CXGSFP-W52-Dx

XGSPON/GPON SFP+, WDM BiDi 1577/1490Tx & 1270/1310Rx, SMF, DDM, SIMPLEX SC CONNECTOR

Product Features

- SFP+ Package
- 3.3V DC power supply
- 4 Lambda
- SC receptacle optical connector
- Hot pluggable
- 2x10 SFP+ Electrical Interface
- ITU-T G.9807.1 Class N1/N2 compliant
- ITU-T G.987.2 Class N1/N2a compliant
- ITU-T G.984.2 Class B+/C+ compliant
- Refer to YD-T 1688.8
- Available operating temperature ranges:
  - Commercial: 0°C to 70°C
  - Industrial: -40°C to 85°C

I2C Serial Data

- SCL Serial Clock Input
- SDA Serial Data I/O

Product Applications

- 10 Gigabits Access networks
- FTTH, FTTB, FTTC

Optical Transmitter

- 1577nm CW Mode EML
  - 9.95328Gb/s data rate
  - LVCML AC Coupled input
- 1490nm CW Mode DFB Laser
  - 2.48832Gb/s data rate
  - LVPECL AC Coupled input

Optical Receiver

- 1270nm Burst Mode APD/TIA receiver
  - 9.95328 or 2.48832Gb/s data rate
  - LVCML DC Coupled output
- 1310nm Burst Mode APD/TIA receiver
  - 1.24416Gb/s data rate
  - LVPECL DC Coupled output

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	TS	-40		+85	℃
Power Supply Voltage	Vcc3	0		3.6	V
Relative Storage Humidity	RHs	5		90	%
Relative Operating Humidity	RHo	5		85	%

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		+70	°C	Commercial
		-40		+85	°C	Industrial
Supply Voltage	Vcc3	3.135	3.3	3.465	V	
Supply Current	Icc3		750		mA	
Power Consumption	P			3.5	W	

III. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Tx Differential Input Impendence	Z_{IN}	90	100	110	Ω	
10Gb/s Tx Differential Input Amplitude	V_{IN10}	120		800	mV	
2.5Gb/s Tx Differential Input Amplitude	V_{IN1}	120		800	mV	
Tx_Dis = HIGH (Transmitter OFF / DISABLED)	V_{TDH}	0.7*V_{cc3}		V_{cc3}	V	1
Tx_Dis = LOW (Transmitter ON / ENABLED)	V_{TDL}	0		0.8	V	1

Notes:

1. LVTTL (Control INPUT)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver						
Rx Differential Output Impendence	Z_{OUT}	90	100	110	Ω	
10Gb/s Rx_Data Differential Output Voltage Amplitude	V_{OUT10}	300		850	mV	LVCML
10Gb/s Output HIGH Voltage	V_{OH10}	V_{cc3}-20	V_{cc3}-5	V_{cc3}	mV	
10Gb/s Output LOW Voltage	V_{OL10}	V_{cc3}-400	V_{cc3}-350	V_{cc3}-300	mV	
1.25Gb/s Rx_Data Differential Output Voltage Amplitude	V_{OUT1}	600		1600	mV	LVPECL
1.25Gb/s Output HIGH Voltage	V_{OH1}	V_{cc3}-1085	V_{cc3}-955	V_{cc3}-880	mV	
1.25Gb/s Output LOW Voltage	V_{OL1}	V_{cc3}-1850	V_{cc3}-1705	V_{cc3}-1555	mV	
Rx_SD = HIGH (Receiver ON)	V_{OH}	2.0		V_{cc3}	V	LVTTL (Monitor OUTPUT)
Rx_SD = LOW (Receiver OFF)	V_{OL}	0		0.8	V	
Ratesel/Reset=HIGH	V_{IH}	1.9		V_{cc3}	V	Tri-level (Control INPUT)
Ratesel/Reset=Middle	V_{IM}	1.2		1.6	V	
Ratesel/Reset=LOW	V_{IL}	0		0.9	V	
TRI=HIGH	V_{IH}	0.7*V_{cc3}		V_{cc3}	V	LVTTL (Control INPUT)
TRI=LOW	V_{IL}	0		0.8	V	

IV. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter (9.95328Gb/s)						
Laser Type		1577nm CW EML				
Downstream Signal Rate		9.95328			Gb/s	
Average Launch Power	P_{OUT10}	2		5	dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
		4		7	dBm	CXGSFP-W52-D2 CXGSFP-W52-D2-I
Optical Center Wavelength	λ_{10}	1575		1580	nm	
Spectral Width	$\Delta\lambda_{10}$			1.0	nm	
Side Mode Suppression Ratio	$SMSR_{10}$	30			dB	
Extinction Ratio	ER_{10}	8.2			dB	
Output Eye Diagram	Compliant with ITU-T G.987.2 &ITU-T G.9807.1					

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter (2.48832Gb/s)						
Laser Type		1490nm CW DFB Laser				
Downstream Signal Rate		2.48832			Gb/s	
Average Launch Power	P_{OUT2}	1.5	2.5	5	dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
		3		7	dBm	CXGSFP-W52-D2 CXGSFP-W52-D2-I
Optical Rise and Fall Time	Tr / Tf			200	ps	20% to 80%
Optical Center Wavelength	λ_1	1480	1490	1500	nm	
Spectral Width	$\Delta\lambda_1$			1.0	nm	
Side Mode Suppression Ratio	$SMSR_1$	30			dB	
Extinction Ratio	ER_1	8.2			dB	
Output Eye Diagram	Compliant with ITU-T G.984.2					

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver (2.48832Gb/s & 9.95328Gb/s)						
Receiver Type		1490nm CW DFB Laser				
Upstream Signal Rate		2.48832			Gb/s	
Optical Center Wavelength	λ	1260	1270	1280	nm	
XGS-PON Receiver Sensitivity (note 1)	P_{IN}			-26	dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
				-28		CXGSFP-W52-D2 CXGSFP-W52-D2-I
XG-PON Receiver Sensitivity (note 2)	P_{IN}			-27.5	dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
				-29.5		CXGSFP-W52-D2 CXGSFP-W52-D2-I
XGS-PON Receiver Optical Overload *	$P_{IN}(SAT)$	-5			dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
		-7				CXGSFP-W52-D2 CXGSFP-W52-D2-I
XG-PON Receiver Optical Overload *	$P_{IN}(SAT)$	-7			dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
		-9				CXGSFP-W52-D2 CXGSFP-W52-D2-I
Damaged Input Optical Power	P_d			-5	dBm	
Rx_SD Assert	P_A	-45		-29.5	dBm	
Rx_SD De Assert	P_D	-45		-29.5	dBm	
Rx_SD Hysteresis	P_{Hy}	0		7	dB	

Notes:

1. BER@10^{-3}*;Test Condition: PRBS: 2^{31}-1, ER=6 dB
2. BER@10^{-4}*: Test Condition: PRBS: 2^{23}-1, ER=6 dB

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver (1.24416Gb/s)						
Receiver Type		1310nm Burst APD/TIA Receiver				
Upstream Signal Rate		1.24416			Gb/s	
Optical Center Wavelength	λ	1290	1310	1330	nm	
Receiver Sensitivity (note 1)	P_{IN}			-28	dBm	CXGSFP-W52-D1 CXGSFP-W52-D1-I
				-30		CXGSFP-W52-D2 CXGSFP-W52-D2-I
Receiver Optical Overload	P_{IN}(SAT)	-7			dBm	
Damaged Input Optical Power	P_d			-5	dBm	
Receiver Settling Time	Trx			51.2	ns	
Rx_SD Assert	P_A	-45		-29.5	dBm	
Rx_SD De Assert	P_D	-45		-29.5	dBm	
Rx_SD Hysteresis	P_{Hy}	0		7	dB	

Notes:

1. Test Condition : BER@10^{-10}, PRBS 2^{23}-1, ER=9dB

V. Ordering Information

Pivotal Part Number	Description
CXGSFP-W52-D1	XGSPON/GPON SFP+, WDM BiDi 1577/1490Tx & 1270/1310Rx, SMF, N1/B+, DDM, C-Temp
CXGSFP-W52-D1-I	XGSPON/GPON SFP+, WDM BiDi 1577/1490Tx & 1270/1310Rx, SMF, N1/B+, DDM, I-Temp
CXGSFP-W52-D2	XGSPON/GPON SFP+, WDM BiDi 1577/1490Tx & 1270/1310Rx, SMF, N2/C+, DDM, C-Temp
CXGSFP-W52-D2-I	XGSPON/GPON SFP+, WDM BiDi 1577/1490Tx & 1270/1310Rx, SMF, N2/C+, DDM, I-Temp

Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.

Warranty
https://pivotaloptics.com/warranty/

Disclaimer
External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.