TITLE	DOC No. RFD-20230315011-006	
25G SFP28 LR 10km Transceiver	REVISION： 01	AUTHORIZED BY： Albert Lin
	DATE： 2023/03/17	CLASSIFICATION： Optical Transceiver

1. PRODUCT FEATURES

- Operating data rate up to 25.78Gbps

- Up to 10km transmission distance

- High sensitivity Pin photodiode and TIA

- LC duplex connector

- Hot pluggable 20pin connector

- Low power consumption <2W

- -40 to 85C operating wide temperature range

- Single +3.3V±5% power supply

- Compliant with SFF-8472

- Fully RoHS Compliant

2. PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

25G SFP28 LR 10km Transceiver

Part Number	Data Rate	Wavelength (nm)	Distance	Media	Power (dBm)	Sen. (dBm)	Connector	Tem.
P58000CGIB10-1	25G	1310nm	10 km	SMF	-4 ~ 2	-11.3	LC	I

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2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING
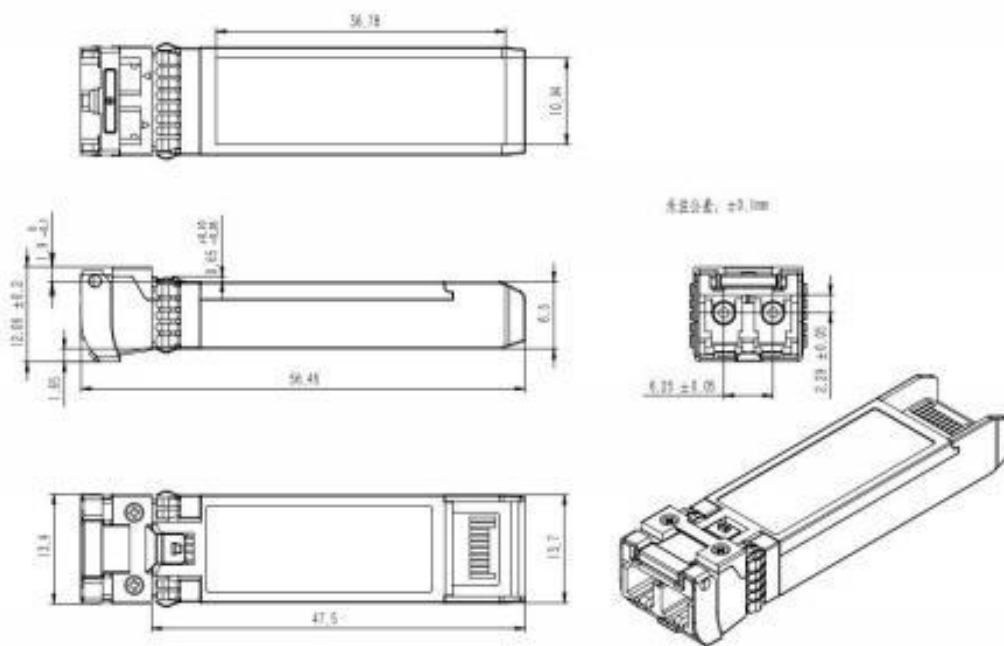
Units: mm

3. APPLICATIONS

- 25G LR
- CPRI Option 10/e CPRI

TITLE **25G SFP28 LR 10km Transceiver**	DOC No. RFD-20230315011-006	
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4. Absolute Maximum Ratings & Recommended Operating Conditions

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	T_S	-40	-	85	ºC
Storage Ambient Humidity	RH	0	-	95	%
Maximum Supply Voltage	V_{CC}	-0.5	-	4.0	V

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature Range	Tc	-40	-	85	ºC
Power Supply Voltage	Vcc	3. 14	3.3	3.46	V
Bit Rate	BR	-	25.78	-	Gb/s
Bit Error Ratio	BER	-	-	$5*10^{-5}$	-
Max Supported Link Length	L	-	-	10	Km
Supply Voltage	Vcc	3.14	3.3	3.46	V
Power Consumption	P	-	-	2000	mW

Transmitter Operating Characteristic-Optical, Electrical

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Nominal Wavelength	λ	1295	1310	1325	nm	
Wavelength Drift	Δλ	- 15	-	+15	nm	
Average Output Power	Pav	-4	-	2	dBm	
Spectral Width (-20dB)		-	-	1	nm	
Extinction Ratio	ER	3.5	-	-	dB	

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	DATE： 2023/03/17	CLASSIFICATION： Optical Transceiver

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Launch Power of OFF Transmitter	POFF	-	-	-30	dBm	
Relative Intensity Noise	RIN	-	-	-130	dB/Hz	
Input Differential Impedance	RIN	-	100	-	Ω	
Single-ended Data Input Swing	VIN	90	-	450	mVp-p	
Transmit Disable Voltage	VDIS	2	-	VCCHOS	V	
Transmit Enable Voltage	VEN	VEE	-	VEE+0.8	V	
Transmit Fault Assert Voltage	VFA	2	-	VCCHOS	V	
Transmit Fault De-Assert Voltage	VFDA	VEE	-	VEE+0.4	V	

Receiver Operating Characteristic-Optical, Electrical						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Center Wavelength	λC	1260	-	1360	nm	
Receiver Sensitivity	RSENSE	-	-	-11.3	dBm	
Receiver Overload	Pmax	2	-	-	dBm	
Optical Return Loss		-	-	-26	dB	
LOS Assert	LOSA	-30	-	-	dBm	
LOS De-Assert LOS	LOSD	-	-	-17	dBm	
LOS Hysteresis		0.5	-	-	dB	
Single-ended Data Output Swing	VOD	200	-	450	mVp-p	
LOS Fault	VLOSFT	2	-	VCCHOS	V	
LOS Normal	VLOSNR	VEE	-	VEE+0.4	V	

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	DATE： 2023/03/17	CLASSIFICATION： Optical Transceiver

5. Pin-out Definition
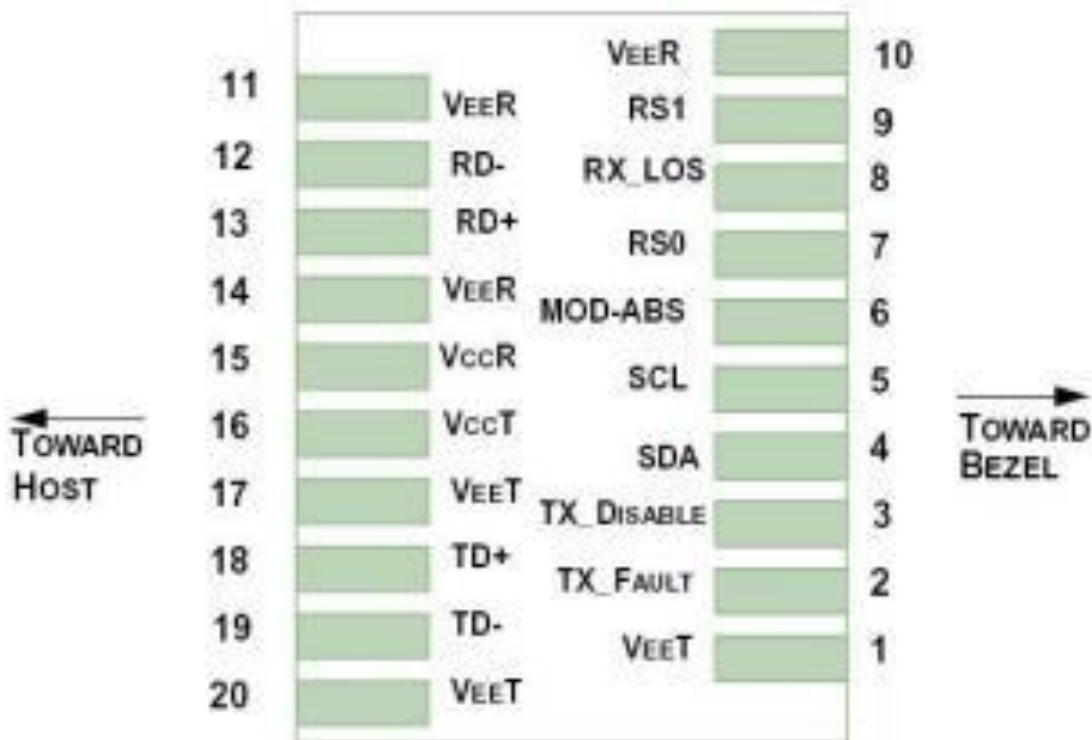
Pin Assignment

Pin	Symbol	Name/Description
1	VeeT	These pins should be connected to signal ground on the host board.
2	TX Fault	Logic "1" Output = Laser Fault (Laser off before t_fault) Logic "0" Output = Normal Operation This pin is open collector compatible and should be pulled up to Host Vcc with a 10kΩ resistor.

| TITLE **25G SFP28 LR 10km Transceiver**	DOC No. RFD-20230315011-006	
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	DATE： 2023/03/17	CLASSIFICATION： Optical Transceiver

3	TX Disable	Logic "1" Output = Laser Fault (Laser off before t_fault) Logic "0" Output = Normal Operation This pin is open collector compatible and should be pulled up to Host Vcc with a 10kΩ resistor.
4	SDA	Serial ID with SFF 8472 Diagnostics Module Definition pins should be pulled up to Host Vcc with 10 kΩ resistors.
5	SCL	Serial ID with SFF 8472 Diagnostics Module Definition pins should be pulled up to Host Vcc with 10 kΩ resistors.
6	MOD-ABS	Serial ID with SFF 8472 Diagnostics Module Definition pins should be pulled up to Host Vcc with 10 kΩ resistors.
7	RS0	These pins have an internal 30kΩ pull-down to ground. A signal on either of these pins will not affect module performance.
8	LOS	Sufficient optical signal for potential BER $< 1\text{x}10^{-12}$ = Logic "0" Insufficient optical signal for potential BER $> 1\text{x}10^{-12}$ = Logic "1" This pin is open collector compatible and should be pulled up to Host Vcc with a 10kΩ resistor.
9	RS1	These pins have an internal 30kΩ pull-down to ground. A signal on either of these pins will not affect module performance.
10	VeeR	These pins should be connected to signal ground on the host board.
11	VeeR	These pins should be connected to signal ground on the host board.
12	RD-	Light on = Logic "0" Output Receiver DATA output is internally AC coupled and series terminated with a 50Ω resistor.
13	RD+	Light on = Logic "0" Output Receiver DATA output is internally AC coupled and series terminated with a 50Ω resistor.
14	VeeR	These pins should be connected to signal ground on the host board.
15	VccR	This pin should be connected to a filtered +3.3V power supply on the host board. See Figure 3. Recommended power supply filter
16	VccT	This pin should be connected to a filtered +3.3V power supply on the host board. See Figure 3. Recommended power supply filter
17	VeeT	These pins should be connected to signal ground on the host board.

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18	TD+	Logic "1" Input = Light on Transmitter DATA inputs are internally AC coupled and terminated with a differential 100Ω resistor.
19	TD-	Logic "0" Input = Light on Transmitter DATA inputs are internally AC coupled and terminated with a differential 100Ω resistor.
20	VeeT	These pins should be connected to signal ground on the host board.

Recommended Interface Circuit
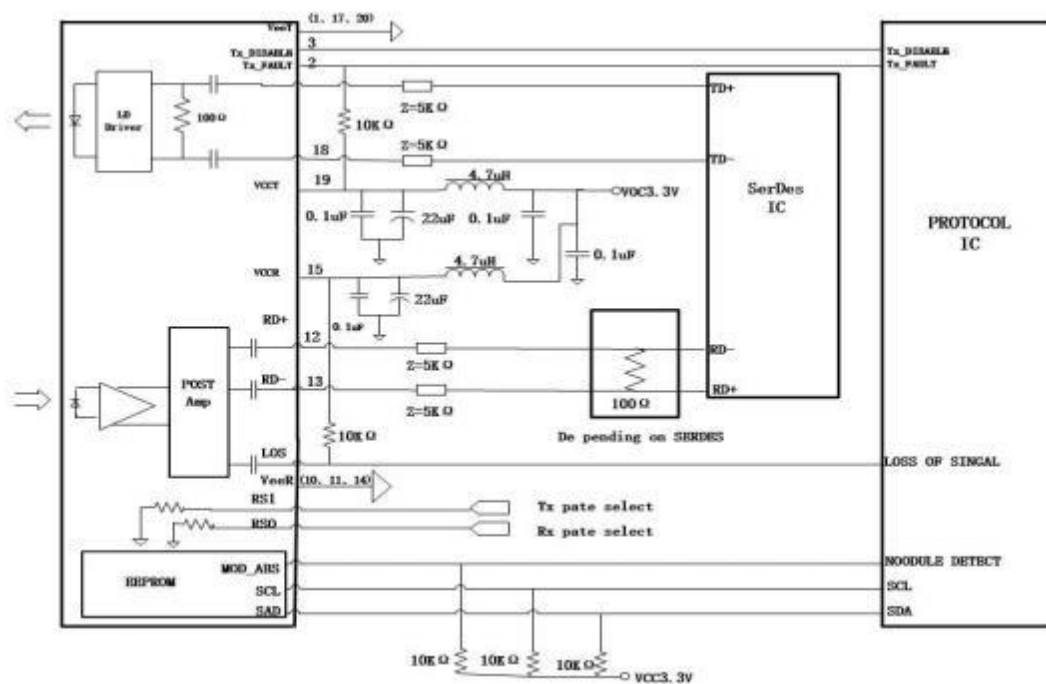
6. Modification History

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2023/03/17	Albert Lin	Mike Sun