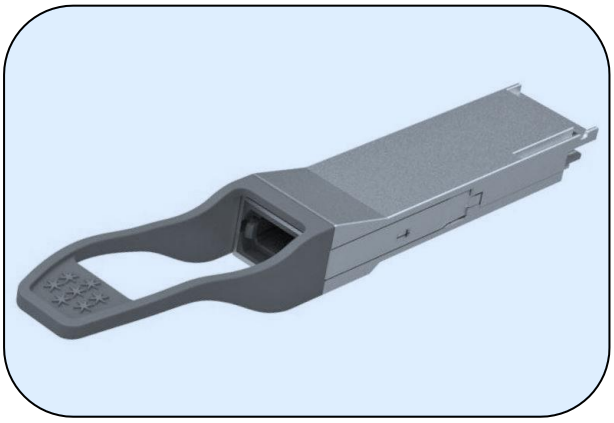
XQDxx9-C0PY

100 Gbps QSFP28 PSM4 C-band DWDM 120 km Transceiver



Features

- 4 channels full-duplex transceiver modules
- Transmission data rate up to 26 Gbps per channel
- 4 channels C-band EML DWDM
- Compliant to ITU-T 694.1
- 4 channels PIN photo detector array
- Internal CDR circuits on both receiver and transmitter channels
- Support CDR bypass
- Low power consumption < 5 W
- Hot Pluggable QSFP form factor
- Up to 120 km reach for G.652 SMF with external Mux/Demux, EDFA, CD Compensation
- Up to 10 km reach for G.652 SMF without external CD Compensation
- Single male MPO (APC 8-degree) connector receptacle
- 3.3 V power supply
- RoHS compatible (lead free)
- Operating case temperature 0 °C to +70 °C (Standard)

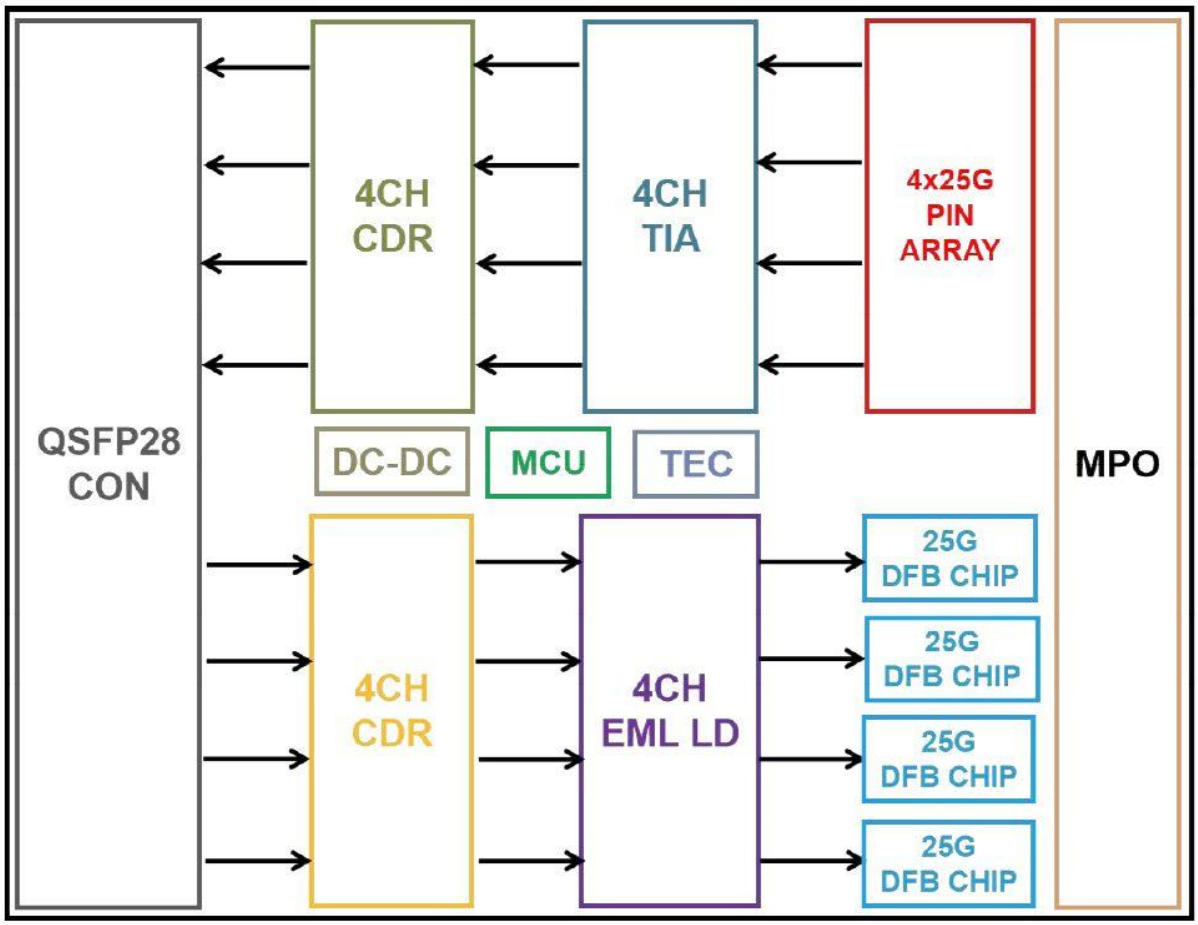
Applications

- 100G Ethernet Metro-Access over DWDM
- P to P Access Network

Description

XQDxx9-C0PY is a Four-Channel Pluggable Parallel Fiber-Optic QSFP28 PSM4 for 100G or 40 Ethernet Metro-Access over DWDM applications. The transceiver is a high performance module for data communication and interconnect applications. It integrates four data lanes in each direction with 104 Gbps bandwidth. Each lane can operate at 26 Gbps up to 120 km over G.652 SMF with external Mux/Demux, EDFA, CD compensation. The electrical interface uses a 38 contact edge type connector. The optical interface uses a 12 fiber MTP (MPO) connector. This module provides reliable long life, high performance, and consistent service.

Functional Diagram



100Gb/s QSFP28 PSM4 C-band DWDM is one kind of parallel transceiver. DFB and PIN array package is key technique, through I2C system can contact with module.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vcc+0.3	V
Storage Temperature	Tst	-20	85	°C
Case Operating Temperature	Top	0	70	°C
Humidity (non-condensing)	Rh	5	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Case Operating Temperature	Tca	0		70	°C
Data Rate Per Lane	fd		25.78125		Gbps
Humidity	Rh	5		85	%
Power Dissipation	Pm			5	W
Link Distance with G.652[1]	D			120	km

Note

1. Requires a DWDM line system with amplification and dispersion management.

Electrical Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Differential input impedance	Zin	90	100	110	ohm
Differential Output impedance	Zout	90	100	110	ohm
Differential input voltage amplitude	ΔVin	190		700	mVp-p
Differential output voltage amplitude	ΔVout	300		850	mVp-p
Input Logic Level High	VIH	2.0		VCC	V
Input Logic Level Low	VIL	0		0.8	V
Output Logic Level High	VOH	VCC-0.5		VCC	V
Output Logic Level Low	VOL	0		0.4	V

Notes

1. Differential input voltage amplitude is measured between TxnP and TxnN.
2. Differential output voltage amplitude is measured between RxnP and RxnN

Optical Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Transmitter					
Centre Wavelength	λc	per ITU-T 694.1			nm
Side Mode Suppression Ratio	SMSR	30			dB
Average launch power, each lane	PAVG	-4.3		4.5	dBm
Optical Modulation Amplitude (OMA), each lane[1]	POMA	-1.3		4.5	dBm
Extinction Ratio	ER	6	-	-	dB
Relative Intensity Noise	RIN			-128	dB/Hz
Optical Return Loss Tolerance	TOL			20	dB
Transmitter Reflectance	RT			-20	dB
Average launch power of OFF transmitter, each lane	POFF			-30	dBm
Eye Mask coordinates[1]: X1, X2, X3, Y1, Y2, Y3	{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}				
Receiver					
Centre Wavelength	λc	1200		1600	nm
Damage Threshold, each lane[2]	THd	5.5			dBm
Average Receive Power, each lane		-10.6		4.5	dBm
Receive power, each lane (OMA)				4.5	dBm
Receiver Reflectance	RR			-26	dBm
Receiver Sensitivity (OMA), each lane[3]	SEN			-8.6	dBm
LOS Assert	LOSA		-18		dBm
LOS De-Assert – OMA	LOSD		-15		dBm
LOS Hysteresis	LOSH	0.5			dB

Notes

1. Even if the TDP<1 dB, the OMA min must exceed the minimum value specified here
2. Hit Ratio = $5x10^{-5}$
3. The receiver shall be able to tolerate, without damage, continuous exposure to a modulated optical input signal having this power level on one lane. The receiver does not have to operate correctly at this input power.
4. Sensitivity is specified at $1x10^{-12}$ BER at 25.78125 Gb/s

C-band λc Wavelength Grid

Product Code	TX1		TX2		TX3		TX4	
	Ch. No.	Frequency (THz)	Ch. No.	Frequency (THz)	Ch. No.	Frequency (THz)	Ch. No.	Frequency (THz)
XQD139- C0PY	13	191.3	14	191.4	15	191.5	16	191.6
XQD179- C0PY	17	191.7	18	191.8	19	191.9	20	192
XQD219- C0PY	21	192.1	22	192.2	23	192.3	24	192.4
XQD259- C0PY	25	192.5	26	192.6	27	192.7	28	192.8
XQD299- C0PY	29	192.9	30	193	31	193.1	32	193.2
XQD339- C0PY	33	193.3	34	193.4	35	193.5	36	193.6
XQD379- C0PY	37	193.7	38	193.8	37	193.7	37	193.7
XQD419- C0PY	41	194.1	42	194.2	43	194.3	44	194.4
XQD459- C0PY	45	194.5	46	194.6	47	194.7	48	194.8
XQD499- C0PY	49	194.9	50	195	51	195.1	52	195.2
XQD539- C0PY	53	195.3	54	195.4	55	195.5	56	195.6
XQD579- C0PY	57	195.7	58	195.8	59	195.9	60	196

Ordering information[1]

Part number	Product Description
XQDxx9-C0PN	QSFP28 PSM4 DWDM C-band 100 Gbps Transceiver, 120 km, MPO, 0-70°C, DDM xx: 13 – Ch. 13-16, 17 – Ch. 17-20, 21 – Ch. 21-24, 25 – Ch. 25-28, 29 – Ch. 29-32, 33 – Ch. 33-36, 37 – Ch. 37-40, 41 – Ch. 41-44, 45 – Ch. 45-48, 49 – Ch. 49-52, 53 – Ch. 53-56, 57 – Ch. 57-60

Notes

[1] For accurate order specification please contact XenOpt reseller before placing an order. The content of this document is subject to change without notice. XenOpt does not guarantee errorless or outdated information.
Please specify any compatibility requirements at time of ordering. Standard MSA compatible pluggable components may not work or some function of these components may not be available in devices that require customized compatible devices. Pluggable components compatible with one type of communications equipment may not work in other type of communications equipment.

To find out more, please contact: