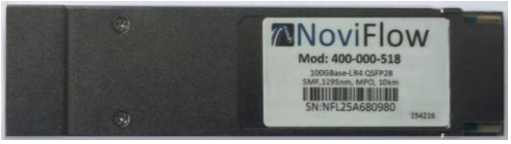
NoviConnect™ 518 100G QSFP28 LR Transceiver

NoviConnect 518. This Industry Standard 100GBase-LR4 QSFP28 Transceiver supports 100 Gigabit Ethernet and up to 10km transmission distance with SMF, is certified for optimal performance with NoviFlow switching products, and is fully compliant with MSA (Multi-Source Agreement) standards. All NoviConnect products from NoviFlow are 100% functionally tested to ensure trouble-free installation and operation when used with NoviFlow's NoviSwitch network products.



NoviConnect Transceivers are factory programmed with specific configuration data required for seamless networking compliance and for optimal network performance when used with NoviFlow switching products. These transceivers can be mixed and connected to devices with MSA industry standard compliant transceivers, for outstanding network performance.

NoviFlow Inc.™ aims to change the traditional approach to networking by making switching smarter. The company was founded to deliver upon the promise of SDN. Our SDN data plane products combine the benefits of virtualization and programmability with network processors that can handle complex flows, making it possible for data center and network operators to keep up with today's exponentially growing networking demand. In order to ensure the highest levels of network performance, seamless compatibility and trouble-free upgrades with our NoviSwitch products, NoviFlow offers a complete line of high-performance and cost-effective SFP transceiver modules.

Key Features:

- Hot pluggable QSFP28 MSA form factor
- Compliant to IEEE 802.3ba 100GBase-LR4
- Up to 10km reach for G.652 SMF
- Single +3.3V power supply
- Operating caste temperature: 0~70°C
- Transmitter: cooled 4x25Gb/s LAN WDM EML TOSA (1295.56, 1300.05, 1304.58, 1309.14nm)
- Receiver: 4x25Gb/s PIN ROSA
- 4x28G Electrical Serial Interface (CEI-28G-VSR)
- Maximum power consumption 4.0W
- Duplex LC receptacle
- RoHS-6 compliant

PRODUCT DESCRIPTION

The NoviConnect 518 100G QSFP28 LR Transceiver (100 Gbps over fiber) is a high performance, cost effective module supporting 100 Gigabit Ethernet and up to 10km transmission distance with SMF.

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case Temp.	Tca	0		70	°C
Data Rate Per Lane	fd		25.78125		Gbps
Control Input Voltage High		2		Vcc	V
Control Input Voltage Low	Pm	0		0.5	V
Link Distance with G.652	D			10	km

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	Vcc	-0.5		3.6	V
Damage Threshold, each Lane	THd	5.5			dBm
Storage Temperature	Tst	-40		85	°C
Case Operating Temperature	Top	0		70	°C
Humidity (non-condensing)	Rh	5		85	%

ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTES
Power Consumption				4.0	W	
Supply Current	Icc			1.21	A	
Transceiver Power-on Initialization Time				2000	ms	1
Transmitter						
Single-ended Input Voltage Tolerance		-0.3		4.0	V	2
AC Common Mode Input Voltage Tolerance		15			mV	RMS
Differential Input Voltage Swing Threshold		50			mVpp	LOSA Threshold
Differential Input Voltage Swing	Vin,pp	190		700	mVpp	
Differential Input Impedance	Zin	90	100	110	Ohm	
Receiver						
Single-ended Output Voltage		-0.3		4.0	V	
AC Common Mode Output Voltage				7.5	mV	RMS
Differential Output Voltage Swing	Vout,pp	300		850	mVpp	
Differential Output Impedance	Zout	90	100	110	ohm	

Note:

1. Power-on Initialization Time is the time from when the power supply voltages reach and remain above the minimum recommended operating supply voltages to the time when the module is fully functional.
2. The single ended input voltage tolerance is the allowable range of the instantaneous input signals.

OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTES
Lane Wavelength	L0	1294.53	1295.56	1296.59	nm	
	L1	1299.02	1300.05	1301.09		
	L2	1303.54	1304.58	1305.63		
	L3	1308.09	1309.14	1310.19		
Transmitter						
RMSR	SMSR	30			dB	
Total Average Launch Power	P_T			10.5	dBm	
Average Launch Power, each Lane	P_{AVG}	-4.3		4.5	dBm	
OMA, each Lane	P_{OMA}	-1.3		4.5	dBm	
Difference in Launch Power between any Two Lanes (OMA)	Ptx,diff			5	dB	
Launch Power in OMA minus Transmitter and Dispersion Penalty (TDP), each Lane		-2.3			dBm	
TDP, each Lane	TDP			2.2	dB	
Extinction Ratio	ER	4			dB	
$RIN_{20}OMA$	RIN			-130	dB/Hz	
Optical Return Loss Tolerance	TOL			20	dB	
Transmitter Reflectance	R_T			-12	dB	
Eye Mask Coordinates: X1, X2, X3, Y1, Y2, Y3	Specification Values 0.25, 0.4, 0.45, 0.25, 0.28, 0.4					2
Average Launch Power OFF Transmitter, each Lane	Poff			-30	dBm	
Receiver						
Damage Threshold, each Lane	TH_d	5.5			dBm	3
Total Average Receive Power				10.5	dBm	
Average Receive Power, each Lane		10.6		4.5	dBm	
Receiver Power (OMA), each Lane				4.5	dBm	
Receiver Sensitivity (OMA), each Lane	SEN			-8.6	dBm	
Stressed Receiver Sensitivity (OMA), each Lane				-6.8	dBm	4
Difference in Receive Power between any Two Lanes (OMA)	Prx,diff			5.5	dB	
LOS Assert	LOSA		-18		dBm	
LOS Deassert	LOSD		-15		dBm	
LOS Hysteresis	LOSH	0.5			dB	
Receiver Electrical 3 dB upper Cutoff Frequency, each Lane	Fc			31	GHz	

Note:

1. Even if the TDP < 1 dB, the OMA min must exceed the minimum value specified here.
2. See Figure 1 below.
3. The receiver shall be able to tolerate, without damage, continuous exposure to a modulated optical input signal having this power level on one lane. The receiver does not have to operate correctly at this input power.
4. Measured with conformance test signal at receiver input for BER = $1x10^{-12}$
5. Vertical eye closure penalty and stressed eye jitter are test conditions for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

ORDERING INFORMATION MODEL NUMBER 400000518

FOR MORE INFORMATION

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NoviFlow switching made smarter