



PAN-QSFP-40GBASE-BIDI-SKY

Palo Alto Networks® PAN-QSFP-40GBASE-BX Compatible 40GBase-SR QSFP+ Transceiver (MMF, 832nm to 918nm, 150m, LC, DOM)

Product Description

This Palo Alto Networks® PAN-QSFP-40GBASE-BX compatible QSFP+ transceiver provides 40GBase-SR throughput up to 150m over multi-mode fiber (MMF) using a wavelength of 832nm to 918nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Palo Alto Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. It is built to meet or exceed the specifications of Palo Alto Networks®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. 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:

- SFF-8436 Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Multi-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications:

- 40GBase 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.	Max.	Unit	Notes
Storage Temperature	Tstg	-40	+85	°C	
Relative Humidity – Storage	RHs	0	85	%	1
Relative Humidity – Operating	RHo	0	85	%	1
Module Supply Voltage	Vcc	-0.5	3.6	V	

Notes:

1. RH is a non-condensing condition.
2. Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Case Temperature	Tc	0	25	70	°C	1
Module Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Consumption	P			3.5	W	2

Notes:

1. Temperature range = C.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter (Host Rx)						
Signaling Rate	SR		10.3125		Gbps	
Tx_Data Differential Input Voltage	VIN	200		900	mV	
Tx_Data Differential Input Impedance	ZIN		100		Ω	
Receiver (Host Tx)						
Signaling Rate	SR		10.3125		Gbps	1
Rx_Data Differential Output Voltage	VOUT	800		1200	mV	
Rx_Data Differential Output Impedance	ZOUT		100		Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Signaling Rate Per Lane (Range)	Sr	10.3125			Gbps	
Laser Type		VCSEL				
Lane Wavelength 1 (Range)	λ	840	850	865	nm	
Lane Wavelength 2 (Range)	λ	900	908	918	nm	
Average Launch Power Per Lane	Pout	-6		4.0	dBm	
Outer Optical Modulation Amplitude (OMAouter) Per Lane	Tx_OMA	-4.2		3	dBm	
Average Launch Power of Off Transmitter Per Lane	Poff			-30	dBm	
Extinction Ratio Per Lane	ER	3			dB	
20.625 Gbps Eye Mask: X1, X2, X3, Y1, Y2, Y3			{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}		dB	1
Receiver						
Signaling Rate Per Lane (Range)	Sr	10.3125			Gbps	
Lane Wavelength 1 (Range)	λ	840	850	865	nm	
Lane Wavelength 2 (Range)	λ	900	908	918	nm	
Receiver Sensitivity (OMAouter) Per Lane	SEN			-7.1	dBm	
Average Receiver Power Per Lane	Pin	-8.2		4	dBm	2
Damage Threshold Per Lane		5			dBm	3

Notes:

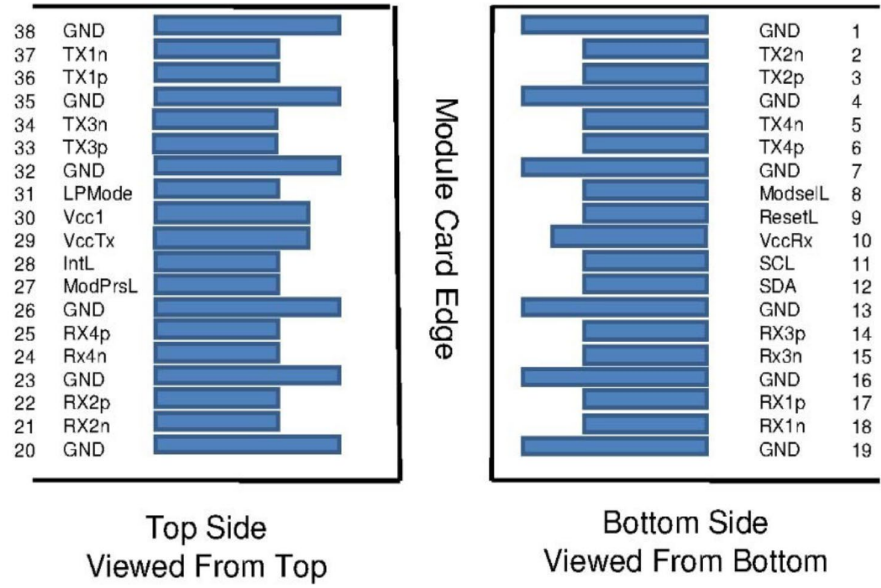
1. Hit Ratio = 1.5×10^{-3} ; TP1 Tx input electrical signal is 10.3125Gbos, pattern 2^9-1 .
2. NRZ Signaling Rate Per Lane 10.3125Gbps and PRBS $2^{31}-1$, BER < $1E^{-6}$.
3. A receiver power below this value cannot be compliant; however, a value above does not ensure compliance.

Pin Descriptions

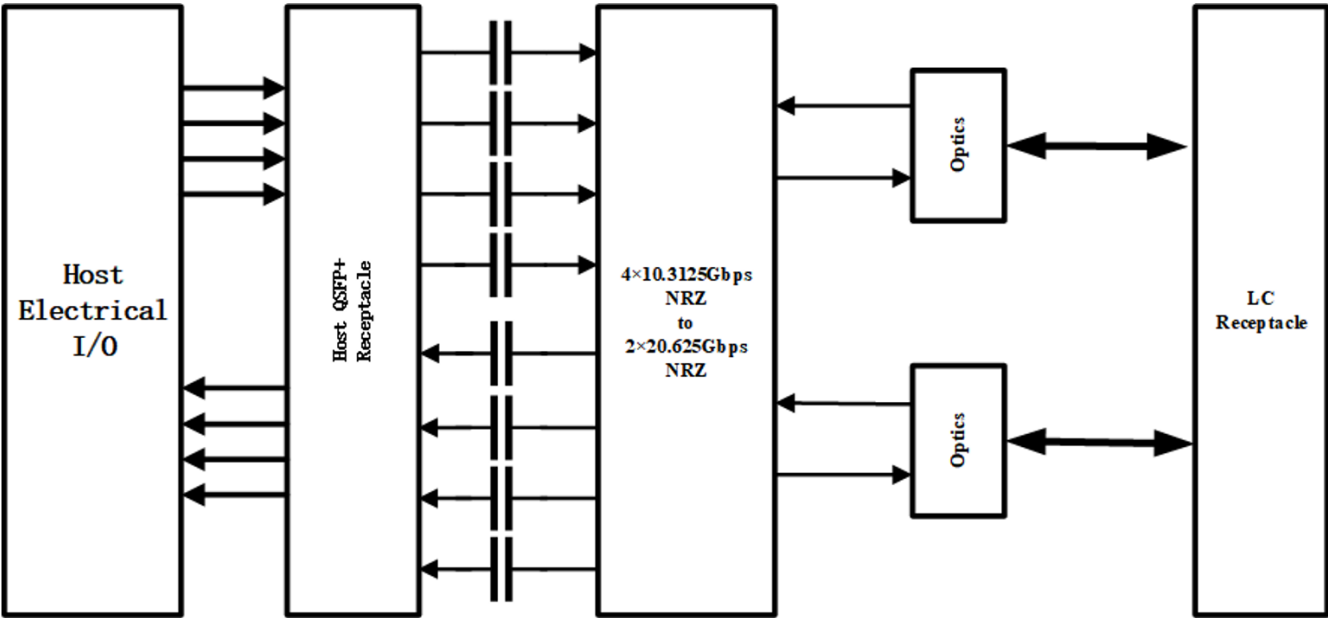
Pin	Symbol	Name/Description
1	GND	Module Ground.
2	Tx2n	Transmitter Inverted Data Input.
3	Tx2p	Transmitter Non-Inverted Data Input.
4	GND	Module Ground.
5	Tx4n	Transmitter Inverted Data Input.
6	Tx4p	Transmitter Non-Inverted Data Input.
7	GND	Module Ground.
8	ModSelL	Module Select.
9	ResetL	Module Reset.
10	VccRx	+3.3V Receiver DC Power Supply.
11	SCL	I2C Serial Clock.
12	SDA	I2C Serial Data.
13	GND	Module Ground.
14	Rx3p	Receiver Non-Inverted Data Output.
15	Rx3n	Receiver Inverted Data Output.
16	GND	Module Ground.
17	Rx1p	Receiver Non-Inverted Data Output.
18	Rx1n	Receiver Inverted Data Output.
19	GND	Module Ground.
20	GND	Module Ground.
21	Rx2n	Receiver Inverted Data Output.
22	Rx2p	Receiver Non-Inverted Data Output.
23	GND	Module Ground.
24	Rx4n	Receiver Inverted Data Output.
25	Rx4p	Receiver Non-Inverted Data Output.
26	GND	Module Ground.
27	ModPrsL	Module Present.
28	IntL	Interrupt.
29	VccTx	+3.3V Transmitter DC Power Supply.
30	Vcc1	+3.3V DC Power Supply.
31	LPMode	Low-Power Mode.
32	GND	Module Ground.
33	Tx3p	Transmitter Non-Inverted Data Input.
34	Tx3n	Transmitter Inverted Data Input.

35	GND	Module Ground.
36	Tx1p	Transmitter Non-Inverted Data Input.
37	Tx1n	Transmitter Inverted Data Input.
38	GND	Module Ground.

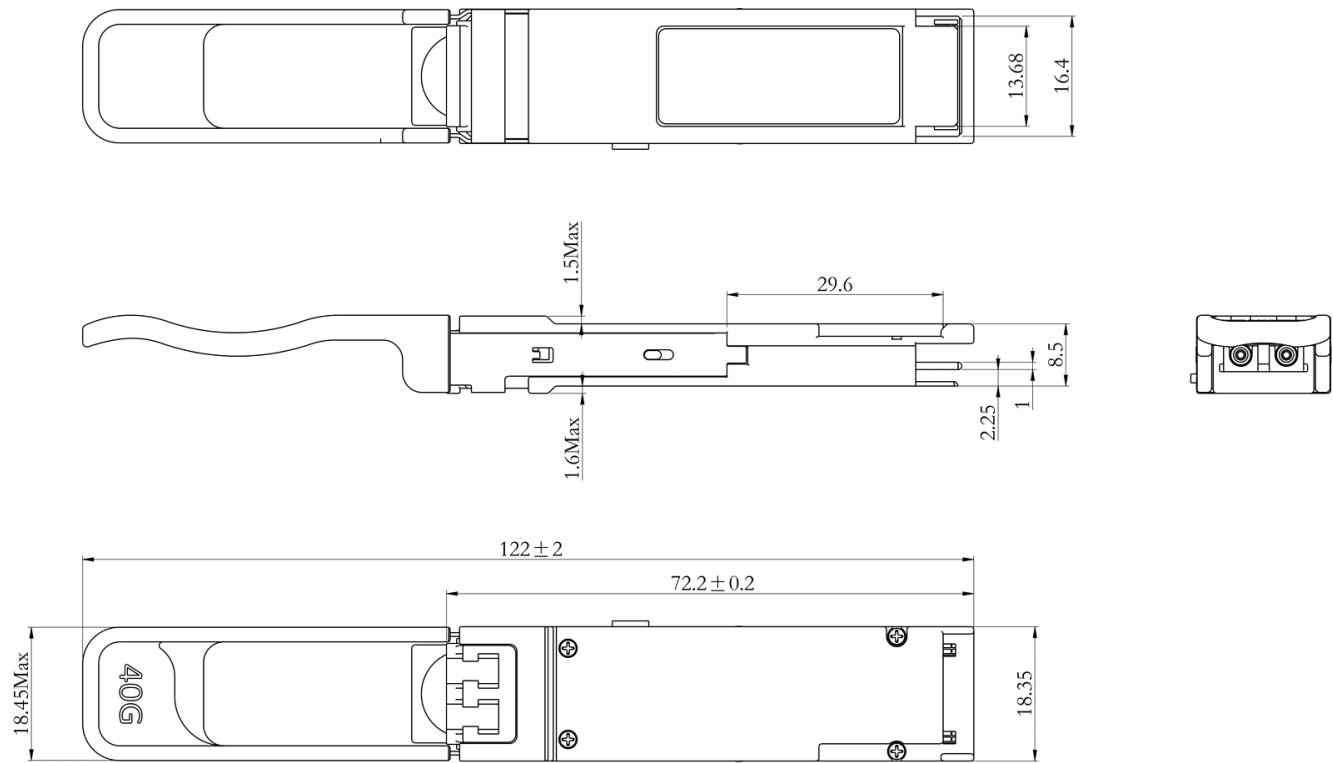
Electrical Pin-Out Details



Block Diagram



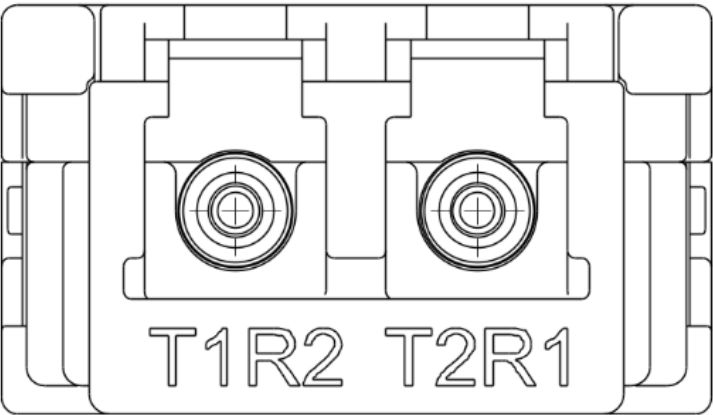
Mechanical Specifications



Notes:

- 1. Tolerance: $\pm 0.1\text{mm}$.
- 2. Others according with SFF-8661 MSA or customer spec.
- 3. Light port according with Fiber Connector Specifications.

Optical Lane Assignment



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.

