10Gb/s BiDi 80Km SFP+ Transceiver
VS-10080xE2-AA

Product Overview

Vitex's VS-10080xE2-AA supports 10G SFP+ ZR BiDi transceiver facilitates long-distance optical communication over single-mode fiber (SMF) up to 80km. This hot-pluggable module supports data rates ranging from 9.95Gb/s to 11.3Gb/s and is designed to operate within a broad temperature spectrum, accommodating diverse environmental conditions. It features a temperature-stabilized EML transmitter and a high-sensitivity APD receiver, powered by a single 3.3V supply, ensuring reliable performance for high-bandwidth network deployments.

Features

- Supports 9.95Gb/s to 11.3Gb/s rates
- 0 to 70°C or -40 to 85℃ operating case temperature
- SFP+ package with single LC receptacle connector
- Hot-pluggable capability
- Single 3.3V power supply
- 1490nm Temperature-stabilized EML transmitter and high sensitivity APD receiver
- Up to 80km transmission distance over SMF
- Built-in CDR, SFI electrical interface
- Low EMI and excellent ESD protection
- Built- in Digital Diagnostic monitoring (DDM) function
- Class 1 laser safety standard IEC-60825 compliant, RoHS-6 compliance

Applications

- 10GBASE-ZR/ZW
- STM-64 L-64.2/L-64.3
- 10Gb/s Fiber Channel

Standards

- Complies with SFP+ MSA (SFF-8431)
- Complies with SFF-8472
- Complies with ITU-T G.691
- Compliant with IEEE 802.3ae

Ordering Information

Part Number	Description
VS-10080CE2-AA	10G SFP+ ZR, 80km SMF, 1490/1550nm, BiDi, Simplex-LC, C-temp
VS-10080IE2-AA	10G SFP+ ZR, 80km SMF, 1490/1550nm, BiDi, Simplex-LC, I-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Storage Ambient Temperature	T_{STG}	-40		85	ºC	
Operating Case Temperature	Tc	0		70	ºC	VS-10080CE2-AA
		-40		85	ºC	VS-10080IE2-AA
Operating Humidity	OH	5		95	%	
Power Supply Voltage (Maximum)	VCC	-0.5		3.6	V	
Operating Case Temperature	Tc	0		70	ºC	VS-10080CE2-AA
		-40		85	ºC	VS-10080IE2-AA
Power Supply Voltage (Recommended)	VCC	3.13	3.3	3.47	V	
Power Consumption	Pw			1.5	W	VS-10080CE2-AA
				2	W	VS-10080IE2-AA
Date Rate		9.95		11.3	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)	$\Delta\lambda$			1	nm	
Average Output Power	P_{OUT}	0		4	dBm	Launched into SMF Fiber
Average Power of OFF Transmitter	$P_{OUT-OFF}$			-30	dBm	
Extinction Ratio	ER	8.2			dB	
Side Mode Suppression Ratio	SMSR	30			dB	
Transmitter and Dispersion Penalty	TDP			3	dB	$PRBS2^{31}$-1@10.7Gbps

Optical - Receiver

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Operating Wavelength	λ_C	1540	1550	1560	nm	
Sensitivity	SEN			-24	dBm	$PRBS2^{31}$-1@10.3125Gbps BER ≤1×10^{-12}
Saturation Optical Power	SAT	-7			dBm	
LOS De-Assert	LOS_D			-26	dBm	
LOS Assert	LOS_A	-38			dBm	
LOS Hysteresis	HYS	0.5		5	dB	

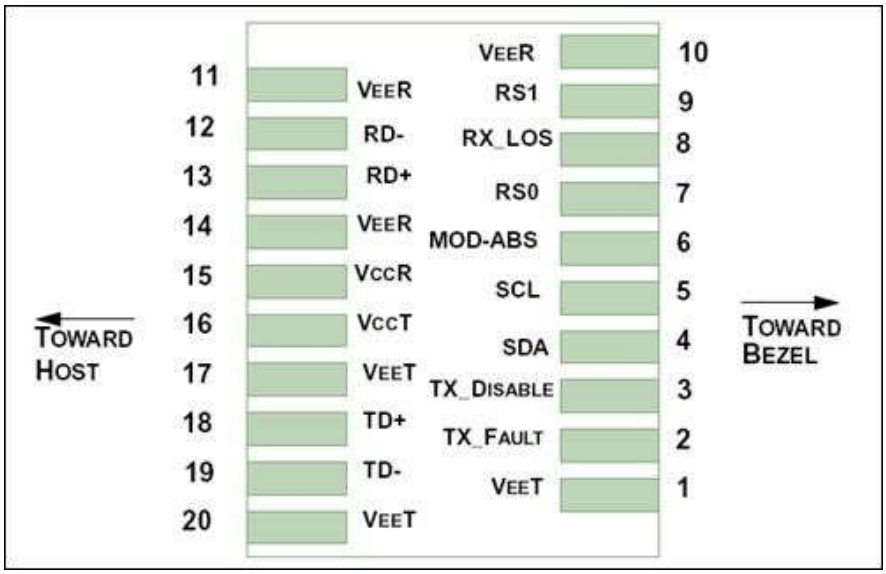
Electrical – Transmitter

Parameter		Symbol	Min	Typical	Max	Unit	Remarks
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	Remarks
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			70	ps	$PRBS2^{31}$-1@10.3125Gbps
Output Fall Time, 20%~80%	TF			70	ps	$PRBS2^{31}$-1@10.3125Gbps

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	

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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