

1G SFP LR BiDi Transceiver

PN: VS-01010xD1S-AA

Product Overview

Vitex VS-01010xD1S-AA is equipped with an LC Receptacle connector, offers seamless hot-pluggable integration and operates on a single 3.3V power supply. It facilitates reliable 10km transmission over single-mode fiber (SMF). The module ensures low power dissipation, minimized electromagnetic interference (EMI), and robust electrostatic discharge (ESD) protection. It adheres to SFP+ MSA and IEEE Std 802.3ah standards.

Features

- Operating case temperature:
 - Commercial: 0 to 70 °C
 - Industrial: -40 to 85 °C
- SFP package with Single LC Receptacle connector
- Supports up to 1.25Gb/s bit rates
- 1490nm DFB transmitter, 1310nm PIN-TIA receiver
- Up to 10km distance with SMF
- Hot-pluggable capability
- Single 3.3V power supply
- Built-in Digital Diagnostic monitoring (DDM) function
- Low EMI and excellent ESD protection
- Class I laser safety standard IEC-60825 compliant
- RoHS-6 compliance
- Complies with SFP+ MSA (SFF-8431)
- Complies with IEEE Std 802.3ah
- Complies with SFF-8472
- Complies with FCC 47 CFR Part 15, Class B
- Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

Applications

- CPRI 1.2288Gbps
- Gigabit Ethernet 1.25Gbps

Ordering Information

Part Number	Description
VS-01010CD1S-AA	1.25G SFP LR, 10km SMF, 1490/1310nm, BiDi, Simplex-LC, C-temp
VS-01010ID1S-AA	1.25G SFP LR, 10km SMF, 1490/1310nm, BiDi, Simplex-LC, I-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Storage Ambient Temperature	TSTG	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	Commercial
	Tc	-40		85	°C	Industrial
Operating Humidity	OH	5		95	%	
Power Supply Voltage (Max)	VCC	0		4	V	
Power Supply Voltage (Recommended)	VCC	3.13	3.3	3.47	V	
Power Supply Current	ICC		200	300	mA	
Date Rate		1.2288		1.25	Gbps	
Data Rate Drift		-100		+100	PPM	

Optical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Centre Wavelength	λ_C	1480	1490	1500	nm	
Spectral Width (-20dB)				1	nm	
Average Output Power	Po	-9		-3	dBm	
Turn off Average Output Power				-45	dBm	
Extinction Ratio	ER	6	9		dB	
Optical Return Loss Tolerance				12	dB	
Rise/Fall Time(20%~80%)	tr/tf			0.26	ns	
Total Jitter	TJ			260	ps	
Output Optical Eye		IEEE Std 802.3ah				PRBS 2 ⁷ -1 @1.25Gbps

Optical – Receiver

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Operating Wavelength	λ_C	1260	1310	1360	nm	
Sensitivity	SEN			-21	dBm	PRBS 2 ⁷ -1 BER < 10E-12, ER=9dB
Saturation Optical Power	SAT	-3			dBm	
Loss of Signal De-Assert Level	LOSD			-22	dBm	
Loss of Signal Assert Level	LOSA	-45			dBm	
Loss of Signal Hysteresis		0.5		5	dB	

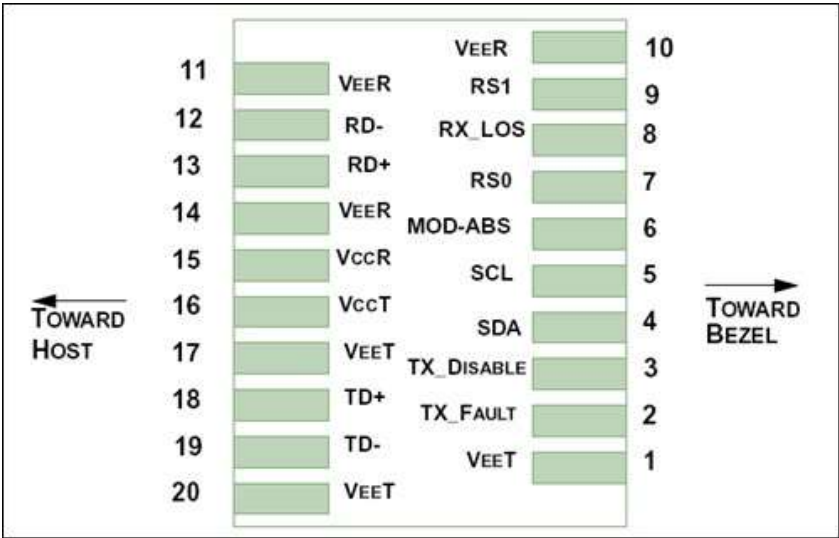
Electrical – Transmitter

Parameter		Symbol	Min	Typical	Max	Unit	Remarks
Data Input Differential Swing			200		1200	mV	
Input Differential Impedance			85	100	115	Ω	
TX Disable	Disable		2		VCC+0.3	V	
	Enable		-0.3		0.8	V	
TX Fault	Normal		-0.3		0.4	V	
	Fault		2.4		VCC _{HOST}	V	

Electrical – Receiver

Parameter		Symbol	Min	Typical	Max	Unit	Remarks
Data Output Differential Swing			200		1200	mV	
Loss of Signal - Low			-0.3		0.4	V	
Loss of Signal - High			2.4		VCC _{HOST}	V	

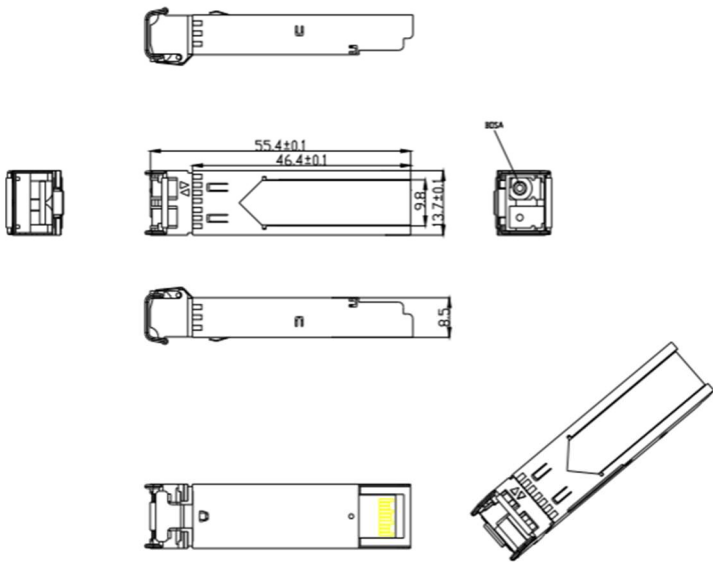
Electrical Connector Layout



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	SDA	SDA	The data line of two wire serial interface
5	SCL	SCL	The clock line of two wire serial interface
6	MOD_ABS	Module Absent	Connected to VEET or VEER in the module
7	RS0	Not Connected	
8	RX_LOS	Loss of Signal	Low: signal detected; High: loss of signal
9	RSI	Not Connected	
10	VEER	Receiver Ground	
11	VEER	Receiver Ground	
12	RD-	Inv. Received Data Out	AC-coupled, CML
13	RD+	Received Data Out	AC-coupled, CML
14	VEER	Receiver Ground	
15	VCCR	Receiver Power	
16	VCCT	Transmitter Power	
17	VEET	Transmitter Ground	
18	TD+	Transmit Data In	AC-coupled, CML
19	TD-	Inv. Transmit Data In	AC-coupled, CML
20	VEET	Transmitter Ground	

Mechanical Diagram



Revision History

Date	Rev	Description
07/15/2024	1.0	Release version
03/07/2025	2.0	New branding guidelines

For more information

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