR8-800G	800GBASE DR8 QSFP-DD Transceiver, MTP/MPO, 500m over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	500m
OSFP800-DR8-B1	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	500m
OSFP800-DR8-B2	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	500m
OSFP800-2FR4-A2	800GBASE 2FR4 OSFP Transceiver, LC, 2km over SMF	850Gbps (8x 106.25Gbps)	2x400GAUI-4	2km
QDD800-2FR4-C1	800GBASE 2FR4 QSFP-DD Transceiver, CS, 2km over SMF	850Gbps (8x 106.25Gbps)	2x400GAUI-4	2km
QDD800-XDR8-B1	800GBASE XDR8 QSFP-DD Transceiver, MTP/MPO, 2km over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	2km
OSFP800-XDR8-B1	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	2km
OSFP800-XDR8-B2	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	2km
QDD800-PLR8-B1	800GBASE PLR8 QSFP-DD Transceiver, MTP/MPO, 10Km over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	10km
QDD800-2LR4-C1	800GBASE 2LR4 QSFP-DD Transceiver, CS, 10km over SMF	850Gbps (8x 106.25Gbps)	2x400GAUI-4	10km
OSFP800-2LR4-A2	800GBASE 2LR4 OSFP Transceiver, LC, 10km over SMF	850Gbps (8x 106.25Gbps)	2x400GAUI-4	10km
OSFP800-PLR8-B1	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10Km over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	10km
OSFP800-PLR8-B2	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10km over SMF	850Gbps (8x 106.25Gbps)	8x100GAUI-1	10km
OSFP-800G-PCxx (0.5M, 1M, 1.5M)	800GBASE QSFP-DD Passive Copper Cable	850Gbps (8x 106.25Gbps)	8x100GAUI-1	1.5m
QDD-800G-ACxx (0.5M, 1M, 1.5M, 2M, 2.5M)	800GBASE QSFP-DD Active Copper Cable	850Gbps (8x 106.25Gbps)	8x100GAUI-1	2.5m

Table 3 shows the key optical characteristics for the 800G OSFP/QSFP-DD modules.

Table 3. Optical specifications

Product	Description	Transmit Power (dBm) per lane		Receive Power (dBm) per lane		Transmit and Receive Wavelength (nm)
		Minimum	Maximum	Minimum	Maximum	
QDD-DR8-800G	800GBASE DR8 QSFP-DD Transceiver, MTP/MPO, 500m over SMF	-8.4	2.4	-10.3	4.5	1310
OSFP800-DR8-B1	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF	-9.4	2	-12.66	2	1310
OSFP800-DR8-B2	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF	-4.3	4.5	-10.6	4.5	1310
OSFP800-2FR4-A2	800GBASE 2FR4 OSFP Transceiver, LC, 2km over SMF	-4.3	4.5	-10.6	4.5	1310
QDD800-2FR4-C1	800GBASE 2FR4 QSFP-DD Transceiver, CS, 2km over SMF	-1.4	4.5	-7.7	4.5	1310
QDD800-XDR8-B1	800GBASE XDR8 QSFP-DD Transceiver, MTP/MPO, 2km over SMF	-2.4	4	-6.4	4.5	1310
OSFP800-XDR8-B1	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF	-2.9	4	-5.9	4	1310
OSFP800-XDR8-B2	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF	-2.9	4.5	-20.9	-4.9	1310
QDD800-PLR8-B1	800GBASE PLR8 QSFP-DD Transceiver, MTP/MPO, 10km over SMF	-1.4	4.5	-7.7	4.5	1310
QDD800-2LR4-C1	800GBASE 2LR4 QSFP-DD Transceiver, CS, 10km over SMF	-6.5	2.5	-11.5	2.5	1310
OSFP800-2LR4-A2	800GBASE 2LR4 OSFP Transceiver, LC, 10km over SMF	-4.3	4.5	-10.6	4.5	1310
OSFP800-PLR8-B1	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10km over SMF	-4.3	4.5	-10.6	4.5	1310
OSFP800-PLR8-B2	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10km over SMF	-6.5	2.5	-11.5	2.5	1310

Table 4 shows the mechanical characteristics for the 800G OSFP/QSFP-DD modules.

Table 4. Mechanical specifications

Parameter	Product	Weight
Module dimension with pull tab	(H x W x D) 8.5 x 18.35 x 123.41 mm	
Module weight (Max)	Optical modules	72 g
	OSFP-800G-PC005	162 g
	OSFP-800G-PC01	231 g
	OSFP-800G-PC015	303 g
	QDD-800G-AC005	528 g
	QDD-800G-AC01	567 g
	QDD-800G-AC015	606 g
	QDD-800G-AC02	644 g
	QDD-800G-AC025	684 g
OSFP/QSFP-DD module operation temperature	0 to 70°C	-
Active optical cable	0 to 70°C	-
Copper cable operation temperature	0 to 70°C	-
Storage temperature	-40 to 85°C	-

Warranty

- Standard warranty: 5 years
- For more information for FS Returns & Refund spolicy, 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 800G OSFP/QSFP-DD modules and related cables.

Table 5. Ordering information

Part number	Description
OSFP/QSFP-DD optics modules	
QDD-DR8-800G	800GBASE DR8 QSFP-DD Transceiver, MTP/MPO, 500m over SMF
OSFP800-DR8-B1	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF
OSFP800-DR8-B2	800GBASE DR8 OSFP Transceiver, MTP/MPO, 500m over SMF
OSFP800-2FR4-A2	800GBASE 2FR4 OSFP Transceiver, LC, 2km over SMF
QDD800-2FR4-C1	800GBASE 2FR4 QSFP-DD Transceiver, CS, 2km over SMF
QDD800-XDR8-B1	800GBASE XDR8 QSFP-DD Transceiver, MTP/MPO, 2km over SMF
OSFP800-XDR8-B1	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF
OSFP800-XDR8-B2	800GBASE XDR8 OSFP Transceiver, MTP/MPO, 2km over SMF
QDD800-PLR8-B1	800GBASE PLR8 QSFP-DD Transceiver, MTP/MPO, 10Km over SMF
QDD800-2LR4-C1	800GBASE 2LR4 QSFP-DD Transceiver, CS, 10Km over SMF
OSFP800-2LR4-A2	800GBASE 2LR4 OSFP Transceiver, LC, 10Km over SMF
OSFP800-PLR8-B1	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10Km over SMF
OSFP800-PLR8-B2	800GBASE PLR8 OSFP Transceiver, MTP/MPO, 10km over SMF

Part number	Description
QSFP-DD direct-attach copper modules	
OSFP-800G-PC005	800GBASE QSFP-DD Passive Copper Cable, 0.5-meter
OSFP-800G-PC01	800GBASE QSFP-DD Passive Copper Cable, 1-meter
OSFP-800G-PC015	800GBASE QSFP-DD Passive Copper Cable, 1.5-meter
QDD-800G-AC005	800GBASE QSFP-DD Active Copper Cable, 0.5-meter
QDD-800G-AC01	800GBASE QSFP-DD Active Copper Cable, 1-meter
QDD-800G-AC015	800GBASE QSFP-DD Active Copper Cable, 1.5-meter
QDD-800G-AC02	800GBASE QSFP-DD Active Copper Cable, 2-meter
QDD-800G-AC025	800GBASE QSFP-DD Active Copper Cable, 2.5-meter

Regulatory and standards compliance

Standards

- Compliant with IEEE 802.3cu-2021: 2x400GBASE-DR4, 2x400GBASE-FR4, 8x100GBASE-DR, 8x100GBASE-FR1, 8x100GBASE-LR1 Optical Interface
- Compliant with IEEE P802.3ck D3.0: 2x400GAUI-4 or 8x100GAUI-1 C2M Electrical Interface
- Compliant with QSFP-DD MSA HW Rev 6.01 - Type 2A with Dual CS/MPO-16 Connector, or compliant with OSFP MSA HW Rev 4.1 - Type 2 housing with MPO-16/Dual MPO-12/Dual LC Connector.
- Compliant with CMIS Rev 5.0

Safety

- Modules are compliant with Laser Class 1 as defined in IEC 60825-1, IEC 60825-2 and Comply with 21 CFR 1040.10 and 1040.11

Table 6. Laser class for the OSFP/QSFP-DD 800G optical modules

Product	Laser class
QDD-DR8-800G	1
OSFP800-DR8-B1	1
OSFP-DR8-800G	1
OSFP-2FR4-800G	1
QDD-2FR4-800G	1
QDD800-XDR8-B1	1
OSFP800-XDR8-B1	1
OSFP800-XDR8-B2	1
QDD800-PLR8-B1	1
QDD800-2LR4-C1	1
OSFP800-2LR4-A2	1
OSFP800-PLR8-B1	1
OSFP800-PLR8-B2	1

Additional information

For more information about 800GBASE OSFP/QSFP-DD optics and copper modules, contact your account manager or visit <https://www.fs.com/c/fiber-optic-transceivers-9>

Document history

New or revised topic	Described in	Date
800GBASE OSFP/QSFP-DD Modules Data Sheet	Updated all	24/11/2022



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