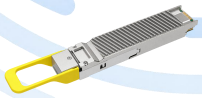
WESTERN OPTRONICS



CP-OSFP-800G-DR8
800G OSFP DR8 Silicon Photonics Optical Transceiver

The Western Optronics' CP-OSFP-800G-DR8 is an 800Gb/s Octal Small Form-factor Pluggable (OSFP) optical module designed for 500m optical communication applications. The silicon photonics transceiver is based on a new state-of-the-art silicon photonics (SiPh) platform. It uses SiPh chip that integrate a number of active and passive optoelectronic components, 3D packaging technology and 5nm DSP chip. On the transmitter side, the module converts 8 channels of 100Gb/s (PAM4) electrical input data to 8 channels of parallel optical signals, each capable of 100Gb/s operation for an aggregate data rate of 800Gb/s. On the receiver side, the module converts 8 channels of parallel optical signals of 100Gb/s each channel for an aggregate data rate of 800Gb/s into 8 channels of 100Gb/s (PAM4) electrical output data.

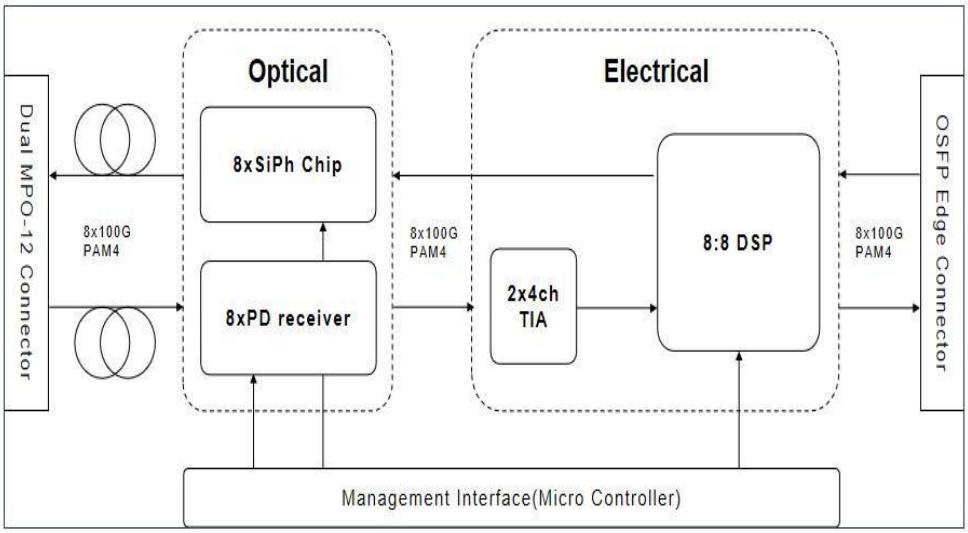
Product Selection

Part Number	Operating case temperature	DDMI	Package
CP-OSFP-800G-DR8	Commercial (0~70℃)	Yes	OSFP Open Top

Regulatory Compliance

- ESD compatible with MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM)
- Laser Eye Safety compatible with FDA 21CFR 1040.10 and EN (IEC) 60825-1
- RoHS compliance

Transceiver Block Diagram



FEATURES

Compliant with OSFP MSA

Compliant with IEEE 802.3ck, IEEE 802.3df, OSFP MSA

CMIS 5.0 compliance

8 channels of 53.125GBd PAM4 electrical and optical parallel lanes

Dual MPO-12/APC

500m max reach via single mode fiber

Transmitter with SiPh chip

Max power consumption 15W

Case temperature range of 0℃ to 70℃

I2C interface is supported

Built-in digital diagnostics monitoring (DDM)

APPLICATION

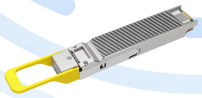
2X400GBASE-DR4

800GBASE-DR8

InfiniBand

AI Data Center

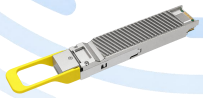
Fiber Optical , Telcom R & D Lab Test



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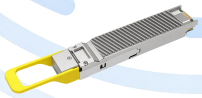
Pin Descriptions

Pin	Symbol	Description	Logic	Plug Sequence
1	GND		Ground	1
2	TX2p	Transmitter Data Non-Inverted	CML-I	3
3	TX2n	Transmitter Data Inverted	CML-I	3
4	GND		Ground	1
5	TX4p	Transmitter Data Non-Inverted	CML-I	3
6	TX4n	Transmitter Data Inverted	CML-I	3
7	GND		Ground	1
8	TX6p	Transmitter Data Non-Inverted	CML-I	3
9	TX6n	Transmitter Data Inverted	CML-I	3
10	GND		Ground	1
11	TX8p	Transmitter Data Non-Inverted	CML-I	3
12	TX8n	Transmitter Data Inverted	CML-I	3
13	GND		Ground	1
14	SCL	2-wire Serial interface clock	LVCMOS-I/O	3
15	VCC	+3.3V Power		2
16	VCC	+3.3V Power		2
17	LPWn/PRSn	Low-Power Mode / Module Present	Multi-Level	3
18	GND		Ground	1
19	RX7n	Receiver Data Inverted	CML-O	3
20	RX7p	Receiver Data Non-Inverted	CML-O	3
21	GND		Ground	1
22	RX5n	Receiver Data Inverted	CML-O	3
23	RX5p	Receiver Data Non-Inverted	CML-O	3
24	GND		Ground	1
25	RX3n	Receiver Data Inverted	CML-O	3

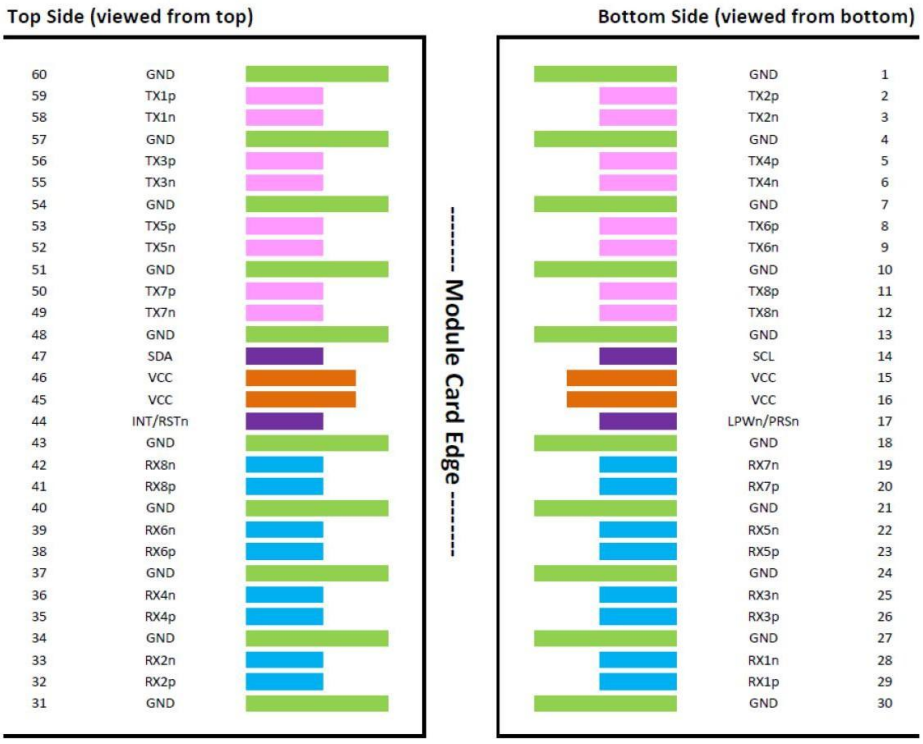


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26	RX3p	Receiver Data Non-Inverted	CML-O	3
27	GND		Ground	1
28	RX1n	Receiver Data Inverted	CML-O	3
29	RX1p	Receiver Data Non-Inverted	CML-O	3
30	GND		Ground	1
31	GND		Ground	1
32	RX2p	Receiver Data Non-Inverted	CML-O	3
33	RX2n	Receiver Data Inverted	CML-O	3
34	GND		Ground	1
35	RX4p	Receiver Data Non-Inverted	CML-O	3
36	RX4n	Receiver Data Inverted	CML-O	3
37	GND		Ground	1
38	RX6p	Receiver Data Non-Inverted	CML-O	3
39	RX6n	Receiver Data Inverted	CML-O	3
40	GND		Ground	1
41	RX8p	Receiver Data Non-Inverted	CML-O	3
42	RX8n	Receiver Data Inverted	CML-O	3
43	GND		Ground	1
44	INT/RSTn	Module Interrupt / Module Reset	Multi-Level	3
45	VCC	+3.3V Power		2
46	VCC	+3.3V Power		2
47	SDA	2-wire Serial interface data	LVCMOS-I/O	3
48	GND		Ground	1
49	TX7n	Transmitter Data Inverted	CML-I	3
50	TX7p	Transmitter Data Non-Inverted	CML-I	3
51	GND		Ground	1
52	TX5n	Transmitter Data Inverted	CML-I	3
53	TX5p	Transmitter Data Non-Inverted	CML-I	3
54	GND		Ground	1
55	TX3n	Transmitter Data Inverted	CML-I	3
56	TX3p	Transmitter Data Non-Inverted	CML-I	3
57	GND		Ground	1
58	TX1n	Transmitter Data Inverted	CML-I	3
59	TX1p	Transmitter Data Non-Inverted	CML-I	3
60	GND		Ground	1



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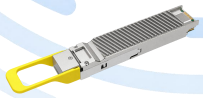


OSFP Control Pins

Parameter	Function	Description
SCL	BiDir	2-wire serial clock signal. Requires pull-up resistor to 3.3V on host
SDA	BiDir	2-wire serial data signal. Requires pull-up resistor to 3.3V on host. Dual Function Signal
LPWn/PRSn	Input/output	·Low Power mode is an active-low input signal
		·Module Present is controlled by a pull-down resistor on the module which gets converted to an active-low output logic signal

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Maximum Supply Voltage	Vc	-0.5		3.6	V	
Operating Humidity	RH	0		85	%	



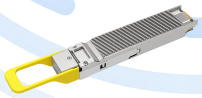
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Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Case Operating Temperature	Tc	0		70	°C	
Power dissipation	P			15	W	
Data Rate, each lane	DR		53.125		GBd	PAM4
Link Distance	Lmax			500	m	

Electrical Characteristics

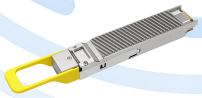
Parameter	Test Point	Min	Typ	Max	Unit	Notes
Module input (each Lane)						
Signaling Rate, each lane	TP1		53.125±100ppm		GBd	
DC common-mode voltage tolerance	TP1	-350		2850	mV	
Single-ended voltage tolerance range	TP1a	-0.4		3.3	V	
AC Common-Mode Voltage Tolerance						
Low-Frequency, VCMLF	TP1a	32			mV	
Full-Band, VCMLF		80				
Module stressed input tolerance	TP1a		IEEE 802.3ck D3.3 120G.3.4.3			
Differential Voltage pk-pk Tolerance	TP1a	750			mV	
Differential-mode to common-mode return						
loss, RLcd	TP1	IEEE 802.3ck D3.3 Equation 120G		-2	dB	
Effective return loss, ERL	TP1	8.5			dB	
Differential termination mismatch	TP1			10	%	
Module output (each Lane)						
Signaling Rate, each lane	TP4		53.125±100ppm		GBd	
Peak-to-peak AC common- mode voltage						
Low-frequency, VCMLF	TP4			32	mV	
Full-band, VCMFB				80		
Differential peak-to-peak output voltage						
Short mode	TP4			600	mV	
Long mode				845		
Eye Height	TP4	15			mV	
Vertical Eye Closure, VEC	TP4			12	dB	
Common-Mode to Differential Return Loss, Rldc	TP4	IEEE 802.3ck Equation 120G-1			dB	
Differential termination mismatch	TP4			10	%	
Transition time (20% to 80%) TP4 8.5 ps	TP4			8.5	ps	
DC common-mode output voltage	TP4	-350		2850	mV	



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Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Data Rate, each Lane			53.125±50 ppm		GBd	
Modulation Format			PAM4			
Optical Wavelength		1304.5		1317.5	nm	
Side-mode Suppression Ratio	SMSR	30			dB	
Average Launch Power, each Lane	PAVG	-2.9		4	dBm	1
Outer Optical Modulation Amplitude (OMAouter),each Lane						
TDECQ≤1.4dB	POMA	-0.8		4.2	dBm	
1.4dB≤TDECQ≤3.4dB		-2.2+TDECQ				
Transmitter and Dispersion Eye Closure for PAM4,each Lane	TDECQ			3.4	dB	
Transmitter Eye Closure for PAM4	TECQ			3.4	dB	
Extinction Ratio	ER	3.5			dB	
RIN21.4OMA	RIN			-136	dB/Hz	
Optical Return Loss Tolerance	ORLT			21.4	dB	
Transmitter Reflectance	TR			-26	dB	2
Transmitter Transition Time				17	ps	
Average Launch Power of OFF Transmitter, each Lane	Poff			-15	dBm	
Receiver						
Data Rate, each Lane		53.125±50 ppm			GBd	
Modulation Format		PAM4				
Optical Wavelength		1304.5		1317.5	nm	
Damage Threshold, each Lane		5			dBm	3
Average Receive Power, each Lane		-5.9		4	dBm	4
Receive Power (OMAouter), each Lane				4.2	dBm	
Receiver Sensitivity (OMAouter), each Lane TECQ≤1.4dB	SEN			-3.9	dBm	
1.4dB≤TECQ≤3.4dB				-5.3+TECQ		
Stressed Receiver Sensitivity(OMAouter),each Lane	SRS			-1.9	dBm	5
Receiver Reflectance				-26	dB	
LOS Assert	LOSA	-15		-9.9	dBm	
LOS De-assert	LOSD			-6.9	dBm	
LOS Hysteresis	LOSH	0.5			dB	
Stressed Conditions for Stress Receiver Sensitivity						6
Stressed Eye Closure for PAM4 (SECQ), Lane under Test		3.4			dB	
OMAouter of each Aggressor lane		4.2			dBm	

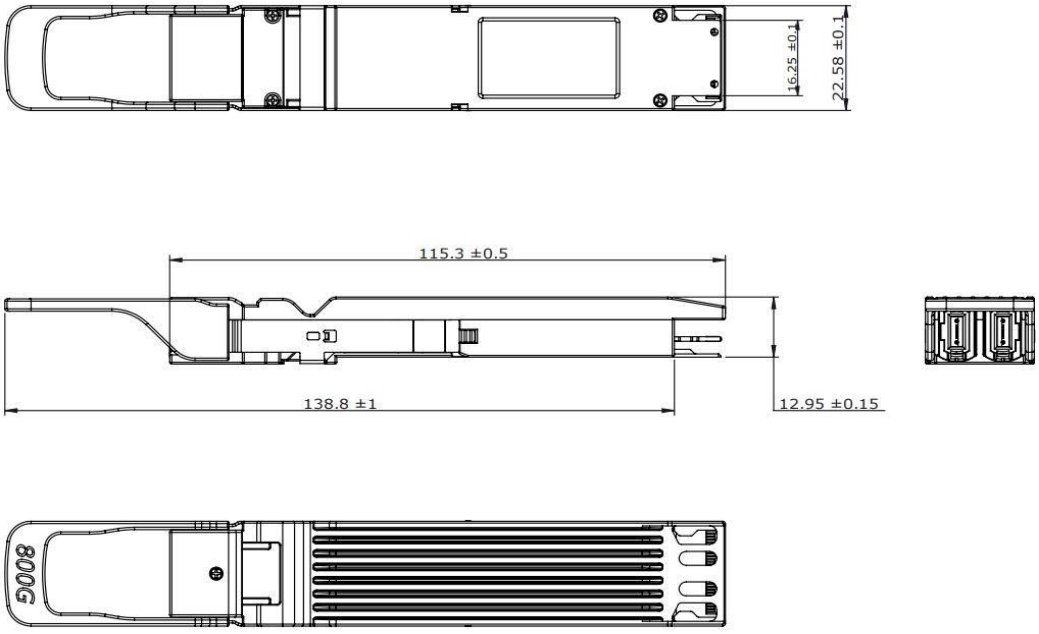


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Notes:

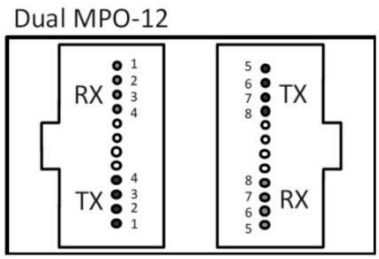
1. Average launch power, each lane (min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. Transmitter reflectance is defined looking into the transmitter.
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. Measured with conformance test signal at TP3 for the BER equal to $2.4x10^{-4}$.
6. These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

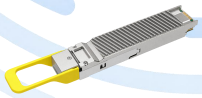
Mechanical Specifications



Optical Port Description

The optical interface port is dual MPO-12 APC receptacle. The transmit and receive optical lanes shall occupy the positions depicted in following figure when looking into the MDI receptacle with the connector key way feature on top.





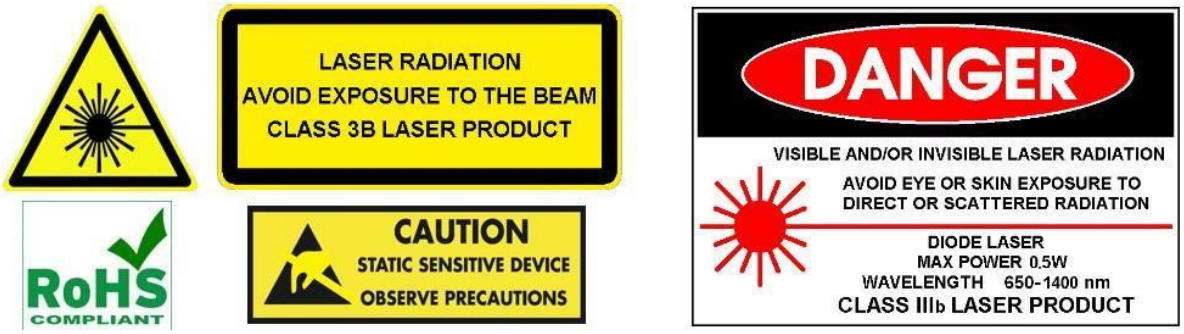
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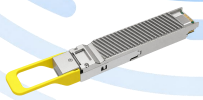
Digital Diagnostic Monitoring Interface

Parameter	Symbol	Min	Typ	Max	Units	Notes
Temperature monitor absolute error	DMI_Temp	-3		3	°C	
Supply voltage monitor absolute error	DMI_VCC	-3		3	%	
Bias current monitor absolute error	DMI_I Bias	-10		10	%	
Tx power monitor absolute error	DMI_TX	-3		3	dB	
Rx power monitor absolute error	DMI_RX	-3		3	dB	

SAFETY AND OPERATING INSTRUCTIONS

1. This product emits laser radiation. Direct exposure of any part of the human body to laser radiation is strictly prohibited.
2. This product is electrostatic-discharge sensitive. Operate only in an ESD-protected area and ensure that all tools and personnel making direct contact with the device are properly grounded. Improper handling or use may cause permanent, irreversible damage.
3. Fit the dust cap immediately after testing or inspection to prevent prolonged exposure of the optical connector.
4. Absolute maximum ratings are intended for brief exposure only. Prolonged operation at any maximum rating, or simultaneous exposure to multiple maximum ratings, may damage the device or reduce reliability.
5. Use indium foil or another compliant thermal-interface material under the device to provide adequate heat dissipation.
6. Do not overstretch or sharply bend the fiber.





CP-OSFP-800G-DR8
800G OSFP DR8 Silicon Photonics Optical Transceiver

DOCUMENT CONTROL

CONTROL FIELD	VALUE
Document Title	CP-OSFP-800G-ER8 — 800G OSFP DR8 Silicon Photonics Optical Transceiver
Document ID	200000401
Revision	V1.00
Effective Date	2026-07-20
Status	Controlled Document

REVISION	DATE	CHANGE DESCRIPTION
V1.00	2026-07-20	Initial Western Optronics controlled release

SUPPORT

Western Optronics provides product-selection, setup, and application support. Specifications and availability are subject to change without notice.