WDA813-AXC1

10Gb/s SFP+ Active Optical Cable

Product Features

- Low power consumption <0.35W per end
- Electrical interface compliant to SFF-8431
- Up to 300m on OM3 MMF
- 850nm VCSEL transmitter, PIN photo-detector receiver
- Operating case temperature 0 °C to +70°C
- 3.3V power supply voltage
- RoHS 6 compliant
- Hot Pluggable SFP+ form factor
- Good EMI performance

Applications

- 10 Gigabit Ethernet
- 1x InfiniBand QDR. DDR, SDR
- High-performance computing Clusters
- 4G and 8G Fibre Channel Applications
- Servers, switches, storage, host card adapters and data center

The The SFP+ Active Optical Cables are direct-attach fiber assemblies with SFP+ connectors. They have very good power consumption performance. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. The length of The SFP+ Active Optical Cables is up to 300 meters on OM3 MMF.

Ordering Information

Part Number	Description
WDA813-AXC1	SFP+ 10Gb/s Active Optical Cable

Notes:

where "xxx" denotes cable length in meters. Examples are as follows:

x= D for 3m, x= F for 10m, x=G for 50m, x= H for 100m

Absolute Maximum Ratings

The operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Max	Unit	Notes
Storage Temperature	TST	-20	85	degC	
Relative Humidity(non-condensing)	RH	0	85	%	
Operating Case Temperature	TOPC	0	70	degC	
Supply Voltage	VCC	-0.3	3.6	V	
Input Voltage	Vin	-0.3	Vcc+0.3	V	

Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	TOPC	0		70	degC	Operating Case Temperature
Power Supply Voltage	VCC	3.13	3.3	3.47	V	Power Supply Voltage
Power Consumption				0.35	W	Power Consumption
Data Rate	DR		10.3		Gbps	Data Rate
Data Speed Tolerance	ΔDR	-100		+100	ppm	Data Speed Tolerance

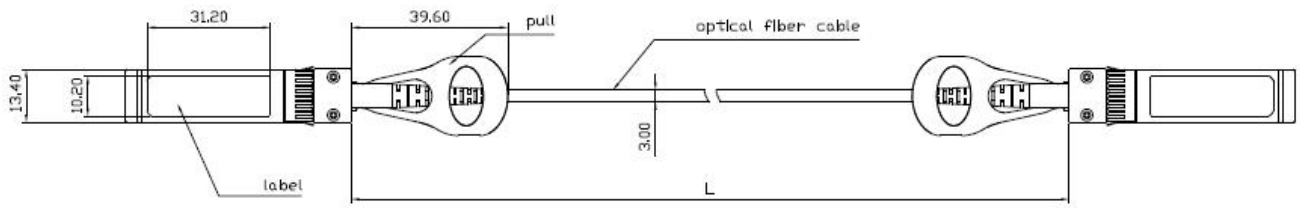
Electrical Specifications

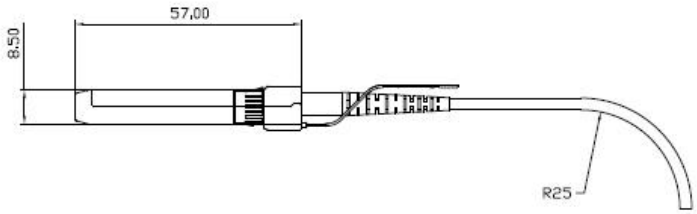
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Differential input impedance	Zin	90	100	110	ohm	
Differential Output impedance	Zout	90	100	110	ohm	
Differential input voltage amplitude	ΔVin	100		1800	mVp-p	
Differential output voltage amplitude	ΔVout	400		800	mVp-p	
Bit Error Rate	BR			E-12		
Input Logic Level High	VIH	2.0		VCC	V	
Input Logic Level Low	VIL	0		0.8	V	

Optical Characteristics

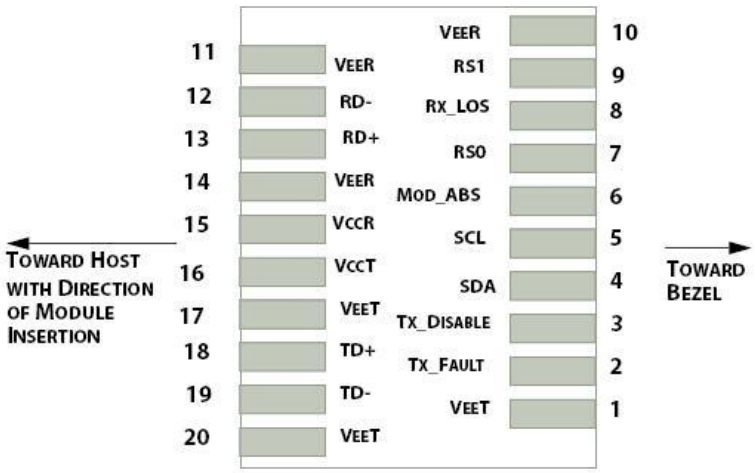
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λC	840	850	860	nm	
Average optical Power	PAVG	-6			dBm	
Rise/Fall Time	Tr/Tf			50	Ps	
Extinction Ratio	ER	3.5			dB	
Relative Intensity Noise	Rin			-128	dB/Hz	
Optical Return Loss Tolerance	TOL			12	dB	
Transmitter Reflectance	RT			-12	dB	
Receiver						
Center Wavelength	λC	840	850	860	nm	
Overload, each lane	OVL	-			dBm	
Receiver Sensitivity in OMA, each Lane	SEN			-11	dBm	

Mechanical Dimensions





Electrical Pad Layout



Pin Assignment

PIN#	Symbol	Description	Remark
1	VEET	Transmitter ground (common with receiver ground)	
2	TFAULT	Transmitter Fault.	
3	TDIS	Transmitter Disable. Laser output disable on high or open	
4	SDA	Data line for serial ID	
5	SCL	Clock line for serial ID	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	
9	RS1	No connection required	
10	VEER	Receiver ground (common with transmitter ground)	
11	VEER	Receiver ground (common with transmitter ground)	
12	RD–	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	VEER	Receiver ground (common with transmitter ground)	
15	VCCR	Receiver power supply	
16	VCCT	Transmitter power supply	
17	VEET	Transmitter ground (common with receiver ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD–	Transmitter Inverted DATA in. AC coupled	
20	VEET	Transmitter ground (common with receiver ground)	