

XQM859-M1PY

100GBASE-SR4 QSFP28 Optical Transceiver
Module, LOW POWER Version



Applications

- IEEE 802.3bm 100GBASE SR4 and 40GBASE SR4
- Infiniband FDR/EDR

Features

- Hot Pluggable QSFP+ form factor
- Four parallel full-duplex lanes
- Transmission data rate up to 25 Gbps per lane
- Supports 100 GbE, 40 Gb Ethernet, 56G FDR and 100Gb EDR Infiniband data rates
- Tx Four channels 850 nm VCSEL array
- Rx Four channels PIN photo detector array
- Internal CDR circuits on both receiver and transmitter channels with optional CDR bypass
- Low power consumption - less than 2.5 W
- 70 m reach on OM3 MMF and 100 m reach on OM4 MMF
- Single MPO connector receptacle
- Operating case temperature range 0°C to +70°C
- Single 3.3 V power supply

Description

The XenOpt XQM859-M1PY is a four-lane parallel fiber-optic QSFP+ SR4 transceiver module supporting 100 Gb and 40 Gb Ethernet and Infiniband FDR/EDR transmissions. It is a high performance module for short-range multi-lane data communication. It integrates four data lanes in each direction with 100 Gbps aggregate data rate. Each lane can operate at data rates of up to 25 Gbps with reach of 70 m over OM3 fiber or 100 m when using OM4 fiber. These modules operate over four parallel pairs of multimode fiber using 850 nm VCSEL laser technologies. Optical interface uses a 12 fiber MTP (MPO) connector. Electrical interface is using 38 pin edge connector compliant with microQSFP MSA specification.

Block Diagram

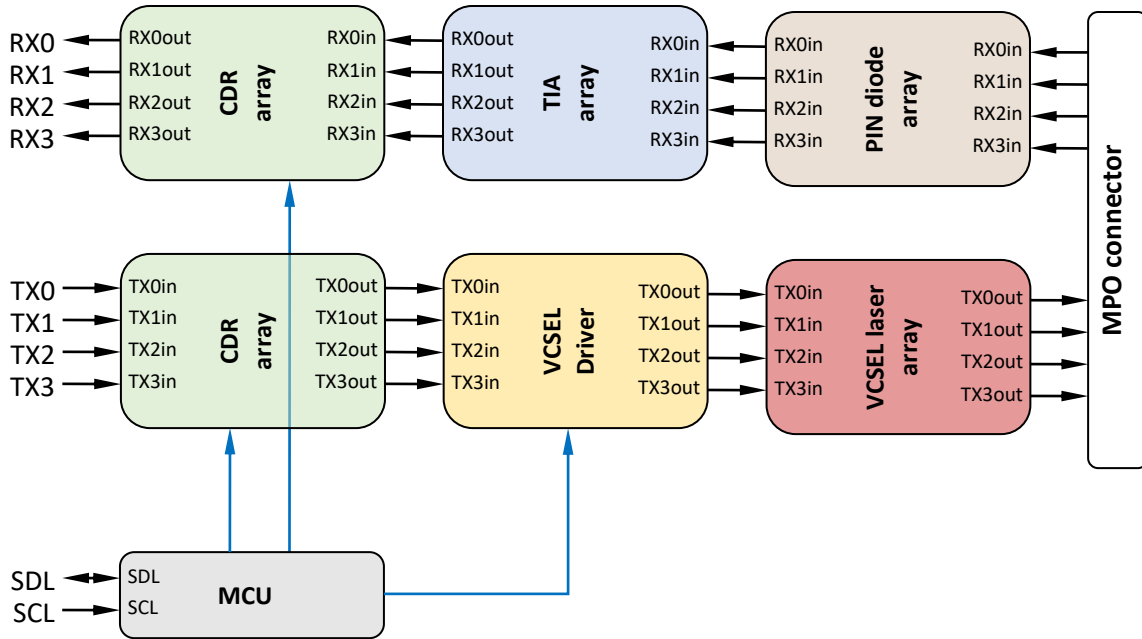


Figure 1. Module Block Diagram

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	95	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case temperature	Tca	0		70	°C
Data Rate Per Lane	fd		25.78125		Gbps
Humidity	Rh	5		85	%
Power Dissipation	Pm		2	2.5	W
Fiber Bend Radius	Rb	3			cm

Optical Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	840	850	860	nm	-
RMS spectral width	$\Delta\lambda$	-	-	0.6	nm	-
Average launch power, each lane	P _{out}	-8.4	-	2.4	dBm	-
Optical Modulation Amplitude (OMA), each lane	OMA	-6.4		3	dBm	-
Transmitter and dispersion eye closure (TDEC), each lane	TDEC			4.3	dB	
Extinction Ratio	ER	3	-	-	dB	-
Average launch power of OFF transmitter, each lane				-30	dBm	-
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3	SPECIFICATION VALUES {0.3, 0.38, 0.45, 0.35, 0.41, 0.5}					Hit Ratio = 5x10 ⁻⁵
Receiver						
Centre Wavelength	λ_c	840	850	860	nm	-
Stressed receiver sensitivity in OMA				-5.2	dBm	1
Maximum Average power at receiver, each lane input, each lane				2.4	dBm	-
Minimum Average power at receiver, each lane				-10.3	dBm	
Receiver Reflectance				-12	dB	-
LOS Assert		-30			dBm	-
LOS De-Assert – OMA				-7.5	dBm	-
LOS Hysteresis		0.5			dB	-

Note

1. Measured with conformance test signal at TP3 for BER = 10e-5

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	ΔV_{in}	300		1100	mVp-p
Differential output voltage amplitude	ΔV_{out}	500		800	mVp-p
Skew	Sw			300	ps
Bit Error Rate	BER		E-5		
Input Logic Level High	V _{IH}	2.0		VCC	V
Input Logic Level Low	V _{IL}	0		0.8	V
Output Logic Level High	V _{OH}	VCC-0.5		VCC	V
Output Logic Level Low	V _{OL}	0		0.4	V

Notes

- BER=10⁻⁵; PRBS 2³¹-1@25.78125 Gbps.
- Differential input voltage amplitude is measured between TxnP and TxnN.
- Differential output voltage amplitude is measured between RxnP and RxnN.

Ordering information

Part number	Product Description
XQM859-M1PY	QSFP28, 100GBASE-SR4, 850 nm, 70 m on OM3 Multimode Fiber (MMF) and 100 m on OM4 MMF, MPO, DDMI, 0°C ~ 70°C; Low power version

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.

These modules are available in multiple customized compatible versions. **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.

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