QSP-100C431-02CL

100G QSFP28 CWDM4 Optical Transceiver

Features

- High density interconnectivity
- Supports 100Gb/s data rate links up to 2km on a Singlemode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply

Applications

- Data Center interconnections
- 100GBASE Ethernet links

Description

The AscentOptics 100G QSFP28 CWDM4 is a 4x25G single-mode fiber,hot pluggable optical transceiver. AscentOptics's unique SystemOnGlass^{TM} (SOG^{TM}) integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.

The optical connectivity is based on two Singlemode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist channels, whose wavelengths are in the 1300nm range. The QSFP28 CWDM4 transceiver is designed for applications with a reach up to 2000m and with the use of FEC. This transceiver is based on proprietary ColorChip PLC technology,using surface mounted opto-electronic devices with no free space elements. The unique design of the optical engine facilitates unparalleled compactness while maintaining Telcordia robustness.

General Description

Compliant with the 100G CWDM4 MSA Technical Specification Rev 1.0 Supports 100 Gbps data rates links from 2m to 2km over a standard SMF QSFP28 footprint (Quad Small Form-factor Pluggable) with 2 unidirectional LC SMF optical connector receptacles Compliant to the SFF-8665 Pluggable Transceiver Solution (QSFP28) MSA Electrical Interface based on CAUI-4 as defined by IEEE 802.3 CL83E Compliant to the SFF-8636 Common Management Interface MSA 38 pin hot pluggable edge connector electrical interface The transmitter consists of a retimed quad input, 4 un-cooled CWDM DFB lasers operating on the ITU G.694.2 wavelength grid at 1271, 1291, 1311 and 1331nm and multiplexed into a single SMF output
The receiver consists of a CWDM de-multiplexer, a quad photodiode receiver and a retimed electrical output
Provides Bias and Transmit Power Monitoring (TPM) for each of the 4 transmitter channels.
Provides RSSI Monitoring for each of the 4 receiver channels.
Provides monitoring of the voltage supplies and case temperature
Provides Module Present and Interrupt signals
Input control pins for Module Select, Module Reset and Low Power Modes
Supports operation for a case temperature of 0°C to +70 °C
Includes customized coding option for module security implementation

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Storage Temperature Range	TSTG	_40	+85	℃
Supply Voltage	Vcc	0	4	V
Relative Humidity	RH	10% to 90% non-condensing		

Operating Conditions

Parameter	Symbol	Min	Max	Units
Case Temperature-Operating	TCASE	0	70	℃
Supply Voltage	Vcc	3.14	3.46	V
Power Consumption	PDISS		3.5	W
Power Consumption-LP Mode	PDISS-lp		1.5	W

Transmitter Optical Specification

Transmitter Parameter	Lane	Min	Typical	Max	Unites
Signaling rate,each lane		25.78125+-100ppm			Gb/s
Lane Wavelength Range	Lane 0	1246.5	1271	1277.5	nm
	Lane 1	1284.5	1291	1297.5	nm
	Lane 2	1304.5	1311	1317.5	nm
	Lane 3	1324.5	1331	1337.5	nm
Average Optical Power per lane		-6.5		2.5	dBm
Total Average Launch Power				8.5	dBm
Launch Power in OMA minus TDP,each lane		-5			dBm
Transmitter and Dispersion Penalty (TDP) each lane				3	dB
Average Launch Power per Lane@TX Off State				-30	dBm
Extinction Ratio		3.5			dB
Relative Intensity Noise (OMA)				-130	dB/Hz
Side-Mode Suppression Ration (SMSR)		30			dB
Optical Return Loss Tolerance				20	dB
Transmitter Reflectance				-12	dB
Transmitter Output Power Monitoring Accuracy		-3		3	dB
Transmitte Eye Mask Definition (X1,X2,X3,Y1,Y2,Y3)	(0.31, 0.4, 0.45, 0.34, 0.38, 0.4)				

Receiver Optical Specifications

Receiver Parameter	Lane	Min	Typical	Max	Unites
Signaling rate,each lane		25.78125+-100ppm			
Lane Wavelength Range	Lane 0	1246.5	1271	1277.5	nm
	Lane 1	1284.5	1291	1297.5	nm
	Lane 2	1304.5	1311	1317.5	nm

	Lane 3	1324.5	1331	1337.5	nm
Damage		3.5			dBm
Average Receiver Power , each lane		-11.5		2.5	dBm
Receiver Power ,each lane (OMA)				2.5	dBm
Receiver Reflectance				-26.o	dB
Receive Sensitivity (OMA) per lane at 5x10 BER				-10.0	dB
RSSI Accuracy		-3		3	dB

Pin Description

The electrical interface to the transceiver is a 38 pins edge connector. The 38 pins provide high speed data, low speed monitoring and control signals, I2C communication, power and ground connectivity. The top and bottom views of the connector are provided below, as well as a table outlining the contact numbering, symbol and full description.

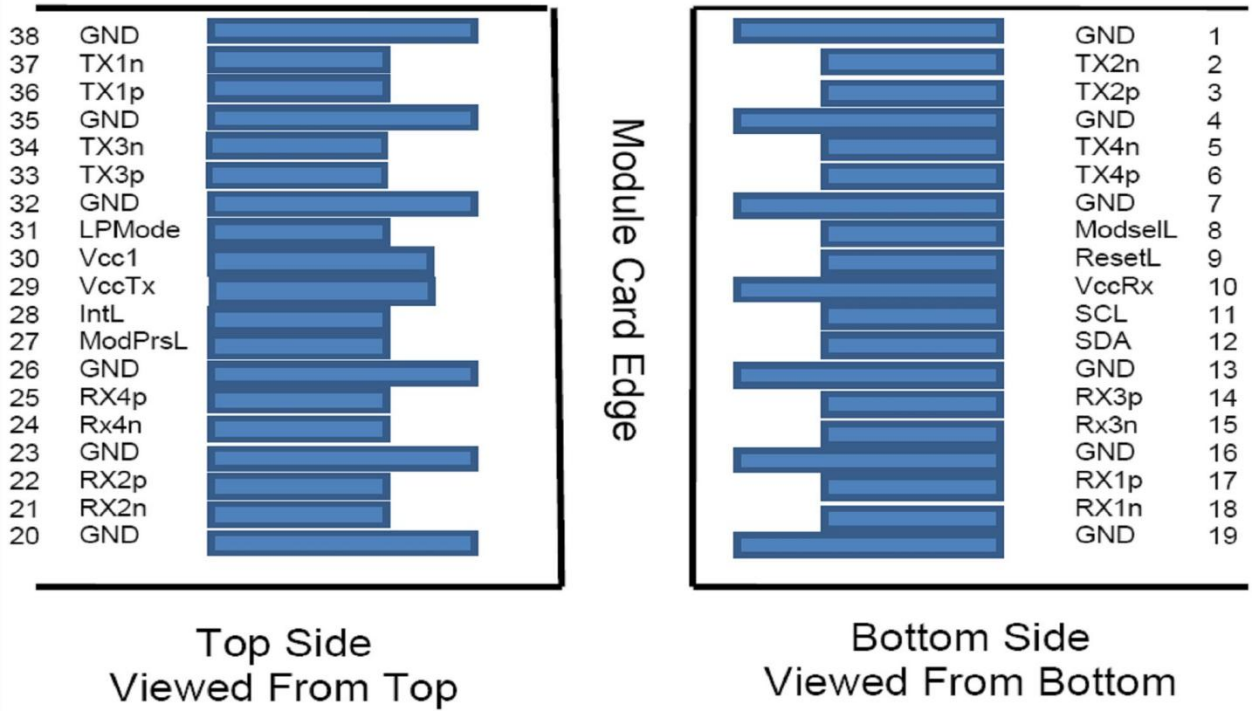

Figure 1. QSFP28 compliant 38-pin connector

Mechanical Drawings

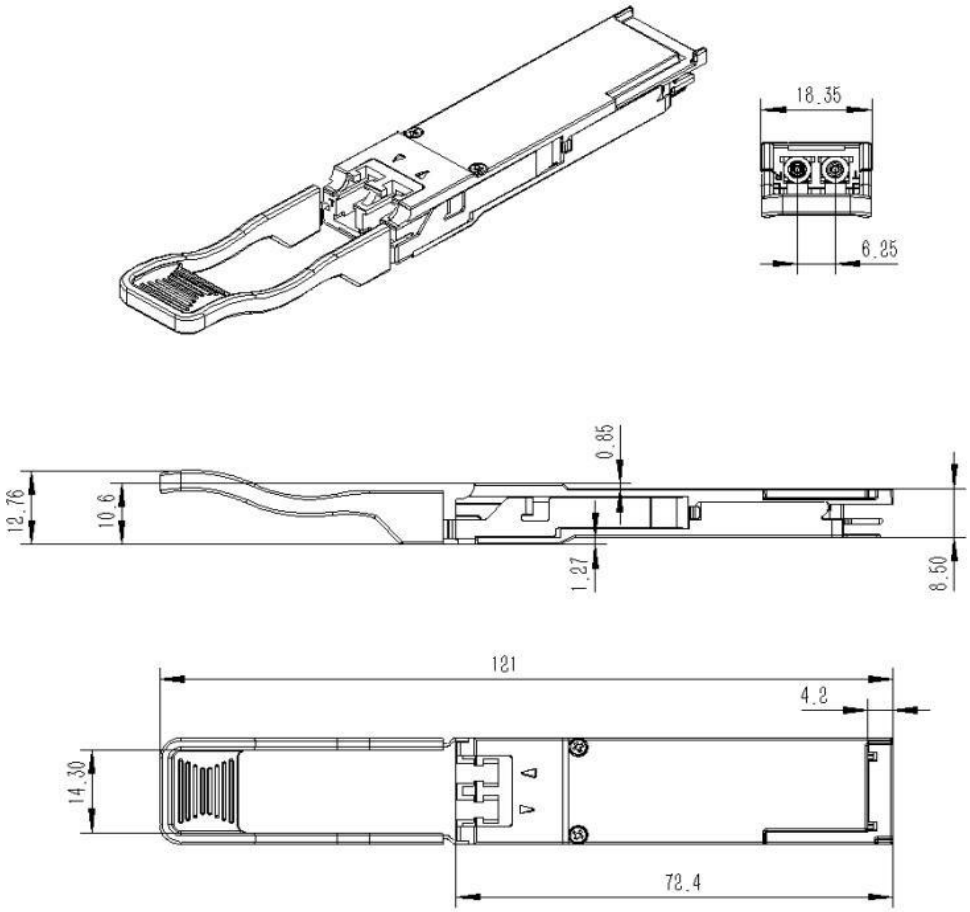

Figure 3. Mechanical Dimensions

Ordering information

Part Number	Description
QSP-100C431-02CL	100G QSFP28 CWDM4 Optical Transceiver

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