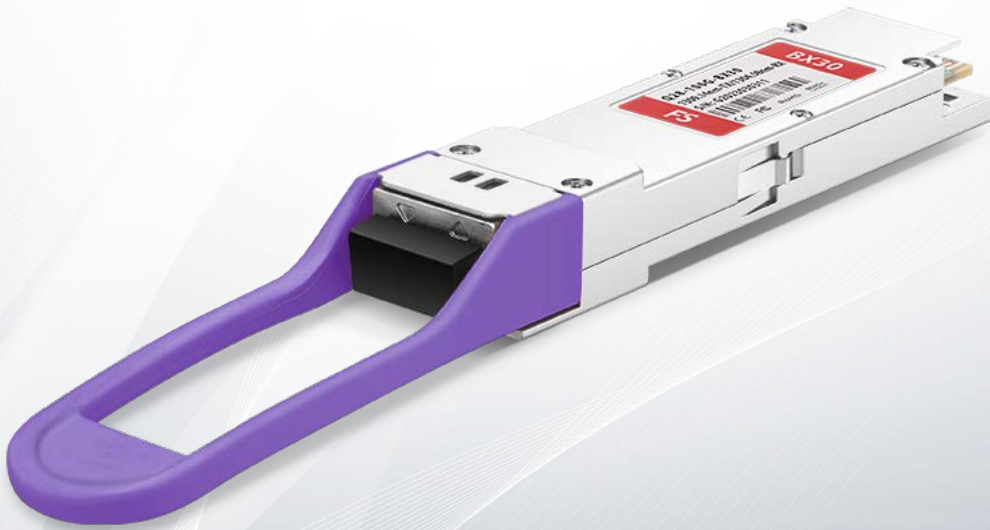


100GBASE-BX30 QSFP28 1309.14nm-Tx/1304.58nm-Rx 30km DOM Transceiver

QSFP-BX30-100G



Standards

- EU Directive 2011/65/EU
- IEEE 802.3bs

Features

- Aligned with IEEE 802.3bs and 100G Lambda MSA
- High speed I/O electrical interface (CAUI-4)
- EML laser and APD Receiver
- Two Wire Serial Interface with Digital Diagnostic Monitoring
- Maximum Link Length of 30km on SMF Fiber
- Power Consumption $\leq 4.5W$
- -5°C To 85°C Case Temperature Range
- Single +3.3V Power Supply
- Simplex LC receptacles
- Class 1 FDA Laser Safety

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Notes
Storage Temperature Range	Ts	-40	85	°C	
Relative Humidity	RH	5	95	%	

II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature Range	Tc	-5		85	°C	
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Signalling Rate	SR		53.125		GBd	
Two Wire Serial Interface Clock Rate				400	kHz	
Rx Differential Data Output Load			100		ohms	
Power Supply Noise				66	mVpp	10Hz - 10MHz
Operating Distance		2		30000	m	

III. Optical Characteristics

(Tc=-5°C to 85°C and Vcc=3.14 to 3.46V)

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Nominal Wavelength	λ	1303.54	1304.58	1305.63	nm	
Average Optical Launch Power	POUT	1.7		7.1	dBm	1
Average launch power of OFF transmitter	POUT_OFF			-15	dBm	
Side Mode Suppression Ratio	SMSR	30			dB	
Transmitter and dispersion eye closure	TDECQ			3.9	dB	
Transmitter eye closure for PAM4 (TECQ)	TDECQ			3.9	dB	
Transmitter reflectance	TR			-26	dB	
Transmitter power excursion				3.9	dBm	
Over/under-shoot				22	%	
Optical return loss tolerance	ORLT			15	dB	
Receiver						
Center Wavelength	λ_C	1260		1620	nm	
Damage Threshold				-2.4	dBm	
Average receive power		-16		-3.4	dBm	1
Receiver reflectance	RR			-26	dB	
Stressed receiver sensitivity	SRS			-10	dBm	2
Stressed eye closure for PAM4 (SECQ)				3.9	dB	

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Receive power (OMAouter)	RP			-2.6	dBm	

Note:

- 1: Average launch power is informative and not the principal indicator of signal strength.
- 2: Average receive power, (min) is informative and not the principal indicator of signal strength.
- 3: Measured with conformance test signal at TP3 for the BER = 2.4x10-4.

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V _{cc}	3.145	3.3	3.465	V	
Power Consumption	p			4.5	W	
Transmitter						
Differential pk-pk input Voltage tolerance		900			mV	
Differential termination mismatch				10	%	
Single-ended voltage tolerance range		-0.4		3.3	V	
DC common mode Voltage		-350		2850	mV	
Receiver						
AC common-mode output Voltage (RMS)				17.5	mV	
Differential output Voltage				900	mV	
Eye width		0.57			UI	
Eye height differential		228			mV	
Differential Termination Mismatch				10	%	
DC common mode Voltage		-350		2850	mV	

V. Pin Definition

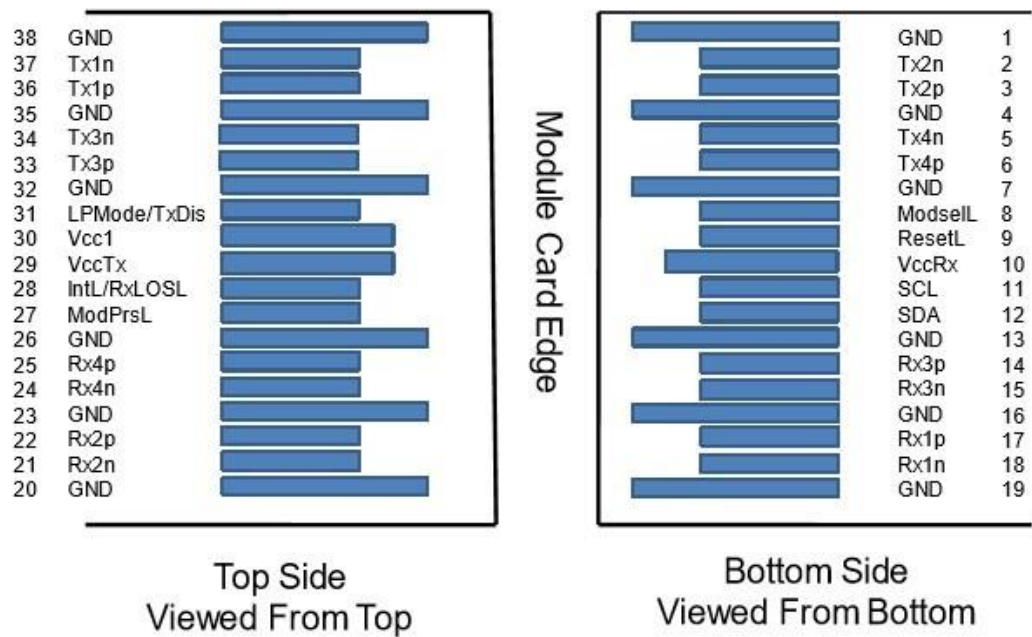


Figure 1. Pin Funation Definitions

VI. Pin Description

Pin	Logic	Symbol	Description	Plug Sequence	Note
1		GND	Ground	1	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	3	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	3	
4		GND	Ground	1	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	3	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	3	

Pin	Logic	Symbol	Description	Plug Sequence	Note
7		GND	Ground	1	1
8	LVTTL-I	ModselL	Module Select	3	
9	LVTTL-I	ResetL	Module Reset	3	
10		Vcc Rx	+3.3V Power Supply Receiver	2	2
11	LVC MOS-I/O	SCL	2-wire serial interface clock	3	
12	LVC MOS-I/O	SDA	2-wire serial interface data	3	
13		GND	Ground	1	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	3	
15	CML-O	Rx3n	Receiver Inverted Data Output	3	
16		GND	Ground	1	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	3	
18	CML-O	Rx1n	Receiver Inverted Data Output	3	
19		GND	Ground	1	1
20		GND	Ground	1	1
21	CML-O	Rx2n	Receiver Inverted Data Output	3	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	3	
23		GND	Ground	1	1
24	CML-O	Rx4n	Receiver Inverted Data Output	3	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	3	

Pin	Logic	Symbol	Description	Plug Sequence	Note
26		GND	Ground	1	1
27	LVTTL-O	ModPrsL	Module Present	3	
28	LVTTL-O	IntL/RxLOS L	Interrupt. Optionally configurable as RxLOSL via the management interface (SFF-8636).	3	
29		Vcc Tx	+3.3V Power supply transmitter	2	2
30		Vcc1	+3.3V Power supply	2	2
31	LVTTL-I	LPMoDe/Tx Dis	Low Power Mode. Optionally configurable as TxDis via the management interface (SFF-8636).	3	
32		GND	Ground	1	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	3	
34	CML-I	Tx3n	Transmitter Inverted Data Input	3	
35		GND	Ground	1	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	3	
37	CML-I	Tx1n	Transmitter Inverted Data Input	3	
38		GND	Ground	1	1

Note:

- 1. GND is the symbol for signal and supply (power) common for the module. All are common within the module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
- 2. VccRx, Vcc1 and VccTx are applied concurrently and may be internally connected within the module in any combination. Vcc contacts in SFF-8662 and SFF-8672 each have a steady state current rating of 1 A.

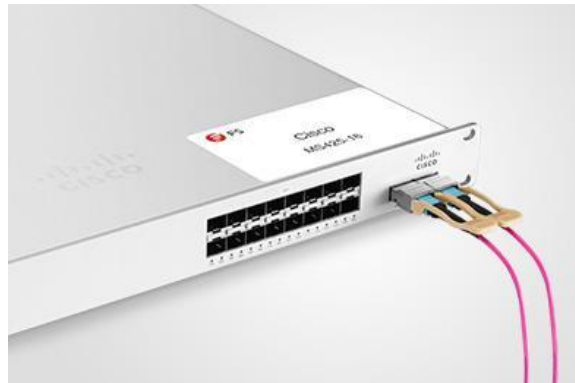
Test Center

I. Compatibility Testing

Each fiber optical transceiver has been tested in host device on site in FS Assured Program to ensure full compatibility with over 200 vendors.



Cisco Catalyst C9500-24Y4C



Cisco MS425-16



Brocade VDX 6940-144S



Dell EMC Networking Z9100-ON



Force@tm S60-44T

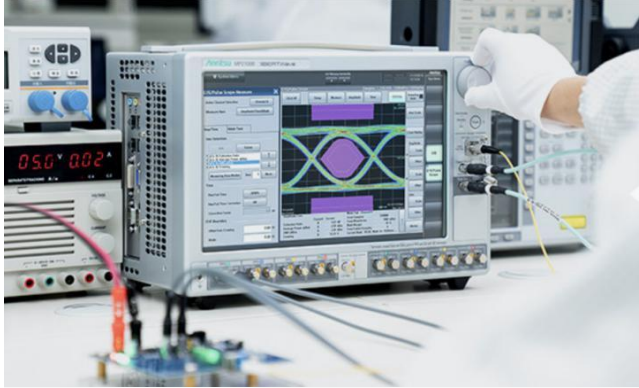


HUAWEI S6720-30L-HI-24S

Above is part of our test bed network equipment. For more information, please click the Test Bed PDF. It will be updated in real time as we expand our portfolio.

II. Performance Testing

Each fiber optical transceiver has been fully tested in FS Assured Program equipped with world's most advanced analytical equipment to ensure that our transceivers work perfectly on your device.



1. TX/RX Signal Quality Testing

Equipped with the all-in-one tester integrated 4ch BERT & sampling oscilloscope, and variable optical attenuator to ensure the input and output signal quality.

- Eye Pattern Measurements: Jitter, Mask Margin, etc
- Average Output Power
- OMA
- Extinction Ratio
- Receiver Sensitivity
- BER Curve

2. Reliability and Stability Testing

Subject the transceivers to dramatic changes in temperature on the thermal shock chamber to ensure reliability and stability of the transceivers.

- Commercial: 0 °C to 70 °C
- Extended: -5 °C to 85 °C
- Industrial: -40 °C to 85 °C



3. Transfer Rate and Protocol Testing

Test the actual transfer data rate and the transmission ability under different protocols with Network Master Pro.

- Ethernet
- Fibre Channel
- SDH/SONET
- CPRI



4. Optical Spectrum Evaluation

Evaluate various important parameters with the Optical Spectrum Analyzer to meet the industry standards.

- Center Wavelength, Level
- OSNR
- SMSR
- Spectrum Width



Order Information

Part Number	Description
QSFP28-BIDI-100G	100GBASE SR BIDI QSFP28 Transceiver, Duplex LC, 100m over MMF
O28-100G-BX10	100GBASE BX10 QSFP28 Transceiver, Simplex LC, 1271nm-TX/1331nm-RX, 10km over SMF
Q28-100G-BX10	100GBASE BX10 QSFP28 Transceiver, Simplex LC, 1331nm-TX/1271nm-RX, 10km over SMF
QSFP28-100G-BX20	100GBASE BX20 QSFP28 Transceiver, Simplex LC, 1280nm-TX/1310nm-RX, 20km over SMF
OSFP28-100G-BX20	100GBASE BX20 QSFP28 Transceiver, Simplex LC, 1310nm-TX/1280nm-RX, 20km over SMF
Q28-100G-BX30	100GBASE BX30 QSFP28 Transceiver, Simplex LC, 1304.58nm-Tx/1309.14nm-Rx, 30km over SMF
Q28-100G-BX30	100GBASE BX30 QSFP28 Transceiver, Simplex LC, 1309.14nm-Tx/1304.58nm-Rx, 30km over SMF