QDD4-400GB-SR4-BD-C-C

Cisco® Compatible TAA 400GBase-BX SR4.2 PAM4 QSFP-DD Transceiver (MMF, 850nm to 902nm, 100m, MPO-12, DOM, CMIS 4.0)

Features:

- 8x50 Gbps MMF optical interface
- Supports 4x100G breakout function
- 850nm/908nm VCSEL 850nm/908nm PD Array Technology
- MPO-12 connector
- Multi-mode fiber
- CMIS V4.0 compliance
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Excellent ESD Protection
- RoHS Compliant and lead-free

Applications:

- 400GBase Ethernet
- Access and Enterprise

Product Description

This Cisco® QSFP-DD transceiver provides 400GBase-BX SR4.2 throughput up to 100m over multi-mode fiber (MMF) using a wavelength of 850nm to 902nm via an MPO-12 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.

ProLabs' 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."

TAA COMPLIANT

Rev. 081123

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		3.6	V	1
Storage Temperature	Tstg	-40		85	℃	1
Storage Relative Humidity	RH	0		95	%	1, 2
Operating Case Temperature	Tc	0	25	70	℃	
Operating Relative Humidity	RH	0		85	%	1, 2
Signaling Speed Per Channel	S		26.56		GB	

Notes:

1. 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.
2. Non-condensing condition.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Module Supply Voltage	Vcc	3.14	3.3	3.46	V	
Power Consumption	P		11		W	
Module Supply Current	I_N		3500		mA	
Transmitter						
Tx_Data Differential Input Voltage	VIN			900	mV	
Tx_Data Differential Input Impedance	ZIN		100		Ω	
Receiver						
Rx_Data Differential Output Voltage	VOUT			900	mV	
Rx_Data Differential Output Impedance	ZOUT		100		Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Signaling Rate Per Lane	SR		26.56		GBd	
Signaling Speed Accuracy	SSA	-100		100	ppm	
Modulation Format			PAM4			
Average Launch Power Per Lane	POUT	-6.5		4	dBm	1
Outer Optical Modulation Amplitude Per Lane	OMAouter	-4.5		3	dBm	
Optical Output with Tx Off	POFF			-30	dBm	
Extinction Ratio	ER	3			dB	
λ1 Center Wavelength (Range)	λ	840		868	nm	2
λ2 Center Wavelength (Range)	λ	900		918	nm	3
RMS Spectral Width (λ1)	Δλ			0.65	nm	
RMS Spectral Width (λ2)	Δλ			0.65	nm	
Transmitter and Dispersion Eye Closure (TDECQ) Per Lane	TDECQ			4.5	dB	
Launch Power in OMAouter Minus TDECQ Per Lane (Minimum)		-5.9			dB	
Optical Return Loss Tolerance (Maximum)	ORLT			12	dB	
Receiver						
Signaling Rate Per Lane	SR		26.56		GBd	
Signaling Speed Accuracy		-100		100	ppm	
Modulation Format			PAM4			
Average Power at Receive Input Per Lane	PIN	-8.5		4	dBm	
Receive Power (OMAouter) Per Lane (Maximum)				3	dBm	
Receiver Sensitivity (OMAouter) Per Lane	S			Max. (–6.6, SECQ – 8)	dBm	4
λ1 Center Wavelength (Range)	λ	840		868	nm	2
λ2 Center Wavelength (Range)	λ	900		918	nm	3
Rx_LOS - Assert	LOSA	-24.6			dBm	
Rx_LOS – De-Assert	LOSD			-8.6	dBm	
Rx_LOS - Hysteresis	LOSH	0.5			dB	

Notes:

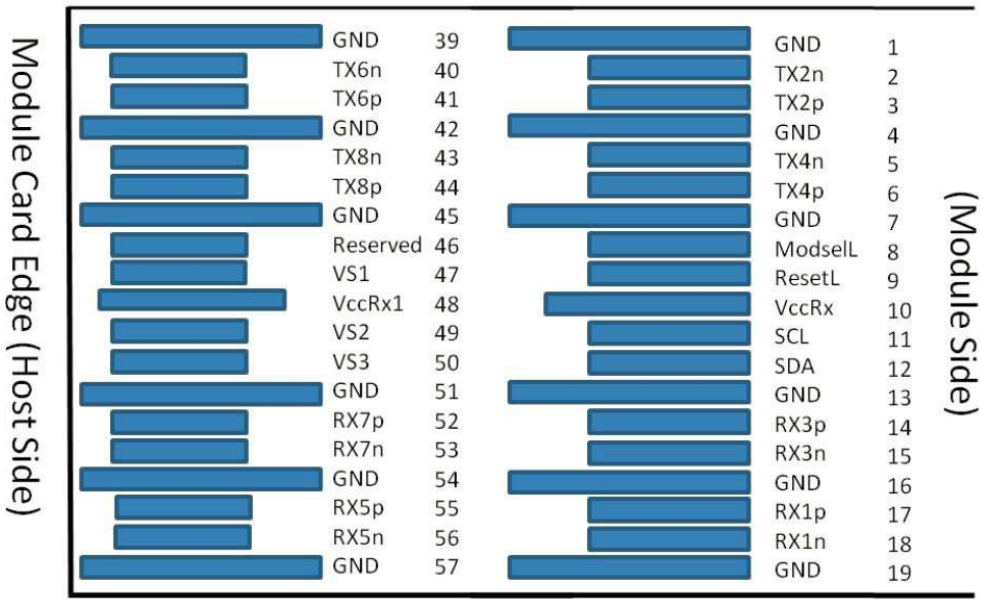
1. Average Optical Output.
2. TxRx pair type TR.
3. TxRx pair type RT.
4. Sensitivity where the BER=2.4E^{-4} measured with a PRBS 31Q test pattern @26.56GBaud.

Pin Descriptions

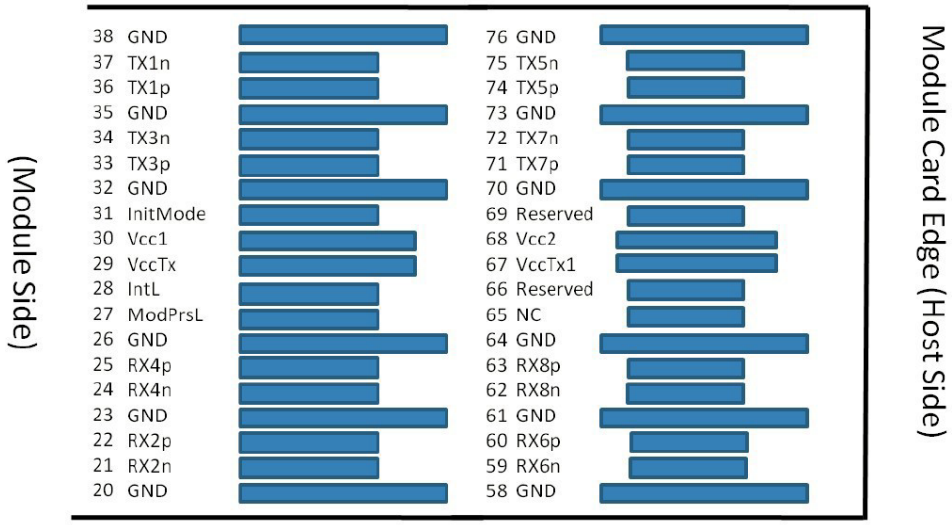
Pin	Logic	Symbol	Name/Descriptions
1		GND	Module Ground.
2	CML-I	Tx2-	Transmitter Inverted Data Input.
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.
4		GND	Module Ground.
5	CML-I	Tx4-	Transmitter Inverted Data Input.
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.
7		GND	Module Ground.
8	LVTTL-I	ModSelL	Module Select.
9	LVTTL-I	ResetL	Module Reset.
10		VccRx	+3.3V Power Supply Receiver.
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock.
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data.
13		GND	Module Ground.
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.
15	CML-O	Rx3-	Receiver Inverted Data Output.
16		GND	Module Ground.
17	CML-O	Rx1+	Receiver Non-Inverted Data Output.
18	CML-O	Rx1-	Receiver Inverted Data Output.
19		GND	Module Ground.
20		GND	Module Ground.
21	CML-O	Rx2-	Receiver Inverted Data Output.
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.
23		GND	Module Ground.
24	CML-O	Rx4-	Receiver Inverted Data Output.
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.
26		GND	Module Ground.
27	LVTTL-O	ModPrsL	Module Present.
28	LVTTL-O	IntL	Interrupt.
29		VccTx	+3.3V Power Supply Transmitter.
30		Vcc1	+3.3V Power Supply.
31	LVTTL-I	InitMode	Initialization Mode.
32		GND	Module Ground.
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.
34	CML-I	Tx3-	Transmitter Inverted Data Input.
35		GND	Module Ground.
36	CML-I	Tx1+	Transmitter Non-Inverted Data Input.
37	CML-I	Tx1-	Transmitter Inverted Data Input.
38		GND	Module Ground.
39		GND	Module Ground.

40	CML-I	Tx6-	Transmitter Inverted Data Input.
41	CML-I	Tx6+	Transmitter Non-Inverted Data Input.
42		GND	Module Ground.
43	CML-I	Tx8-	Transmitter Inverted Data Input.
44	CML-I	Tx8+	Transmitter Non-Inverted Data Input.
45		GND	Module Ground.
46		Reserved	
47		VS1	Module Vendor-Specific 1.
48		VccRx1	+3.3V Power Supply.
49		VS2	Module Vendor-Specific 2.
50		VS3	Module Vendor-Specific 3.
51		GND	Module Ground.
52	CML-O	Rx7+	Receiver Non-Inverted Data Output.
53	CML-O	Rx7-	Receiver Inverted Data Output.
54		GND	Module Ground.
55	CML-O	Rx5+	Receiver Non-Inverted Data Output.
56	CML-O	Rx5-	Receiver Inverted Data Output.
57		GND	Module Ground.
58		GND	Module Ground.
59	CML-O	Rx6-	Receiver Inverted Data Output.
60	CML-O	Rx6+	Receiver Non-Inverted Data Output.
61		GND	Module Ground.
62	CML-O	Rx8-	Receiver Inverted Data Output.
63	CML-O	Rx8+	Receiver Non-Inverted Data Output.
64		GND	Module Ground.
65		NC	Not Connected.
66		Reserved	
67		VccTx1	+3.3V Power Supply.
68		Vcc2	+3.3V Power Supply.
69		Reserved	
70		GND	Module Ground.
71	CML-I	Tx7+	Transmitter Non-Inverted Data Input.
72	CML-I	Tx7-	Transmitter Inverted Data Input.
73		GND	Module Ground.
74	CML-I	Tx5+	Transmitter Non-Inverted Data Input.
75	CML-I	Tx5-	Transmitter Inverted Data Input.
76		GND	Module Ground.

Electrical Pin-Out Details

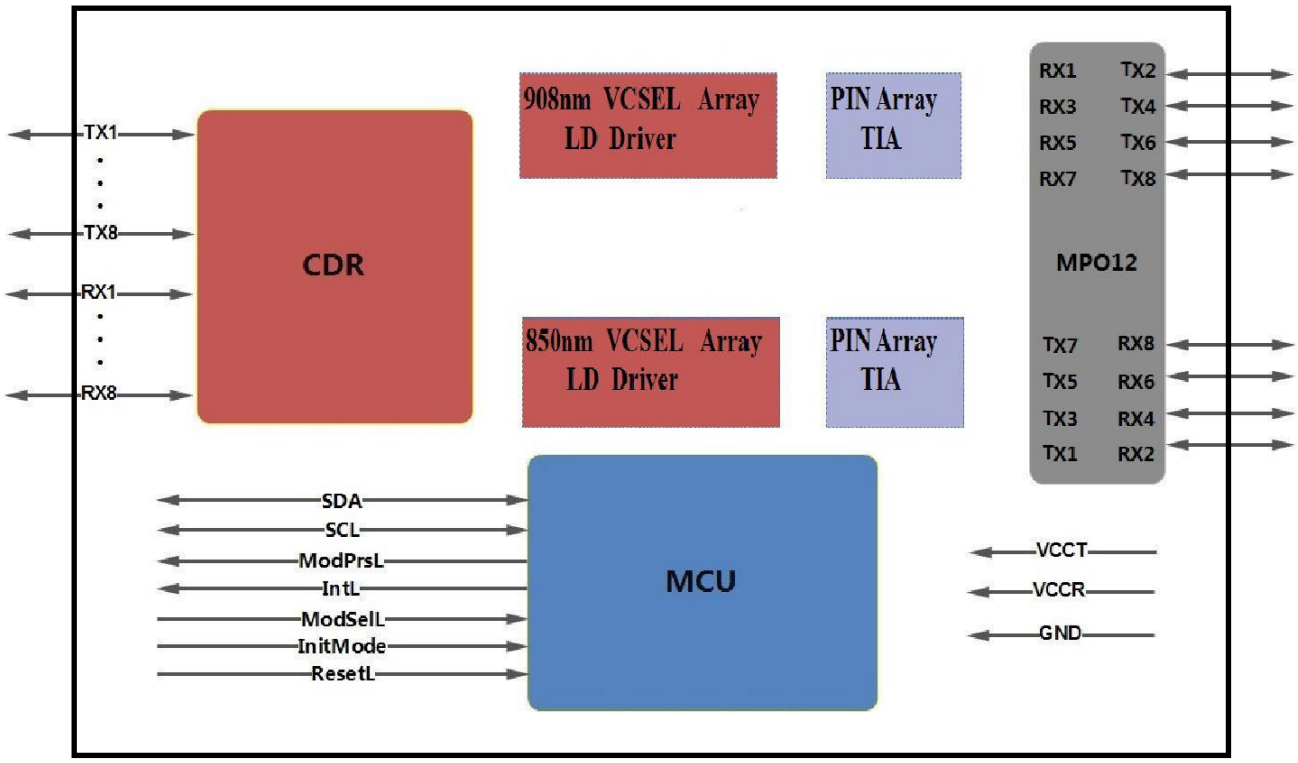


Bottom side viewed from bottom

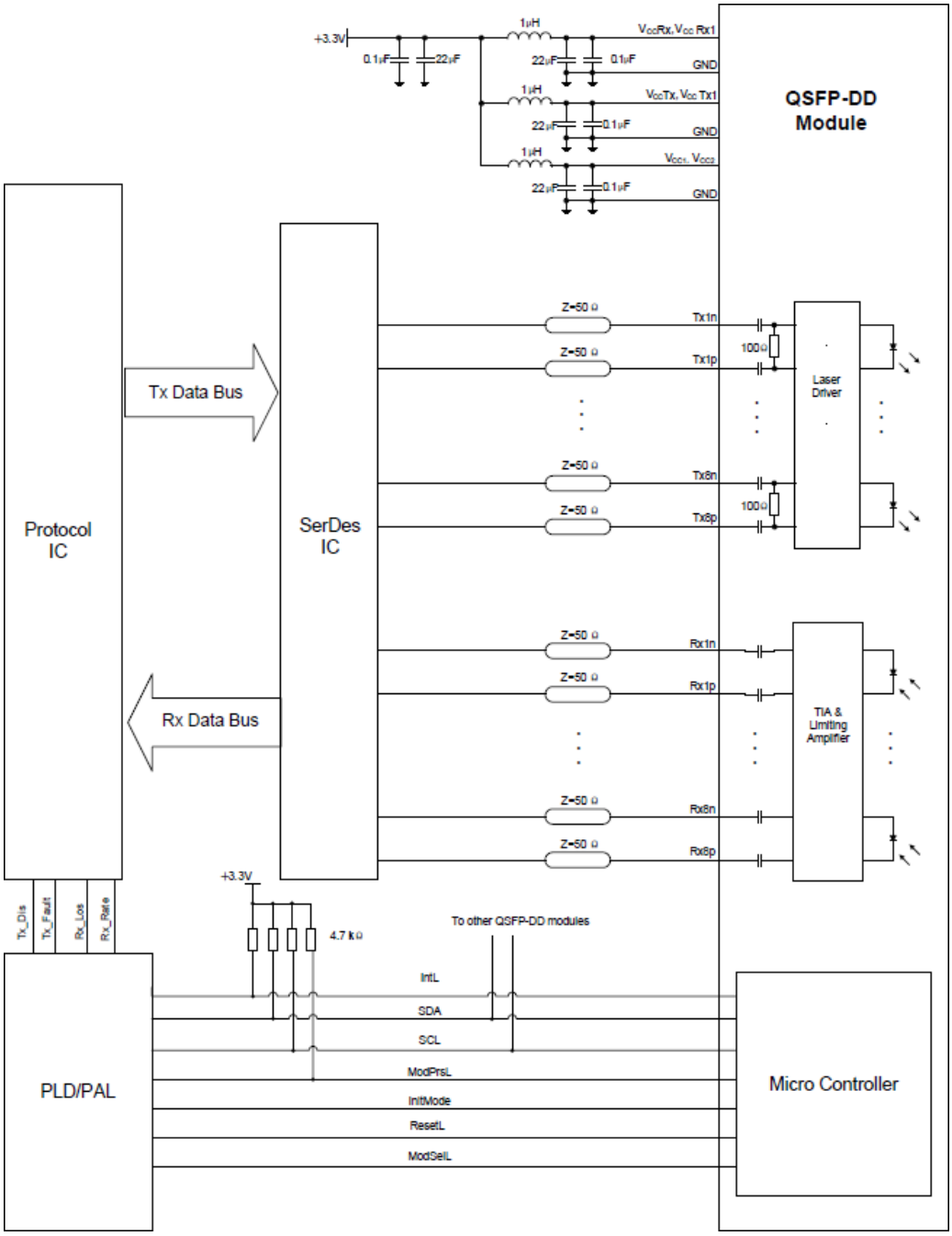


Top side viewed from top

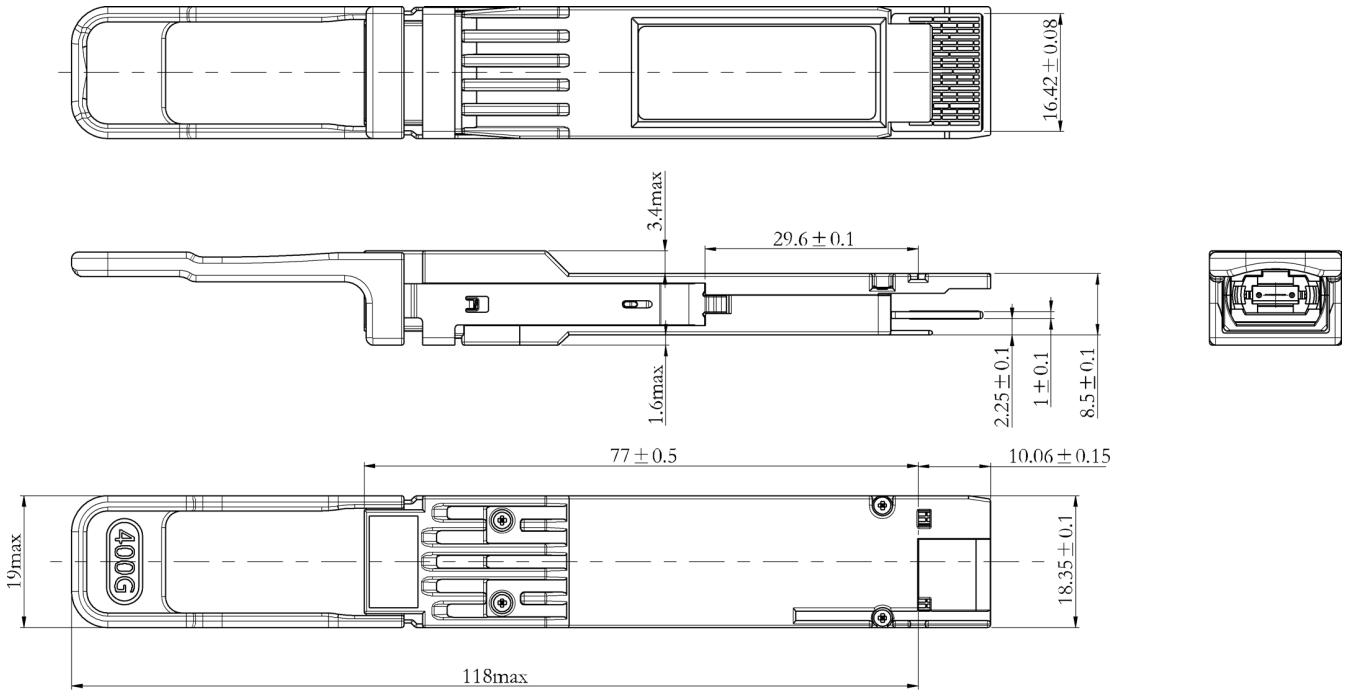
Transceiver Block Diagram



Electrical Interface



Mechanical Specifications



NOTES:
1.TOLERANCE: +/-0.1MM.
2.OTHERS ACCORDING WITH QSFP-DD MSA OR CUSTOMER SPEC.
3.LIGHT PORT ACCORDING WITH FIBER CONNECTOR SPEC.

About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

Contact Information

ProLabs US

Email: sales@prolabs.com
Telephone: 952-852-0252

ProLabs UK

Email: salessupport@prolabs.com
Telephone: +44 1285 719 600