

XQBxx9-30LY – 100 Gbps QSFP28 BIDI ER1 30 km DDM Transceiver



over single-mode fiber. It utilizes standard LC connectors to multiplex optical signals onto a single-mode fiber, ensuring reliable and efficient communication.

APPLICATIONS

- Data Centers
- 100 Gigabit Ethernet

DESCRIPTION

The 100G QSFP28 ER1 BIDI transceiver is engineered for 30 km optical communication applications, making it ideal for high-speed data transmission at 100Gb/s

FEATURES

- Compliant with 100GBASE-ER1 BIDI standards
- Lane signaling rate: 106.25 Gb/s with PAM4
- Transmission range: Up to 30 km on SMF
- Components: EML Laser and PIN receiver
- Electrical interface: 4x25.78 Gb/s with NRZ (CAUI-4)
- FEC support: KP4 inside the module
- High-speed I/O electrical interface
- Integrated Digital Diagnostic monitoring via I2C interface
- QSFP28 MSA package with simplex LC connector
- Single +3.3 V power supply
- Power consumption < 4 W
- Standards compliance: 802.3cu, SFF-8636 & SFF-8679
- Optical specifications: Compliant with 100G Lambda MSA 100G-ER1
- Regulatory compliance: EU Directive 2015/863/EU
- Operating case temperature range: 0 to +70 °C
- RoHS compliant

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	VCC	-0.5	-	4.0	V
Storage temperature	TS	-40	-	85	°C
Operating Relative Humidity	RH	-	-	85	%

RECOMMENDED OPERATING ENVIRONMENT

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	0	-	+70	°C
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Transmission Distance ¹	Td	-	-	10	Gbps

OPTICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Center Wavelength	CW	1303.54	1304.58	1305.63	nm	
		1308.09	1309.14	1310.19	nm	
Signaling Rate	SR			53.125	GBd	
Frequency Offset	Foffset	-100		100	ppm	
Average Launch Power	PTX	0	-	5.6	dBm	1
Outer Optical Modulation Amplitude	OMA	3.0	-	6.4	dBm	2
		1.6+ TDECQ	-		dBm	3
Transmitter and dispersion eye closure for PAM4 (TDECQ) (max)	TDECQ	-	-	3.9	dBm	
Average Output Power (Laser Turn off)	Poff	-	-	-30	dBm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Extinction Ratio	ER	5	-	-	dB	
RIN_OMA	RIN	-	-	-136	dB/Hz	
Transmitter reflectance	Tref	-	-	-26	dB	
Optical Return Loss Tolerance	ORLT	-	-	15.6	dB	
Receiver						
Center Wavelength	CW	1308.09	1309.14	1310.19	nm	
		1303.54	1304.58	1305.63	nm	
Damage threshold	Pdamage	-2.4	-	-	dBm	4
Average Rx Power	PRx	-14.7	-	3.4	dBm	5
Receive power _OMAouter	POMA	-	-	2.6	dBm	
Receiver sensitivity _OMAouter	SEN_OMA	-	-	-12.5	dBm	6
Reflectance	Ref	-	-	-26	dB	
Los Assert	LosA	-26	-	-	dBm	

Los De-Assert	LosDA	-	-	-15	dBm
Los Hysteresis	LosH	0.5	-	-	dB

Notes

1. The optical power is launched into SMF.
2. TDECQ<1.4 dB
3. TDECQ>1.4 dB
4. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level. The receiver does not have to operate correctly at this input power.
5. Average receive power, each lane (min) is informative and not the principal indicator of signal strength.
6. Measured with conformance test signal at TP3 using the test pattern PRBS31Q or scrambled idle for stressed receiver sensitivity for the BER= 2.4x10⁻⁴.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter (Module Input)					
Input Differential Impedance	Rin	-	100	-	Ohm
Differential Data Input Amplitude	VIN,P-P		-	900	mVpp
Differential termination mismatch (max)	D-mismatch	-	-	10	%
DC common-mode input voltage		-0.3	-	2.8	V
Transition time(20%~80%)	Tr Tf	10	-	-	ps
LPMode, Reset and ModSelL /Tx dis	VIL	-0.3	-	0.8	V
LPMode, Reset and ModSelL/Tx dis	VIH	2.0	-	VCC+0.3	V
Receiver (Module Output)					
Output Differential Impedance	Rout	-	100	-	Ohm
Differential Data Output Amplitude	VOU,P-P	-	-	900	mVpp
Differential termination mismatch (max)	D-mismatch	-	-	10	%
Transition time, 20% to 80%	Tr Tf	12	-		ps
ModPrsL and Int/Rx los	VOL	0	-	0.4	V
ModPrsL and Int/Rx los	VOH	VCC-0.5	-	VCC+0.3	V

ORDERING INFORMATION¹

Part number	Product Description
XQB599-30LY	QSFP28 BIDI Tx1305/Rx1309, 106.25 Gbps, SMF, 30 km, LC, 0~70 °C, DDM, Blue latch
XQB959-30LY	QSFP28 BIDI Tx1309/Rx1305, 106.25 Gbps, SMF, 30 km, LC, 0~70 °C, DDM, Green latch

Note

1. For accurate order specification please contact XenOpt reseller before placing an order.

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