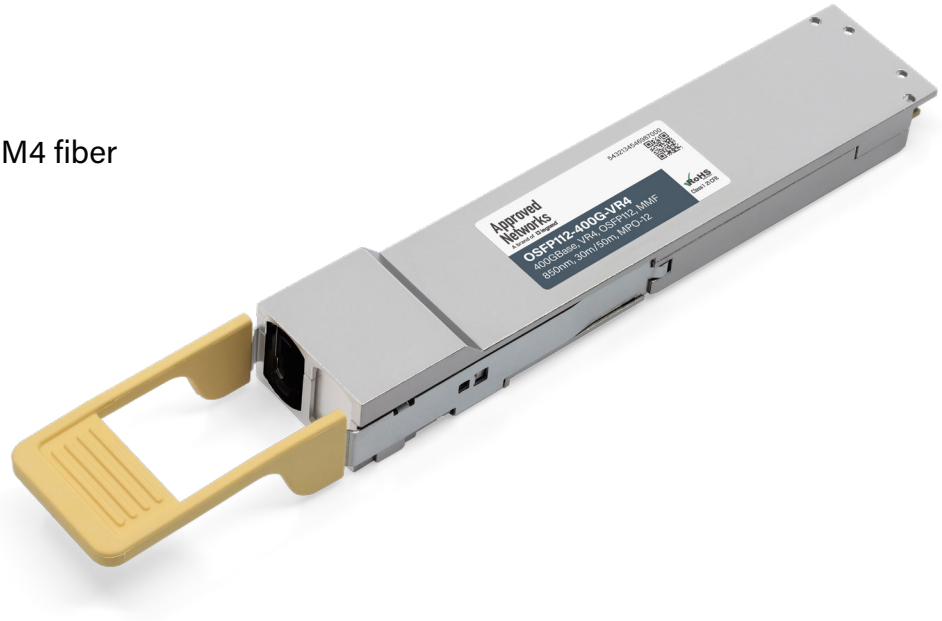
Approved Networks
A brand of legrand

OSFP112-400G-VR4

400GBase, OSFP112, Flat Top, VR4, MMF TRANSCEIVER
850nm, 30m OM3/50m OM4 REACH, MPO-12 APC CONNECTOR

Features

- Hot-pluggable OSFP with flat top
- Maximum link length of 100m on OM4 fiber with FEC
- +3.3V single power supply
- Power dissipation < 9W
- Operating case temp
  Commercial: 0°C to +70 °C
- MPO-12 APC connector
- RoHS compliant



Applications

- InfiniBand and Ethernet
- Application case 1, 1x400G VR4, 1 of 400G per port point to point connections
- Application case 2, 4x100G VR, 4 of 100G per channel breakout connections
- Artificial Intelligence, data center

1. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc3	-0.5	-	3.6	V
Storage Temperature	Ts	-40	-	85	°C
Operating Humidity [1]	RH	0	-	85	%
Control Input Voltage [1]	VI	-0.3	-	VCC+0.5	V

Note 1: No condensation

2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	TC	0	-	70	°C
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Power Dissipation	Pd	-	-	9	W

Supply Current	Icc	-	-	2870	mA
Pre-FEC Bit Error Ratio	-	-	-	$2.4x10^{-4}$	-
Post-FEC Bit Error Ratio	-	-	-	$1x10^{-12}$	-
Link Distance (OM4)	-	2	-	50	m
Link Distance (OM3)	-	2	-	30	m

Notes:
1. FEC provided by host system
2. FEC required on host system to support maximum distance

3. Electrical Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.
Transmitter					
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm		
Modulation format			PAM4		
Differential pk-pk input Voltage tolerance	Vin,pp,diff	mV	750		
Peak-to-peak AC common-mode voltage tolerance Low-frequency Full-band	 VCM_{LF} VCM_{FB}	mV	 32 80		
Differential-mode to common-mode return loss	RLcd	dB	IEEE 803.3ck Equation (120G-2)		
Module stressed input tolerance	-	-	IEEE802.3ck 120G.3.4.3		
Effective return loss	ERL	dB	8.5		
Differential termination mismatchal	-	%	-	-	10
Single-ended voltage tolerance range	-	V	-0.4	-	3.3
DC common-mode voltage tolerance Upper limit Lower limit		mV	 2850 -350		
Receiver					
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm		
Modulation format	-	-	PAM4		
Peak-to-peak AC common-mode voltage Low-frequency Full-band	 VCM_{LF} VCM_{FB}	mV	-	-	 32 80
Differential output Voltage (Long mode)	-	mV	-	-	845
Differential output Voltage (Short mode)	-	mV	-	-	600

Eye height	-	mV	15	-	-
Vertical eye closure	VEC	mV	-	-	12
Common-mode to differential-mode return loss	RLdc	dB	IEEE 803.3ck Equation (120G-1)		
Differential Termination Mismatch	-	%	-	-	10
Transition Time	-	ps	8.5	-	-
DC common mode Voltage tolerance Upper limit Lower limit	-	mV	 2850 -350		

4. Optical Characteristics

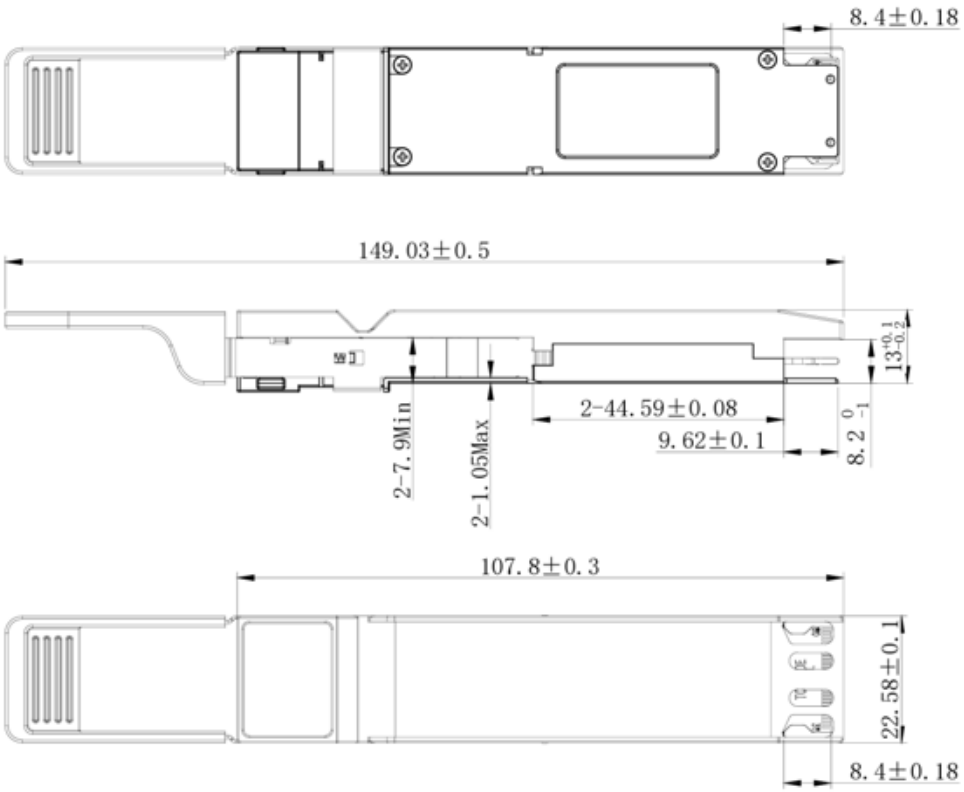
Parameter	Symbol	Unit	Min.	Typical	Max.
Transmitter					
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm		
Modulation format	-	-	PAM4		
Center wavelength	CW	nm	842	-	948
RMS Spectral Width[1]	SW	dBm	-	-	0.65
Average Launch Power per Lane	AOP	dBm	-4.6	-	4.0
Outer Optical Modulation Amplitude (OMAouter), each lane (min) For max(TECQ,TDECQ)≤1.8dB For 1.8<max(TECQ,TDECQ)≤4.4dB	TxOMA	dBm	 -2.6	-	3.5
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane	TDECQ	dB	-	-	4.4
Transmitter eye closure for PAM4, each lane	TECQ	dB	-	-	4.4
Overshoot/undershoot	-	%	-	-	29
Transimitter power excursion,each lane	-	dBm	-	-	2.3
Transition Time	Tt	ps	-	-	17
Average Launch Power of OFF Transmitte,r each lane	TOFF	dBm	-	-	-30
RIN14OMA	RIN	dB/Hz	-	-	-132
Extinction Ratio, each lane	ER	dB	2.5	-	-
Optical Return Loss Tolerance	ORL	dB	-	-	14
Encircled flux[2]	-	dBm	≥86% at 19μm ≤30% at 4.5μm		

Receiver					
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm		
Modulation format	-	-	PAM4		
Wavelength	W	nm	842	-	948
Damage Threshold, average optical power, each lane [3]	DT	dBm	5	-	-
Average Receive Power, each lane [4]	RXPx	dBm	-6.3	-	4
Receive Power (OMA) per Lane	RxOMA	dBm	-	-	3.5
Receiver Reflectance	Rfl	dB	-	-	-15
Receiver Sensitivity (OMAouter), each lane [5] For TECQ≤1.8dB For 1.8<TECQ≤4.4dB	SEN	dBm	-	-	-4.4
Stressed Receiver Sensitivity (OMAouter) each Lane [6]	SRS	dBm	-	-	-1.8
LOS Assert	LOSA	dBm	-15	-	
LOS De-assert	LOSD	dBm	-	-	-9.2
LOS Hysteresis	LOSH	dB	0.5	-	-
Stressed Eye Closure for PAM4 (SECQ), lane under Test	-	dB	-	4.4	-

Notes:

1. RMS spectral width is the standard deviation of the spectrum
2. If measured into type A1a.2 or type A1a.3, or A1a.4, 50 µm fiber, in accordance with IEC 61280-1-4
3. 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
4. Average receive power, each lane (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance
5. Receiver sensitivity (OMAouter) is informative and is defined for a transmitter with a value of TECQ up to 4.4 dB
6. Measured with conformance test signal at TP3 for the BER equal to 2.4x10-4
7. These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver

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
MSA	AN-OSFP112-400G-VR4	Nvidia	MMA4Z00-NS400-A

7. Contact Information

Tel: 800.590.9535
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