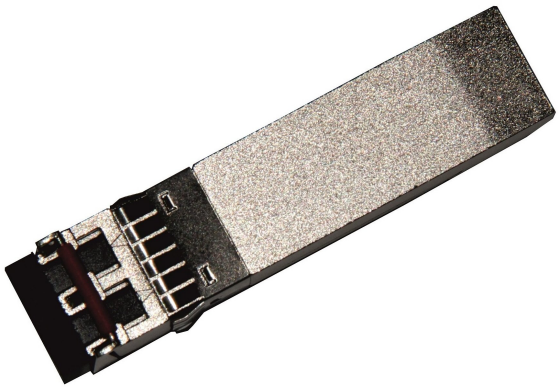
CL-SFP28-ER-40
25G SFP28 Optical Transceiver Module
RoHS 6 compliant



Features

- Operating data rate up to 25.78Gbps
- Rate Adaptation
- Up to 40km transmission distance
- High sensitivity APD photodiode and TIA
- LC single connector
- Hot pluggable 20pin connector
- Low power consumption <1.5 W
- Single +3.3V ±5% power supply
- Compliant with SFF-8472 & IEEE 802.3cc
- Fully RoHS Compliant
- Operating temperature range:
- Commercial: -5°C to +70°C
- Industrial: -40°C to +85°C

Applications

- 25GE BASE-ER Ethernet
- CPRI Option 10/eCPRI

PART NUMBER	Monitor	INPUT/OUTPUT	SIGNAL DETECT	TEMPERATURE
CL-SFP28-ER-40	X	AC/AC	TTL	-5°C to 70 °C
CL-SFP28-ER-40i	X	AC/AC	TTL	-40°C to 85 °C

DESCRIPTIONS

I. Absolute Maximum Ratings

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

II. Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Case Temperature	Tc		-5		70	°C
			-40		85	
Power Supply Voltage	Vcc		3.14	3.30	3.46	V
Bit Rate	BR			25.78125		Gbps
Bit Error Ratio	BER				$5*10^{-5}$	
Max Supported Link Length	L				40	km

III. Optical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Transmitter						
Center Wavelength	λ		1290		1330	nm
Side-mode Suppression Ratio	SMSR		30			dB
Average Optical Power	P_{avg}		- 2		6.0	dBm
Optical Modulation Amplitude	TxOMA		0			dBm
Transmitter and Dispersion Penalty	TDP				2.7	dB

Average Launch Power of OFF Transmitter	P_{off}				-20	dBm
Extinction Ratio	ER		4			dB
Optical Return Loss Tolerance					20	dB
Transmitter Reflectance					-26	dB
Receiver						
Center Wavelength	λ		1290		1330	nm
Damage Threshold			-3			dBm
Receive Power Overload					-5	dBm
Receiver Reflectance					-26	dB
Receiver Sensitivity	S	Note1			-19	dBm
LOS Assert	LOS_A		-30			dBm
LOS De-Assert	LOS_D				-21	dBm
LOS Hysteresis			0.5			dB

Notes:

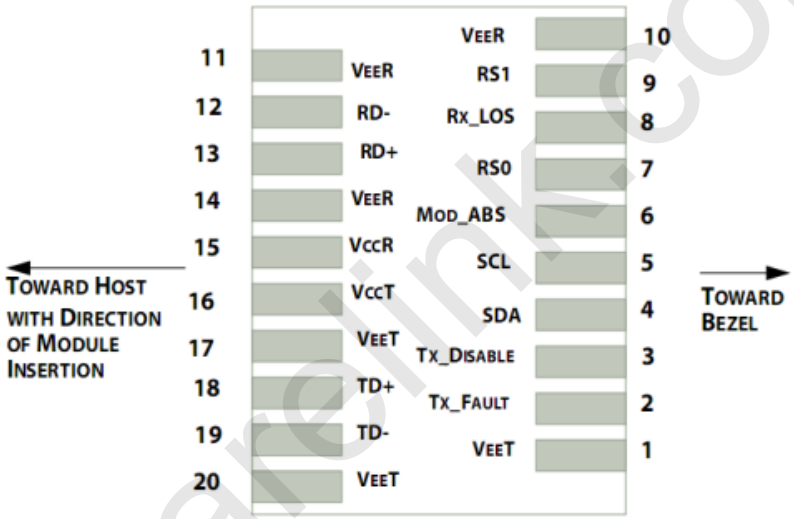
1. Measured at 25.78Gb/s, ER>4dBm, PRBS 2^{31}-1 and BER better than or equal to 5E-5.

IV. 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	

V. Pin Assignment



VI. Pin Descriptions

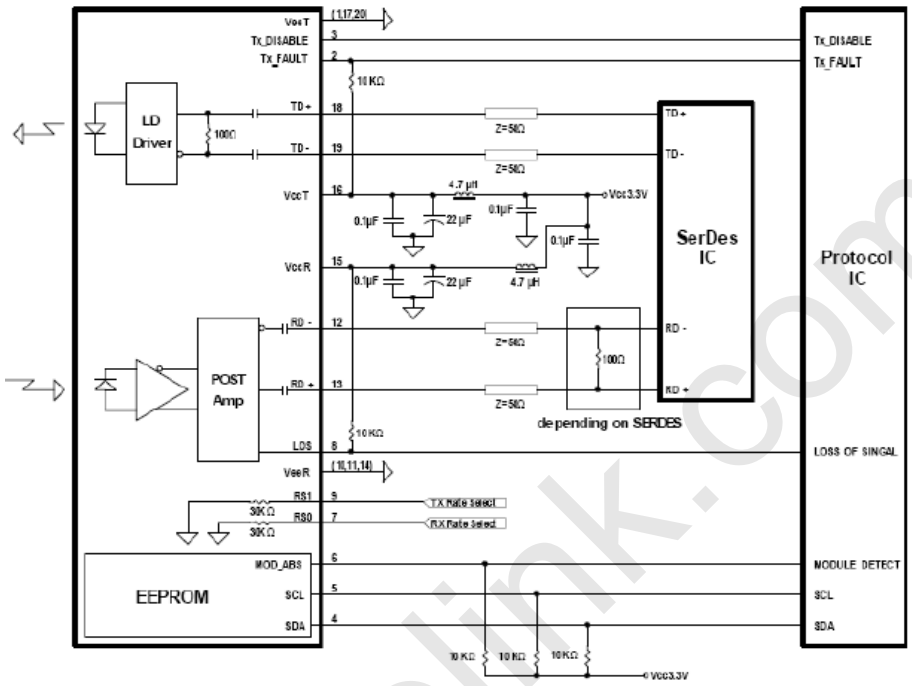
Pin	Symbol	Name	Description
1,17,20	VeeT	Transmitter Signal Ground	Connected to signal ground on the host board.
2	TX Fault	Transmitter Fault Out (OC)	Module transmitter fault output.
3	TX Disable	Transmitter Disable In (LVTTL)	Module transmitter disable control.
4	SDA	Module Definition Identifiers	Serial 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		

9	RS1	Receiver Rate Select (LVTTL) Transmitter Rate Select (LVTTL)	Rate select 0(Rx):Low=CDR Bypass ; High=CDR Select Rate select 1(Tx):Low=CDR Bypass ; High=CDR Select
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.

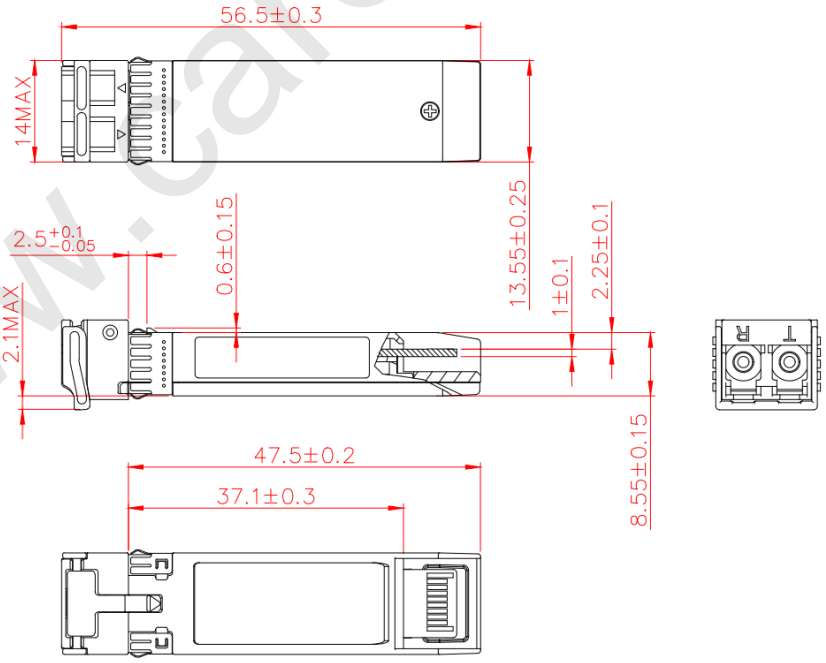
VII. Digital Diagnostic Monitor Accuracy

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB
Measured Rx received average optical power	+/-3	dB

VIII. Recommended Interface Circuit



IX. Mechanical Dimensions



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