
10G SFP+ ZR 80Km Transceiver

VS-10ZR1CyyS-AA

Product Overview

Vitex's VS-10ZR1CyyS-AA is a 10G SFP+ ZR transceiver designed for long-reach applications, supporting bit rates from 9.95Gb/s to 11.1Gb/s and achieving a maximum link length of 80km. It operates on a 3.3V power supply and features a duplex LC connector within an SFP+ package. This transceiver utilizes a temperature-stabilized 1550nm DWDM EML transmitter and a high-performance APD receiver, enabling reliable performance across an operating case temperature range of 0°C to 70°C.

Features

- Supports 9.95Gb/s to 11.1Gb/s bit rates
- Maximum link length of 80km
- 3.3V power supply required
- SFP+ package with Duplex LC connector
- Temperature-stabilized 1550nm DWDM EML transmitter and High performance APD receiver
- Operating Case Temperature: 0°C to 70°C
- Built-in CDR
- Digital diagnostic monitor interface
- RoHS10 Compliant
- SFI electrical interface

Applications

- DWDM Network
- 10GBASE-ZR/ZW
- 10Gb/s Fiber Channel

Standards

- Complies with IEEE802.3ae
- Complies with SFP+ MSA (SFF-8431)
- 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

Ordering Information

Part Number	Description
VS-10ZR1CyyS-AA	10G SFP+ ZR, 80km SMF, C-band, fixed, 100GHz grid, DWDM, Duplex-LC, I-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Storage Ambient Temperature	T_{STG}	-40		85	°C	
Operating Case Temperature	T_C	0		70	°C	
Operating Humidity	OH	5		95	%	
Power Supply Voltage (Maximum)	V_{CC}	-0.5		3.6	V	
Power Supply Voltage (Recommended)	V_{CC}	3.13	3.3	3.47	V	
Power Supply Current	P			2	W	
Nominal upstream line rate		9.95		11.1	Gbps	

Optical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Average Launch Optical Power	P_{OUT}	0		4	dBm	
Extinction Ratio	ER	8.2			dB	
Centre Wavelength space			100		GHz	
Centre Wavelength (BOL)	λ	X-40	X	X+40	pm	
Centre Wavelength (EOL)	λ	X-100	X	X+100	pm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side Mode Suppression Mode	SMSR	30			dB	
Tx Jitter (SONET) 20kHz-80MHz	T_{xj1}			0.3	UI	
Tx Jitter (SONET) 4MHz-80MHz	T_{xj2}			0.1	UI	
Transmitter Dispersion Penalty (@ 1600 ps/nm)	TDP			3	dB	RATE:10.3G BER<1E-12

Optical – Receiver

Parameter	Symbol	Min	Typical	Max	Unit
Optical Center Wavelength	λ_c	1265	-	1600	nm
Receiver Sensitivity (BOL)				-24	dBm
Receiver Overload		-7			dBm
Receiver reflectance				-27	dB
LOS De-Assert				-25	dBm
LOS Assert		-35			dBm
LOS Hysteresis		0.5		5	dB

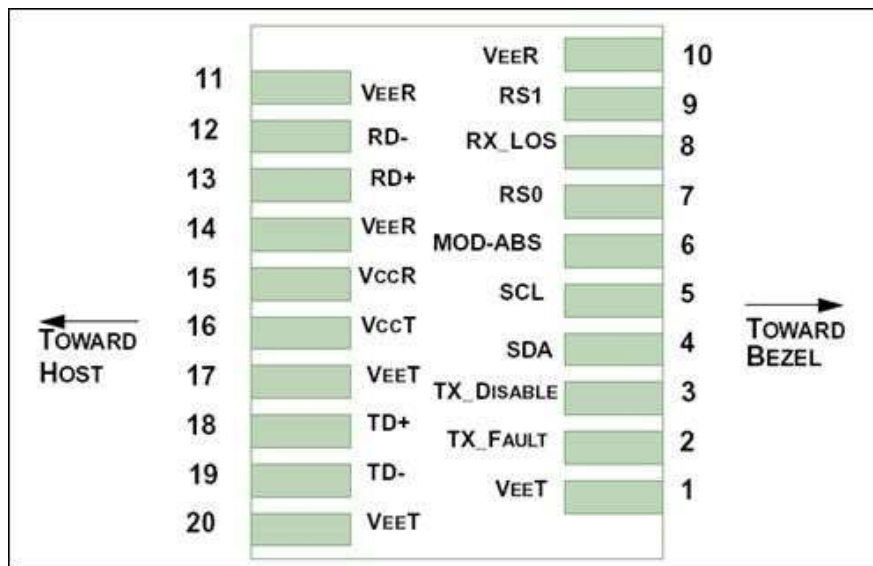
Electrical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit
Input Differential Impedance	ZIN	90	100	110	Ω
Data Input Swing Differential	VIN	120		820	mV
Transmit Disable Voltage	V _D	2		VCC	V
Transmit Enable Voltage	V _{EN}	-0.3		0.8	V
Transmit Fault – Normal Voltage		-0.3		0.4	V
Transmit Fault – Fault Voltage		2.4		VCC _{HOST}	V

Electrical – Receiver

Parameter	Symbol	Min	Typical	Max	Unit
Differential data output swing	Vout	340	650	850	mV
LOS	High	2.4		VCC _{HOST}	V
	Low	-0.3		0.4	V

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	RSI	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

Vitex LLC

32 Mercer St.
Hackensack, NJ 07601

201-296-0145
info@vitextech.com
www.vitextech.com

