
10G SFP+ ZR 80km Optical Transceiver

PN: VS-10ZR1xS-AA

Product Overview

Vitex VS-10ZR1xS-AA SFP+ optical transceivers are based on SFF-8431 standard, providing a fast and reliable interface for 10G Ethernet applications. The product implements digital diagnostics via a 2-wire serial bus, compliant with the SFF-8472 standard.

Features

- Supports 9.95Gb/s to 11.3Gb/s rates
- operating case temperature
 - Commercial: 0 to 70°C
 - Industrial: -40 to 85°C
- SFP+ package with duplex LC Receptacle connector
- Hot-pluggable capability
- Single 3.3V power supply
- 1550nm Temperature-stabilized EML transmitter and High sensitivity APD receiver
- Up to 80km transmission distance over SMF
- Built-in CDR in both transmitter and receiver
- 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/ZX
- STM-64 L-64.2/L64.3
- 10G Fiber Channel

Ordering Information

Part Number	Description
VS-10ZR1CS-AA	10G SFP+ ZR, 80km SMF, 1550nm, Duplex-LC, C-temp
VS-10ZR1IS-AA	10G SFP+ ZR, 80km SMF, 1550nm, Duplex-LC, I-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Storage Ambient Temperature	TSTG	-40		85	°C	
Operating Temperature	T _C	0		70	°C	C-Temp
	T _I	-40		85	°C	I-Temp
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	ICC			600	mA	@case 70°C
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	1530	1550	1565	nm	
Spectral Width (-20dB)	$\Delta\lambda$			0.5	nm	
Average Output Power	POUT	0		4	dBm	Launched into SMF Fiber
Average Power of OFF Transmitter	POUT-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	
Operating Wavelength	λ_c	1260		1600	nm	
Sensitivity	SEN			-24	dBm	PRBS2 ³¹ -1@10.3125 Gbps BER $\leq 1 \times 10^{-12}$
Saturation Optical Power	SAT	-7			dBm	
LOS De-Assert	LOS _D			-26	dBm	
LOS Assert	LOS _A	-38			dBm	

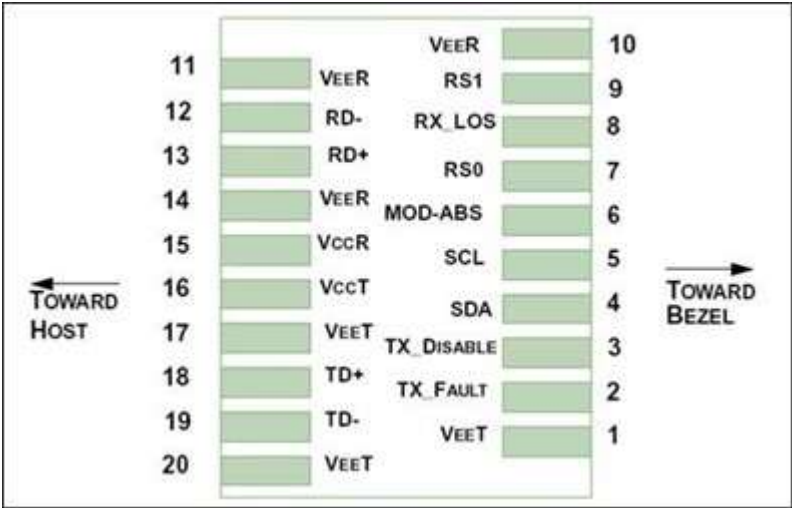
Electrical – Transmitter

Parameter		Symbol	Min	Typical	Max	Unit
Input differential impedance				100		Ω
Differential data input swing			180		850	mV
TX Disable	Disable		2		$V_{CC}+0.3$	V
	Enable		-0.3		0.8	V
TX Fault	Fault		2.4		$V_{CC_{HOST}}$	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		$V_{CC_{HOST}}$	V
Rx_LOS Output Voltage - Low		Low	-0.3		0.4	V
Output Rise Time, 20%~80%		TR			70	ps
Output Fall Time, 20%~80%		TF			70	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	

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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