

NoviConnect™ 513 40G QSFP+ Active Optical Cable

NoviConnect 513 40G Transceiver + Active Optical Cable (3 meter). This Industry Standard 40Gbase QSFP+ Active Optical Cable operates full duplex 4 channel, supports 40G Ethernet, fiber channel and PCIe, 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.

PRODUCT DESCRIPTION

The NoviConnect 513 QSFP-40G + active optical cable is a high performance, low power consumption, long reach interconnect solution supporting 40G Ethernet, fiber channel and PCIe. It is compliant with the QSFP MSA and IEEE P802.3ba 40GBASE-SR4. QSFP AOC is an assembly of 4 full-duplex lanes, where each lane is capable of transmitting data at rates up to 10Gb/s, providing an aggregated rate of 40Gb/s.

Key Features:

- Full duplex 4 channel parallel active optical cable
- Transmission data rate up to 10.3Gbit/s per channel
- SFF-8436 QSFP+ compliant
- Hot pluggable electrical interface
- Differential AC-coupled high-speed data interface
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- Low power consumption <1.5W
- Operating case temperature 0°C to +70°C
- 3.3V power supply voltage
- RoHS 6 compliant

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case Temp.	Tca	-5		70	°C
Data Rate Per Lane	fd	2.5		10.3	Gbps
Humidity	Rh	5		85	%
Power Dissipation	Pm			1.5	W
Fiber Bend Radius	Rb	3			cm

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	Vcc	-0.5		4.0	V
Input Voltage	Vin	-0.3		Vcc+0.3	V
Storage Temperature	Ts	-20		85	°C
Case Operating Temperature	Top	0		70	°C
Humidity (non-condensing)	RH	5		95	%

SPECIFICATIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTES
Differential input impedance	ZIN	90	100	110	OHM	2
Differential Output impedance	Zout	90	100	110	ohm	3
Differential input voltage amplitude	ΔV_{in}	300		1100	mVp-p	
Differential output voltage amplitude	ΔV_{out}	500		800	mVp-p	
Skew	Sw			300	ps	
Bit Error Rate	BR			E-12		
Input Logic Level High	V _{IH}	2.0		V _{CC}	V	
Input Logic Level Low	V _{IL}	0		0.8	V	
Output Logic Level High	V _{OH}	V _{CC} -0.5		V _{CC}	V	
Output Logic Level Low	V _{OL}	0		0.4	V	

Notes:

1. BER=10⁻¹²; PRBS 2³¹-1 @10.3125Gbps.
2. Differential input voltage amplitude is measured between TxnP and TxnN.
3. Differential output voltage amplitude is measured between RxNP and RxnN.

OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTES
Transmitter						
Center Wavelength	λC	840	850	860	nm	
RMS Spectral Width	$\Delta\lambda$			0.65	nm	
Average Launch Power per Channel	P _{out}	-7.5		-2.5	dBm	
Difference in launch power between any two lanes (OMA)					dB	
Extinction Ratio	ER	3			dB	
Peak power, each lane				4	dBm	
Transmitter and dispersion penalty (TDP), each lane	TDP			3.5	dB	
Average launch power of OFF transmitter, each lane				-30	dB	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		0.23, 0.34, 0.43, 0.27, 0.33, 0.4				Hit Ratio = 5x10 ⁻⁵
Receiver						
Center Wavelength	λC	840	850	860	nm	
Stressed receiver sensitivity in OMA, each lane				-5.4		1
Maximum Average power at receiver input, each lane				2.4		
Receiver Reflectance				-12		
Peak power, each lane				4		
LOS Assert		-30				
LOS De-Assert – OMA				7.5		
LOS Hysteresis		0.5				

Note:

Measured with conformance test signal at TP3 for BER = 10e-12

ORDERING INFORMATION

MODEL NUMBER 400000513


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