10G BiDi 60Km SFP+ Transceiver
VS-10060CB2-AA

Product Overview

The VS-10060CB2-AA is a 10G BiDi SFP+ transceiver engineered for extended-reach optical connectivity across single-mode fiber (SMF) up to 60 kilometers. This transceiver supports data rates reaching 10.7Gb/s and is designed for robust performance in extreme environments, with an operational temperature range of 0 to 70°C. Featuring a single LC connector within a hot-pluggable SFP+ form factor, it simplifies deployment and maintenance. The module utilizes a 1330nm DFB transmitter and a 1270nm APD receiver.

Features

- Supports up to 10.7Gb/s bit rates
- 0 to 70°C operating case temperature
- SFP+ package with single LC receptacle connector
- Hot-pluggable capability, Single 3.3V power supply
- 1330nm DFB transmitter and 1270nm APD receiver
- Up to 20dB power budget 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

Applications

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

Standards

- 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-10060CB2-AA	10G SFP+ eER, 60km SMF, 1330/1270nm, 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	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 Consumption	P			1.2	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	1320	1330	1340	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Average Output Power	P_{OUT}	0		6	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	

Optical - Receiver

Parameter	Symbol	Min	Typical	Max	Unit	Remarks
Operating Wavelength	λ_C	1260		1280	nm	
Sensitivity	SEN			-22	dBm	PRBS2^{31}-1@10.3125Gbps BER ≤1×10^{-12}
Saturation Optical Power	SAT	-7			dBm	
LOS De-Assert	LOS_D			-24	dBm	
LOS Assert	LOS_A	-35			dBm	
LOS Hysteresis	HYS	0.5		5	dB	

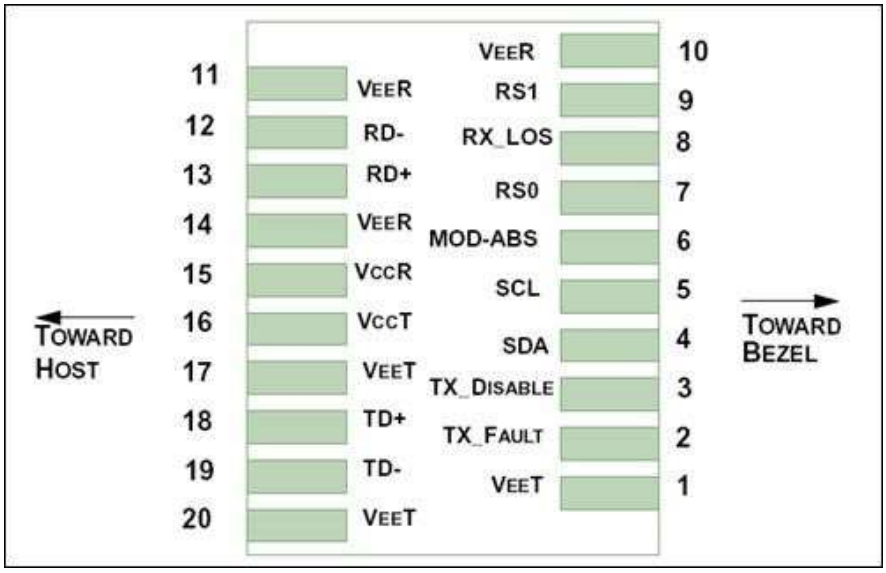
Electrical – Transmitter

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	

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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