QSFP-40GB-PSM4-BXD-40-C-PRO

Cisco® Compatible TAA Compliant 40GBase-BX QSFP+ Transceiver (SMF, 1330nmTx/1270nmRx, 40km, DOM, 0 to 70C, MPO)

Features

- Compliant with IEEE802.3cp 10GBASE-BR40-D
- Compliant with SFF-8636
- Compliant with QSFP+ MSA
- 8-degree, angled MPO12 single-mode fiber connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode fiber
- Excellent ESD Protection
- Hot Pluggable
- RoHS compliant and lead-free
- Metal with lower EMI

Applications:

- 40GBase-BX Ethernet
- Access, Metro and Enterprise

Product Description

This Cisco® QSFP+ transceiver provides 40GBase-BX throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1330nmTx/1270nmRx via an MPO connector. It is guaranteed to be 100% compatible with the equivalent Cisco® 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. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products.

Rev. 021424

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	Vcc	3.135		3.465	V	
Storage Temperature	Tstg	-40		85	°C	
Case Operating Temperature	Tc	0		70	°C	
Aggregated Data Rate Per Transceiver	DR		41.24		Gbps	1
Bit Rate (NRZ)	DR		10.3125		Gbps	2
Supported Link Length	Lmax1			40	km	3

Notes:

1. All channels.
2. Per optical transceiver block.
3. Single-mode fiber per G.652.
4. Distances up to 40km are conditional to the loss budget of the link. Not to exceed 18dB (including fiber loss, connector, TDP, and so forth), as per IEEE 802.3 CP specifications.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	Vcc	3.15		3.465	V	
Symbol Rate Per Lane	BR		10.3125		Gbps	±100ppm
Input Voltage - Low	VIL	−0.3		0.8	V	
Input Voltage - High	VIH	2		3.	V	
Output Voltage - Low	VOL	−0.3		0.8	V	
Output Voltage - High	VOH	2		3.	V	
Differential Data Input Per Lane	VIN,pp	70		900	mV	
Differential Data Output Per Lane	VOUT,pp	100		900	mV	1

Notes

1. Internally AC coupled but requires an external 100Ω differential load termination.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Launch Optical Power	Pavg	-3		+3	dBm	Per Lane
	Pavg			-30	dBm	1
Lane Center Tx WL for Each of the Four Channels	λ	1320	1330	1340	nm	2
Extinction Ratio	ER	5.5			dB	
OMA-TDP	OMA-TDP	-1			dBm	
Transmitter Dispersion Penalty	TDP			2.6	dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Return Loss Tolerance	ORLT			21	dB	
Transmitter Reflectance				-12	dB	
Eye Mask Margin		10			%	
Eye Mask: (X1, X2, X3, Y1, Y2, Y3)	Mask	(0.25, 0.4, 0.45, 0.25, 0.28, 0.4)				3
Receiver						
Lane Center Rx WL for Each of the Four Channels	λ	1260	1270	1280	nm	2
Unstressed Receiver Sensitivity (OMA)	RX-OMA	+2.5		-19	dBm	Per Lane
Stressed Receiver Sensitivity (OMA)	RX-Stress OMA			16.8	dBm	Per Lane
Average Receiver Power Per Lane	RXsense	-21.2		-7	dBm	
Damage Threshold	THd	-3			dBm	4
Reflectance				-26	dB	Per Lane
LOS De-Assert	LOSD			-22	dBm	
LOS Assert	LOSA	-35			dBm	5
LOS Hysteresis		0.5		4	dB	

Note:

1. Per lane in "off" mode.
2. Built-in optical BiDi demux for Tx/Rx for each channel.
3. Hit ratio of 1×10^{-12}, per IEEE.
4. Continuous exposure without damage.
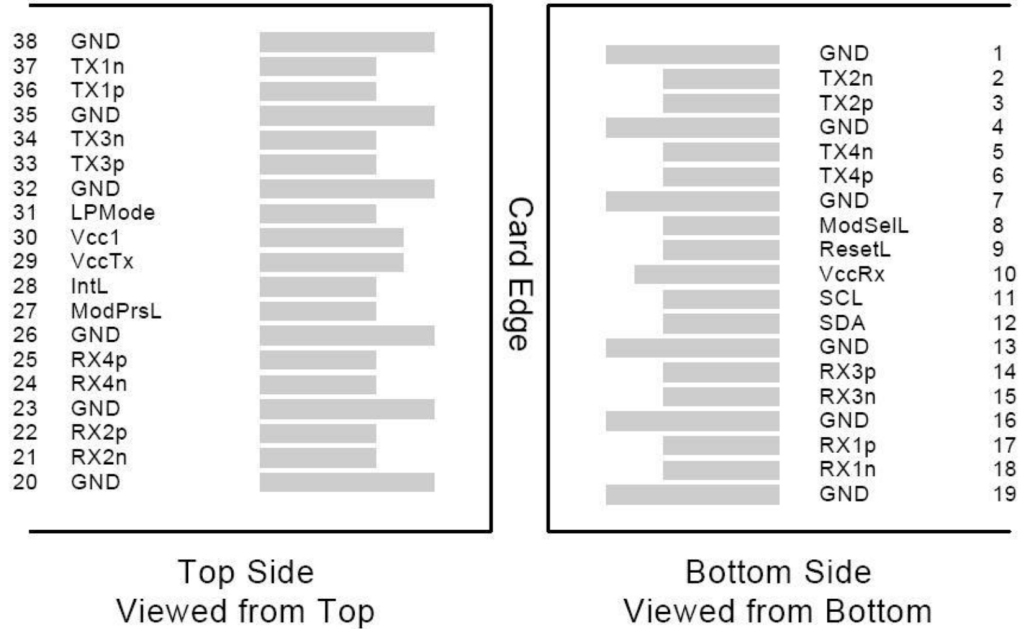5. Rx_LOS is asserted if any of the network optical lanes have LOS.

Pin Descriptions

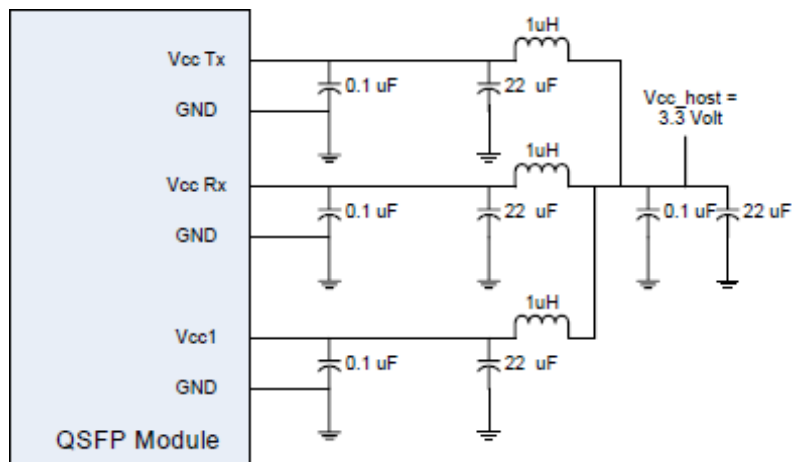| Pin	Logic	Symbol	Name/Description	Note
1		GND	Module Ground.	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	
4		GND	Module Ground.	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	
7		GND	Module Ground.	1
8	LVTTL-I	ModSelL	Module Select.	2
9	LVTTL-I	ResetL	Module Reset.	2
10		VccRx	+3.3V Receiver Power Supply.	
11	LVCMOS-I	SCL	2-Wire Serial Interface Clock.	2
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data.	2
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.	1
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	
26		GND	Module Ground.	1
27	LVTTL-O	ModPrsL	Module Present. Internally pulled down to the GND.	
28	LVTTL-O	IntL	Interrupt Output. Should be pulled up on the host board.	2
29		VccTx	+3.3V Transmitter Power Supply.	
30		Vcc1	+3.3V Power Supply.	
31	LVTTL-I	LPMode	Low-Power Mode.	2
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 Input.	
37	CML-I	Tx1-	Transmitter Inverted Data Input.	
38		GND	Module Ground.	1

Notes:

1. The module signal grounds are isolated from the module case.

2. This is an open collector/drain output that, on the host board, requires a 4.7kΩ-10kΩ pull-up resistor to the Host_Vcc.
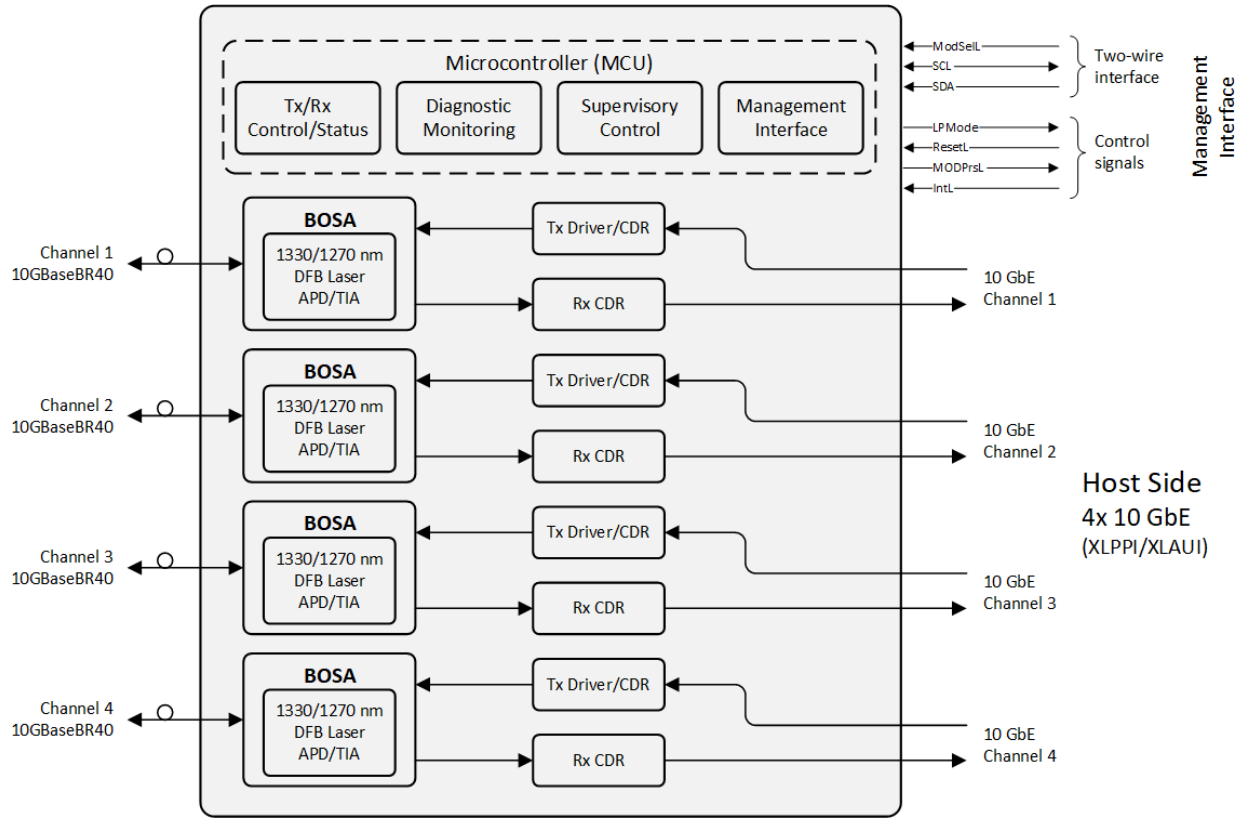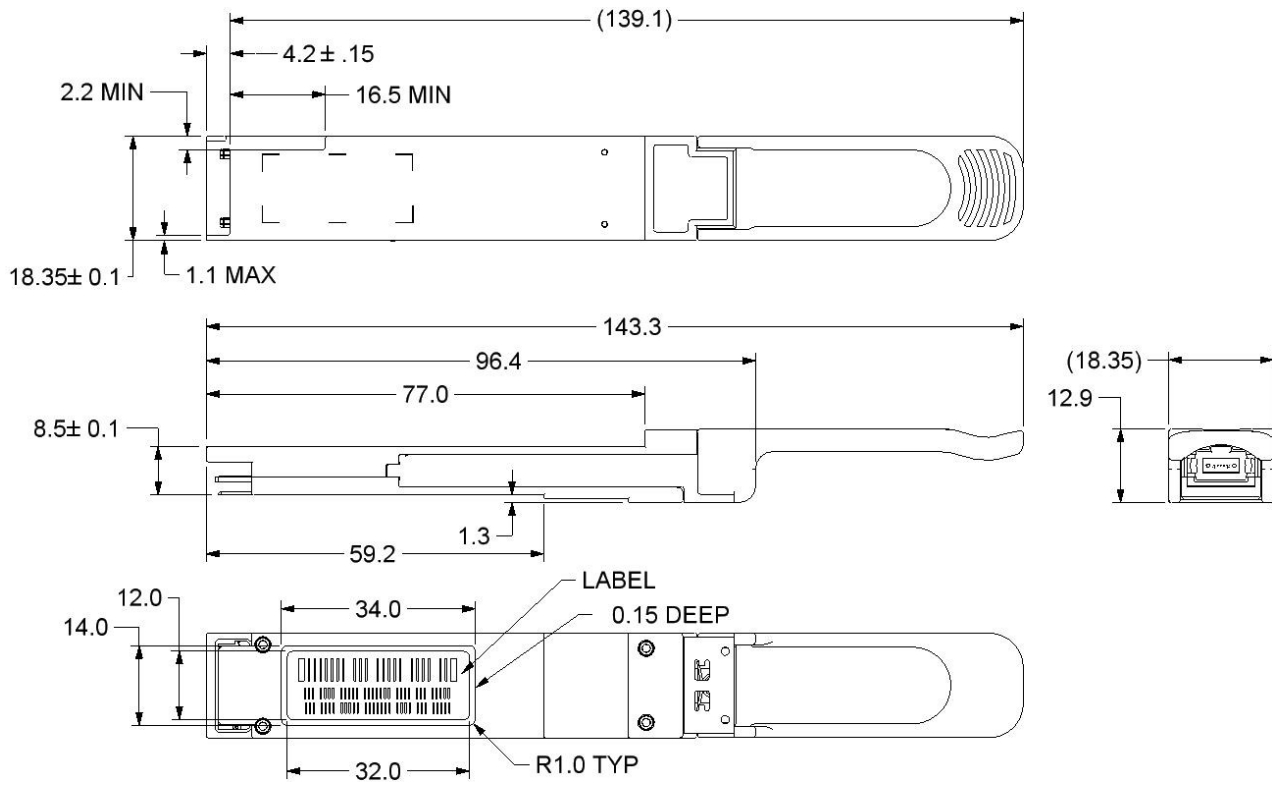
Electrical Pin-Out Details

Top Side (Viewed from Top)		Bottom Side (Viewed from Bottom)	
38	GND	GND	1
37	TX1n	TX2n	2
36	TX1p	TX2p	3
35	GND	GND	4
34	TX3n	TX4n	5
33	TX3p	TX4p	6
32	GND	GND	7
31	LPMode	ModSelL	8
30	Vcc1	ResetL	9
29	VccTx	VccRx	10
28	IntL	SCL	11
27	ModPrsL	SDA	12
26	GND	GND	13
25	RX4p	RX3p	14
24	RX4n	RX3n	15
23	GND	GND	16
22	RX2p	RX1p	17
21	RX2n	RX1n	18
20	GND	GND	19

Card Edge

Top Side
Viewed from Top

Bottom Side
Viewed from Bottom

Power Supply Filtering

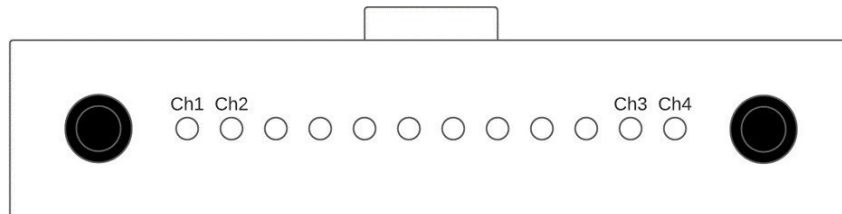# Transceiver Block Diagram

Mechanical Specifications

Dimensions are in mm.

MPO12 Connector – Front View

Fibers 1, 2, 11, and 12 are used.

About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.

Tel: 855.933.3223
Email: sales@prolineoptions.com
Email: techsupport@prolineoptions.com
Web: https://www.prolineoptions.com