

160-9205-900-C

Ciena® 160-9205-900 Compatible TAA 10GBase-ZR SFP+ Transceiver (SMF, 1550nm, 80km, LC, DOM)

Features:

- Compliant with IEEE Std 802.3-2005 10G Ethernet 10GBase-ZR/ZW
- Duplex LC Connector
- Cooled 1550nm EML Laser
- 8.5Gbps to 11.3Gbps Bi-directional Data Links
- Single 3.3V Power Supply
- Class 1 Laser Safety Certified
- Up to 80km on 9/125um SMF
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



Applications:

- 10GBase-ZR Ethernet
- 8x/10x Fibre Channel
- Access, Metro and Enterprise

Product Description

This Ciena® 160-9205-900 compatible SFP+ transceiver provides 10GBase-ZR throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1550nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Ciena®. 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.")



Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Case Temperature	Tc	0		70	°C	
Storage Temperature	Tstg	-40		85	°C	
Relative Humidity	RH	5		95	%	
Supply Voltage	Vcc	-0.5		4.0	V	
Data Rate	DR	8.5	10.3125	11.3	Gbps	

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.135	3.3	3.465	V	
Power Dissipation		PD			1500	mW	
Transmitter							
Input Differential Impedance		ZIN		100		Ω	
Differential Data Input Swing		VIN,pp	180		700	mVp-p	
Tx_Fault	Transmitter Fault	VOH	2.0		Host_Vcc	V	
	Normal Operation	VOL	0		0.8	V	
Tx_Disable	Transmitter Disable	VIH	2.0		Host_Vcc	V	
	Transmitter Enable	VIL	0		0.8	V	
Receiver							
Output Differential Impedance		ZOUT		100		Ω	
Differential Data Output Swing		VOUT,pp	300		850	mVp-p	1
Data Output Rise/Fall Time		Tr/Tf	28			ps	2
Rx_LOS	Loss of Signal (LOS)	VOH	2.0		Host_Vcc	V	3
	Normal Operation	VOL	0		0.8	V	3

Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.
2. 20-80%.
3. LOS is an open collector output. Should be pulled up with 4.7kΩ on the host board.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	1530	1550	1565	nm	
Launch Optical Power	Po	0		4	dBm	1
Extinction Ratio	ER	9			dB	2
Side-Mode Suppression Ratio	SMSR	30			dB	
Transmitter Dispersion Penalty	TDP			3.0	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Optical Return Loss Tolerance	ORLT			21	dB	
POUT @Tx_Disable Asserted	Poff			-30	dBm	1
Eye Diagram	IEEE Std802.3-2005 10Gb Ethernet 100GBase-ZR Compatible					
Receiver						
Center Wavelength	λ_C	1530	1550	1565	nm	
Receiver Sensitivity (Pavg)	S			-24	dBm	3
Receiver Overload (Pavg)	POL	-7.0			dBm	3
Optical Return Loss	ORL	26			dB	
LOS De-Assert	LOSD			-25	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. The optical power is launched into 9/125 μ m SMF.
2. Measured with a PRBS $2^{31}-1$ test pattern @10.3125Gbps.
3. Measured with a PRBS $2^{31}-1$ test pattern @10.3125Gbps with BER< 10^{-12} .

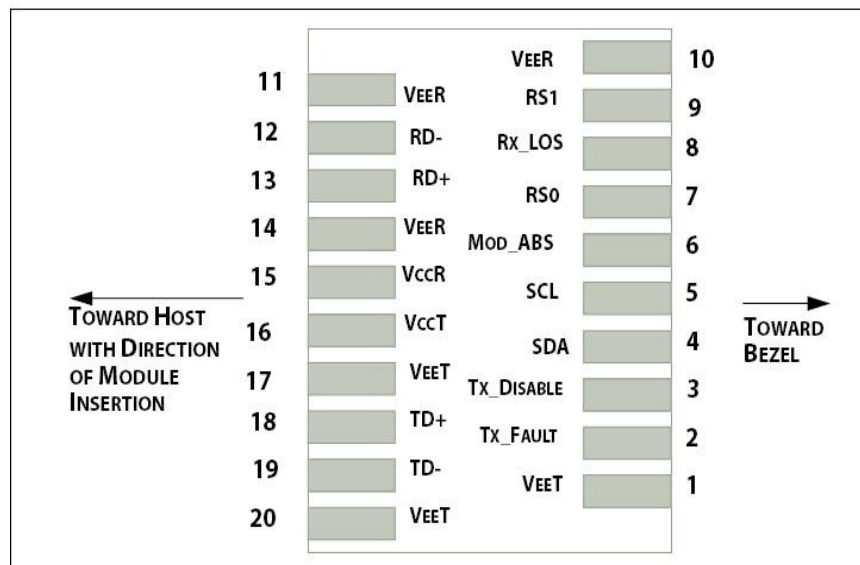
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault (LVTTL-O). “High” indicates a fault condition.	2
3	Tx_Disable	Transmitter Disable (LVTTL-I). “High” or “open” disables the transmitter.	3
4	SDA	2-Wire Serial Interface Data (LVCMOS-I/O) (MOD-DEF2).	4
5	SCL	2-Wire Serial Interface Clock (LVCMOS-I/O) (MOD-DEF1).	4
6	MOD_ABS	Module Absent Output. Connected to the VeeT or VeeR in the module.	5
7	RS0	Rate Select 0 – Not used. Presents high input impedance.	
8	Rx_LOS	Receiver Loss of Signal (LVTTL-O).	2
9	RS1	Rate Select 1 – Not used. Presents high input impedance.	
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Receiver Inverted Data Out. CML-O.	
13	RD+	Receiver Data Out. CML-O.	
14	VeeR	Receiver Ground.	
15	VccR	+3.3V Receiver Power Supply.	
16	VccT	+3.3V Transmitter Power Supply.	
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Data In. CML-I.	
19	TD-	Transmitter Inverted Data In. CML-I.	
20	VeeT	Transmitter Ground.	1

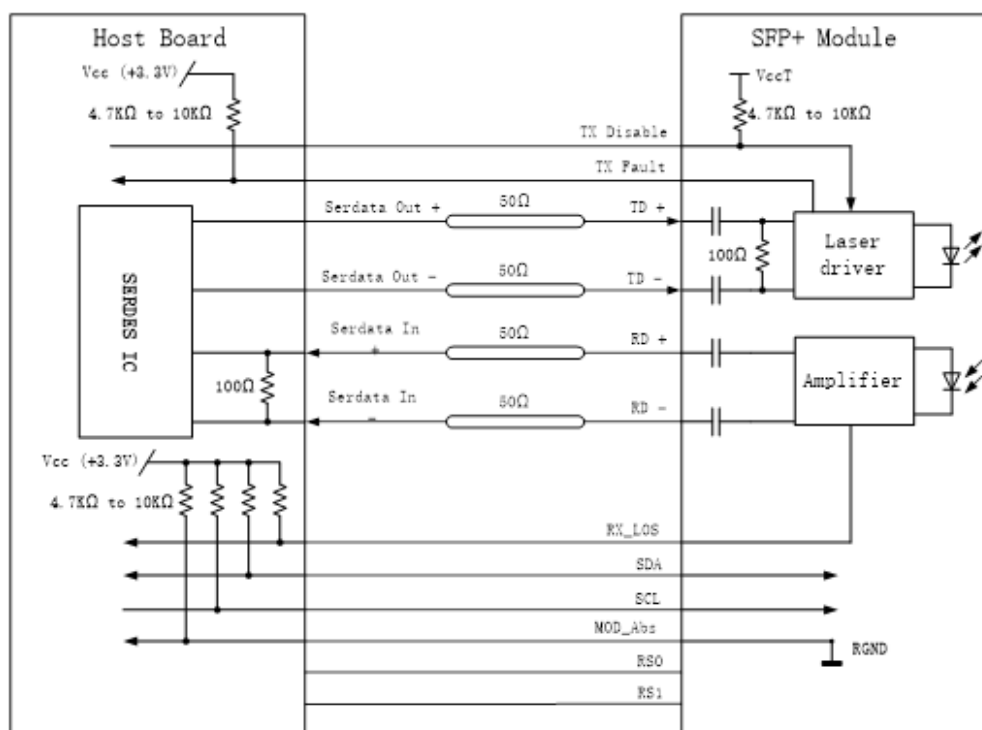
Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that, on the host board, requires a 4.7k Ω to 10k Ω pull-up resistor to the Host_Vcc.
3. This input is internally biased “high” with a 4.7k Ω to 10k Ω pull-up resistor to the VccT.
4. 2-wire serial interface clock and data line requires an external pull-up resistor.
5. This is a ground return that, on the host board, requires a 4.7k Ω to 10k Ω pull-up resistor to the Host_Vcc.

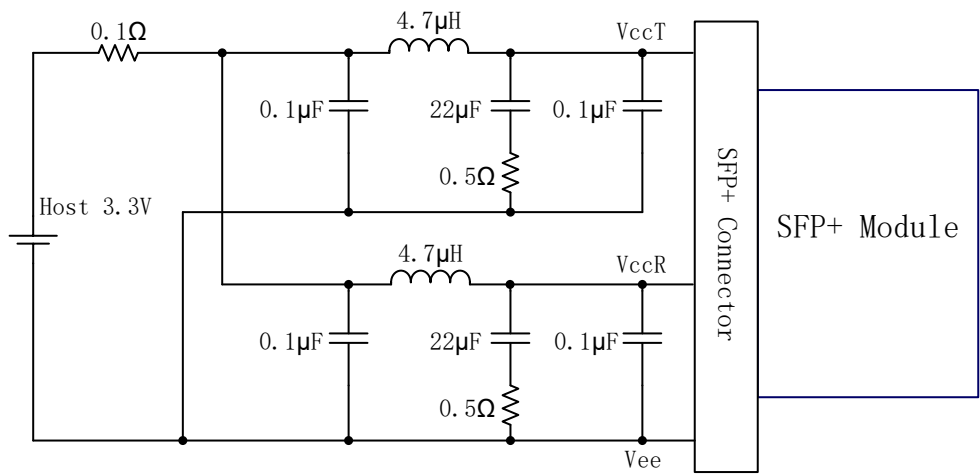
Pin-Out Details



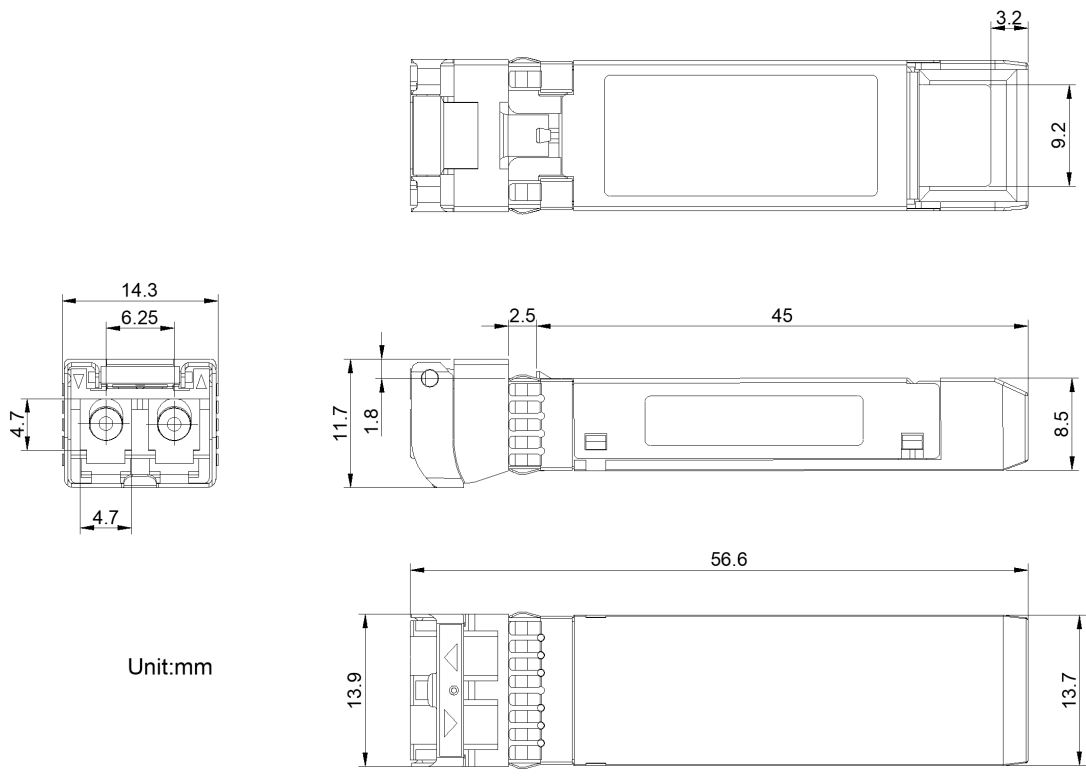
Recommended Circuit Schematic



Recommended Host Board Power Supply Filter Network



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.



Contact Information

ProLabs US

Email: sales@prolabs.com

Telephone: 952-852-0252

ProLabs UK

Email: salesupport@prolabs.com

Telephone: +44 1285 719 600