QSFP28-100GB-BX-U-70-N2-AO

Alcatel-Lucent Nokia® Compatible TAA 100GBase-ZR4 Lite BX QSFP28 Transceiver (SMF, 1272.55nmTx/1310.19nmRx, 70km, LC, DOM)

Features

- Compliant with QSFP28 MSA
- Supports 103.1Gbps Aggregate Bit Rate
- Hot Pluggable
- Single 3.3V Power Supply
- Cooled 4x25Gbps LAN WDM Transmitter TOSA, Receiver ROSA
- Up to 70km Reach for G.652 SMF
- Single LC Receptacle
- Maximum Power Consumption: 5.0W
- RoHS Compliant and Lead-Free
- Operating Temperature: 0 to 70 Celsius

Applications

- Datacenter
- 100GBase Ethernet

Product Description

This Alcatel-Lucent Nokia® compatible QSFP28 transceiver provides 100GBase-BX ZR4L throughput up to 70km over single-mode fiber (SMF) using a wavelength of 1272.55nmTx/1310.19nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Alcatel-Lucent Nokia®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. 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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Relative Humidity	RH	0		90	%	
Supply Voltage	Vcc	-0.5		3.6	V	
Power Consumption	P			5.0	W	
Data Rate Per Lane	Gbps		25.78125			
Signaling Speed Accuracy		-100		100	ppm	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Supply Current	Icc	mA		1443	mA	
Sustained Peak Current	Isp	mA		1650	mA	
Instantaneous Peak Current	Iip			2000		
Power Dissipation	PW			5.0	W	
Low Power Dissipation	P_{DISS}			1.5	W	
Transmitter						
Differential Voltage Pk-Pk				900	mV	
Common-Mode Noise (RMS)				17.5	mV	
Eye Height		95			mV	
Eye Width		0.46			UI	
Differential Termination Mismatch				10	%	
Transition Time		10			ps	20-80%
Common-Mode Voltage		-0.3		2.8	V	
Receiver						
Differential Voltage Pk-Pk				900	mV	
Common-Mode Noise (RMS)				17.5	mV	
Eye Height		228			mV	
Eye Width		0.57			UI	
Differential Termination Mismatch				10	%	
Transition Time		9.5			ps	20-80%
Vertical Eye Closure	VEC			5.5	dB	
3.3V LVTTL						
Input High Voltage	VIH	2.0		Vcc+0.3	V	

Input Low Voltage	VIL	-0.3		0.8	V	
Input Leakage Current	IIN	-10		+10	uA	
Output High Voltage (IOH=100uA)	VOH	Vcc-0.5		Vcc+0.3	V	
Output Low Voltage (IOL=100uA)	VOL	0		0.4	V	
3.3V LVCMOS						
Input High Voltage	VIH	Vcc*0.7		Vcc+0.5	V	
Input Low Voltage	VIL	-0.3		Vcc*0.3	V	
Output High Voltage (IOH=100uA)	VOH	Vcc-0.5		Vcc+0.3	VOH	
Output Low Voltage (IOL=100uA)	VOL	0		0.4	VOL	
I/O Pin Capacitance	Ci			14	Ci	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1272.55	1273.55	1274.54	nm	
		1276.89	1277.89	1278.89		
		1281.25	1282.26	1283.27		
		1285.65	1286.66	1287.68		
Side-Mode Suppression Ratio (Minimum)	SMSR	30				
Total Average Launch Power	Pt			13	dBm	
Average Launch Power Per Lane	Pa	1.0		7.0	dBm	1
Optical Modulation Amplitude Per Lane	OMA	3		8.8	dBm	2
Difference in Launch Power Between Any Two Lanes (OMA) (Maximum)				3.6	dB	
Average Launch Power of Off Transmitter Per Lane	Poff			-30	dBm	
Extinction Ratio	ER	6			dB	
Optical Return Loss Tolerance				20	dB	
Transmitter Reflectance				12	dB	3
Eye Diagram			≥10			
Eye Mask Margin		{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}				4
Receiver						
Center Wavelength	λC	1294.53	1295.56	1296.59	nm	
		1299.02	1300.05	1301.09		
		1303.54	1304.58	1305.63		
		1308.09	1309.14	1310.19		
Damage Threshold	Pmax	5.5			dBm	5

Average Receive Power Per Lane	Pin	-26		-5		6
Receive Power on OMA Per Lane	PinOMA			-3.5	dBm	
Receiver Reflectance	dB			-26		
Receiver Sensitivity for Each Lane (100GbE) at BER= 5x10^{-5} BER CD=[-356/66] ps/nm	S			-24	dBm	
LOS Hysteresis		0.5		5	dB	

Notes:

1. Average launch power, per lane (minimum), is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. Even if the TDP<1dB, the OMA (minimum) must exceed this value.
3. Transmitter reflectance is defined looking into the transmitter.
4. Eye mask hit ratio is 5E^{-5}.
5. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.
6. Average receive power, each lane (minimum), is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
7. Receiver sensitivity (OMA), per lane (maximum) at 5x10^{-5} BER, is a normative specification.

Pin Descriptions

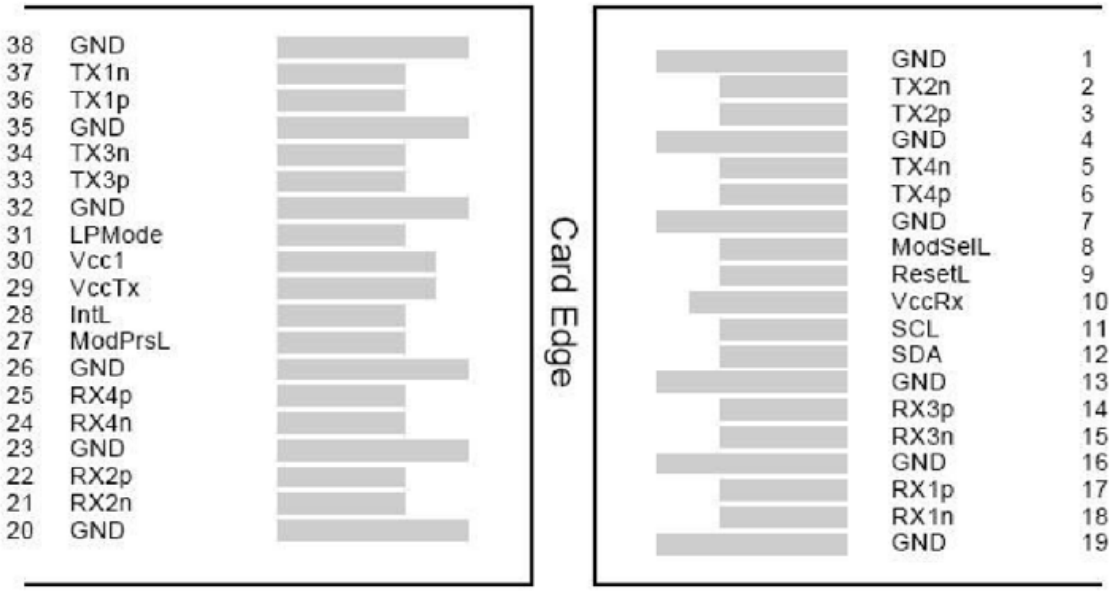
Pin	Symbol	Name/Description	Notes
1	GND	Module Ground.	1
2	Tx2-	Transmitter Inverted Data Input.	
3	Tx2+	Transmitter Non-Inverted Data Input.	
4	GND	Module Ground.	1
5	Tx4-	Transmitter Inverted Data Input.	
6	Tx4+	Transmitter Non-Inverted Data Input.	
7	GND	Module Ground.	1
8	ModSelL	Module Select.	
9	ResetL	Module Reset.	
10	VccRx	+3.3V Receiver Power Supply.	2
11	SCL	2-Wire Serial Interface Clock.	
12	SDA	2-Wire Serial Interface Data.	
13	GND	Module Ground.	1
14	Rx3+	Receiver Non-Inverted Data Output.	
15	Rx3-	Receiver Inverted Data Output.	
16	GND	Module Ground.	1
17	Rx1+	Receiver Non-Inverted Data Output.	
18	Rx1-	Receiver Inverted Data Output.	
19	GND	Module Ground.	1
20	GND	Module Ground.	1
21	Rx2-	Receiver Inverted Data Output.	
22	Rx2+	Receiver Non-Inverted Data Output.	
23	GND	Module Ground.	1
24	Rx4-	Receiver Inverted Data Output.	
25	Rx4+	Receiver Non-Inverted Data Output.	
26	GND	Module Ground.	1
27	ModPrsL	Module Present.	
28	IntL/RxLOSL	Interrupt. Optionally configurable as RxLOSL via the management interface (SFF-8636).	
29	VccTx	+3.3V Transmitter Power Supply.	2
30	Vcc1	+3.3V Power Supply.	2
31	LPMode/TxDis	Low-Power Mode. Optionally configurable as TxDis via the management Interface (SFF-8636).	
32	GND	Module Ground.	1
33	Tx3+	Transmitter Non-Inverted Data Input.	
34	Tx3-	Transmitter Inverted Data Input.	
35	GND	Module Ground.	1

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

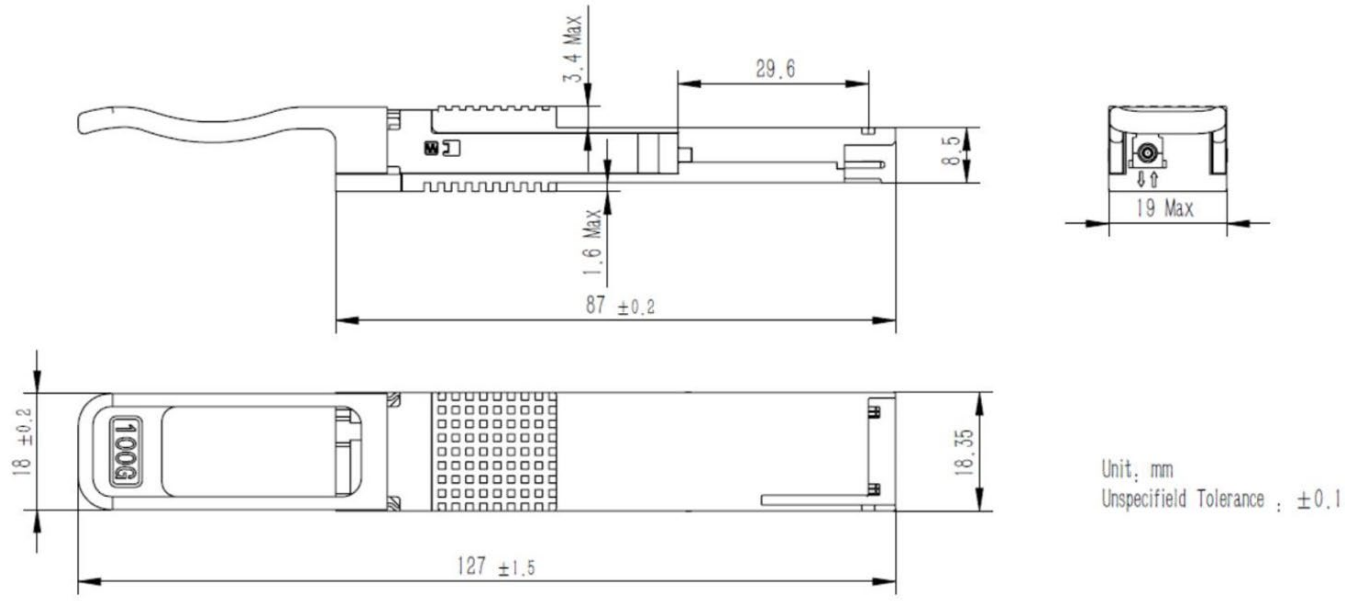
Notes:

1. GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the 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 receiving and transmission power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. VccRx, Vcc1, and VccTx may be internally connected within the module in any combination. The connector pins are each rated for a maximum current of 1000mA.

Electrical Pin-Out Details



Mechanical Specifications



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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