SFP-10GB-DW5160-40-I-N-C

Alcatel-Lucent Nokia® Compatible TAA 10GBase-DWDM SFP+ Transceiver 100GHz (SMF, 1536.61nm to 1529.55nm, 40km, LC, DOM, -40 to 85C)

Features:

- Supports 9.95 to 11.3Gbps Bit Rates
- Up to 40km Link Length @9.95 to 11.3Gbps
- 100GHz ITU-Based Channel Spacing (C-Band)
- Monolithic EML Tunable TOSA
- APD Receiver with Limiting Amplifier
- Duplex LC Connector
- Low Power Consumption: 2.7w
- Positive Power Supply Lines: 3.3V
- Operating Temperature: -40 to 85 Celsius
- RoHS Compliant and Lead-Free

Applications:

- 10x Gigabit Ethernet over DWDM
- Gigabit Ethernet over CWDM
- Access, Metro and Enterprise

Product Description

This Alcatel-Lucent Nokia® compatible SFP+ transceiver provides 10GBase-DWDM throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1536.61nm to 1529.55nm via an LC connector. It is capable of withstanding rugged environments and can operate at temperatures between -40 and 85C. 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. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' 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

Rev. 012026

ITU Channel Wavelength Guide

ITU Channel	Frequency (THz)	Center Wavelength (nm)	ITU Channel	Frequency (THz)	Center Wavelength (nm)
11	191.1	1568.11	**36**	193.6	1548.51
12	191.2	1567.95	**37**	193.7	1547.72
13	191.3	1567.13	**38**	193.8	1546.92
14	191.4	1566.31	**39**	193.9	1546.12
15	191.5	1565.50	**40**	194.0	1545.32
16	191.6	1564.68	**41**	194.1	1544.53
17	191.7	1563.86	**42**	194.2	1543.73
18	191.8	1563.05	**43**	194.3	1542.94
19	191.9	1562.23	**44**	194.4	1542.14
20	192.0	1561.42	**45**	194.5	1541.35
21	192.1	1560.61	**46**	194.6	1540.56
22	192.2	1559.79	**47**	194.7	1539.77
23	192.3	1558.98	**48**	194.8	1538.98
24	192.4	1558.17	**49**	194.9	1538.19
25	192.5	1557.36	**50**	195.0	1537.4
26	192.6	1556.55	**51**	195.1	1536.61
27	192.7	1555.75	**52**	195.2	1535.82
28	192.8	1554.94	**53**	195.3	1535.04
29	192.9	1554.13	**54**	195.4	1534.25
30	193.0	1553.33	**55**	195.5	1533.47
31	193.1	1552.52	**56**	195.6	1532.68
32	193.2	1551.72	**57**	195.7	1531.9
33	193.3	1550.92	**58**	195.8	1531.12
34	193.4	1550.12	**59**	195.9	1530.33
35	193.5	1549.32	**60**	196.0	1529.55

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	0		3.6	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40		85	°C	
Operating Relative Humidity	RH	5		85	%	
Storage Relative Humidity	RH	5		95	%	
Power Consumption				2.7	W	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Transmitter						
Differential Data Input Swing	VIN	170		700	mV	
Input Differential Impedance	ZIN		100		Ω	
Transmitter Disable Voltage	VDIS	2.0		Vcc	V	
Transmitter Enable Voltage	VEN	0		0.8	V	
Receiver						
Differential Data Output Swing	VOUT	300		850	mV	
Output Differential Impedance	ZOUT		100		Ω	
LOS Assert Voltage	VLOSA	2.0		Vcc	V	
LOS De-Assert Voltage	VLOSD	0		0.8	V	

Timing Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Module Initialize Time	Tinit			20	s	
Module Channel Switch Time	Tsel			200	ms	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter (10G & 1.25G)						
Average Output Power	PAVE	-2		3	dBm	1
Optical Wavelength	λ	As Per ITU-T 694.1, 100GHz Spacing			nm	2
Center Frequency Spacing	Δv	100			GHz	
Center Frequency Stability	-	-12.5		+12.5	GHz	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Output Power (Laser Off)	Poff			-30	dBm	
Extinction Ratio	ER	8.2			dB	3
Dispersion Penalty	DP			2	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Optical Return Loss Tolerance	ORLT	21			dB	
Receiver (10G)						
Optical Center Wavelength		1260		1600	nm	
Received Sensitivity	RSENS			-23	dBm	4
Optical Power Overload	POL			-7	dBm	
Receiver Reflectance	RFL			-27	dB	
Rx_LOS of Signal Assert	LOSA	-40			dBm	
Rx_LOS of Signal De-Assert	LOSD			-25	dBm	
Rx_LOS of Signal Hysteresis	LOSH	0.5		6	dB	
Receiver (1.25G)						
Optical Center Wavelength		1260		1600	nm	
Received Sensitivity	RSENS			-28	dBm	5
Optical Power Overload	POL			-7	dBm	
Receiver Reflectance	RFL			-27	dB	
Rx_LOS of Signal Assert	LOSA	-40			dBm	
Rx_LOS of Signal De-Assert	LOSD			-30	dBm	
Rx_LOS of Signal Hysteresis	LOSH	0.5		6	dB	

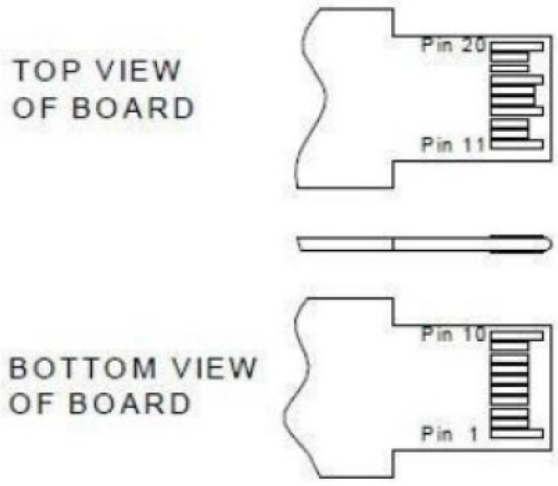
Notes:

1. The optical power is launched into SMF.
2. See details in ITU Channel Wavelength Guide.
3. Measured with PRBS 2^{31}-1 test pattern @10.3125Gbps or 2^{7}-1 test pattern @1.25Gbps.
4. Measured with worst ER=8.2dB, BER less than $1E^{-12}$, and PRBS 2^{31}-1 @10.3125Gbps.
5. Measured with worst ER=8.2dB, BER less than $1E^{-12}$, and PRBS 2^{7}-1 @1.25Gbps.

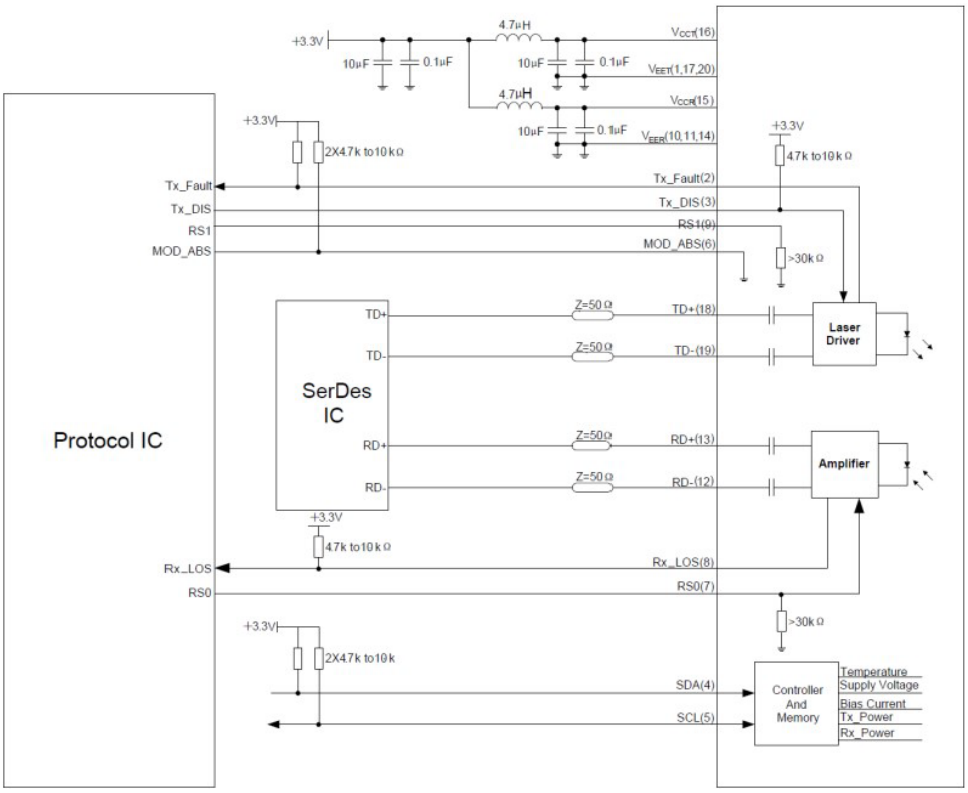
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground. Common with Receiver Ground.	
2	Tx_Fault	Transmitter Fault.	
3	Tx_Disable	Transmitter Disable. Laser output disabled on “high” or “open.”	
4	SDA	2-Wire Serial Interface Data.	
5	SCL	2-Wire Serial Interface Clock.	
6	MOD_ABS	Module Absent. Grounded within the Module.	
7	RS0	Rate Select 0.	
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.	

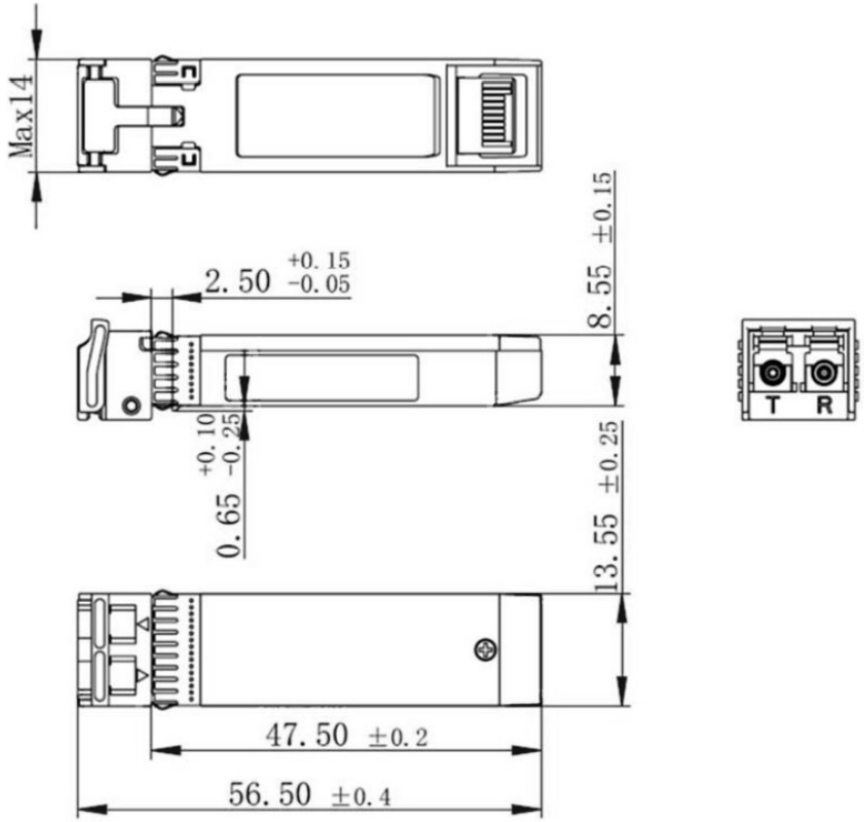
Electrical Pin-Out Details



Recommended Interface Circuit



Mechanical Specifications



About ProLabs

Our extensive experience comes as standard. For over 20 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with more than 100 optical switching and transport platforms.

A Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 1.6T while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

The Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure compatible products, and immediate answers to your questions. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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