

## XQM853-M4PY

QSFP+ SR4 Optical Transceiver Module  
Plastic Pull Tab



### Applications

- 40G Ethernet and OTU3
- Infiniband transmission at four channel SDR, DDR and QDR
- Datacom/Telecom switch & router connections
- Data Aggregation and Backplane Applications
- Proprietary Protocol and Density Applications

### Features

- Hot Pluggable QSFP form factor
- Four parallel full-duplex lanes
- Transmission data rate up to 11.3 Gbps per lane
- Supports 40 Gb Ethernet and four channel SDR, DDR and QDR Infiniband data rates
- Tx Four channels 850 nm VCSEL array
- Rx Four channels PIN photo detector array
- Low power consumption (less than 1.5 W)
- 300 m reach on OM3 MMF and 400 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 XQM853-M4PY is a four-lane parallel fiber-optic QSFP+ transceiver module supporting 40 Gigabit Ethernet and Infiniband SDR, DDR and QDR transmissions. It is a high performance module for short-range multi-lane data communication. It integrates four data lanes in each direction with 40 Gbps aggregate data rate. Each lane can operate at data rates up to 11.3 Gbps with reach of 300 m over OM3 fiber or 400 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 uses 38 pin edge connector compliant with microQSFP MSA specification.

Block Diagram

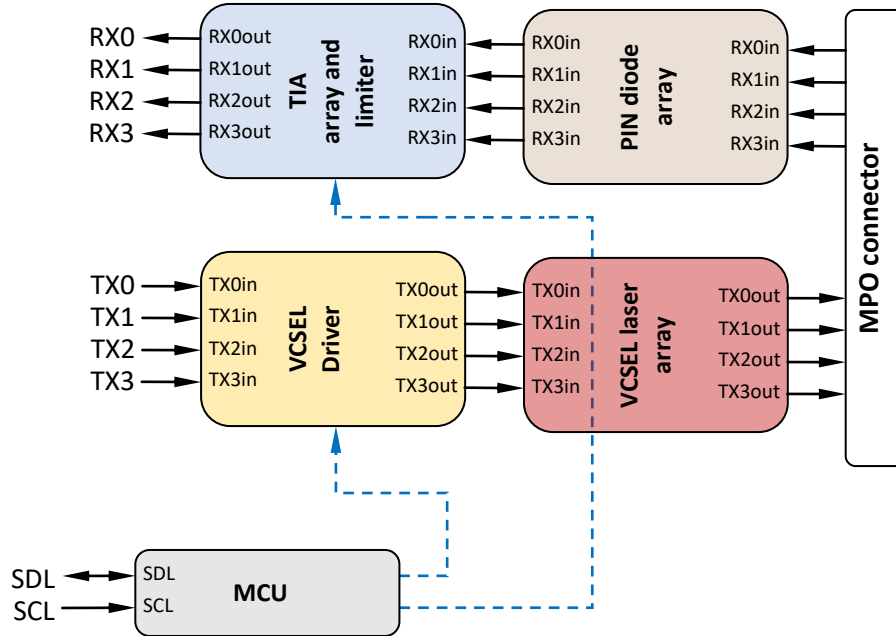


Figure 1. Module Block Diagram

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		10.3	11.3	Gbps
Humidity	Rh	5		85	%
Power Dissipation	Pm			1.5	W

## Optical Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	$\lambda_c$	840	850	860	nm	-
RMS spectral width	$\Delta\lambda$	-	-	0.65	nm	-
Average launch power, each lane	Pout	-7.6	-	2.4	dBm	-
Difference in launch power between any two lanes (OMA)				4	dBm	-
Extinction Ratio	ER	3	-	-	dB	-
Peak Power, each lane				4	dBm	
Transmitter and dispersion penalty (TDP), each lane	TDP			3.5	dB	
Average launch power of OFF transmitter, each lane				-30	dBm	-
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3	SPECIFICATION VALUES {0.23, 0.34, 0.43, 0.27, 0.35, 0.4}					Hit Ratio = 5x10 <sup>-5</sup>
<b>Receiver</b>						
Centre Wavelength	$\lambda_c$	840	850	860	nm	-
Stressed receiver sensitivity in OMA				-5.4	dBm	1
Maximum Average power at receiver, each lane input, each lane				2.4	dBm	-
Minimum Average power at receiver, each lane		-9.5			dBm	
Receiver Reflectance				-12	dB	-
Peak Power, each lane				4	dBm	
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	$\Delta V_{in}$	300		1100	mVp-p
Differential output voltage amplitude	$\Delta V_{out}$	500		800	mVp-p
Skew	Sw			300	ps
Bit Error Rate	BER			E-12	
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. BER=10<sup>-12</sup>; PRBS 2<sup>31</sup>-1@10.3125 Gbps.
2. Differential input voltage amplitude is measured between TxnP and TxnN.
3. Differential output voltage amplitude is measured between RxnP and RxnN.

## Ordering information

Part number	Product Description
XQM853-M4PY	QSFP+ SR4, 850 nm, 300 m on OM3 Multimode Fiber (MMF) and 400 m on OM4 MMF, MPO, DDMI, 0°C ~ 70°C, Plastic Pull Tab

### Notes

<sup>1</sup> 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.

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