

SFPP-Cxx-40-10GD

10GBASE, SFP+ CWDM, ER, SMF TRANSCEIVER

1470-1610nm, 40km REACH, DUPLEX LC CONNECTOR

Product Features

- Up to 11.3Gb/s data links
- CWDM DFB transmitter and PIN receiver
- Up to 40km on 9/125μm SMF
- Hot-pluggable SFP+ footprint
- Duplex LC/UPC type pluggable optical interface.
- RoHS-10 compliant and lead-free
- Support Digital Monitoring interface.
- Single +3.3V power supply
- Compliant with SFF+MSA & SFF-8472
- Metal enclosure, for lower EMI
- Meet ESD requirements
- Available operating temperature ranges:
 - Commercial: 0°C to 70°C
 - Industrial: -40°C to 85°C



Product Applications

- 10GBASE-ER/EW & 10G Ethernet
- OTN
- Other Optical Links

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	TS	-40		+85	°C
Power Supply Voltage	Vcc	-0.5		3.6	V
Relative Humidity	RH	5		95	%
Damage Threshold	THd	5			dBm

II. Operating / Environment Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		+70	°C	Commercial
		-40		+85	°C	Industrial
Power Supply Voltage	VCC	3.1	3.3	3.47	V	
Data Rate	BR		10.3125		Gbps	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance	D			40	km	9/125um

III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_c	1470		1610	nm	
Spectrum Bandwidth (RMS)	σ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Power	Pavg	0		4	dBm	1
Extinction Ratio	ER	8.2			dB	
Transmitter and Dispersion Penalty	TDP			3	dB	
Transmitter OFF Output Power	Poff			-30	dBm	
Relative Intensity Noise	Rin			-128	dB/Hz	
Transmitter Eye Mask	Compliant with IEEE802.3ae					
Receiver						
Center Wavelength	λ_c	1270		1610	nm	
Sensitivity (Average Power)	Sen.			-15.8	dBm	2
Input Saturation Power (overload)	Psat	0.5			dBm	
RX_LOS Assert	LOS A	-30			dBm	
RX_LOS De-assert	LOS D			-19	dBm	
RX_LOS Hysteresis	LOS H	0.5			dB	

Notes:

- Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.
- Measured with Light source 1470~1610nm, ER=8.2dB; BER≤1E-12 @10.3125Gbps, PRBS=2³¹-1 NRZ.

IV. Electrical Characteristics

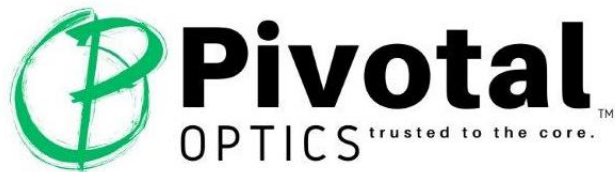
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			1.5	W	
Supply Current	I _{cc}			450	mA	
Transmitter						
Single-ended Input Voltage Tolerance	V _{cc}	-0.3		4.0	V	
AC Common Mode Input Voltage Tolerance (RMS)		15			mV	
Differential Input Voltage Swing	V _{in,pp}	120		820	mV _{pp}	
Differential Input Impedance	Z _{in}	90	100	110	Ohm	1
Transmit Disable Assert Time				10	us	
Transmit Disable Voltage	V _{dis}	V _{cc} -1.3		V _{cc}	V	
Transmit Enable Voltage	V _{en}	V _{ee}		V _{cc} +0.8	V	2
Receiver						
Differential Output Voltage Swing	V _{out,pp}	350		850	mV _{pp}	
Differential Output Impedance	Z _{out}	90	100	110	ohms	3
Data output rise/fall time	Tr/Tf	28			ps	4
LOS Assert Voltage	V _{losH}	V _{cc} -1.3		V _{cc}	V	5
LOS De-Assert Voltage	V _{losL}	V _{ee}		V _{cc} +0.8	V	5
Power Supply Rejection	PSR	100			mV _{pp}	6

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Input 100 ohms differential termination.
4. These are unfiltered 20-80% values.
5. Loss of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. Receiver sensitivity is compliant with power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specified value applied through the recommended power supply filtering network.

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V. Ordering Details

Pivotal Part Number	Description
SFPP-Cxx-40-10GD	SFP+, CWDM, ER SMF 40km, 10G DDM, C-Temp
SFPP-Cxx-40-10GDI	SFP+, CWDM, ER SMF 40km, 10G DDM, I-Temp

CWDM ITU Grid (18-Channel)							
Wavelength (nm)	CXX	Typical Bail Color		Wavelength (nm)	CXX	Typical Bail Color	
1270	C27	Light Purple		1450	C45	Yellow/Orange	
1290	C29	Sky Blue		1470	C47	Gray	
1310	C31	Yellow/Green		1490	C49	Violet	
1330	C33	Yellow/Ochre		1510	C51	Blue	
1350	C35	Pink		1530	C53	Green	
1370	C37	Beige		1550	C55	Yellow	
1390	C39	White		1570	C57	Orange	
1410	C41	Silver		1590	C59	Red	
1430	C43	Black		1610	C61	Brown	

Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.
2. ITU-T G.694.2 defines 18 wavelengths for CWDM transport ranging from 1270 to 1610 nm, spaced at 20 nm apart.

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.