10G SFP+ LR BiDi Transceiver
PN: VS-10010CB1-AA

Product Overview

Vitex's VS-10010CB1-AA is designed for use in 10G network application environments. It operates at commercial temperature ranges (0 to 70 °C), and has a hot-pluggable design to allow plug and play iterations where needed. It is built in accordance with SFP+ MSA, SFP-8472, and IEEE 802.3ae standards.

Features

- Supports up to 10.7Gb/s bit rates
- 0 to 70°C operating case temperature
- SFP+ package with simplex LC receptacle connector
- Hot-pluggable capability
- Single 3.3V power supply
- 1270nm DFB transmitter and 1330nm high performance PIN receiver
- Up to 10km transmission distance over SMF
- Low power dissipation
- SFI electrical interface
- Low EMI and excellent ESD protection
- Built- in Digital Diagnostic Monitoring (DDM) function
- Class I laser safety standard IEC-60825 compliant
- RoHS-6 compliance
- Complies with SFP+ MSA (SFF-8431)
- Complies with SFF-8472
- Compliant with IEEE 802.3ae
- 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

- 10GBASE-LR/LW
- CPRI rates 2.4576 Gb/s, 4.9152Gb/s, 6.144Gb/s, 9.83Gb/s
- 10Gb/s Fiber Channel

Ordering Information

Part Number	Description
VS-10010CB1-AA	10G SFP+ LR, 10km SMF, 1270/1330nm, BiDi, Simplex-LC, C-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Storage Ambient Temperature	T_{STG}	-40		85	°C	
Operating Case Temperature (Max)	T_c	0		70	°C	
Operating Humidity	OH	5		95	%	
Power Supply Voltage (Max)	V_{CC}	-0.5		3.6	V	
Operating Case Temperature (Recommended)	T_c	0		70	°C	
Power Supply Voltage (Recommended)	V_{CC}	3.13	3.3	3.47	V	
Power Supply Consumption	P			1	W	
Date Rate				10.7	Gbps	
Data Rate Drift		-100		+100	PPM	

Optical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Centre Wavelength	λ_C	1260	1270	1280	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Average Output Power	P_{OUT}	-8.2		0.5	dBm	Launched into SMF Fiber
Average Power of OFF Transmitter	$P_{OUT-OFF}$			-30	dBm	
Extinction Ratio	ER	3.5			dB	
Side Mode Suppression Ratio	SMSR	30			dB	
Transmitter and Dispersion Penalty	TDP			3.2	dB	10km SMF

Optical - Receiver

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Operating Wavelength	λ_C	1320		1340	nm	
Sensitivity	SEN			-14.4	dBm	PRBS2^{31}-1@10.3125Gbps BER <1x10^{-12}
Saturation Optical Power	SAT	0.5			dBm	
LOS De-Assert	LOS_D			-18	dBm	
LOS Assert	LOS_A	-32			dBm	
LOS Hysteresis	HYS	0.5		5	dB	

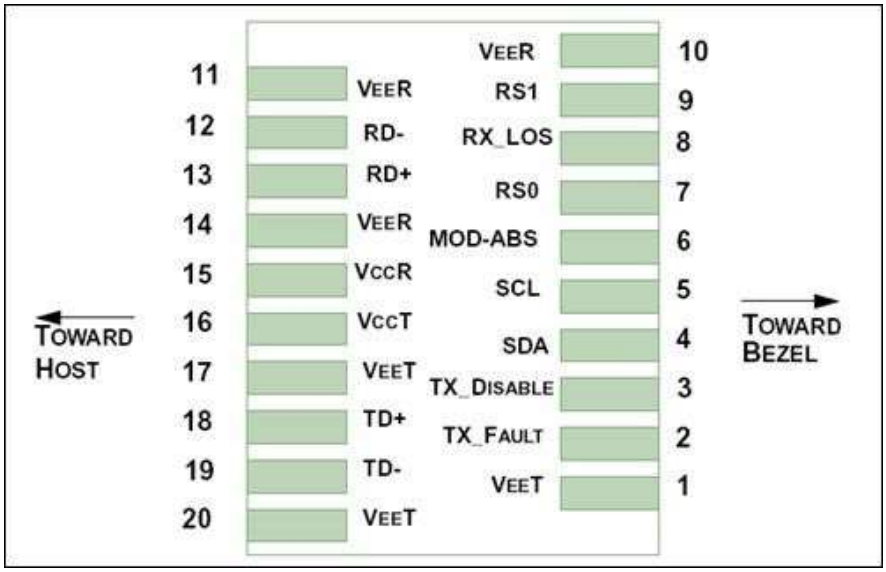
Electrical – Transmitter

Parameter		Symbol	Min	Typical	Max	Unit
Data Input Differential Swing			180		700	mV
Input Differential Impedance			85	100	115	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
Differential data output swing	Vout	350		850	mV
Rx_LOS Output Voltage - High	High	2.4		VCC_{HOST}	V
Rx_LOS Output Voltage - Low	Low	-0.3		0.4	V
Output Rise Time, 20%~80%	TR	28			ps
Output Fall Time, 20%~80%	TF	28			ps

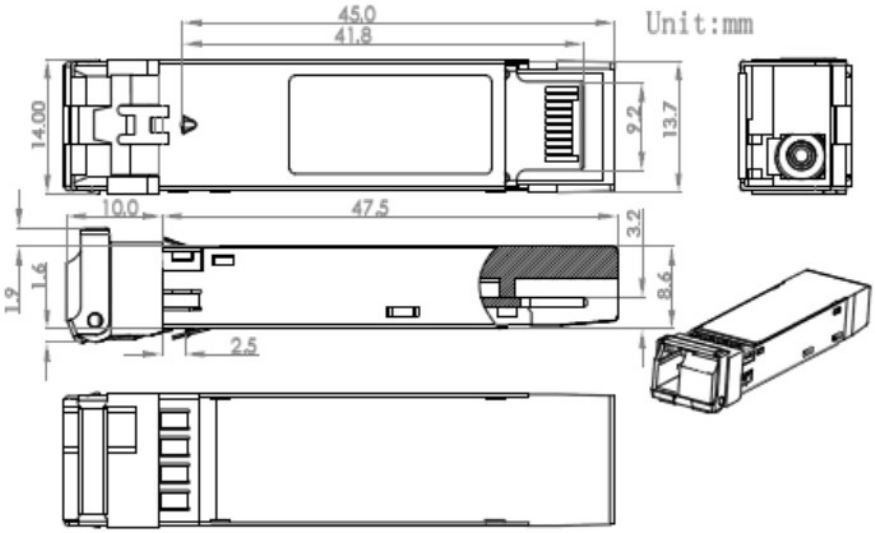
Electrical Connector Layout



Electrical Pin Definition

PIN #	Symbol	Description	Remarks
1	$V_{EE}T$	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 $V_{EE}T$ or $V_{EE}R$ in the module
7	RS0	Not Connected	
8	RX_LOS	Loss of Signal	Low: signal detected; High: loss of signal
9	RS1	Not Connected	
10	$V_{EE}R$	Receiver Ground	
11	$V_{EE}R$	Receiver Ground	
12	RD-	Inv. Received Data Out	AC-coupled, CML
13	RD+	Received Data Out	AC-coupled, CML
14	$V_{EE}R$	Receiver Ground	
15	$V_{CC}R$	Receiver Power	
16	$V_{CC}T$	Transmitter Power	
17	$V_{EE}T$	Transmitter Ground	
18	TD+	Transmit Data In	AC-coupled, CML
19	TD-	Inv. Transmit Data In	AC-coupled, CML
20	$V_{EE}T$	Transmitter Ground	

Mechanical Diagram



Revision History

Date	Rev	Description
07/15/2024	1.0	Release version
02/24/2025	2.0	New branding guidelines

For more information

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