

TITLE 25G SFP28 LR 10km Transceiver	DOC No. RFD-20230315011-006	
	REVISION : 02	AUTHORIZED BY : Albert Lin
	DATE : 2026.03.17	CLASSIFICATION : CONFIDENTIAL

1. SCOPE

The 25G LR Transceiver is intended for 10km reach service 25.78Gb/s 1310nm 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 SFP28 MSA, SFF-8431 and SFF-8432.

The low jitter and low bit error rate optical assembly features a DML laser transmitter and PIN/TIA receiver. It utilizes internal clock and data recovery (CDR) units on transmitter and the receiver chains for low jitter compliance. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device is Class I laser safety compliant.

2. PRODUCT FEATURES

- Operating data rate up to 25.78Gbps
- Rate Adaptation
- Up to 10km transmission distance
- High sensitivity Pin photodiode and TIA
- LC duplex connector
- Hot pluggable 20pin connector
- Low power consumption <1.2 W
- Single +3.3V±5% power supply
- Compliant with SFF-8472 &IEEE 802.3cc
- Fully RoHS Compliant
- Operating temperature range: Commercial: 0°C to +70°C // Industrial: -40°C to +85°C
- Support eCPRI
- Using Macom chip

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3. PRODUCT DESCRIPTION

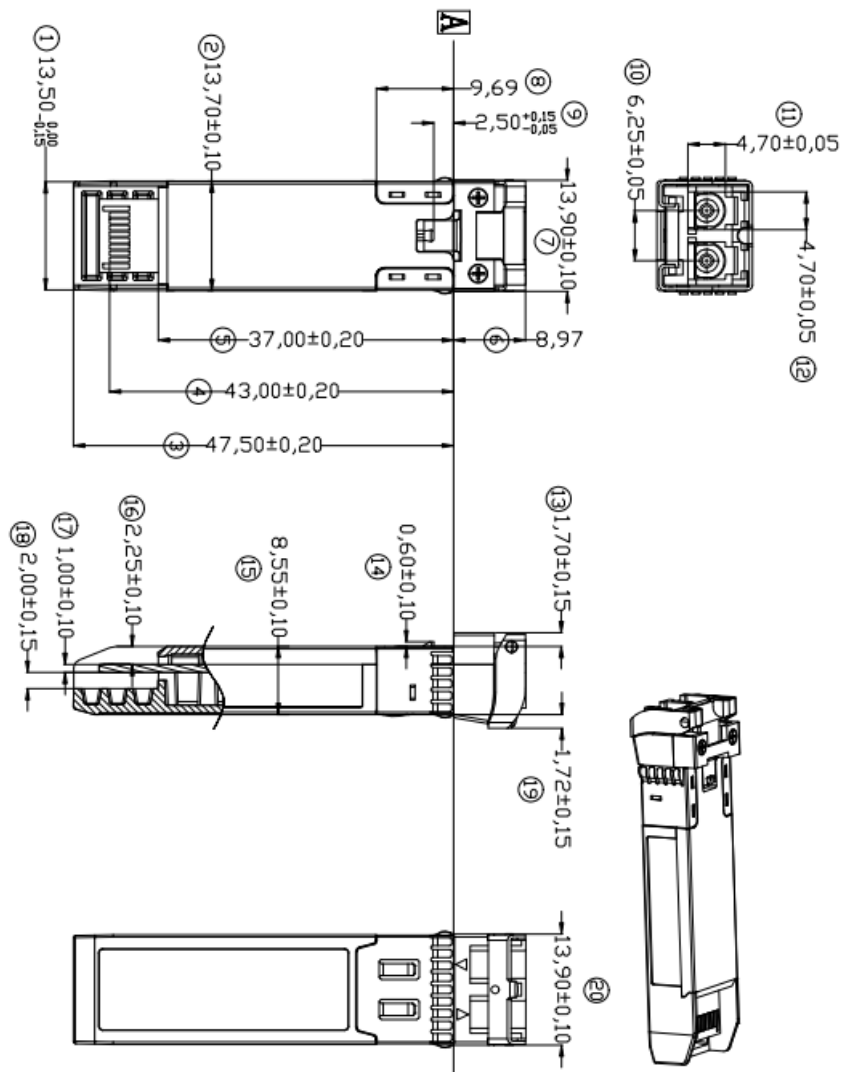
3.1 PRODUCT NAME AND SERIES NUMBER(S)

25G SFP+ LR Transceiver

JPC P/N	Wavelength h(nm)	Distance	Media	Power(dBm)	Sen. (dBm)	Connector	Tem.
P58**0CRIB10-1	1310	10km	SMF	-7 ~ 2	-12	LC	I/C

Note-1 : ** Indicates the customer code.

3.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING



Unit is millimeter. All dimensions are ± 0.1 mm unless otherwise specified.

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4. APPLICABLE DOCUMENTS AND SPECIFICATIONS

- Data Center Backbone
- Ethernet Switches
- High-speed Servers
- High-performance Computing Clusters
- SAN, Routers, Hubs, Load Balancer

5. Absolute Maximum Ratings & Recommended Operating Conditions

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage temperature	Ts	-40	85	°C
Relative humidity	RH	0	85	%
Signal Input Voltage	Vcc-0.3	-	Vcc+0.3	V

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Case Operating Temperature	Tc	0	-	70	°C
		-40	-	85	°C
Power Supply Voltage	Vcc	3.15	3.3	3.45	V
Power Supply Current	Icc	-	-	350	mA
Data Rate	BR	-	25.78125	-	Gbps
Transmission Distance	TD	-	-	10	km
Bit Error Rate	BER	-	-	5*10 ⁻⁵	-
Coupled Fiber	Single Mode Fiber				-
Power Consumption	-	-	-	1.2	W

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Transmitter Operating Characteristic-Optical, Electrical

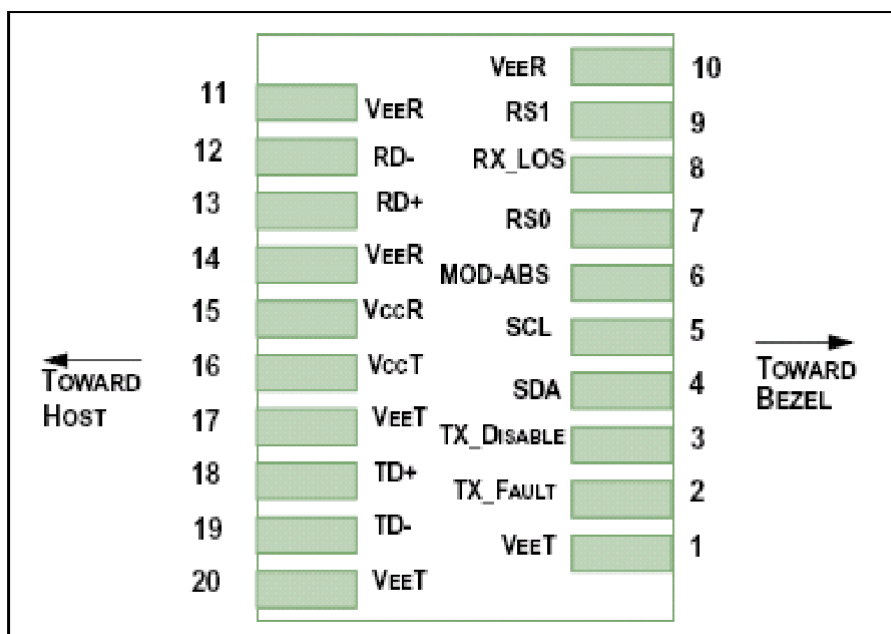
Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength	λ	1290	-	1330	nm
Side-mode Suppression Ratio	SMSR	30	-	-	dB
Average Optical Power	P_{avg}	-7	-	2.0	dBm
Optical Modulation Amplitude	TxOMA	-4	-	-	dBm
Transmitter and Dispersion Penalty	TDP	-	-	2.7	dB
Average Launch Power of OFF Transmitter	P_{off}	-	-	-30	dBm
Extinction Ratio	ER	3.5	-	-	dB
Optical Return Loss Tolerance	-	-	-	11	dB
Transmitter Reflectance	-	-	-	-12	dB
Input Differential Impedance	R_{IN}	-	100	-	Ω
Single-ended Data Input Swing	V_{IN}	90	-	450	mVp-p
Transmit Disable Voltage	V_{DIS}	2	-	V_{CCHOST}	V
Transmit Enable Voltage	V_{EN}	V_{EE}	-	$V_{EE}+0.8$	V
Transmit Fault Assert Voltage	V_{FA}	2	-	V_{CCHOST}	V
Transmit Fault De-Assert Voltage	V_{FDA}	V_{EE}	-	$V_{EE}+0.4$	V

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Receiver Operating Characteristics-Optical, Electrical

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength	λ	1260	-	1360	nm
Damage Threshold	-	3	-	-	dBm
Receive Power Overload	-	-	-	2	dBm
Receiver Reflectance	-	-	-	-26	dB
Receiver Sensitivity	S	-	-	-12	dBm
LOS Assert	LOS _A	-30	-	-	dBm
LOS De-Assert	LOS _D	-	-	-17	dBm
LOS Hysteresis	-	0.5	-	-	dB
Single-ended Data Output Swing	V _{OD}	200	-	450	mVp-p
LOS Fault	V _{LOSFT}	2	-	V _{CCHOST}	V
LOS Normal	V _{LOSNR}	V _{EE}	-	V _{EE} +0.4	V

6. Applications Note:

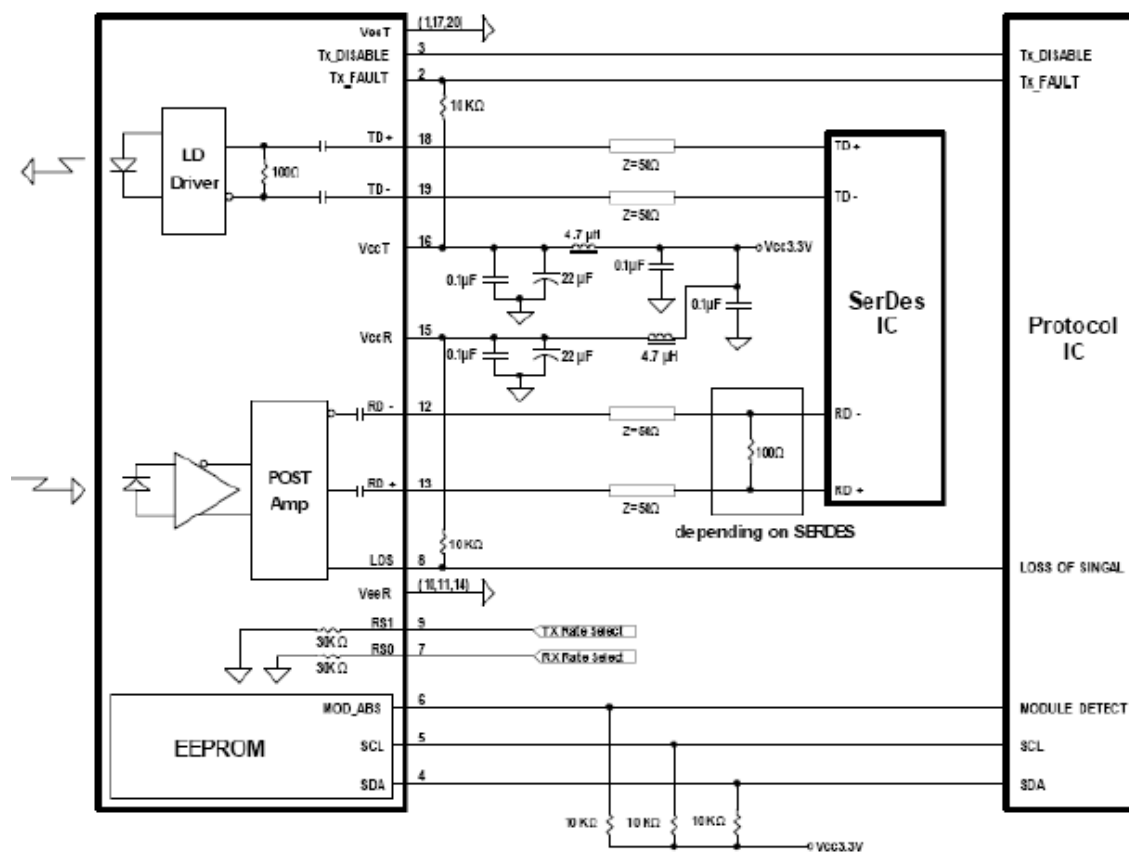


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Pin	Symbol	Description
1	VeeT	Transmitter Ground (Common with Receiver Ground)
2	TX_Fault	Transmitter Fault.
3	TX_Disable	Transmitter Disable. Laser output disabled on high or open.
4	SDA	2-wire Serial Interface Data Line
5	SCL	2-wire Serial Interface Clock Line
6	MOD_ABS	Module Absent. Grounded within the module
7	RS0	Rate Select 0
8	RX_LOS	Loss of Signal indication. Logic 0 indicates normal operation.
9	RS1	No connection required
10	VeeR	Receiver Ground (Common with Transmitter Ground)
11	VeeR	Receiver Ground (Common with Transmitter Ground)
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver Non-inverted DATA out. AC Coupled
14	VeeR	Receiver Ground (Common with Transmitter Ground)
15	VccR	Receiver Power Supply
16	VccT	Transmitter Power Supply
17	VeeT	Transmitter Ground (Common with Receiver Ground)
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.
19	TD-	Transmitter Inverted DATA in. AC Coupled.
20	VeeT	Transmitter Ground (Common with Receiver Ground)

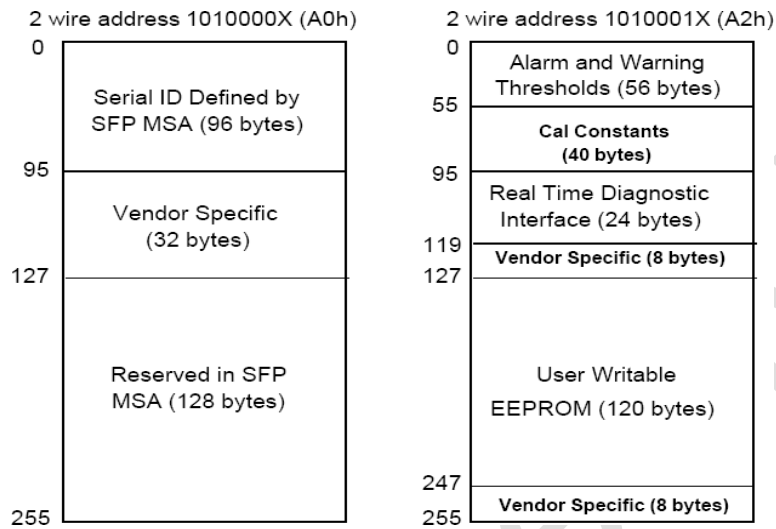
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Recommended Application Interface Block Diagram



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Digital Diagnostic Memory Map



7. Modification History

Rev.	Comments	Date	Originator	Approval
01	Initial	2024.10.01	Albert Lin	Mike Sun
02	Add 2. PRODUCT FEATURES for eCPRI and Macom chip	2026.03.17	Albert Lin	Mike Sun

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JPC Connectivity