OSFP-800GB-2XVR4-VDM-SKY

MSA Compliant 800GBase-2xVR4 PAM4 OSFP-IHS Transceiver (MMF, 850nm, 50m, 2xMPO-12, DOM, CMIS 5.0, VDM)

Product Description

This MSA compliant OSFP-IHS transceiver provides 800GBase-2xVR4 throughput up to 50m over multi-mode fiber (MMF) PAM4 using a wavelength of 850nm via a 2xMPO-12 connector. It can operate at temperatures between 0 and 70C. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Additional product features include Digital Optical Monitoring (DOM) and Versatile Diagnostics Monitoring (VDM) support which allow access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- Compliant with IEEE 802.db and IEEE 802.ck
- CMIS 5
- Compliant with OSFP MSA
- Electrical Interface: 106.25Gbps (PAM4) x 8
- 8 Duplex Channels Transmitters and Receivers
- Optical Interface: 106.25Gbps (PAM4) x 8
- Single 3.3V Power Supply
- Maximum Link Length of 50m on OM4 MMF
- 2xMPO-12 APC Connector
- Maximum Power Consumption: 16W
- Operating Temperature: 15 to 70 Celsius
- RoHS Compliant and Lead-Free



Applications:

- 800GBase Ethernet
- Advance Monitoring Capable Transceiver

For your product safety, please read the following information carefully before any manipulation of the transceiver:

ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.

LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	Vcc	-0.5	3.6	V
Storage Temperature	Tstg	-40	85	°C
Relative Humidity	RH	5	85	%
Damage Threshold Per Lane		5		dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Electrical Signal Rate Per Lane		53.125 ± 100ppm			GBd
Optical Signal Rate Per Lane		53.125 ± 100ppm			GBd
Supply Voltage	Vcc	3.135	3.3	3.465	V
Operating Case Temperature	Tc	15		70	°C
Power Consumption	PC			16	W
Link Distance with OM4	DI	0.5		50	m

Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
Signaling Speed Per Lane			53.125 ± 100ppm			GBd	
Modulation Format			PAM4				
Lane Wavelength (Range)		λ	840		948	nm	
RMS Spectral Width					0.65	nm	1
Average Launch Power Per Lane		P	-4.6		4	dBm	2
OMAouter Per Lane	**For Max. (TECQ,TDECQ) ≤ 1.8dB**	POMA	-2.6		3.5	dBm	2, 3
	For 1.8dB < Max. (TECQ,TDECQ) ≤ 4.4dB		-4.4+ Max. (TECQ,TDECQ)				
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ) Per Lane					4.4	dB	
Transmitter Eye Closure for PAM4 (TECQ) Per Lane					4.4	dB	
Extinction Ratio Per Lane		ER	2.5			dB	
Average Launch Power of Off Transmitter Per Lane		Poff			-30	dBm	
$RIN_{21}OMA$ Per Lane		RIN			-132	dB/Hz	
Optical Return Loss Tolerance					14	dB	
Encircled Flux			≥86% at 19μm ≤30% at 4.5μm				4
Receiver							

Signaling Speed Per Lane		53.125 ± 100ppm			GBd	
Modulation Format		PAM4				
Lane Wavelength (Range)	λ	840		948	nm	
Damage Threshold Per Lane		5			dBm	5
Average Receive Power Per Lane		-6.3		4	dBm	6
Receive Power (OMAouter) Per Lane	R_{OMA}			3.5	dBm	
Receiver Reflectance				-15	dB	
Receiver Sensitivity (OMAouter) Per Lane	SEN	Max. (-4.4, TECQ-6.2)			dBm	7
LOS Assert		-15			dBm	
LOS De-Assert				-6.6	dBm	
LOS Hysteresis		0.5			dB	
Conditions of Stressed Receiver Sensitivity Test (Note 8)						
Stressed Eye Closure for PAM4 (SECQ) Per Lane Under Test		4.4			dB	
OMAouter of Each Aggressor Lane		3.5			dBm	

Notes:

1. RMS spectral width is the standard deviation of the spectrum.
2. Based on stressed receiver sensitivity of -2dBm and may increase by up to 0.4dB based on the choice of stressed receiver sensitivity.
3. Even if the TDECQ<1.4dB, the OMA (minimum) must exceed this value.
4. If measured into type A1a.2 or type A1a.3, or A1a.4, 50µm fiber, in accordance with IEC 61280-1-4.
5. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level on one lane. The receiver does not have to operate correctly at this input power.
6. Average receive power, per lane (minimum), 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.
7. Receiver sensitivity is informative and is defined for a transmitter with a value of TECQ up to 4.4dB.
8. These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

Digital Diagnostic Monitor Accuracy

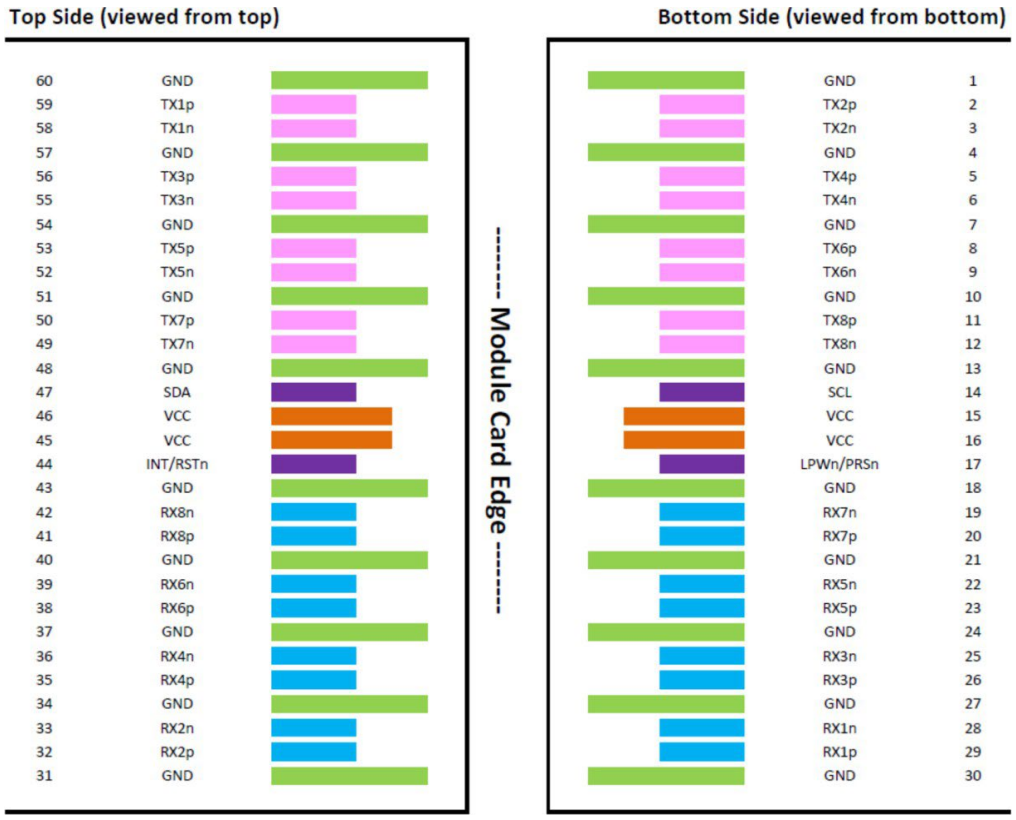
Parameter	Accuracy	Unit
Measured Transceiver Temperature	±3	°C
Measured Transceiver Supply Voltage	±3	%
Measured Tx Bias Current	±10	%
Measured Tx Output Power	±3	dB
Measured Rx Received Average Optical Power	±3	dB

Pin Descriptions

Pin	Symbol	Logic	Name/Description
1	GND		Ground.
2	TX2p	CML-I	Transmitter Data Non-Inverted.
3	TX2n	CML-I	Transmitter Data Inverted.
4	GND		Ground.
5	TX4p	CML-I	Transmitter Data Non-Inverted.
6	TX4n	CML-I	Transmitter Data Inverted.
7	GND		Ground.
8	TX6p	CML-I	Transmitter Data Non-Inverted.
9	TX6n	CML-I	Transmitter Data Inverted.
10	GND		Ground.
11	TX8p	CML-I	Transmitter Data Non-Inverted.
12	TX8n	CML-I	Transmitter Data Inverted.
13	GND		Ground.
14	SCL	LVCMOS-I/O	2-Wire Serial Interface Clock.
15	VCC		+3.3V Power.
16	VCC		+3.3V Power.
17	LPWn/PRSn	Multi-Level	Low-Power Mode/Module Present.
18	GND		Ground.
19	RX7n	CML-O	Receiver Data Inverted.
20	RX7p	CML-O	Receiver Data Non-Inverted.
21	GND		Ground.
22	RX5n	CML-O	Receiver Data Inverted.
23	RX5p	CML-O	Receiver Data Non-Inverted.
24	GND		Ground.
25	RX3n	CML-O	Receiver Data Inverted.
26	RX3p	CML-O	Receiver Data Non-Inverted.
27	GND		Ground.
28	RX1n	CML-O	Receiver Data Inverted.
29	RX1p	CML-O	Receiver Data Non-Inverted.
30	GND		Ground.
31	GND		Ground.
32	RX2p	CML-O	Receiver Data Non-Inverted.
33	RX2n	CML-O	Receiver Data Inverted.
34	GND		Ground.
35	RX4p	CML-O	Receiver Data Non-Inverted.

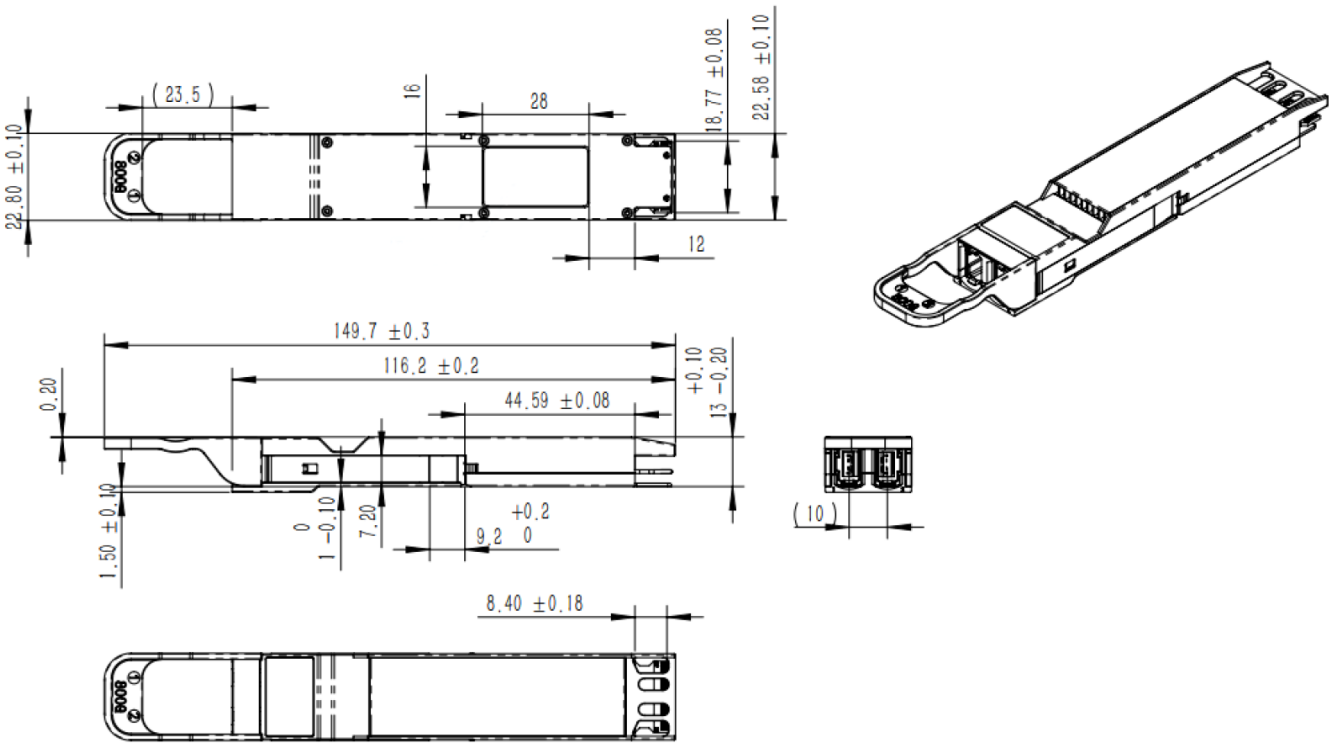
36	RX4n	CML-O	Receiver Data Inverted.
37	GND		Ground.
38	RX6p	CML-O	Receiver Data Non-Inverted.
39	RX6n	CML-O	Receiver Data Inverted.
40	GND		Ground.
41	RX8p	CML-O	Receiver Data Non-Inverted.
42	RX8n	CML-O	Receiver Data Inverted.
43	GND		Ground.
44	INT/RSTn	Multi-Level	Module Interrupt/Module Reset.
45	VCC		+3.3V Power.
46	VCC		+3.3V Power.
47	SDA	LVCMOS-I/O	2-Wire Serial Interface Data.
48	GND		Ground.
49	TX7n	CML-I	Transmitter Data Inverted.
50	TX7p	CML-I	Transmitter Data Non-Inverted.
51	GND		Ground.
52	TX5n	CML-I	Transmitter Data Inverted.
53	TX5p	CML-I	Transmitter Data Non-Inverted.
54	GND		Ground.
55	TX3n	CML-I	Transmitter Data Inverted.
56	TX3p	CML-I	Transmitter Data Non-Inverted.
57	GND		Ground.
58	TX1n	CML-I	Transmitter Data Inverted.
59	TX1p	CML-I	Transmitter Data Non-Inverted.
60	GND		Ground.

Pin-Out of Connector Block on the Host Board



Name	Direction	Description
TX[8:1]p	Input	Transmit differential pairs from host to module.
TX[8:1]n	Input	
RX[8:1]p	Output	Receive differential pairs from module to host.
RX[8:1]n	Output	
SCL	Bi-Directional	2-wire serial clock signal. Requires pull-up resistor to 3.3V on host.
SDA	Bi-Directional	2-wire serial data signal. Requires pull-up resistor to 3.3V on host.
LPWn/PRSn	Bi-Directional	Multi-level signal for low power control from host to module and module presence indication from module to host. This signal requires the circuit as described in the OSFP Specification.
INT/RSTn	Bi-Directional	Multi-level signal for interrupt request from module to host and reset control from host to module. This signal requires the circuit as described in OSFP Specification.
VCC	Power	3.3V power for module.
GND	Ground	Module Ground. Logic and power return path.

Mechanical Specifications



Notes:

1. Reference to OSFP Type 2 flat-top.

About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.