Q28QD080C0YF000

MSA and TAA 100GBase-ZR4 QSFP28 Transceiver (SMF, 1295nm to 1309nm, 80km, LC, DOM)

Product Description

This MSA Compliant QSFP28 transceiver provides 100GBase-ZR4 throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1295nm to 1309nm via an LC connector. 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. Digital optical monitoring (DOM) support is also present to allow 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.

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

Features:

- Compliant with IEEE 802.3ba, ITU-T G.959
- Single 3.3V Power Supply
- Compliant with 4x28G (CEI-28G-VSR)
- Transmitter: cooled 4x25Gbps LAN WDM EML TOSA
- Receiver: 4x25Gbps SOA+PIN ROSA
- Power Dissipation is <5.5W
- Hot-pluggable QSFP28 MSA form factor
- 4x25G Electrical Interface
- Single-mode Fiber
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- RoHS Compliant and Lead Free

Applications:

- 100GBase Ethernet
- Access and Enterprise

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.	Typ.	Max.	Unit
Supply Voltage	Vcc	-0.5		3.6	V
Storage Temperature	Tstg	-40		85	ºC
Operating Case Temperature	Tc	0		70	ºC
Relative Humidity	RH	5		85	%
Rx Damage Threshold Per Lane	THd	5.5			dBm
Data Rate	DR		25.78125		Gbps
Link Distance with G.652 (With FEC)	D1			80	km

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Supply Current	Icc			1.66	A	
Power Consumption				5.5	W	
Transmitter						
Input Differential Impedance	RIN		100		Ω	1
Differential Data Input Swing	VIN,pp	180		1000	mV	
Transmit Disable Voltage	VD	Vcc-1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	2
Receiver						
Differential Data Output Swing	VOUT,pp	300		850	mV	3
LOS Fault	VLOS Fault	Vcc-1.3		Host_Vcc	V	4
LOS Normal	VLOS Normal	Vee		Vee+0.8	V	4

Notes:

1. Connected directly to the Tx data input pins. AC coupled thereafter.
2. Optional for Tx disable.
3. Into 100Ω differential termination.
4. Loss of Signal is LVTTL. “Logic 0” indicates normal operation. “Logic 1” indicates no signal detected.
5. Tested under recommended operating conditions, unless otherwise noted.

Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
Center Wavelength	**Lane 0**	λ0	1294.53	1295.56	1296.59	nm	
	Lane 1	λ1	1299.02	1300.05	1301.09	nm	
	Lane 2	λ2	1301.54	1304.58	1305.63	nm	
	Lane 3	λ3	1308.09	1309.14	1310.19	nm	
Total Launch Power (100GE)		Pavg	7		12.5	dBm	1
Average Launch Power Per Lane (100GE)		PLane	1		6.5	dBm	1
Difference in Launch Power Between Lanes		PΔ			3	dB	
Average Laser Output Power (Laser Off)		Poff			-30	dBm	
Side-Mode Suppression Ratio		SMSR	30			dB	
Extinction Ratio (100GE & OTU4)		ER	6			dB	
Receiver							
Center Wavelength	**Lane 0**	λ0	1294.53	1295.56	1296.59	nm	
	Lane 1	λ1	1299.02	1300.05	1301.09	nm	
	Lane 2	λ2	1301.54	1304.58	1305.63	nm	
	Lane 3	λ3	1308.09	1309.14	1310.19	nm	
Damage Threshold		PDAM			5.5	dBm	
Average Rx Power Per Lane		PRX_Lane	-28		4.5	dBm	
Receiver Sensitivity Per Lane (OMA)					-26.4	dBm	2
LOS Assert		LOSA	-40			dBm	
LOS De-Assert		LOSD			-29	dBm	
LOS Hysteresis		LOSH	0.5			dB	

Notes:

1. The optical power is launched into SMF.
2. Measured with a PRBS 2^{31}-1 test pattern @25.78125Gbps, BER≤$5E^{-5}$.

Pin Descriptions

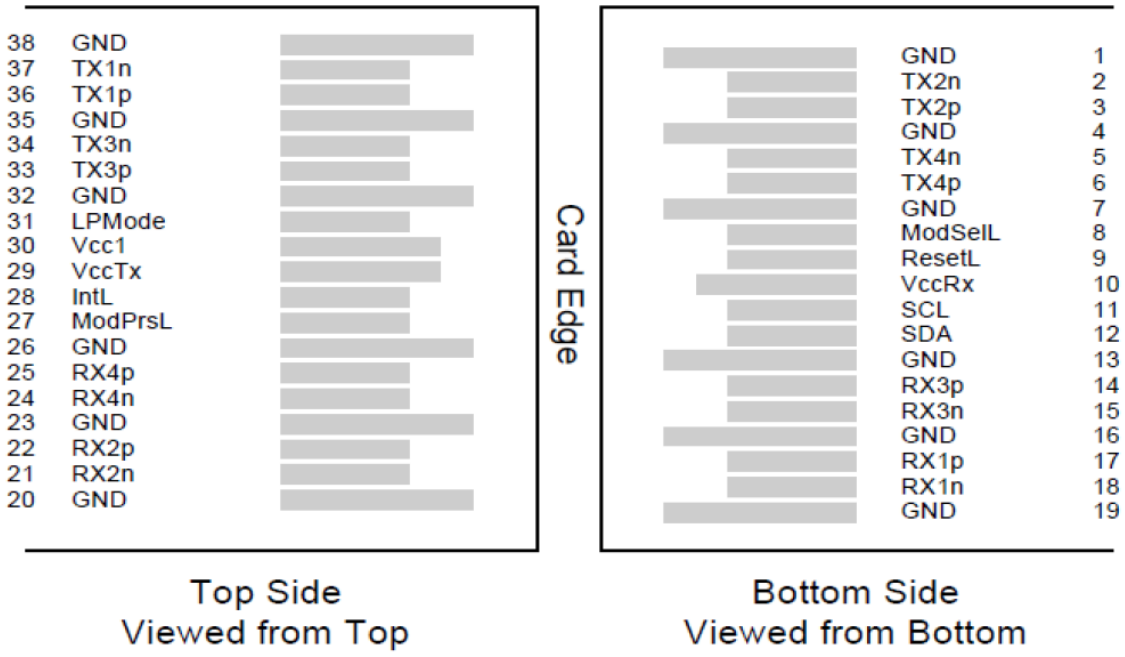
Pin	Logic	Symbol	Name/Description	Notes
1		GND	Module Ground.	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	
4		GND	Module Ground.	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	
7		GND	Module Ground.	1
8	LVTTL-I	ModSelL	Module Select.	
9	LVTTL-I	ResetL	Module Reset.	
10		VccRx	+3.3V Receiver Power Supply.	2
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock.	
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data.	
13		GND	Module Ground.	1
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.	
15	CML-O	Rx3-	Receiver Inverted Data Output.	
16		GND	Module Ground.	1
17	CML-O	Rx1+	Receiver Non-Inverted Data Output.	
18	CML-O	Rx1-	Receiver Inverted Data Output.	
19		GND	Module Ground.	1
20		GND	Module Ground.	1
21	CML-O	Rx2-	Receiver Inverted Data Output.	
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.	
23		GND	Module Ground.	1
24	CML-O	Rx4-	Receiver Inverted Data Output.	
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	
26		GND	Module Ground.	1
27	LVTTL-O	ModPrsL	Module Present.	
28	LVTTL-O	IntL/RxLOSL	Interrupt. Optionally configurable as RxLOSL via the management interface (SFF-8636).	
29		VccTx	+3.3V Transmitter Power Supply.	2
30		Vcc1	+3.3V Power Supply.	2
31	LVTTL-I	LPMode/TxDis	Low-Power Mode. Optionally configurable as TxDis via the management interface (SFF-8636).	
32		GND	Module Ground.	1
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	
34	CML-I	Tx3-	Transmitter Inverted Data Input.	

35		GND	Module Ground.	1
36	CML-I	Tx1+	Transmitter Non-Inverted Data.	
37	CML-I	Tx1-	Transmitter Inverted Data Input.	
38		GND	Module Ground.	1

Notes:

1. GND is the symbol for signal and supply (power) common for the module. All are common within the 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. VccRx, Vcc1, and VccTx are applied concurrently and may be internally connected within the module in any combination. Vcc contacts in SFF-8662 and SFF-8672 each have a steady state current rating of 1A.

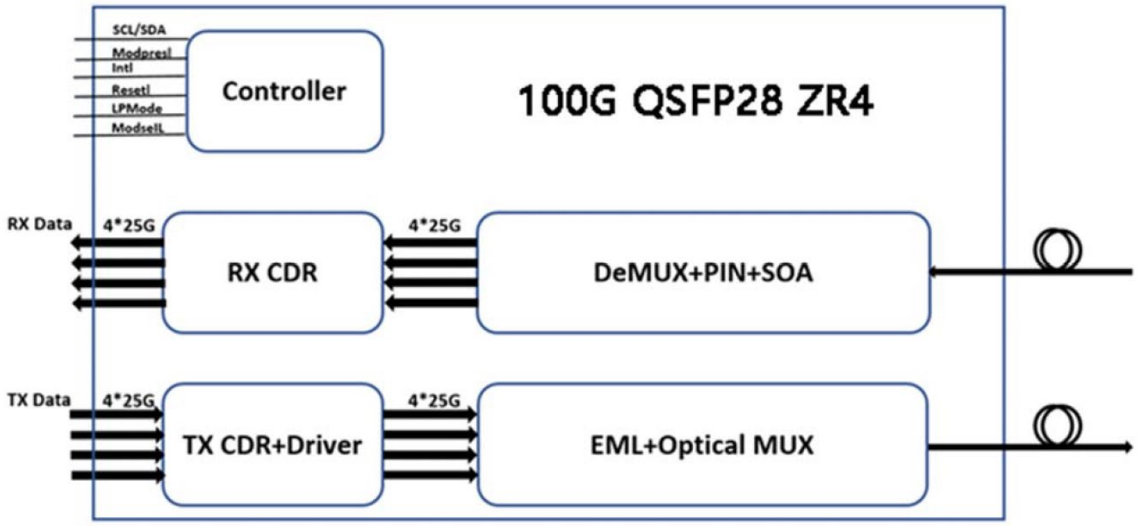
Electrical Pin-Out Details



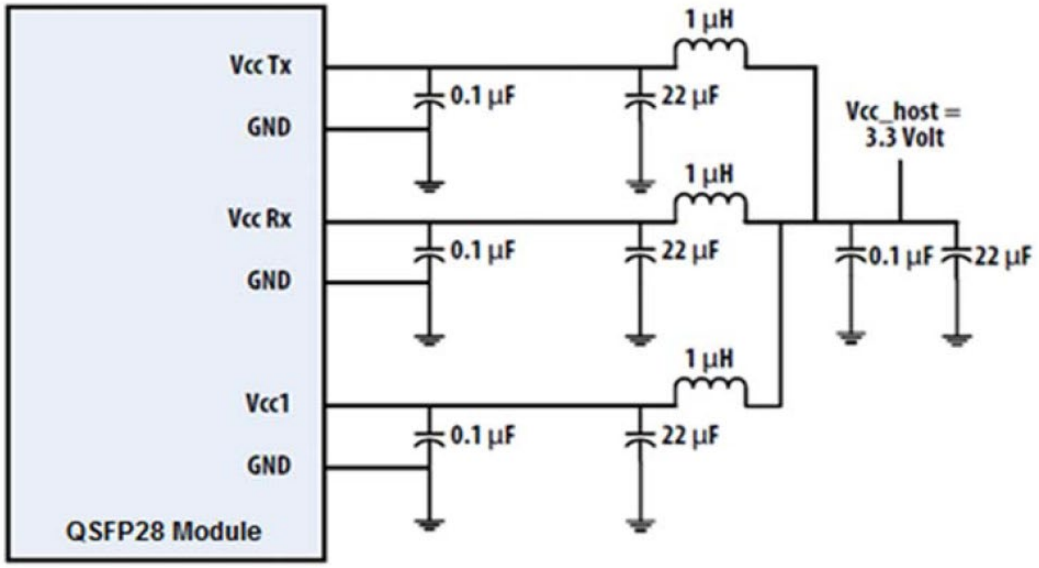
Top Side
Viewed from Top

Bottom Side
Viewed from Bottom

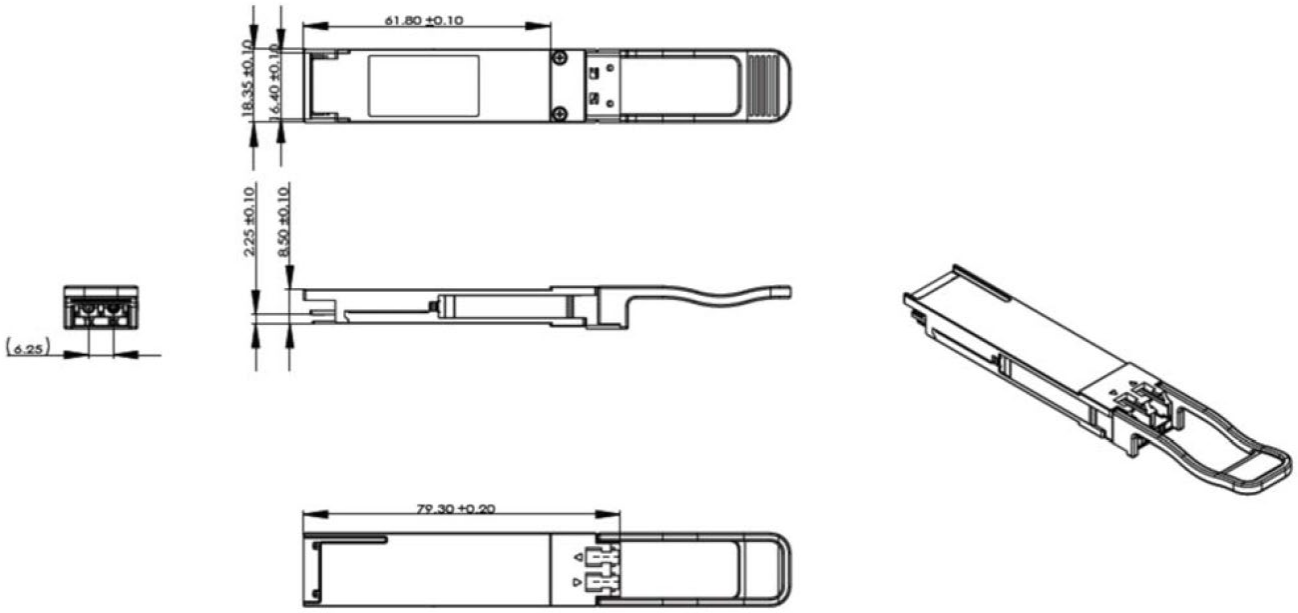
Functional Diagram



Recommended Power Supply Filter



Mechanical Specifications



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 (SKYGATE).