

TITLE 10G SFP+ 20km Dual LC CWDM	DOC No. : 20260807100-001	
	REVISION : 01	AUTHORIZED BY : Eric Chen
	DATE : 2026,08,07	CLASSIFICATION : Optical Transceivers

1. Product Features

- Operating data rate up to 10.3125Gbps
- Up to 20km transmission distance
- High sensitivity Pin photodiode and TIA
- Rate Adaptation
- LC duplex connector
- Hot pluggable 20pin connector
- Low power consumption <1.5 W
- Single +3.3V±5% power supply
- Compliant with SFF-8472
- Fully RoHS Compliant
- Operating temperature range:

Commercial: 0°C to +70°C

Extended: -20°C to +85°C

2. Application

- 10GBASE-LR/LW & 10G Ethernet
- CPRI Option 3/4/5/6/7/8

3. DESCRIPTION

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The 10G SFP+ 20km Dual LC CWDM Transceiver is intended for 20km reach service up to 10.3125Gb/s CWDM C27~C61 single mode high-speed communications equipment where low-cost, extraordinary performance and reliability are essential. It consumes low power, operates base on 3.3V DC power supply and is offered in the industrial temperature range. They are compliant with SFP+ MSA, SFF-8431 and SFF-8432.

The low jitter and low bit error rate optical assembly features a C27~C61 DML laser transmitter and PIN/TIA receiver. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device is Class I laser safety compliant.

3.1 Product Name And Series Number(s)

JPC PN	Laser(nm)	Distance	Fiber Type	Connector	Tem.
P58**0BRIY20xx	CWDM	20km	SMF	LC	I
P58**0BRCY20xx	CWDM	20km	SMF	LC	C

Note-1: ** Indicates the customer code.

Note-2: xx Refer to the following table for wavelength.

Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)
C27 (1270nm)	C29 (1290nm)	C31 (1310nm)	C33 (1330nm)	C35 (1350nm)
Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)
C37 (1370nm)	C39 (1390nm)	C41 (1410nm)	C43(1430nm)	C45(1450nm)
Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)
C47 (1470nm)	C49 (1490nm)	C51 (1510nm)	C53 (1530nm)	C55 (1550nm)
Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)	Wavelength (nm)
C57 (1570nm)	C59 (1590nm)	C61 (1610nm)		

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3.2 Dimensions, Materials, Platings And Marking

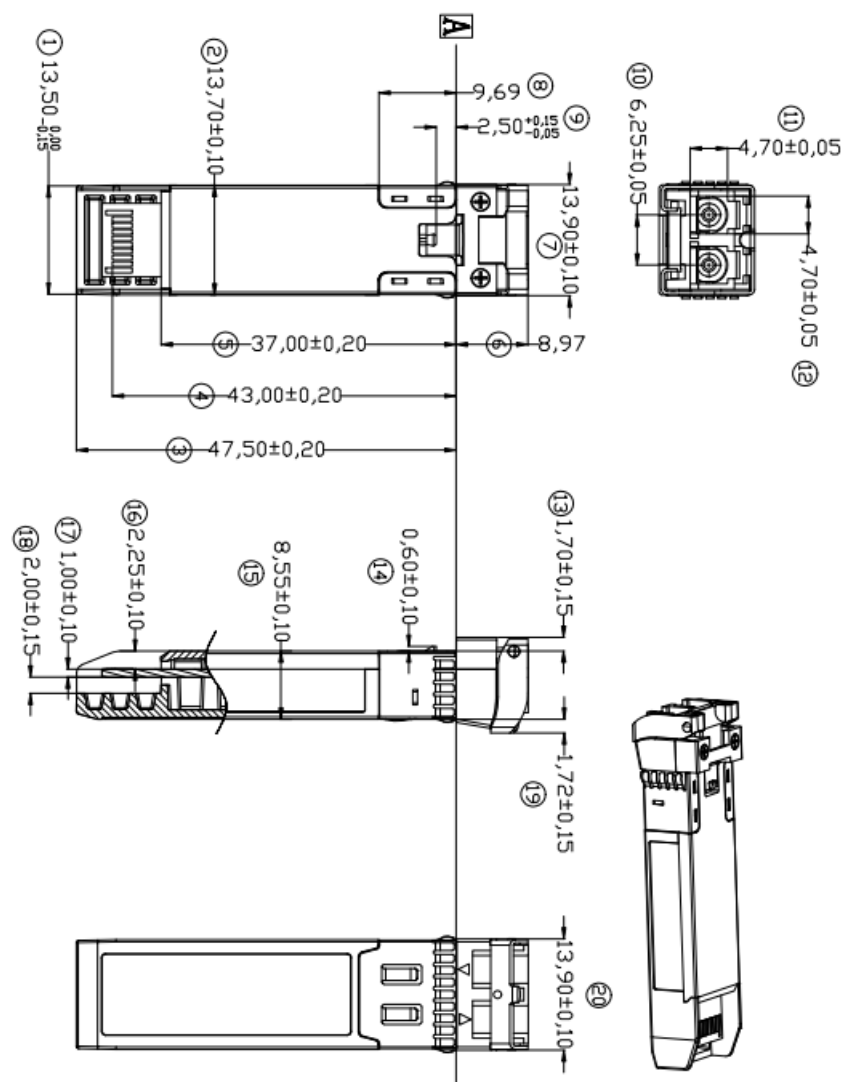


Figure 3. Module Mechanical Dimensions

4. Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	°C	-40	85
Relative Humidity	RH	%	0	85

5. Recommended Operating Conditions

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Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	T _c	°C	0		70
	T _c	°C	-20		85
Power Supply Voltage	V _{cc}	V	3.14	3.3	3.46
Bit Rate	BR	Gb/s		10.3125	
Bit Error Ratio	BER				1*10 ⁻¹²
Max Supported Link Length	L	Km			20

6. Electric Ports Definition

Parameter	Symbol	Unit	Min	Typ	Max	Note
Transmitter						
Input Differential Impedance	R _{IN}	Ω		100		
Single-ended Data Input Swing	V _{IN}	mVp-p	90		450	
Transmit Disable Voltage	V _{DIS}	V	2		V _{CCHOST}	
Transmit Enable Voltage	V _{EN}	V	V _{EE}		V _{EE} +0.8	
Transmit Fault Assert Voltage	V _{FA}	V	2		V _{CCHOST}	
Transmit Fault De-Assert Voltage	V _{FDA}	V	V _{EE}		V _{EE} +0.4	
Receiver						
Single-ended Data Output Swing	V _{OD}	mVp-p	200		450	
LOS Fault	V _{LOSFT}	V	2		V _{CCHOST}	
LOS Normal	V _{LOSNR}	V	V _{EE}		V _{EE} +0.4	

7. Optical Characteristics (V_{cc}= 3.14 to 3.46V)

Parameter	Symbol	Unit	Min	Typ	Max	Note
Nominal Wavelength	λ	nm	1271,1291,1311,1331,1351, 1371,1391,1411,1431,1451,1471,1491,15 11,1531,1551,1571,1591,1611			
Wavelength Drift	Δλ	nm	-6.5		+6.5	
Average Output Power	P _{av}	dBm	0		7	
Spectral Width (-20dB)	σ	nm			1	
Extinction Ratio	ER	dB	3.5			
Side Mode Suppression Ratio	SMSR	dB	30			

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Average Launch Power of OFF Transmitter	P _{OFF}	dBm			-30	
Relative Intensity Noise	R _{IN}	dB/Hz			-128	
Center Wavelength	λ _C	nm	1260		1620	
Receiver Sensitivity(OMA)	RSENSE	dBm			-17	1
Receiver Overload (OMA)	P _{max}	dBm	2			
Optical Return Loss		dB			-12	
LOS Assert	LOSA	dBm	-30			
LOS De-Assert LOS	LOSD	dBm			-17	
LOS Hysteresis		dB	0.5			

Note1: Measured at 10.3125Gb/s, ER>3.5dBm, PRBS 2³¹-1 and BER better than or equal to 1E-12;

8. PIN Assignment

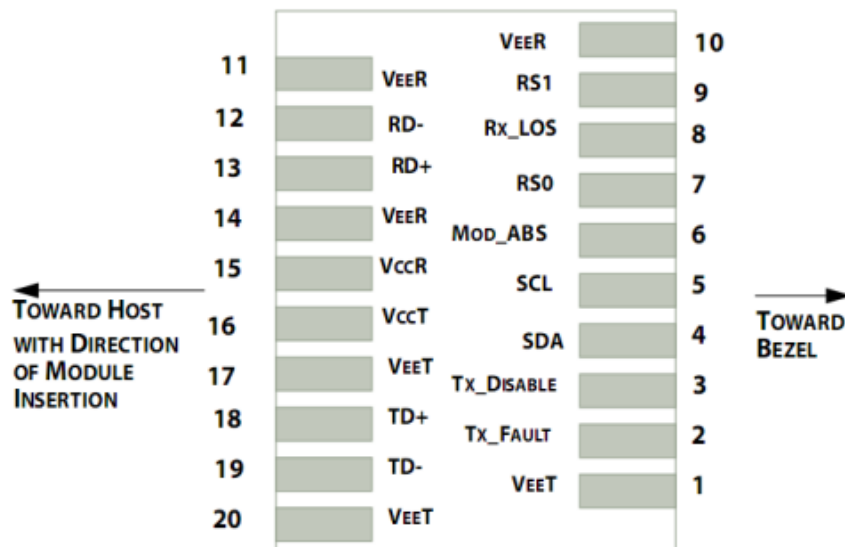


Figure 1.Pin function definitions

Table 1: Transceiver pin descriptions

Pin Number	Symbol	Name	Description
1,17,20	VeeT	Transmitter Signal Ground	Connected to signal ground on the host board.

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2	TX Fault	Transmitter Fault Out (OC)	Module transmitter fault output.
3	TX Disable	Transmitter Disable In (LVTTL)	Module transmitter disable control.
4	SDA	Module Definition Identifiers	Serial ID with SFF 8472 Diagnostics Module Definition pins should be pulled up to Host Vcc with 10 kΩ resistors.
5	SCL		
6	MOD-ABS		
7	RS0	Receiver Rate Select (LVTTL) Transmitter Rate Select (LVTTL)	No connection required
9	RS1		
8	LOS	Loss of Signal Out (OC)	Receiver loss of signal.
10,11,14	VeeR	Receiver Signal Ground	Connected to signal ground on the host board.
12	RD-	Receiver Negative DATA Out (CML)	Receiver inverted data output, internally AC coupled and terminated
13	RD+	Receiver Positive DATA Out (CML)	Receiver non-inverted data output, internally AC coupled and terminated.
15	VccR	Receiver Power Supply	Receiver Power 3.3V Supply.
16	VccT	Transmitter Power Supply	Transmitter Power 3.3V Supply.
18	TD+	Transmitter Positive DATA In (CML)	Transmitter non-inverted data input, internally AC coupled and terminated.
19	TD-	Transmitter Negative DATA In (CML)	Transmitter inverted data Input, internally AC coupled and terminated.

9. Recommended Interface Circuit

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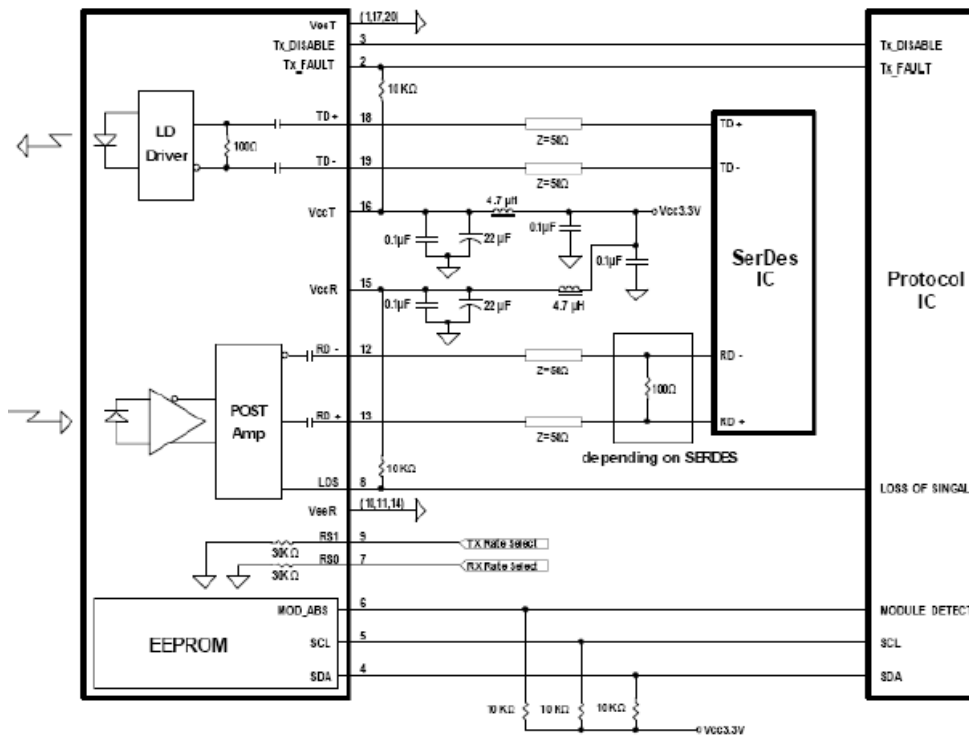


Figure 2. Typical application circuit

10. Digital Diagnostics Functions

As defined by the SFF-8472, Our SFP+ transceivers provide digital diagnostic functions via a 2-wire serial interface, which allows real-time access to the following operating parameters:

- Transceiver temperature
- Laser bias current
- Transmitted optical power
- Received optical power
- Transceiver supply voltage

It also provides a sophisticated system of alarm and warning flags, which may be used to alert end-users when particular operating parameters are outside of a factory-set normal range. The operating and diagnostics information is monitored and reported by a Digital Diagnostics Transceiver Controller (DDTC) inside the transceiver, which is accessed through the 2-wire serial interface. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially. The 2-wire

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serial interface provides sequential or random access to the 8 bit parameters, addressed from 0x00h to the maximum address of the memory. For more detailed information, including memory map definitions, please refer the SFF-8472 documentation.

11. Digital Diagnostic Monitor Accuracy

The following characteristics are defined over recommended operating conditions

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-2.5	deg.C
Internally measured transceiver supply voltage	+/-5	%
Measured Tx bias current	+/-5	%
Measured Tx output power	+/-2	dB
Measured Rx received average optical power	+/-2	dB

12. Modification History

Rev.	Comments	Date	Originator	Approval
1	Initial	2026/08/07	Eric Chen	Mike Sun