



maxoptix™

OPTX-QSFP-100-SR4

850nm 100Gbps with MPO Connector

Features

- Compliant with SFF-8636 QSFP28 Transceiver Specification
- 4* 25.78 Gbps per module, bi-directional operation
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- DDM function implemented
- Up to 70m on OM3 MMF and 100m on OM4 MMF
- Hot Pluggable QSFP28 form factor
- Single +3.3V power supply
- Operating case temperature: 0~+70°C; -40~85°C
- IEEE802.3ba 100GBASE-SR4
- SFF-8636 QSFP Specification
- Compliant with QSFP28 MSA
- RoHS-6 compliant (lead-free)

Applications

- 100GBASE-SR4 100G Ethernet
- InfiniBand QDR (4 x 25G) interconnects
- Datacom/Telecom Switch & Router connections
- High speed multi-channel parallel data connections



Specifications

Absolute Maximum Ratings				
Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T _S	-40	+85	°C
Supply Voltage	V _{CC3}	0	3.6	V
Relative Humidity	RH	5	95	%

Recommended Operating Conditions						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Operating Case Temperature	T _C	0		70	°C	C
Operating Case Temperature	T _C	-40		85	°C	I
Power Supply Voltage	V _{CC3}	3.135	3.3	3.465	V	
	I _{CC3}			600	mA	
Power Dissipation	P _D			2	W	
Data Rate			100		Gbps	
Transmission Distance				70	m	OM3
				100	m	OM4

Transmitter Optical Characteristic						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Center Wavelength	λ _C	840	850	860	nm	
RMS Spectral width				0.6	nm	
Optical Power for TX DISABLE		-	-	-30	dBm	
Average launch power, each lane	P	-7.6	-	2.4	dBm	
Optical Modulation Amplitude (OMA), each lane	OMA	-5.6		3	dBm	
TDP per Lane	TDP			4.3	dB	
Extinction Ratio	ER	2				
Signaling rate, each lane			25.78 24.33		Gbps	
Optical eye mask		Compliant with IEEE802.3ba				Hit ratio = 1 × 10E-12
Optical Return Loss Tolerance		-	-	12	dB	



Receiver Optical Characteristic						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Center Wavelength	λ_r	840	850	860	nm	
Average Receiver Sensitivity(AVG, EOL)				-8.5	dBm	
Stressed Receiver Sensitivity(OMA, EOL)				-5.4	dBm	
Saturation power (EOL)		2.4			dBm	
Max Input power		3.4			dBm	
LOS Assert	LOS_A	-30		-	dBm	
LOS Dessert	LOS_D			-12	dBm	
LOS Hysteresis		0.5		-	dB	
Receiver Reflectance				-12	dB	
Signaling rate, each lane			25.78		Gbps	

Electrical Characteristic						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Input differential impedance			100		Ω	
Differential data input swing		180		700	mV	
Differential data output swing				900	mV	

Control and Status I/O Timing Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Initialization time	t_init			2000	ms	
Reset Init Assert Time	t_reset_init			2	us	
Serial Bus Hardware Ready Time	t_serial			2000	ms	
Reset Assert Time	t_reset			2000	ms	
LPMODE Assert Time	ton_LPMODE			100	us	
LPMODE Deassert Time	Toff_LPMODE			300	ms	
IntL Assert Time	ton_IntL			200	ms	
IntL Deassert Time	toff_IntL			500	us	
Rx LOS Assert Time	ton_los			100	ms	
Tx Fault Assert Time	ton_Txfault			200	ms	
Flag Assert Time	ton_flag			200	ms	
Mask Assert Time	ton_mask			100	ms	
Mask Deassert Time	toff_mask			100	ms	
Power_override or Power_set Assert Time	ton_Pdown			100	ms	



Power_override or Power_set Deassert Time	toff_Pdown		300	ms	
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Pin-out Definition

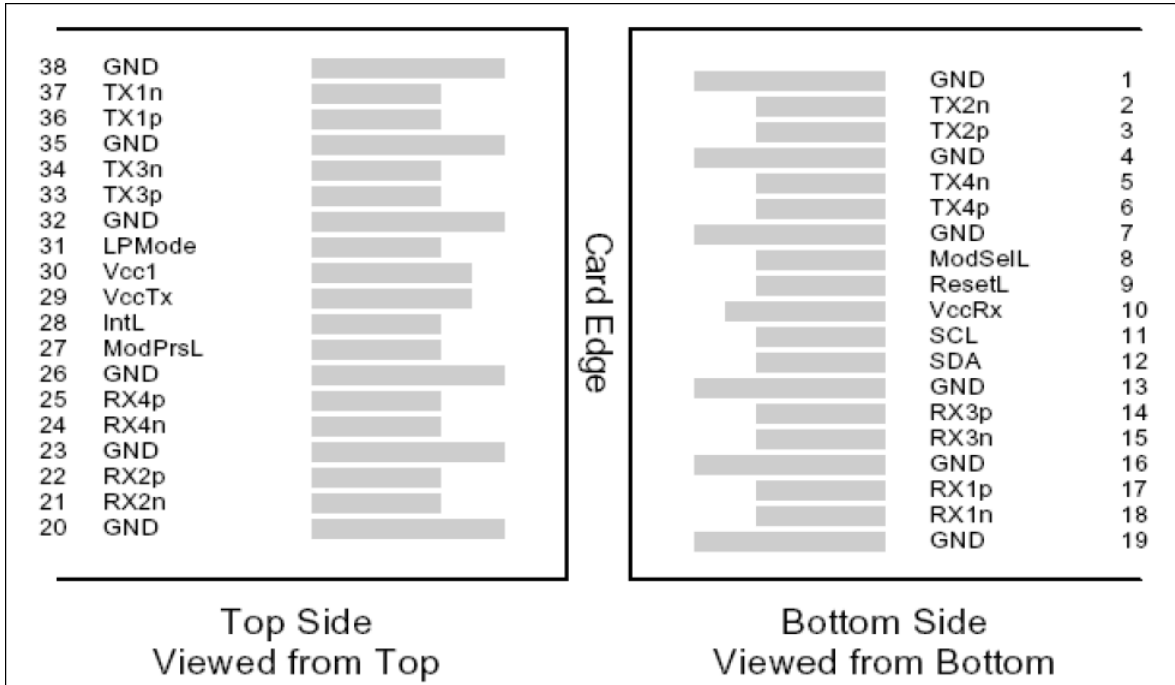


Figure1: Pin-Outs

Pin Assignment

Pin	Name	Description	Notes
1	GND	Ground	Note1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	Note1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	Note2
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	

16	GND	Ground	Note1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	Note1
19	GND	Ground	Note1
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	Note1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3V Power supply transmitter	Note2
30	Vcc1	+3.3V Power supply	Note2
31	LPMODE	Low Power Mode	
32	GND	Ground	Note1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	Note1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	Note1

Notes:

[1] GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the QSFP28 module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.

[2] Vcc Rx, Vcc1 and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. Recommended host board power supply filtering is shown in Figure 7. Vcc Rx Vcc1 and VccTx may be internally connected within the QSFP28 Module in any combination. The connector pins are each rated for a maximum current of 500 mA

Optical Interface Lanes and Assignment

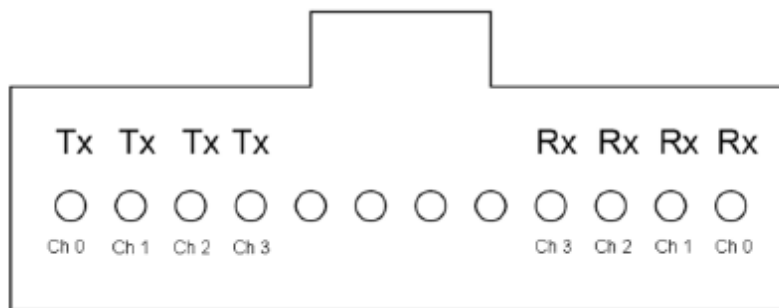


Figure 2 Optical lane assignment (front view of MPO receptacle)

Mechanical Dimensions

Unit is millimeter. All dimensions are $\pm 0.1\text{mm}$ unless otherwise specified.

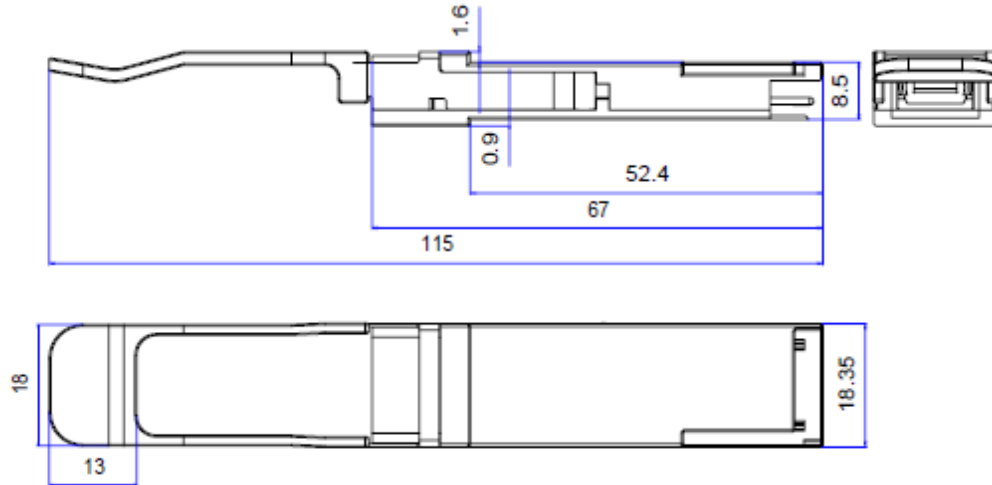


Figure 3: Mechanical Package Outline

Ordering Information

OptiX²'s 100G SR4 QSFP is available as a standard transceiver or as a Tx only or Rx only QSFP. To order the QSFP you need for your application use the following part numbers:

- OPTX-QSFP-100-SR4
- OPTX-QSFP-100-SR4-T (Tx only)
- OPTX-QSFP-100-SR4-M (Rx only)

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