Features

- 4 independent full-duplex channels
- Up to 28Gb/s data rate per channel
- QSFP28MSA compliant
- Compliant to IEEE 802.3bm 100GBASE PSM4
- Up to 2km reach for G.652 SMF
- Maximum power consumption 3.5W
- Single +3.3V power supply
- Operating case temperature: 0 to 70ºC
- RoHS-6 compliant

Applications

- 100G Ethernet links
- Infiniband QDR and DDR interconnects
- Datacenter and Enterprise networking

1. Absolute Maximum Ratings

It has to be noted that the operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	TS	-40	85	ºC	
Operating Case Temperature	TOP	15	70	ºC	
Power Supply Voltage	VCC	-0.5	3.6	V	
Relative Humidity (non-condensation)	RH	0	85	%	
Damage Threshold, each Lane	THd	4.5		dBm	

2. Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min	Typical	Max	Units
Operating Case Temperature	TOP	0		70	ºC
Power Supply Voltage	VCC	3.135	3.3	3.465	V
Data Rate, each Lane			25.78125		Gb/s
Control Input Voltage High		2		Vcc	V

Control Input Voltage Low		0		0.8	V
Link Distance with G.652	D	2		500	m

3. Electrical Characteristics

The following electrical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min	Typ	Max	Units	Notes
Power Consumption				3.5	W	
Supply Current	Icc			1.1	A	
Transceiver Power-on Initialization Time				2000	ms	1
Transmitter (Each Lane)						
Single-ended Input Voltage Tolerance (Note 2)		-0.3		4.0	V	Referred to TP1 signal common
AC Common Mode Input Voltage Tolerance		15			mV	RMS
Differential Input Voltage Swing Threshold		50			mVpp	LOSA Threshold
Differential Input Voltage Swing	Vin,pp	190		700	mVpp	
Differential Input Impedance	Zin	90	100	110	Ohm	
Receiver (Each Lane)						
Single-ended Output Voltage		-0.3		4.0	V	Referred to signal common
AC Common Mode Output Voltage				7.5	mV	RMS
Differential Output Voltage Swing	Vout,pp	300		850	mVpp	
Differential Output Impedance	Zout	90	100	110	Ohm	

Notes:

1. Power-on Initialization Time is the time from when the power supply voltages reach and remain above the minimum recommended operating supply voltages to the time when the module is fully functional.

2. The single ended input voltage tolerance is the allowable range of the instantaneous input signals.

4. Optical Characteristics

All parameters are specified under the recommended operating conditions with PRBS31 data pattern unless otherwise specified.

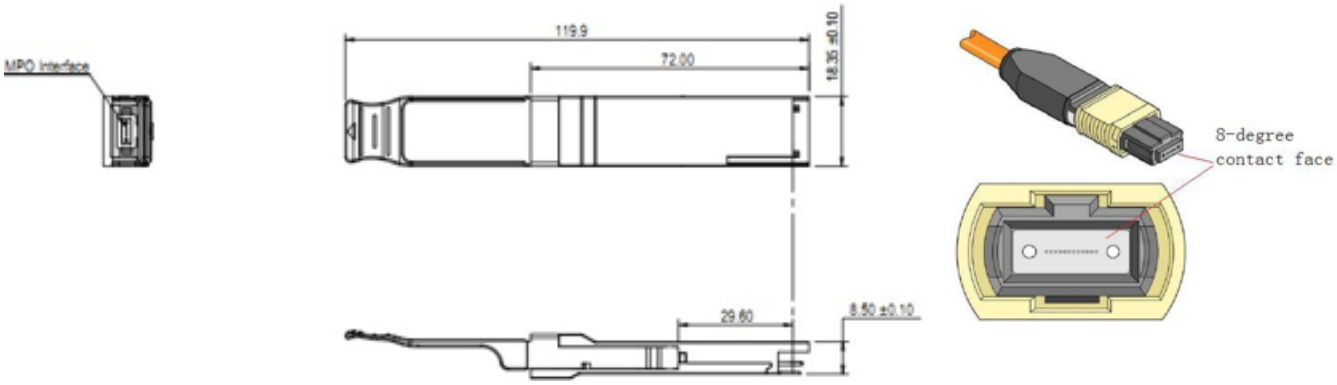
Parameter	Symbol	Min	Typ	Max	Units	Notes
Transmitter						
Center Wavelength	λC	1260	1310	1355	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Total Average Launch Power	PT			9.5	dBm	
Average Launch Power, each Lane	PAVG	1.0		3.5	dBm	
Optical Modulation Amplitude (OMA), each Lane	POMA	2.0		4.5	dBm	1
Difference in Launch Power between any Two Lanes (OMA)	Ptx,diff			5	dB	
Launch Power in OMA minus Transmitter and Dispersion Penalty (TDP), each Lane		1.0	dBm			
TDP, each Lane	TDP			3.2	dB	
Extinction Ratio	ER	3.5			dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Optical Return Loss Tolerance	TOL			12	dB	
Transmitter Reflectance	RT			-12	dB	
Average Launch Power OFF Transmitter, each Lane	Poff			-30	dBm	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}				
Receiver						
Center Wavelength	λC	1260	1310	1355	nm	
Damage Threshold, each Lane	THd	4.5			dBm	2
Average Receive Power, each Lane		-9.0		3.5	dBm	
Receiver Reflectance	RR			-12	dB	
Receive Power (OMA), each Lane				4.5	dBm	
Receiver Sensitivity (OMA), each Lane	SEN			-9.0	dBm	3
Difference in Receive Power between any Two Lanes (OMA)	Prx,diff			5.5	dB	
LOS Assert	LOSA		-18		dBm	
LOS Deassert	LOSD		-15		dBm	
LOS Hysteresis	LOSH	0.5			dB	
Receiver Electrical 3 dB upper Cutoff Frequency, each Lane	Fc			31	GHz	

Notes:

1. Even if the TDP < 1 dB, the OMA min must exceed the minimum value specified here.
2. 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.
3. Informative

5. Mechanical Diagram

To minimize MPO connection induced reflections, an MPO receptacle with 8-degree angled end-face is utilized for this product. A female MPO connector with 8-degree end-face should be used with this product as illustrated below.



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
Arista	QSFP-100G-PSM4-A	Juniper	JNP-QSFP-100G-PSM4-C1
H3C	QSFP-100G-PSM4-SM1310-A	Mellanox	MMS1C10-CM-A
HP	JH420A-A	MSA	AN-QSFP28-PSM4
Huawei	02311MNM-A	MSA Champion ONE	100GQSFP28E-PSMIR4
Intel	SPTSBP2PMCXX-A	Plexxi	PX-CBL-QSFP28-PSM4-2KM-A
Juniper	JNP-QSFP-100G-PSM4-A		

7. Contact Information

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