

## Features

- Supports 103.1Gb/s aggregate bit rate
- Hot pluggable QSFP28 form factor
- Power dissipation < 2.5W
- RoHS-6 compliant
- Commercial case temperature range of 0°C to 70°C
- Single 3.3 V power Supply
- Maximum link length of 100m on OM4 Multimode Fiber(MMF)
- 4X25Gb/s 850nm VCSEL-based transmitter
- 4X25G electrical interface



- Single MPO12 receptacle
- I2C management interface
- 100BASE-SR4 100G Ethernet

## 1. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	85	°C
Supply Voltage	VCC3	-0.5	4	V
Relative Humidity(Non-condensing)	RH	15	85	%
Receiver Damage Threshold ,per Lane	Prdmg	3.4		dBm

## 2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	TC	0	25	70	°C
Operating Case Temperature	TI	-40	25	85	°C
Power Supply Voltage	VCC3	3.1	3.3	3.5	V
Data Rate PER Channel	-	-	25.78125	-	Gbps
Supply Current	ICC3			0.8	A
Module Total Power*	PD			2.5	W

\* Maximum total power value is specified across the full operational temperature and voltage range when CDRs are locked or a lack of input signal results in squelch being activated. If incorrect frequencies cause the CDRs to continuously attempt to lock, maximum power dissipation may reach 3.5 W

### 3. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
<b>Transmitter</b>						
Signaling rate per lane		25.78125 ± 100ppm			Gb/s	
Differential Data Input Swing	V <sub>in,P-P</sub>		-	900	mV	
Single-ended voltage tolerance	V <sub>in,PP</sub>	-0.35		3.3	V	
<b>Receiver</b>						
Differential Date Output Swing	V <sub>out</sub>	100	-	400	mVpp	1
		300		600		
		400	600	800		
		600		1200		
Eye width		0.57			UI	
Eye Height, differential		228			mV	
Vertical eye closure	VEC	5.5			dB	
Transition time(20% ~ 80%)	tr,tf	12			ps	

1. Output voltage is settable in 4 discrete ranges via I2C. Default range is Range 2 (400 800 mV).

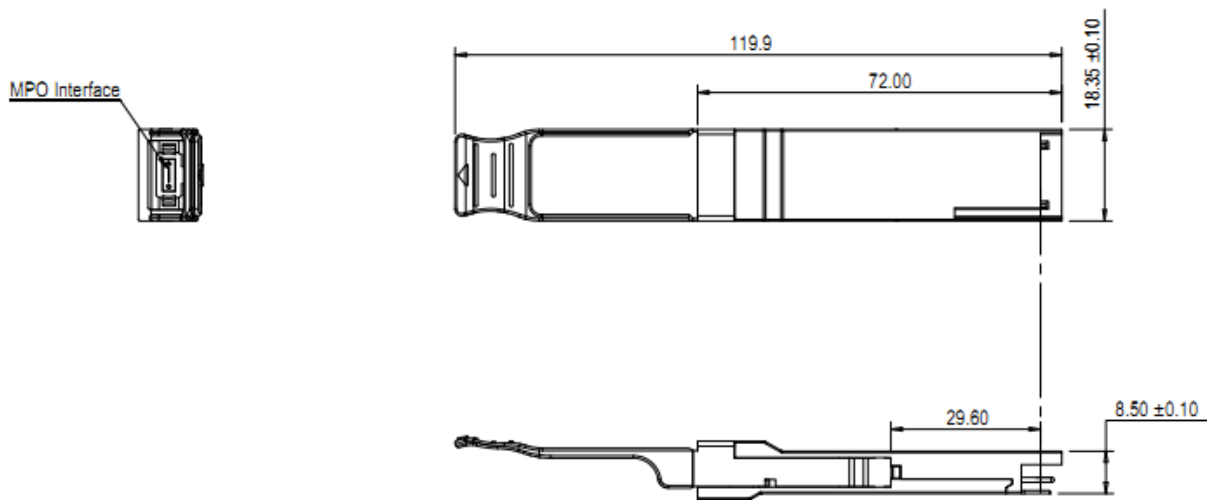
### 4. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
<b>Transmitter</b>						
Bit Rate	BR	10.3125	25.78125	-	Gbps	1
Center Wavelength Range	λ <sub>c</sub>	840	850	860	nm	
RMS Spectral Width	Δλ	-	-	0.6	nm	
Average Launch Power per Lane	TXP <sub>x</sub>	-8.4		2.4	dBm	
Average Launch power Tx_off	P <sub>off</sub>	-		-30	dBm	
Transmit OMA per Lane	TxOMA	-6.4		3	dBm	
Extinction Ratio	ER	2	-	-	dB	
Eye Mask {X1, X2, X3, Y1, Y2, Y3}		{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}				2
<b>Receiver</b>						
Signaling Speed per Lane	BR	10.3125	25.78125	-	Gbps	
Center Wavelength Range	λ <sub>c</sub>	840	-	860	nm	
Damage Thredhold	DT	3.4			dBm	

Average Receive Power per Lane	RXPX	-10.3		2.4	dBm	3
Stressed receiver sensitivity in OMA	RxSOMA			-5.2	dBm	4
Receive Power (OMA) per Lane	RxOMA			3	dBm	
LOS Assert	-	-30	-	-	dBm	
LOS De-Assert	-	-	-	-12	dBm	
LOS Hysteresis		0.5	2		dB	

1. Transmitter consists of 4 lasers operating at a maximum speed of 25.78125Gb/s  $\pm$ 100ppm each.
2. Hit Ratio 1.5 x 10 hits/sample
3. Minimum value is informative only and not the principal indicator of signal strength.
4. Hit Ratio 5 x 10 5 hits/sample.

## 5. Mechanical Diagram



**Note:** External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

## 6. Ordering Information

OEM	Part Number	OEM	Part Number
Mellanox/Nvidia	MMA1B00-E100		

## 7. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>