



OSFPRHS-800GB-2XDR4-MX-OPC

Mellanox® Compatible TAA 800GBase-2xDR4 PAM4 OSFP112 RHS Transceiver (SMF, 1310nm, 500m, 2xMPO, DOM, CMIS 5.0)

Features

- OSFP MSA Compliant
- Supports Both Ethernet and InfiniBand NDR
- Compliant with IEEE 802.3cu-2021: 8x100GBASE-DR Optical Interface
- Compliant with IEEE 802.3ck-2022: 8x100GAUI-1 C2M Electrical Interface
- Supports 850Gbps
- EML Transmitter and PIN PD Receiver
- Compliant with CMIS 5.0
- Operating Temperature: 0 to 70 Celsius
- Dual MPO-12 Connector APC
- Class 1 Laser
- RoHS Compliant and Lead-Free



Applications:

- 800GBase Ethernet

Product Description

This Mellanox® compatible OSFP112 RHS transceiver provides 800GBase-2xDR4 throughput up to 500m over single-mode fiber (SMF) PAM4 using a wavelength of 1310nm via a 2xMPO connector. It can operate at temperatures between 0 and 70C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Power Supply Voltage	Vcc	-0.5		3.6	V	
Relative Humidity (Non-Condensing)	RH	5		95	%	
Data Input Voltage Differential	V _{DIP-V_{DIN}}			1	V	
Control Input Voltage	V _I	-0.3		Vcc+0.5	V	
Control Output Current	I _O	-20		20	mA	
Signaling Speed Per Lane	DRL		53.125		GBd	
Operating Distance		2		500	m	
Data Rate	DR		850		Gbps	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Instantaneous Peak Current at Hot Plug	I _{CC_IP}			6600	mA	
Sustained Peak Current at Hot Plug	I _{CC_SP}			5494.5	mA	
Maximum Power Dissipation	PD			16.5	W	
Maximum Power Dissipation (Low-Power Mode)	PD _{LP}			2	W	
Control Input Voltage - High	V _{IH}	Vcc*0.7		Vcc+0.3	V	
Control Input Voltage - Low	V _{IL}	-0.3		Vcc*0.3	V	
2-Wire Serial Interface Clock Rate				400	kHz	
Power Supply Noise (1kHz to 1MHz, Pk-Pk)				66	mVp-p	
Transmitter (TP1)						
Differential Pk-Pk Input Voltage Tolerance		750			mV	
Pk-Pk AC Common-Mode Voltage Tolerance	Low-Frequency (VCM _{LF})			32	mV	
	Full-Band (VCM _{FB})			80	mV	
Differential-Mode to Common-Mode Return Loss		802.3ck 120G-2			dB	
Effective Return Loss	ERL	8.5			dB	
Differential Termination Mismatch				10	%	
Single-Ended Voltage Tolerance Range		-0.4		3.3	V	
DC Common-Mode Voltage Tolerance		-0.35		2.85	V	
Receiver (TP4)						
Pk-Pk AC Common-Mode Voltage	Low-Frequency (VCM _{LF})			32	mV	
	Full-Band (VCM _{FB})			80	mV	
Differential Pk-Pk	Short-Mode			600	mV	

Output Voltage	Long-Mode				845	mV	
Eye Height		EH	15			mV	
Vertical Eye Closure		VEC			12	dB	
Common-Mode to Differential-Mode Return Loss		RLDc	802.3ck 120G-1			dB	
Effective Return Loss		ERL	8.5			dB	
Differential Termination Mismatch					10	%	
Transition Time			8.5			ps	
DC Common-Mode Voltage Tolerance			-0.35		2.85	V	

Notes:

1. Compliant with IEEE802.3ck C2M.

Electrical Low-Speed Control and Sense Signal Specifications

Parameter	Symbol	Min.	Max.	Unit	Notes
Module Output SCL and SDA	VOL	0	0.4	V	
Module Input SCL and SDA	VIL	-0.3	Vcc*0.3	V	
	VIH	Vcc*0.7	Vcc+0.5	V	
InitMode, ResetL, and ModSelL	VIL	-0.3	0.8	V	
	VIH	2	Vcc+0.3	V	
IntL	VOL	0	0.4	V	
	VOH	Vcc-0.5	Vcc+0.3	V	

Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
Wavelength		λ_C	1304.5	1311	1317.5	nm	
Side-Mode Suppression Ratio		SMSR	30			dB	
Average Launch Power Per Lane		AOP _L	-2.9		4.0	dBm	1
Outer Optical Modulation Amplitude (OMA _{outer}) Per Lane		TOMA	-0.8		4.2	dBm	
Launch Power in OMA _{outer} Minus TDECQ Per Lane	For ER ≥ 5dB	TOMA - TDECQ	-2.2			dBm	
	For ER < 5dB	TOMA - TDECQ	-1.9			dBm	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ) Per Lane		TDECQ			3.4	dB	
TDECQ – 10log10(Ceq) Per Lane		Ceq			3.4	dB	
Average Launch Power of Off Transmitter Per Lane		Toff			-15	dBm	
Extinction Ratio		ER	3.5			dB	
Transmitter Transition Time		Tr			17	ps	
RIN _{15.5OMA}		RIN			-136	dB/Hz	
Optical Return Loss Tolerance		ORLT			15.5	dB	
Transmitter Reflectance		TR			-26	dB	2
Receiver (TP4)							
Wavelength		λ_C	1304.5	1311	1317.5	nm	
Damage Threshold Per Lane		AOP _D	5			dBm	
Average Receive Power Per Lane		AOP _R	-5.9		4	dBm	
Receive Power (OMA _{outer}) Per Lane		OMA _R			4.2	dBm	
Receiver Reflectance		RR			-26	dB	
Receiver Sensitivity (OMA _{outer}) Per Lane		SOMA			Max. (–3.9, SECQ – 5.3)	dBm	3
Stressed Receiver Sensitivity (OMA _{outer}) Per Lane		SRS			-1.9	dBm	4
Conditions of Stressed Receiver Sensitivity Test							
Stressed Eye Closure for PAM4 (SECQ) Per Lane Under Test		SECQ		3.4		dB	
SECQ – 10log10 (Ceq) Per Lane Under Test		Ceq			3.4	dB	

Notes:

1. Average launch power, per lane (minimum), is informative and not the principal indicator of signal strength.
2. Transmitter reflectance is defined looking into the transmitter.
3. Receiver sensitivity (OMA_{outer}), per lane (maximum), is informative and is defined for a transmitter with a value of SECQ up to 3.4dB.
4. Measured with conformance test signal at TP3 for the BER = 2.4×10^{-4} .

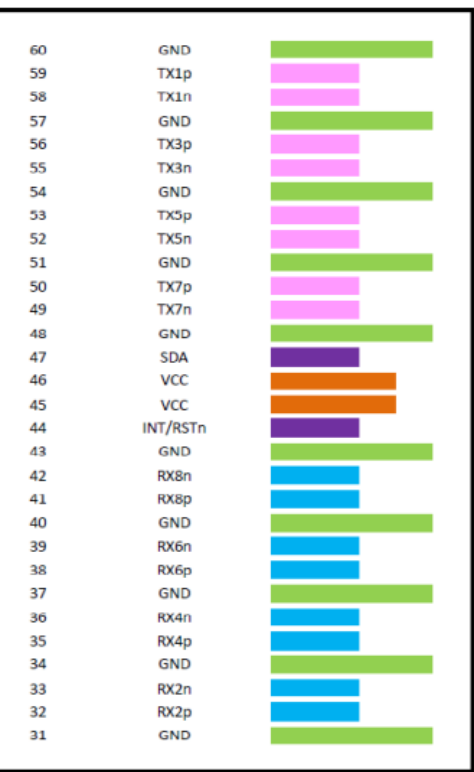
Pin Descriptions

Pin	Logic	Symbol	Name/Description	Notes
1		GND	Module Ground.	
2	CML-I	Tx2+	Transmitter Non-Inverted Data.	
3	CML-I	Tx2-	Transmitter Inverted Data.	
4		GND	Module Ground.	
5	CML-I	Tx4+	Transmitter Non-Inverted Data.	
6	CML-I	Tx4-	Transmitter Inverted Data.	
7		GND	Module Ground.	
8	CML-I	Tx6+	Transmitter Non-Inverted Data.	
9	CML-I	Tx6-	Transmitter Inverted Data.	
10		GND	Module Ground.	
11	CML-I	Tx8+	Transmitter Non-Inverted Data.	
12	CML-I	Tx8-	Transmitter Inverted Data.	
13		GND	Module Ground.	
14	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock.	
15		Vcc	+3.3V Power Supply.	
16		Vcc	+3.3V Power Supply.	
17	Multi-Level	LPWn/PRSn	Low-Power Mode/Module Present.	
18		GND	Module Ground.	
19	CML-O	Rx7-	Receiver Inverted Data.	
20	CML-O	Rx7+	Receiver Non-Inverted Data.	
21		GND	Module Ground.	
22	CML-O	Rx5-	Receiver Inverted Data.	
23	CML-O	Rx5+	Receiver Non-Inverted Data.	
24		GND	Module Ground.	
25	CML-O	Rx3-	Receiver Inverted Data.	
26	CML-O	Rx3+	Receiver Non-Inverted Data.	
27		GND	Module Ground.	
28	CML-O	Rx1-	Receiver Inverted Data.	
29	CML-O	Rx1+	Receiver Non-Inverted Data.	
30		GND	Module Ground.	
31		GND	Module Ground.	
32	CML-O	Rx2+	Receiver Non-Inverted Data.	
33	CML-O	Rx2-	Receiver Inverted Data.	
34		GND	Module Ground.	
35	CML-O	Rx4+	Receiver Non-Inverted Data.	
36	CML-O	Rx4-	Receiver Inverted Data.	

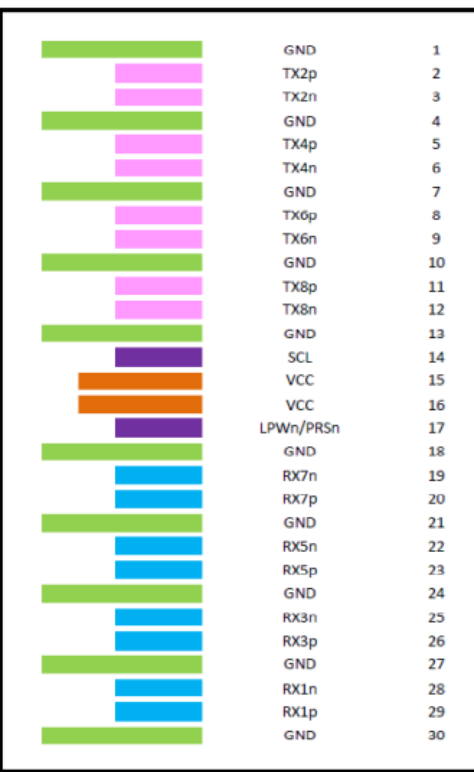
37		GND	Module Ground.	
38	CML-O	Rx6+	Receiver Non-Inverted Data.	
39	CML-O	Rx6-	Receiver Inverted Data.	
40		GND	Module Ground.	
41	CML-O	Rx8+	Receiver Non-Inverted Data.	
42	CML-O	Rx8-	Receiver Inverted Data.	
43		GND	Module Ground.	
44	Multi-Level	INT/RSTn	Module Input/Module Reset.	
45		Vcc	+3.3V Power Supply.	
46		Vcc	+3.3V Power Supply.	
47	LVC MOS-I/O	SDA	2-Wire Serial Interface Data.	
48		GND	Module Ground.	
49	CML-I	Tx7-	Transmitter Inverted Data.	
50	CML-I	Tx7+	Transmitter Non-Inverted Data.	
51		GND	Module Ground.	
52	CML-I	Tx5-	Transmitter Inverted Data.	
53	CML-I	Tx5+	Transmitter Non-Inverted Data.	
54		GND	Module Ground.	
55	CML-I	Tx3-	Transmitter Inverted Data.	
56	CML-I	Tx3+	Transmitter Non-Inverted Data.	
57		GND	Module Ground.	
58	CML-I	Tx1-	Transmitter Inverted Data.	
59	CML-I	Tx1+	Transmitter Non-Inverted Data.	
60		GND	Module Ground.	

Electrical Pad Layout

Top Side (viewed from top)

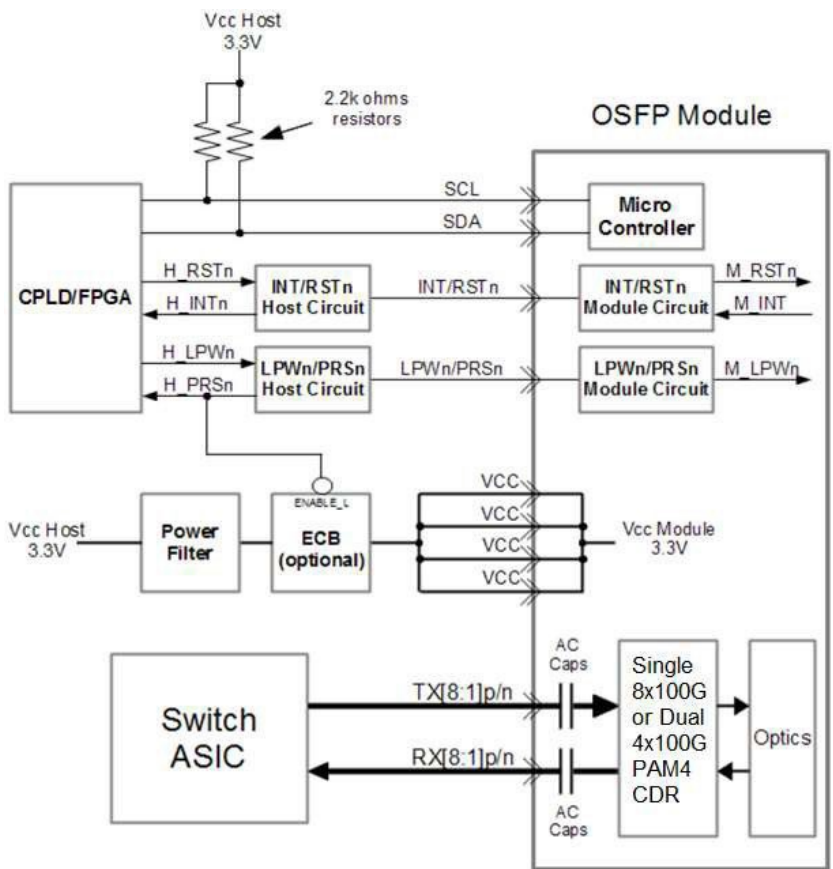


Bottom Side (viewed from bottom)

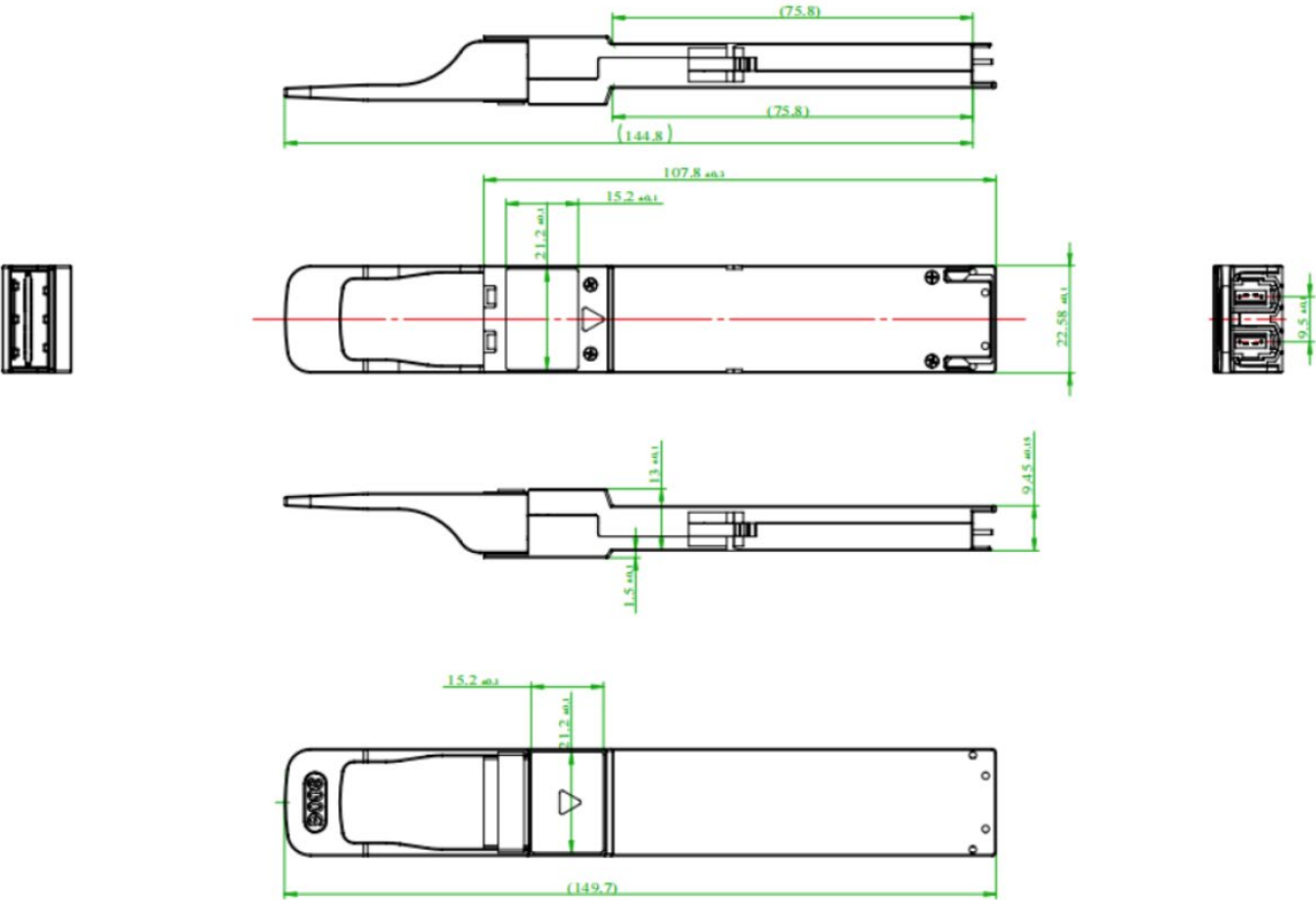


----- Module Card Edge -----

Recommended OSFP Host Board Schematic



Mechanical Specifications



OptioConnect

Innovation for the Future of High-Speed Networking

Who We Are

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

Let's Connect

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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