

QSFP+/28/56 AND SFP28/56 OVERVIEW

OVERVIEW

The tables below list the QSFP+/28/56, SFP28/56 transceivers and cable assemblies currently provided in the Smartoptics portfolio and with the most characteristic parameters. Please refer to the respective datasheets for more technical information.

GREY QSFP28 TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP28-SR4	100GE	100m	4x 850nm	MM	1x MPO	100GBASE-SR4	1.9dB	Yes	Datasheet
TQ2015-M85I-SO ¹⁾	100GE	100m	4x 850nm	MM	1x MPO	100GBASE-SR4	1.9dB	Yes	Datasheet
SO-QSFP28-SWDM4	100GE	150m	850/880/910/940nm	MM	2x LC	100G SWDM4	1.8dB	Yes	Datasheet
TQ2016-MS2C-SO	100GE	100m	850/910nm	MM	2x LC	100G SRBD	2.4dB	No ³⁾	Datasheet
SO-QSFP28-100G-DR	100GE	500m	1x 1311nm	MM	1x MPO	100G-DR	3.0dB	Yes	Datasheet
SO-QSFP28-PSM4	100GE	2km	4x 1310nm	SM	1x MPO	100G PSM4	3.3dB	Yes	Datasheet
SO-QSFP28-CWDM4	100GE	2km	1271/1291/1311/1331nm	SM	2x LC	100G CWDM4	5.0dB	Yes	Datasheet
SO-QSFP28-100G-FR	100GE	2km	1x 1311nm	SM	2x LC	100G-FR	4.0dB	No ³⁾	Datasheet
SO-QSFP28-LR4	100GE/OTU4	10km	1296/1300/1304/1309nm	SM	2x LC	100GBASE-LR4 OTU4 4I1-9D1F	6.3dB	No	Datasheet
TQ2011-SL4I-SO ¹⁾	100GE	10km	1296/1300/1304/1309nm	SM	2x LC	100GBASE-LR4	6.3dB	No	Datasheet
SO-QSFP28-100G-LR	100GE	10km	1x 1311nm	SM	2x LC	100G-LR	6.3dB	No ³⁾	Datasheet
SO-QSFP28-LR4-10L	100GE	10km	1296/1300/1304/1309nm	SM	2x LC	100GBASE-LR4	6.3dB	No	Datasheet
SO-QSFP28-LR4-20L	100GE	20km	1296/1300/1304/1309nm	SM	2x LC	100GBASE-LR4	8.5dB	No	Datasheet
TQ2012-SL4I-SO ¹⁾	100GE	20km	1296/1300/1304/1309nm	SM	2x LC	100GBASE-LR4	11.2dB	No	Datasheet
SO-QSFP28-LR4-20D	100GE/OTU4	20km	1296/1300/1304/1309nm	SM	2x LC	100G 4WDM-20 OTU4 4I1-9D1F	10.2dB	Yes	Datasheet
TQ2023-S31C-SO	100GE	40km	1x 1311nm	SM	2x LC	100G-ER1 MSA	18.5dB	No ³⁾	Datasheet
SO-QSFP28-ER4	100GE	40km	1296/1300/1304/1309nm	SM	2x LC	100G 4WDM-40	18dB	Yes	Datasheet
TQ2009-SL4E-SO ²⁾	100GE	40km	1296/1300/1304/1309nm	SM	2x LC	100G 4WDM-40	18dB	Yes	Datasheet
TQ2009-SL4I-SO ¹⁾	100GE	40km	1296/1300/1304/1309nm	SM	2x LC	100G 4WDM-40	18dB	Yes	Datasheet
SO-QSFP28-ER4-OTU4	100GE	40km	1296/1300/1304/1309nm	SM	2x LC	100G 4WDM-40/ OUT4	18dB	Yes	Datasheet
SO-QSFP28-ZR4	100GE	80km	1296/1300/1304/1309nm	SM	2x LC	100G-ZR4	31dB	Yes	Datasheet
QSFP-100G-ZR4-SO	100GE	80km	1296/1300/1304/1309nm	SM	2x LC	100G-ZR4	31dB	Yes	Datasheet

Dist: Typical distance, normally based on dispersion properties.

Pwr budget: Difference between average min Tx power and Rx sensitivity. Dispersion/path penalties not taken into account.

FEC: If FEC is required in host equipment for performance @ 100GE. The OTU4 frame includes FEC.

¹⁾ Industrial temperature range (-40 to +85).

²⁾ Industrial temperature range, see datasheet.

³⁾ This transceiver has inbuilt FEC so host system shall not activate FEC.

CWDM QSFP28 TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP28-100G-FRx	100GE	2km	1271 – 1331nm (4ch)	SM	2x LC	100GBASE-FR	4dB	No ¹⁾	Datasheet
SO-QSFP28-100G-LRx	100GE	10km	1271 – 1331nm (4ch)	SM	2x LC	100GBASE-LR	6.3dB	No ¹⁾	Datasheet

¹⁾ This transceiver has inbuilt FEC so host system shall not activate FEC.

DWDM QSFP28 TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP28-Dxx	100GE	-	D9200 – D9590 (40ch)	SM	2x LC	-	-	No	Datasheet
SO-QSFP28-Dxx-A	100GE	-	D9200 – D9600 (41ch)	SM	2x LC	-	-	No	Datasheet

These transceiver uses two PAM4 modulated sub-channels per 100GHz grid and with integrated FEC. Requires a DCP Open Line System to operate up to 80km.

QSFP28 BiDi TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP28-50GE-BX10D-2733	50GE	10km	Tx/Rx=1270/1330nm	SM	1x LC	-	6.3dB	Yes	Datasheet
SO-QSFP28-50GE-BX10D-3327	50GE	10km	Tx/Rx=1330/1270nm	SM	1x LC	-	6.3dB	Yes	Datasheet
SO-QSFP28-50GE-BX40D-2930	50GE	40km	Tx/Rx=1294.40/1308.24nm	SM	1x LC	-	18.0dB	Yes	Datasheet
SO-QSFP28-50GE-BX40D-3029	50GE	40km	Tx/Rx=1308.24/1294.40nm	SM	1x LC	-	18.0dB	Yes	Datasheet
TQ2020-BADC-SO	100GE	10km	Tx/Rx=1271/1331nm	SM	1x LC	100G-LR	6.8dB	No ¹⁾	Datasheet
TQ2020-BDAC-SO	100GE	10km	Tx/Rx=1331/1271nm	SM	1x LC	100G-LR	6.8dB	No ¹⁾	Datasheet
TQ2021-BBCC-SO	100GE	20km	Tx/Rx=1291/1311nm	SM	1x LC	100G LR1-20	10.4dB	No ¹⁾	Datasheet
TQ2021-BCBC-SO	100GE	20km	Tx/Rx=1311/1291nm	SM	1x LC	100G LR1-20	10.4dB	No ¹⁾	Datasheet

¹⁾ This transceiver has inbuilt FEC so host system shall not activate FEC.

QSFP28 O-BAND DWDM TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
TQ2026-OxxC-SO	100GE	25km	228.4 - 231.4THz	SM	1x LC	-	15dB	No ¹⁾	Datasheet

QSFP28 CABLE ASSEMBLIES

Part number	Protocols	Lengths	Type	Connectors	Datasheet
SO-QSFP28-PCUxM	100GE	0.5m – 5m	DAC, Passive	QSFP28 ↔ QSFP28	Datasheet
SO-QSFP28-4SFP28-PCUxM	100GE	1m – 5m	DAC, Passive	QSFP28 ↔ 4x SFP28	Datasheet
SO-QSFP28-AOCxM	100GE	1m – 50m	AOC	QSFP28 ↔ QSFP28	Datasheet
SO-QSFP28-4XSFP28-AOCxM	100GE	1m – 70m	AOC	QSFP28 ↔ 4x SFP28	Datasheet

DAC SFP56 CABLE ASSEMBLIES

Part number	Protocols	Lengths	Type	Connectors	Datasheet
DS5001-xxxC-SO	50GE	0.5m – 3m	DAC, Passive	QSFP56 ↔ QSFP56	Insert DS

GREY SFP28 TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-SFP28-SR	25GE	100m	1x 850nm	MM	2x LC	25GBASE-SR	1.9dB	Yes	Datasheet
SO-SFP28-SR3	25GE	300m	1x 850nm	MM	2x LC	25GBASE-SR	1.9dB	Yes	Datasheet
SO-SFP28-LR	25GE/CPRI-10/ 10GbE-LAN	10km	1x 1310nm	SM	2x LC	-	6.3dB	Yes	Datasheet
SO-SFP28-ER-I	25GE/CPRI-10	40km	1x 1310nm	SM	2x LC	25GBASE-ER	18dB	Yes	Datasheet
TS2014-S30C-SO	25GE	80km	1x 1310nm	SM	2x LC	-	30dB	Yes	Datasheet
TS2014-S30C-SO	25GE	80km	1x 1310nm	SM	2x LC	-	30dB	Yes	Datasheet
SO-SFP28-32GFC-SD	32G FC / 25GE	100m	1x 850nm	MM	2x LC	3200-SN (FC-PI-6)	7dB / 1.9dB	Yes	Datasheet
SO-SFP28-32GFC-LD	32G/16G/8G FC 25GE	10km	1x 1310nm	SM	2x LC	-	9.4dB	Yes	Datasheet

Dist: Typical distance, normally based on dispersion properties.

Pwr budget: Difference between average min Tx power and Rx sensitivity. Dispersion/path penalties not taken into account.

FEC: If FEC is required in host equipment for performance @ 32G/25GE.

SFP28 BIDI TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-SFP28-BX10D-2733-I	25GE/CPRI-10	10km	Tx/Rx=1270/1330nm	SM	1x LC	-	11.5dB	Yes	Datasheet
SO-SFP28-BX10D-3327-I	25GE/CPRI-10	10km	Tx/Rx=1330/1270nm	SM	1x LC	-	11.5dB	Yes	Datasheet
SO-SFP28-BX20D-2733-I	25GE/CPRI-10	20km	Tx/Rx=1270/1330nm	SM	1x LC	-	14.0dB	Yes	Datasheet
SO-SFP28-BX20D-3327-I	25GE/CPRI-10	20km	Tx/Rx=1330/1270nm	SM	1x LC	-	14.0dB	Yes	Datasheet
SO-SFP28-BX40D-2731-I	25GE/CPRI-10	40km	Tx/Rx=1270/1310nm	SM	1x LC	-	19dB	Yes	Datasheet
SO-SFP28-BX40D-3127-I	25GE/CPRI-10	40km	Tx/Rx=1310/1270nm	SM	1x LC	-	19dB	Yes	Datasheet

SFP28 CWDM / DWDM / LANWDM TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-SFP28-32GFC-LR10-Cxx	32G FC 25GE/10GE	10km	1271/1291/1311/1331nm (4ch)	SM	2x LC	-	9.4dB	Yes	Datasheet
SO-SFP28-L10-Dxxxx-I	25GE/CPRI-10	10km	D9200 – D9600 (41ch)	SM	2x LC	-	13dB	Yes	Datasheet
SO-SFP28-L10E-Dxxxx-I	25GE/CPRI-10	10km	D9200 – D9600 (41ch)	SM	2x LC	-	18dB	Yes	Datasheet
SO-SFP28-LWDM-x-E	25GE/CPRI-10	30km	1277.89 - 1309.14nm (8ch)	SM	2x LC	-	21dB	Yes	Datasheet
TS2016-TUNE-SO	25GE/10GE	15km	DWDM Tunable (40ch)	SM	2x LC	-	18dB	Yes	Datasheet

Dist: Typical distance, normally based on dispersion properties.

Pwr budget: Difference between average min Tx power and Rx sensitivity. Dispersion/path penalties not taken into account.

FEC: If FEC is required in host equipment for performance @ 25GE.

SFP28 CABLE ASSEMBLIES

Part number	Protocols	Lengths	Type	Connectors	Datasheet
SO-SFP28-PCUxM	25GE	0.5m – 5m	DAC, Passive	SFP28 ↔ SFP28	Datasheet
SO-SFP28-AOCxM	25GE	1m – 30m	AOC	SFP28 ↔ SFP28	Datasheet

GREY QSFP+ TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP-SR4	40GE	150m	4x 850nm	MM	2x LC	40GBASE-SR4	1.9dB	No	Datasheet
SO-QSFP-ESR4	40GE	400m	4x 850nm	SM	1x MPO	40GBASE-eSR4	1.9dB	No	Datasheet
SO-QSFP-LX4 ¹⁾	40GE	2km	1271/1291/1311/1331nm	SM	2x LC	40GBASE-IR4	4.5dB	No	Datasheet
SO-QSFP-LX4 ¹⁾	40GE	150m	1271/1291/1311/1331nm	MM	2x LC	-	5.5dB	No	Datasheet
SO-QSFP-LR4-PSM	40GE, 4x 10GE	10km	4x 1310nm	SM	1x MPO	40GBASE-LR4	6.6dB	No	Datasheet
SO-QSFP-LR4	40GE, OTU3	10km	1271/1291/1311/1331nm	SM	2x LC	40GBASE-LR4	6.7dB	No	Datasheet
SO-QSFP-LR4-20	40GE	20km	1271/1291/1311/1331nm	SM	2x LC	40GBASE-LR4	10.2dB	No	Datasheet
SO-QSFP-ER4	40GE, OTU3	40km	1271/1291/1311/1331nm	SM	2x LC	40GBASE-ER4	18.5dB	No	Datasheet
SO-QSFP-IR4-PSM	40GE	2km	4x 1310nm	SM	2x LC	40GBASE-IR4	7.4dB	No	Datasheet

1) SO-QSFP-LX4 operates on both SM and MM fibers.

DWDM QSFP+ TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP-40G-Dxxxx	40GE	-	D9210 – D9600 (40ch)	SM	2x LC	-	11dB	Yes	Datasheet

QSFP+ CABLE ASSEMBLIES

Part number	Protocols	Lengths	Type	Connectors	Datasheet
SO-QSFP-40G-PCUxM	40GE	0.5m – 5m	DAC, Passive	QSFP+ ↔ QSFP+	Datasheet
SO-QSFP-4SFP-PCUxM	40GE, 10GE	1m – 3m	DAC, Passive	QSFP+ ↔ 4x SFP+	Datasheet
SO-QSFP-40G-AOCxM	40GE	1m – 100m	AOC	QSFP+ ↔ QSFP+	Datasheet
SO-QSFP-4X10G-AOCxM	40GE, 10GE	1m – 100m	AOC	QSFP+ ↔ 4x SFP+	Datasheet

GREY QSFP56 TRANSCEIVERS

Part number	Protocols	Dist	Wavelengths	Fiber	Conn	Standard / MSA	Pwr budget	FEC	Datasheet
SO-QSFP56-2C-2	200GE	2km	1271/1291/1311/1331nm	SM	2x LC	200G-FR4	4.8dB	Yes	Datasheet