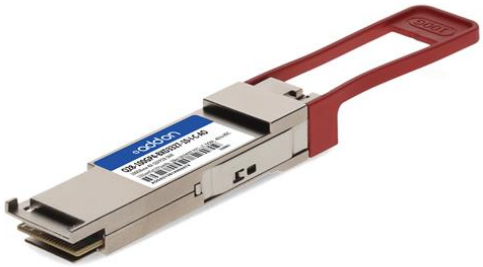
Q28-100GP4-BXD3327-10-I-C-AO

Cisco® Compatible TAA 100GBase-BX QSFP28 Transceiver Single Lambda (SMF, 1331nmTx/1271nmRx, 10km w/FEC, LC, DOM, -40 to 85C)

Features

- Compliant with 100G Lambda MSA 100G-LR Specifications
- Single 3.3V Power Supply
- Compliant with SFF-8636
- Bidi LC Connectors
- Industrial Temperature -40 to 85 Celsius
- Single-mode Fiber
- Metal with Lower EMI
- Hot Pluggable
- RoHS Compliant and Lead Free
- Excellent ESD Protection



Applications

- Datacenter
- 100GBase Ethernet

Product Description

This Cisco® QSFP28 transceiver provides 100GBase-BX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1331nmTx/1271nmRx via an LC 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.

AddOn'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."

TAA COMPLIANT

Rev. 112122

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4.
- ESD to the LC Receptacle: compatible with IEC 61000-4-3.
- EMI/EMC: compatible with FCC Part 15 Subpart B Rules, EN55022:2010.
- Laser Eye Safety: compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1, 2.
- RoHS: compliant with EU RoHS 2.0 directive 2015/863/EU.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	0		3.6	V	
Data Input Voltage		-0.3		3.6	V	
Control Input Voltage		-0.3		4	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Relative Humidity	RH	5		85	%	
Data Rate	BR		53.125		GBd	
Bit Error Rate	BER			$2.4x10^{-4}$		1
Supported Link Length on 9/125µm SMF, 53.125GBd	L		10		km	2

Notes:

1. Tested with a PRBS31Q test pattern for 53.125GBd operation.
2. Distances are based on FC-PI-6 Rev. 3.1 and IEEE 802.3 standards with FEC.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Module Supply Current	Icc			1212	mA	
Power Dissipation	P_{DISS}			4000	mW	
Transmitter						
Differential Data Input Swing	VIN,pp	90	100	110	mVp-p	
Differential Input Impedance	ZIN	90	100	110	Ω	
Receiver						
Differential Data Output Swing	VOUT,pp	300		900	mVp-p	
Differential Output Impedance	ZOUT	90	100	110	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1324.5	1331	1337.5	nm	
Extinction Ratio	ER	3.5			dB	
Launch Optical Power (Average)	Pavg	-1.4		4.5	dBm	1
Launch Optical Power (OMA)	POMA	0.7		4.7	dBm	
Transmitter and Dispersion Penalty Eye Closure for PAM4	TDECQ			3.4	dB	
RIN17.1OMA (Maximum)	RIN			-136	dB/Hz	
Optical Return Loss Tolerance	ORLT			15.6	dB	
POUT @ Tx_Disable Asserted	Poff			-30	dBm	
Receiver						
Center Wavelength	λC	1264.5	1271	1277.5	nm	
Receiver Sensitivity (OMA)	RxSENS			-6.1	dBm	2
Receiver Overload (Pavg)	POL	4.5			dBm	
Receiver Reflectance				-26	dB	
LOS De-Assert	LOSD			-12	dBm	
LOS Assert	LOSA	-18			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. Measured with PRBS31Q test pattern, 53.125GBd, and BER<2.4×10^{-4}.

Pin Descriptions

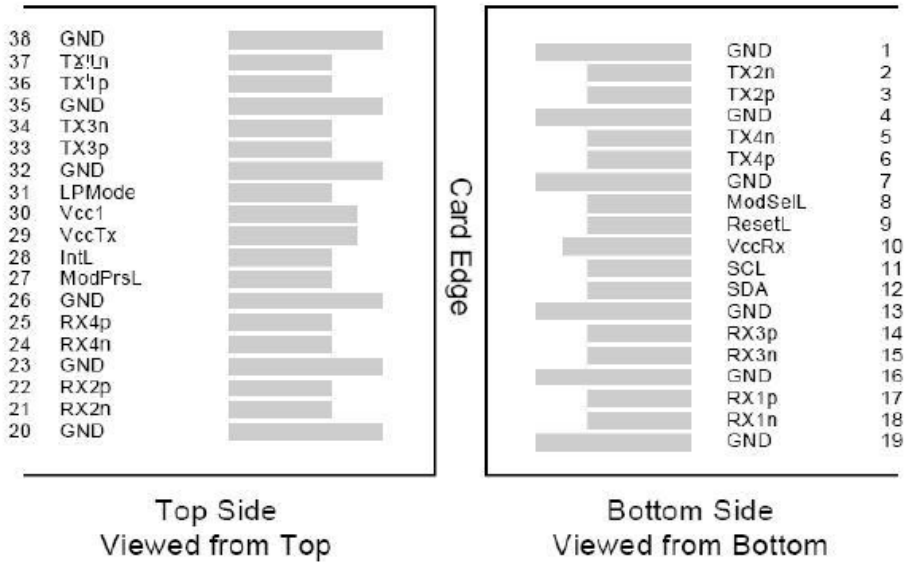
Pin	Logic	Symbol	Name/Description	Note
1		GND	Module Ground.	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Output.	
4		GND	Module Ground.	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Output.	
7		GND	Module Ground.	1
8	LVTLL-I	ModSelL	Module Select.	
9	LVTLL-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.	
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.	
28	LVTTL-O	IntL	Interrupt.	
29		VccTx	+3.3V Transmitter Power Supply.	2
30		Vcc1	+3.3V Power Supply.	2
31	LVTTL-I	LPMode	Low-Power Mode.	
32		GND	Module Ground.	1
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	
34	CML-I	Tx3-	Transmitter Inverted Data Output.	
35		GND	Module Ground.	1

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

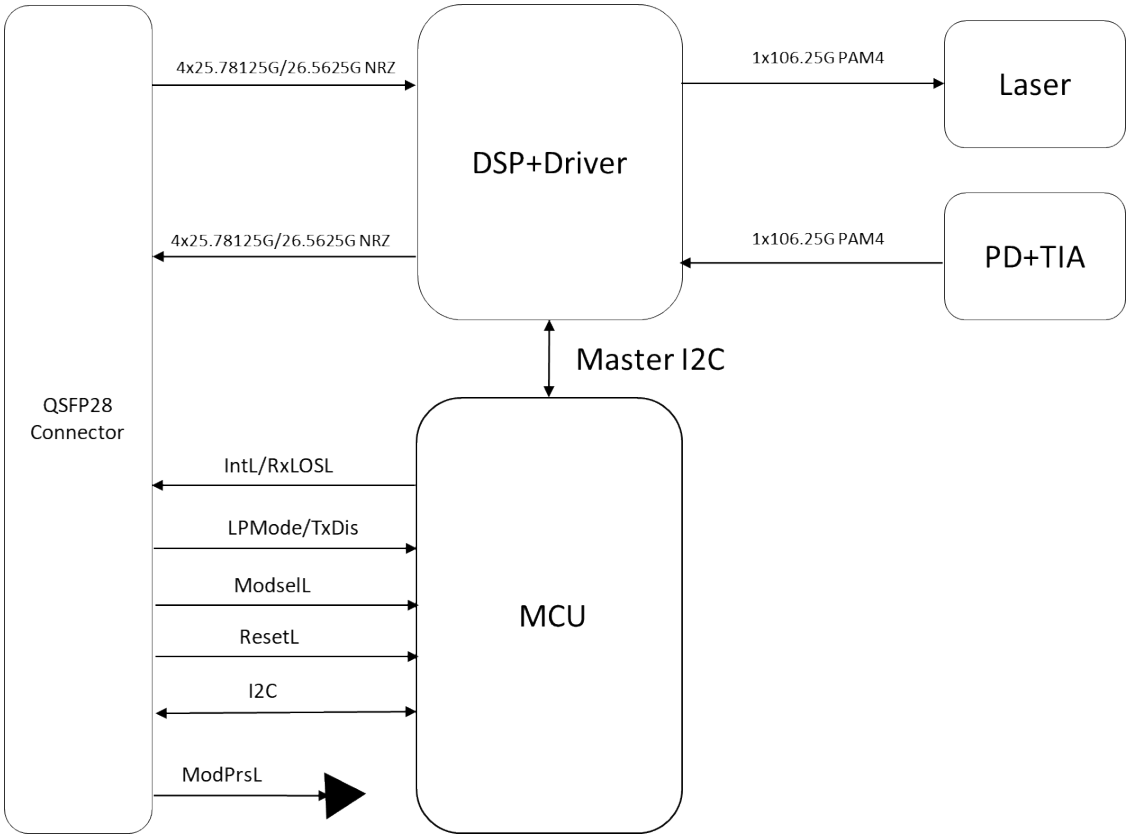
Notes:

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. VccRx, Vcc1, and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. Recommended host board power supply filtering is shown below. VccRx, Vcc1, and VccTx may be internally connected within the QSFP28 transceiver module in any combination. The connector pins are each rated for a maximum current of 1000mA.

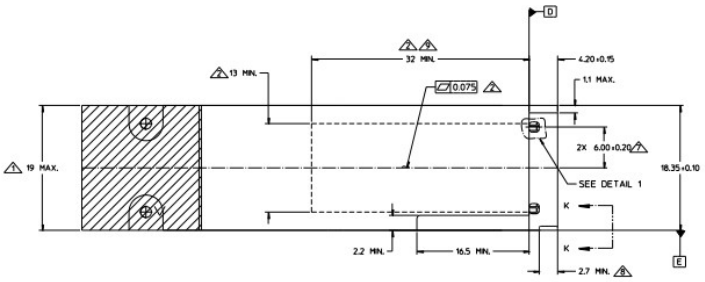
Electrical Pin-Out Details



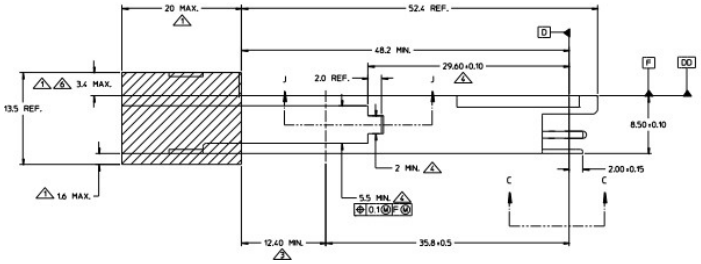
Block Diagram

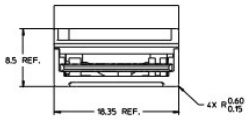


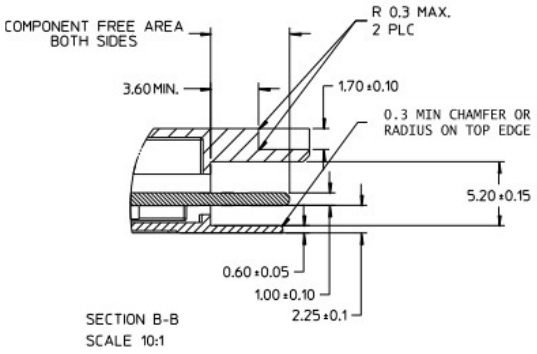
Mechanical Specifications



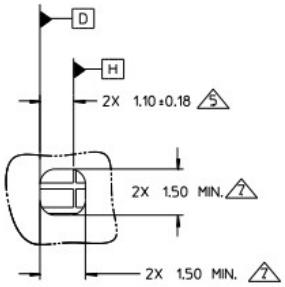
1. INDICATED DIMENSIONS DEFINE ENLARGED SECTION OF TRANSCEIVER THAT EXTENDS OUTSIDE OF CAGE TO ACCOMODATE MATING PLUG AND ACTUATOR MECHANISM
2. FLATNESS APPLIES FOR INDICATED LENGTH AND A MIN WIDTH OF 13MM - SURFACE TO BE THERMALLY CONDUCTIVE
3. INDICATED SURFACES (ALL 4 SIDES) TO BE CONDUCTIVE FOR CONNECTION TO CHASIS GROUND
4. DIMENSION APPLIES TO LATCH MECHANISM
5. INDICATED DIMENSION APPLIES TO THE LOCATION OF THE EDGE OF THE MODULE BOARD PAD. DATUM H. CONTACTS 21, 22, 36, AND 37 ARE VISIBLE.
6. INDICATED DIMENSION TO INCLUDE BAIL TRAVEL
7. INDICATED DIMENSIONS APPLY TO OPENINGS IN HOUSING
8. FEATURE MAY BE LONGER THAN SHOWN.
9. HIGHER WATTAGE MODULES MAY REQUIRE ADDITIONAL SPACE FOR COOLING.



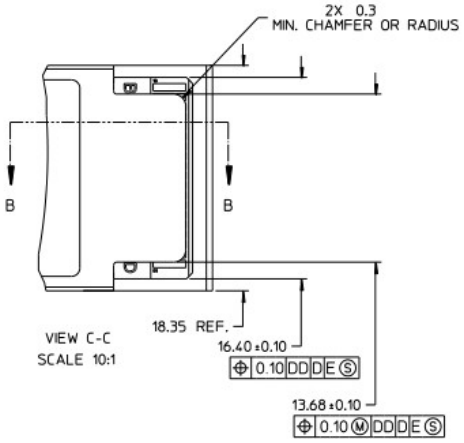




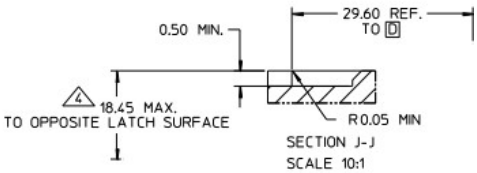
SECTION B-B
SCALE 10:1



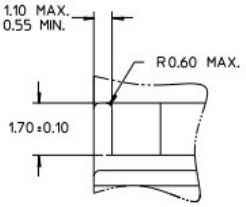
DETAIL 1
SCALE 10:1



VIEW C-C
SCALE 10:1



SECTION J-J
SCALE 10:1



VIEW K-K
SCALE 10:1

About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is in engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

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