

SNR-QSFP28-ER4-L Series

Single-Mode 100GBASE-ER4 QSFP28 Transceiver
RoHS6 Compliant



Features

- ◆ Supports 103Gbps
- ◆ Single 3.3V Power Supply and Power dissipation < 3.5W
- ◆ Up to 25km over SMF
- ◆ RoHS-6 compliant (lead-free)

Commercial case temperature range of

- ◆ 0°C to 70°C
- ◆ Four 25Gbps DML LAN-WDM channels on transmitter side
- ◆ PIN and TIA array on the receiver side
- ◆ 4x25G electrical interface
- ◆ Duplex LC receptacles
- ◆ I²C interface with integrated Digital Diagnostic Monitoring

Applications

- ◆ 100GBASE-ER4-L 100G Ethernet

Ordering Information

Part No.	Data Rate	Fiber	Distance *(note2)	Interface	Temp.	DDMI
SNR-QSFP28-ER4-L *(note1)	103Gbps	SMF	25km	LC	0°C~+70°C	Yes

Note1: customize version

Note2: Over SMF

*The product image only for reference purpose.

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Regulatory Compliance*

Product Certificate	Certificate Number	Applicable Standard
TUV	R50135086	EN 60950-1:2006+A11+A1+A12+A2
		EN 60825-1:2014
		EN 60825-2:2004+A1+A2
UL	E317337	UL 60950-1
		CSA C22.2 No. 60950-1-07
EMC CE	AE 50285865 0001	EN 55022:2010
		EN 55024:2010
FCC	WTF14F0514417E	47 CFR PART 15 OCT., 2013
FDA	/	CDRH 1040.10
ROHS	/	2011/65/EU

*The above certificate number updated to June 2014, because some certificate will be updated every year, such as FDA and ROHS.

Product Description

SNR-QSFP28-ER4-L transceiver module is designed for 103Gigabit Ethernet links over 25Km single mode fiber. It is compliant with IEEE 802.3ba 100GBASE-ER4-L. Digital diagnostics functions are available via an I2C interface, as specified by the QSFP+MSA.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T _s	-40	+85	°C
Supply Voltage	V _{cc}	-0.5	3.6	V
Operating Relative Humidity	RH	5	85	%

*Exceeding any one of these values may destroy the device immediately.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T _c	0		70	°C
Power Supply Voltage	V _{cc}	3.135	3.3	3.465	V
Power Dissipation	P _D			3.5	W

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Performance Specifications - Electrical

Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter						
Differential Input amplitude		150		1200	mv _{p-p}	
Input Impedance (Differential)	Z _{in}	85	100	115	ohms	R _{in} > 100 kohms @ DC
Receiver						
Differential output amplitude		200		1100	mv _{p-p}	
Output Impedance (Differential)	Z _{out}	85	100	115	ohms	
Output Rise/Fall Time	t _r /t _f		12		ps	10%~90%

Optical Characteristics

100GBASE-ER4-L Operation

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Signaling Speed per Lane	BR _{AVE}		25.78		Gbps
Data Rate Variation		-100		+100	ppm
Lane_0 Center Wavelength	λ _{C0}	1294.53	1295.56	1296.59	nm
Lane_1 Center Wavelength	λ _{C1}	1299.02	1300.05	1301.09	nm
Lane_2 Center Wavelength	λ _{C2}	1303.54	1304.58	1305.63	nm
Lane_3 Center Wavelength	λ _{C3}	1308.09	1309.14	1310.19	nm
Total Average Output Power*(Note3)	P _o			10.5	dBm
Average Launch Power per Lane	P _{each}	0		4.5	dBm
Average launch power of OFF transmitter per lane				-30	dBm
Optical modulation amplitude	P _{oma}	0		4.5	dBm
Optical Return Loss Tolerance				20	dB
Extinction Ratio*(Note4)	ER	4			dB
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}*(Note4)		IEEE 802.3 Clause 88 100Gbase-ER4-L			
Receiver					
Signaling Speed per Lane	BR _{AVE}		25.78		Gbps
Data Rate Variation		-100		+100	ppm
Damage threshold	R _{dam}	4.5			dBm
Lane_0 Center Wavelength	λ _{C0}	1294.53	1295.56	1296.59	nm
Lane_1 Center Wavelength	λ _{C1}	1299.02	1300.05	1301.09	nm
Lane_2 Center Wavelength	λ _{C2}	1303.54	1304.58	1305.63	nm

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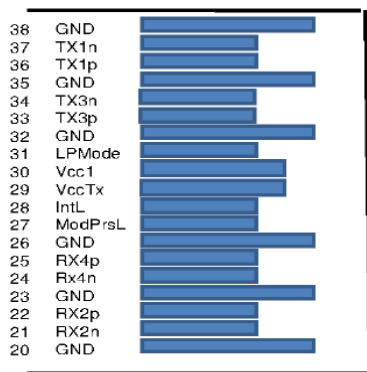
Lane_3 Center Wavelength	λ_{C3}	1308.09	1309.14	1310.19	nm
Average Receive Sensitivity per Lane*(Note5)	Pmin			-10.6	dBm
Optical Return Loss	ORL			-26	dB
LOS Assert	LOSA	-25			dBm
LOS De-Assert	LOSD			-11.6	dBm
LOS Hysteresis		0.5			dB

Note3: Output is coupled into a 9/125 μ m single-mode fiber.

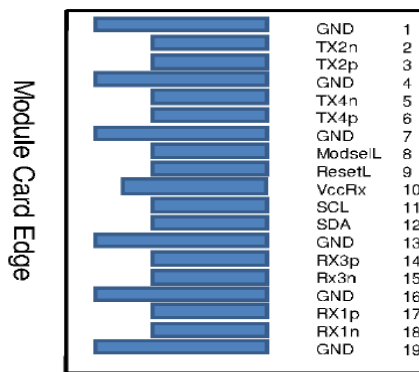
Note4: Filtered, measured with a PRBS 2³¹-1 test pattern @25.78Gbps

Note5: Minimum average optical power measured at BER less than 1E-12, with a 2³¹-1 PRBS.

QSFP28 Transceiver Electrical Pad Layout

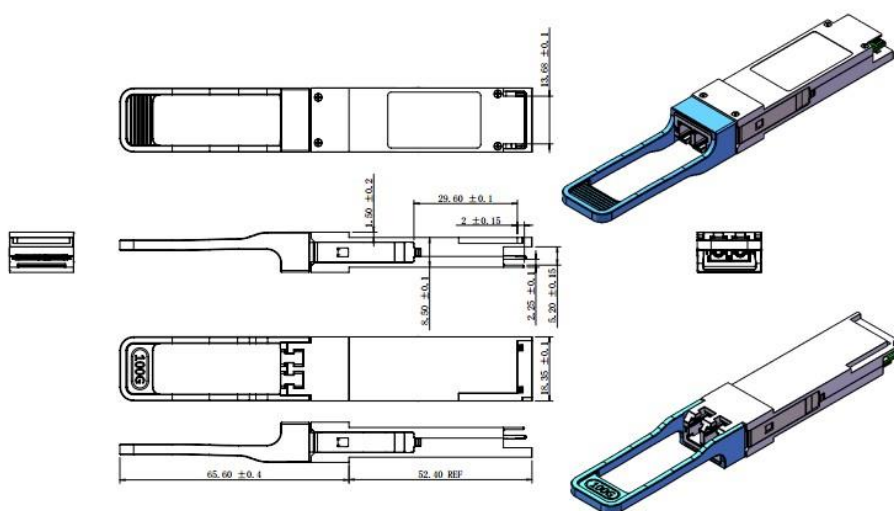


Top Side
Viewed From Top



Bottom Side
Viewed From Bottom

Mechanical Specifications



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GUARANTEE:



Contact:

Address: Russian Federation, Ekaterinburg, Predelnaya st. 57/2

Tel: +7(343) 379-98-38

Fax: +7(343) 379-98-38

E-mail: info@nag.ru

Online shop: <http://shop.nag.ru>