
1G SFP LR Optical Transceiver VS-01LR1CS-AA

Product Overview

Vitex VS-01LR1CS-AA is equipped with an LC Receptacle connector, offers seamless hot-pluggable integration and operates on a single 3.3V power supply. Utilizing a 1310 FP laser and PIN photodiode, it facilitates reliable 10km transmission over single-mode fiber (SMF). Designed with an LVPECL-compatible data input/output interface, this module ensures low power dissipation, minimized electromagnetic interference (EMI), and robust electrostatic discharge (ESD) protection. As a Class I laser product, it adheres to stringent safety standards.

Features

- 0 to 70°C operating case temperature
- SFP package with LC Receptacle connector
- Hot-pluggable capability
- Single 3.3V power supply
- 1310 FP laser and PIN photodiode
- 10km transmission distance with SMF
- LVPECL compatible data input/output interface
- Low power dissipation
- Low EMI and excellent ESD protection
- Class I laser product
- RoHS compliance for SO013366-PLGA

Applications

- 1Gigabit Ethernet application:1000Base-LX

Standards

- Compliant SFP MSA
- Compatible with IEEE 802.3ah
- Compliant with FCC 47 CFR Part 15, Class B
- Compliant with FDA 21 CFR 1040.10 and 1040.11, Class I
- Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

Ordering Information

Part Number	Description
VS-01LR1CS-AA	1.25G SFP LR, 10km SMF, 1310nm, Duplex-LC, C-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Storage Ambient Temperature	TSTG	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Operating Humidity	OH	5		95	%	
Power Supply Voltage (Maximum)	VCC	-0.5		3.6	V	
Operating Case Temperature	Tc	0		+70	°C	
Power Supply Voltage (Recommended)	VCC	3.13	3.3	3.47	V	
Power Supply Current (Recommended)	ICC		200	300	mA	
Date Rate			1.25		Gbps	

Optical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Centre Wavelength	λ_C	1260	1310	1360	nm	
Spectral Width (RMS)				3.2	nm	
Average Output Power		-9		-3	dBm	Launched into SMF Fiber
Average Output Power @TX Disable Asserted				-45	dBm	
Extinction Ratio	ER	9			dB	
Rise/Fall Time (20%~80%)	tr/tf			0.26	ns	Unfiltered PRBS2 ⁷ -1@1.25Gbps
Output Optical Eye		IEEE 802.3ah				PRBS 2 ⁷ -1 @1.25Gbps

Optical – Receiver

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Wavelength Range	λ_C	1260	1310	1360	nm	
Receiver Sensitivity				-20	dBm	PRBS 2 ⁷ -1@1.25Gbps BER $\leq 1 \times 10^{-12}$.
Receiver Overload		-3			dBm	
Return Loss		12			dB	
LOS De-Assert				-21	dBm	
LOS Assert		-31			dBm	
LOS Hysteresis		0.5		6	dB	

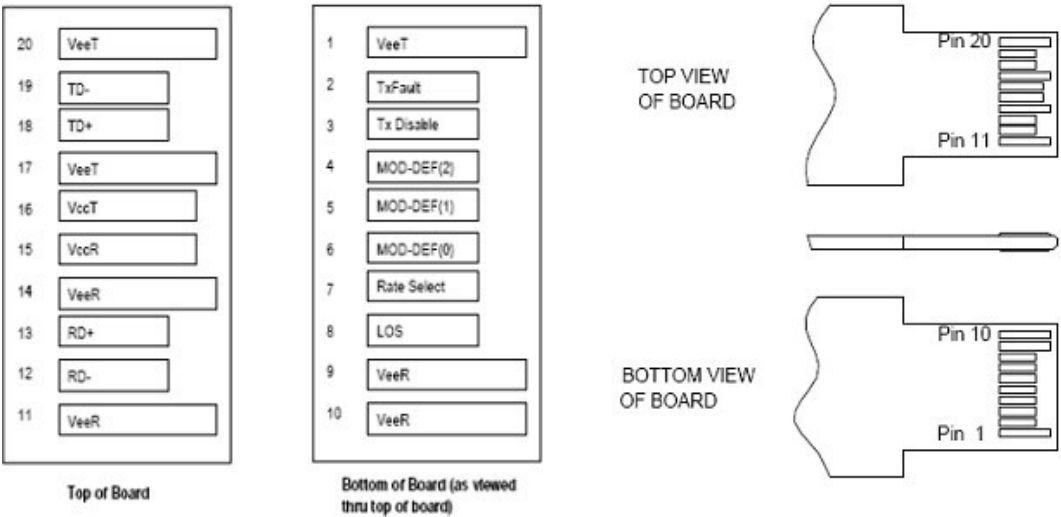
Electrical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Data Input Swing Differential	VIN	300		2400	mV	
Input Differential Impedance	ZIN	90	100	110	Ω	
TX Disable	Disable	2		VCC+0.3	V	
	Enable	-0.3		0.8	V	
TX Fault	Fault	2.4		VCC _{HOST}	V	
	Normal	-0.3		0.4	V	

Electrical – Receiver

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Differential data output swing	Vout	600		1200	mV	
Rx_LOS Output Voltage - High	High	2.4		VCC _{HOST}	V	
Rx_LOS Output Voltage - Low	Low	-0.3		0.4	V	

Electrical Connector Layout



Electrical Pin Definition

PIN #	Symbol	Description	Remarks
1	VeeT	Transmitter Ground	
2	TX Fault	Transmitter Fault Indication	Low: normal; High: abnormal
3	TX Disable	Transmitter Disable	Low: transmitter on; High: transmitter off
4	MOD-DEF2	Module Definition 2	The data line of two wire serial interface
5	MOD-DEF1	Module Definition 1	The clock line of two wire serial interface
6	MOD-DEF0	Module Definition 0	Connected to GND in the transceiver
7	Rate Select	Not Connected	
8	LOS	Loss of Signal	Low: signal detected; High: loss of signal
9	VeeR	Receiver Ground	
10	VeeR	Receiver Ground	
11	VeeR	Receiver Ground	
12	RD-	Inv. Received Data Out	AC-coupled
13	RD+	Received Data Out	AC-coupled
14	VeeR	Receiver Ground	
15	VccR	Receiver Power	
16	VccT	Transmitter Power	
17	VeeT	Transmitter Ground	
18	TD+	Transmit Data In	AC-coupled
19	TD-	Inv. Transmit Data In	AC-coupled
20	VeeT	Transmitter Ground	

Revision History

Date	Rev	Description
07/15/2024	1.0	Release version
01/24/2025	1.1	New branding guidelines

For more information

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