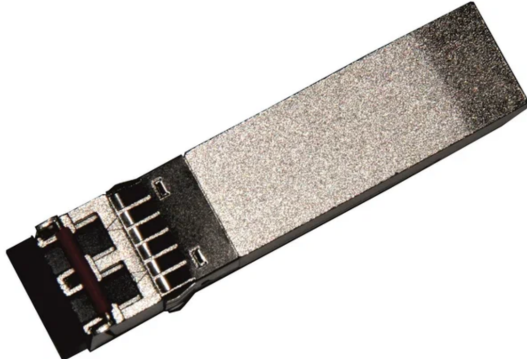




CL-SFP28-LR_10
25Gb/s 10km SFP28 Transceiver
RoHS 6 compliant



Features

- UP to 25.78Gb/s bit rates
- Hot-Pluggable SFP28 footprint
- Duplex LC connector
- 1310nm DFB laser transmitter
- Up to 10km on 9/125m SMF
- 2-wire interface for management specifications compliant with SFF 8472 digital diagnostic monitoring interface for optical transceivers
- Power Supply :+3.3V
- Operating case temperature Range: -5~70°C
- RoHS compliant

Applications

- 25GE LR
- eCPRI&CPRI

PART NUMBER	Monitor	INPUT/OUTPUT	SIGNAL DETECT	TEMPERATURE
CL-SFP28-LR_10	X	AC/AC	TTL	-5°C to 70 °C
CL-SFP28-LR_10i	X	AC/AC	TTL	-40°C to 85 °C



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Description:

Carelink's CL SFP28 transceivers are designed for use in Ethernet links upto 25.78 Gb/s data rate and up to 10 km link length. They are compliant SFF-8472 , and compatible with SFF-8432 and applicable portions of SFF-8431. The product is RoHS compliant and lead-free per Directive 2011/96/EU.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Storage Temperature	T _s	-40		+85	°C	
Case Operating Temperature	T _c	-5		+70	°C	
Maximum Supply Voltage	V _{cc}	0		3.6	V	
Relative Humidity(Non-condensing)	RH	0		85	%	

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	V _{cc}	3.135		3.465	V	
Supply Current	I _{cc}			360	mA	
Power Consumption	P			1.2	W	
Data Rate	R	-	25.78		Gb/s	
Fiber Length	L			10	Km	
Transmitter Section:						
Input differential impedance	R _{in}		100		Ω	1
Differential input voltage swing	V _{in,pp}	180		700	mV	2
Transmit Disable Voltage	V _D	2		V _{cc}	V	3
Transmit Enable Voltage	V _{EN}	V _{ee}		V _{ee} +0.8	V	
Receiver Section:						
Single Ended Output Voltage Tolerance	V	-0.3		4	V	



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Rx Output Diff Voltage	V _o	185		800	mV	
LOS Fault	V _{LOS fault}	2		V _{CCHOST}	V	4
LOS Normal	V _{LOS norm}	V _{ee}		V _{ee} +0.8	V	4

Note:

1. Connected directly to TX data input pins. AC coupling from pins into laser driver IC.
2. Per SFF-8431 Rev 3.0
3. Into 100 ohms differential termination.
4. LOS is an open collector output. Should be pulled up with 4.7k –10kΩ on the host board. Normal operation is logic 0; loss of signal is logic 1. Maximum pull-up voltage is 5.5V.

Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter Section:						
Center Wavelength	λ_t	1295		1325	nm	
spectral width(-20dB)	$\Delta\lambda$			1	nm	
Average Optical Power	P _{avg}	-7.0		+2.0	dBm	
Laser Off Power	P _{off}			-30	dBm	
Side Mode Suppression Ratio		30				
Extinction Ratio	ER	3.5			dB	
Optical Return Loss Tolerance				-12	dB	
Receiver Section:						
Center Wavelength	λ_r	1260		1370	nm	
Receiver Sensitivity	Sen			-12	dBm	1
Los Assert	LOS _A	-30		-	dBm	
Los Dessert	LOS _D			-14	dBm	
Los Hysteresis	LOS _H	0.5			dB	
Overload		2			dBm	

Note:

1. Measured with a PRBS 2³¹-1 test pattern, @25.78Gb/s, BER<5E-5.

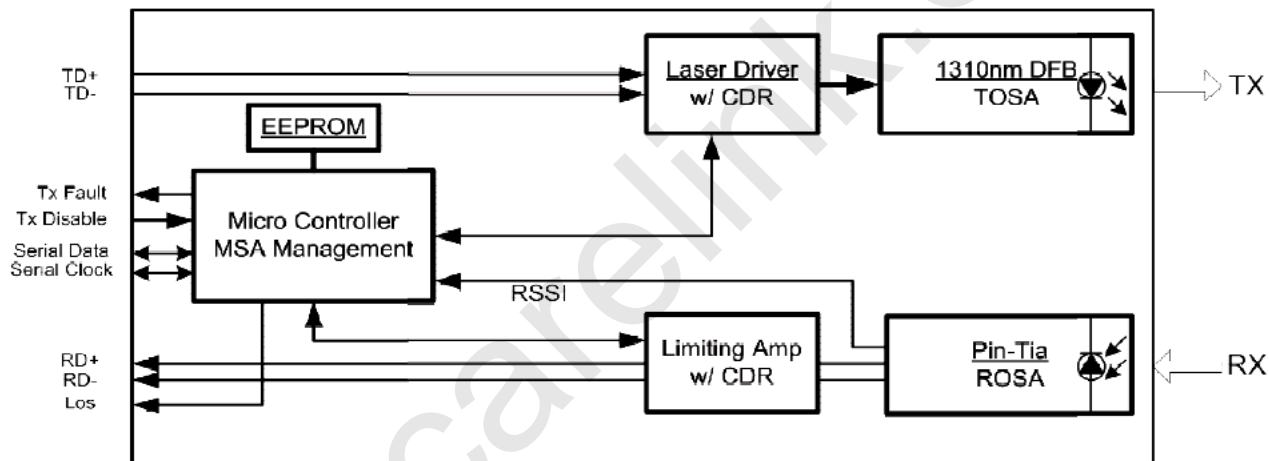


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Digital Diagnostic Specifications

Parameter	Symbol	Units	Min	Max	Accuracy
Transceiver Temperature	Temp	°C	0	+70	±5°C
Transceiver Supply Voltage	Voltage	V	3.135	3.465	±3%
Transmitter Bias Current	Bias	mA	0	35	±10%
Transmitter Output Power	Tx-Power	dBm	-7	+2	±3dB
Receiver Average Optical Input Power	Rx-Power	dBm	-12	-3	±3dB

Transceiver Block Diagram



Pin Function Definitions

PIN #	Name	Function	Notes
1	VeeT	Module transmitter ground	1
2	Fault	Module transmitter Fault	2
3	Disable	Transmitter Disable; Turns off transmitter laser output	3
4	SDL	2 wire serial interface data input/output (SDA)	4
5	SCL	2 wire serial interface clock input (SCL)	4
6	MOD-ABS	Module Absent, connect to VeeR or VeeT in the module	2
7	RS0	Rate select0: module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.	
8	LOS	Receiver Loss of Signal Indication	
9	RS1	Rate select1: module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.	



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10	VeeR	Module receiver ground	1
11	VeeR	Module receiver ground	1
12	RD-	Receiver inverted data out put	
13	RD+	Receiver non-inverted data out put	
14	VeeR	Module receiver ground	1
15	VccR	Module receiver 3.3V supply	
16	VccT	Module transmitter 3.3V supply	
17	VeeT	Module transmitter ground	1
18	TD+	Transmitter non-inverted data out put	
19	TD-	Transmitter inverted data out put	
20	VeeT	Module transmitter ground	1

Note:

1. The module ground pins shall be isolated from the module case.
2. This pin is an open collector/drain output pin and shall be pulled up with 4.7K-10Kohms to Host_Vcc on the host board.
3. This pin shall be pulled up with 4.7K-10Kohms to VccT in the module.
4. This pin is an open collector/drain output pin and shall be pulled up with 4.7K-10Kohms to Host_Vcc on the host board.

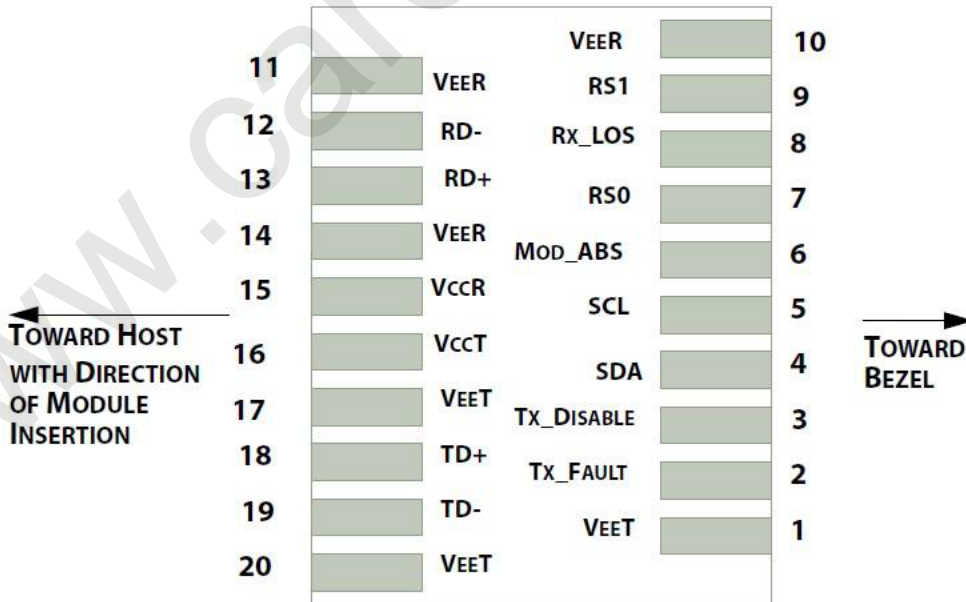
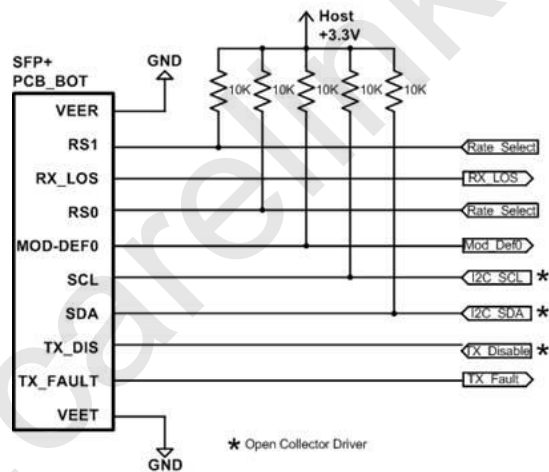
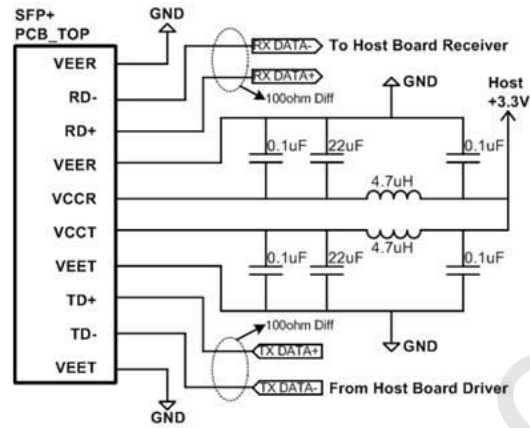


Diagram of Host Board Connector Block Pin Numbers and Names



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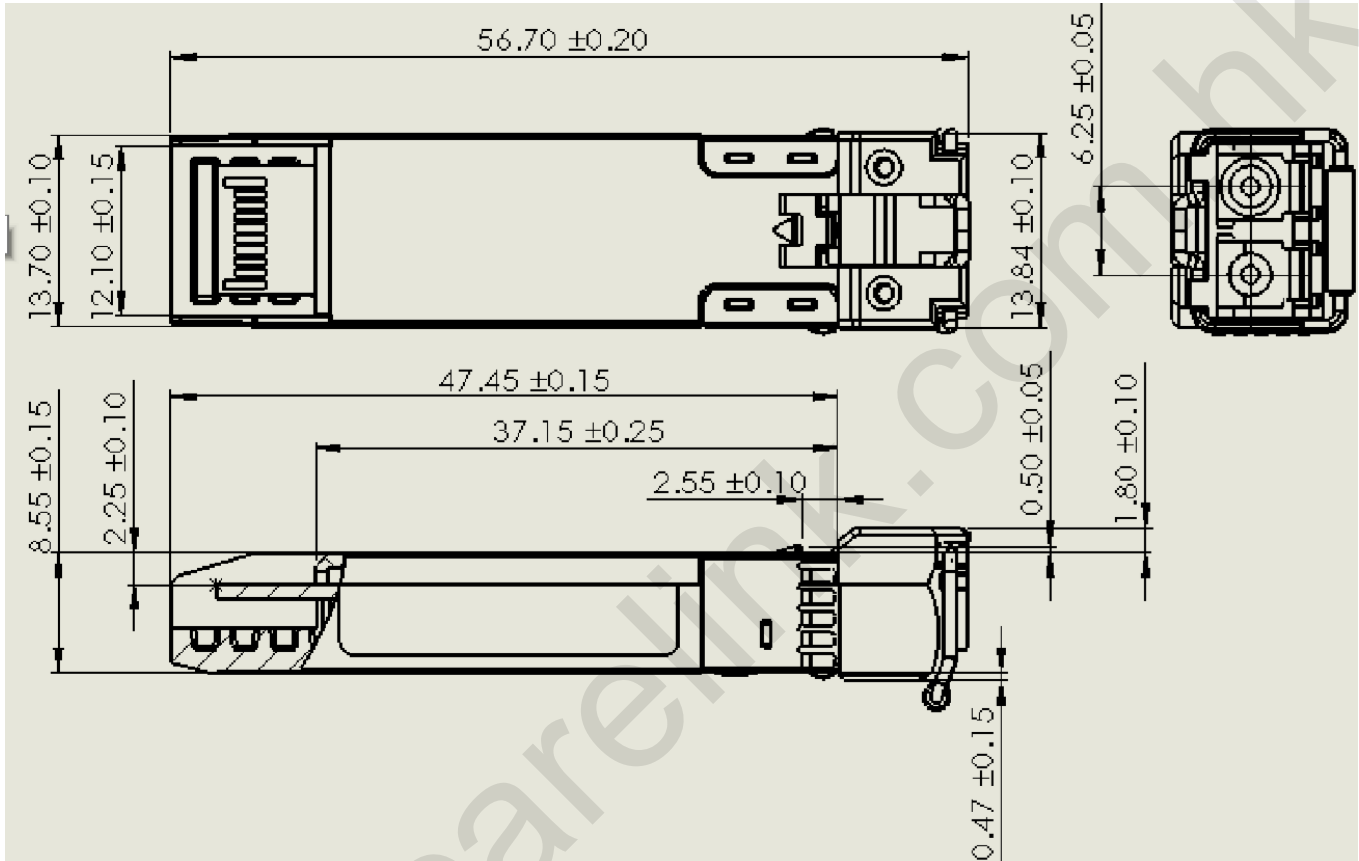


Recommended High-speed Interface Circuit



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Mechanical Dimensions



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