

25Gb/s 30km SFP28 Transceiver (STC-80073)



Features:

- ▶ UP to 25.78Gb/s data links
- ▶ Hot-Pluggable SFP28 footprint
- ▶ Duplex LC connector
- ▶ DML laser transmitter, APD photo-detector
- ▶ Up to 30km on SMF without FEC
- ▶ Up to 40km on SMF with FEC
- ▶ 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: 0~70°C
- ▶ RoHS compliant

Applications:

- ▶ High-speed storage area networks
- ▶ CPRI 10

Part Number Ordering Information

STC-80073	SFP28 ER Lite 30km(without FEC) 40KM(with FEC)optical transceiver with full real-time digital diagnostic monitoring , 0~70°C,25GE
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Description:

SWEDISH TELECOM's STC-80073 SFP28 transceivers are designed for use in Ethernet links up to 25.78 Gb/s data rate and up to 30km(without FEC) 40KM(with FEC) 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.

PRODUCT SELECTION

► 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.	
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

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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.

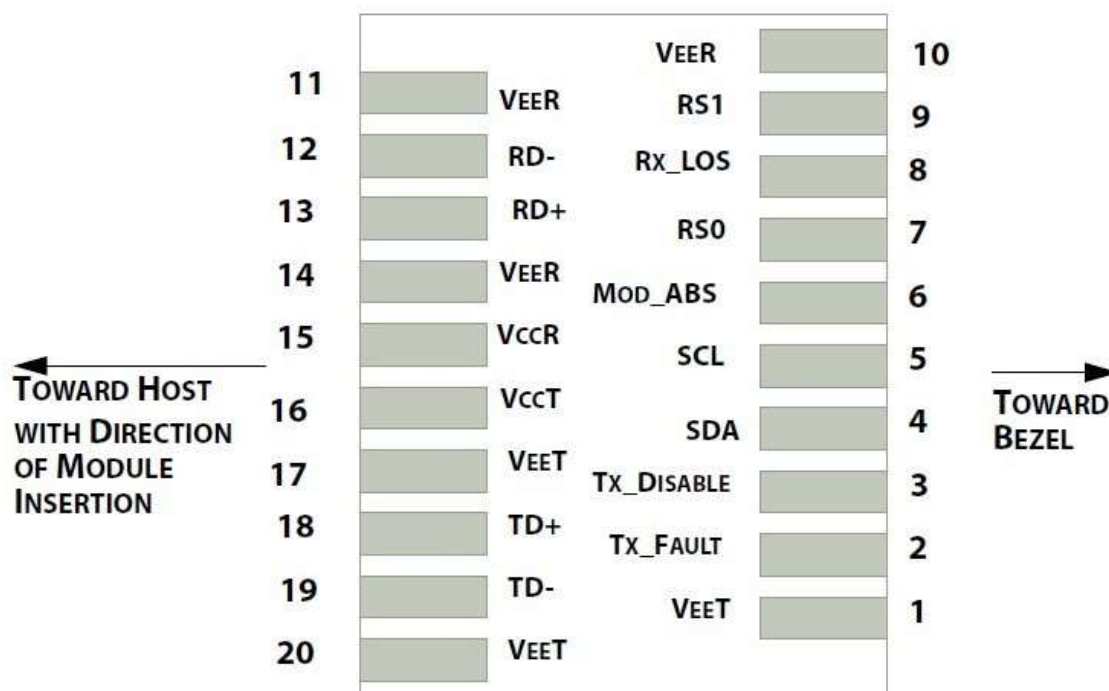


Diagram of Host Board Connector Block Pin Numbers and Names

► Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	T _s	-40		+85	°C

Case Operating Temperature	T _A	0		+70	°C
Maximum Supply Voltage	V _{cc}	0		3.6	V
Relative Humidity(Non-condensing)	RH	0		85	%

► **Electrical Characteristics (T_{OP} = 0 to 70 °C, VCC = 3.15 to 3.46 Volts)**

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	V _{CC}	3.15		3.46	V	
Supply Current	I _{CC}			450	mA	
Power Consumption	P			1.5	W	
Data Rate	R	-	25.8		Gb/s	
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	
Rx Output Diff Voltage	V _O	185		800	mV	
LOS Fault	V _{LOS fault}	2		V _{CC,HOST}	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 (T_{OP} = 0 to 70 °C, VCC = 3.15 to 3.46 Volts)**

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter Section:						
Center Wavelength	λ _t	1295		1325	nm	
spectral width(-20dB)	Δ λ			1	nm	
Average Optical Power	P _{avg}	-3.0		+6	dBm	1
Laser Off Power	P _{off}			-30	dBm	
Side Mode Suppression Ratio		30				
Extinction Ratio	ER	4			dB	
Optical Return Loss Tolerance				-12	dB	
Receiver Section:						
Center Wavelength	λ _r	1260		1370	nm	
Receiver Sensitivity	Sen			-19	dBm	2
Los Assert	LOS _A	-30		-	dBm	

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Los Dessert	LOS _D			-19	dBm	
Los Hysteresis	LOS _H	0.5			dB	
Overload		-6			dBm	

Note:

1. Average power figures are informative only, per IEEE802.3cc.
2. Receiver sensitivity is informative. Shall be measured with conformance test signal for . BER = 5×10^{-5} .

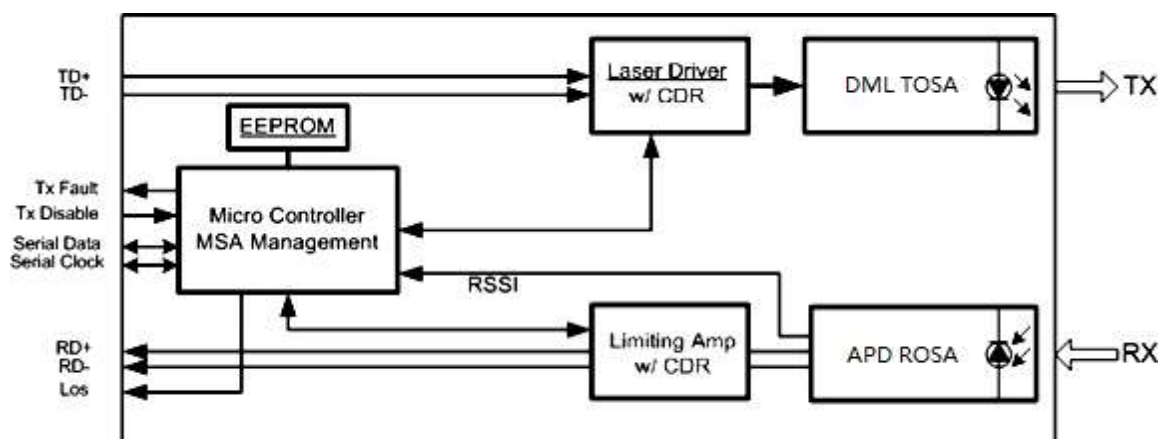
► Timing Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
TX_Disable Assert Time	t _{off}			100	us
TX_Disable Negate Time	t _{on}			2	ms
Time to Initialize 2-wire interface	t _{2w_start_up}			300	ms
Time to Initialize	t _{start_up}			300	ms
Time to Initialize cooled module and time to power up a cooled module to Power level II	t _{start_up_cooled}			90	s
Time to Power Up to Level II	t _{power_level2}			300	ms
Time to Power Down from Level II	t _{power_down}			300	ms
Tx_Fault assert	Tx_Fault_on			1	ms
Tx_Fault assert for cooled module	Tx_Fault_on_cooled			50	ms
TX_FAULT Reset	t _{reset}	10			us
Rx_LOS assert delay	t _{los_on}			100	us
Rx_LOS negate delay	t _{los_off}			100	us

► Digital Diagnostic Specifications

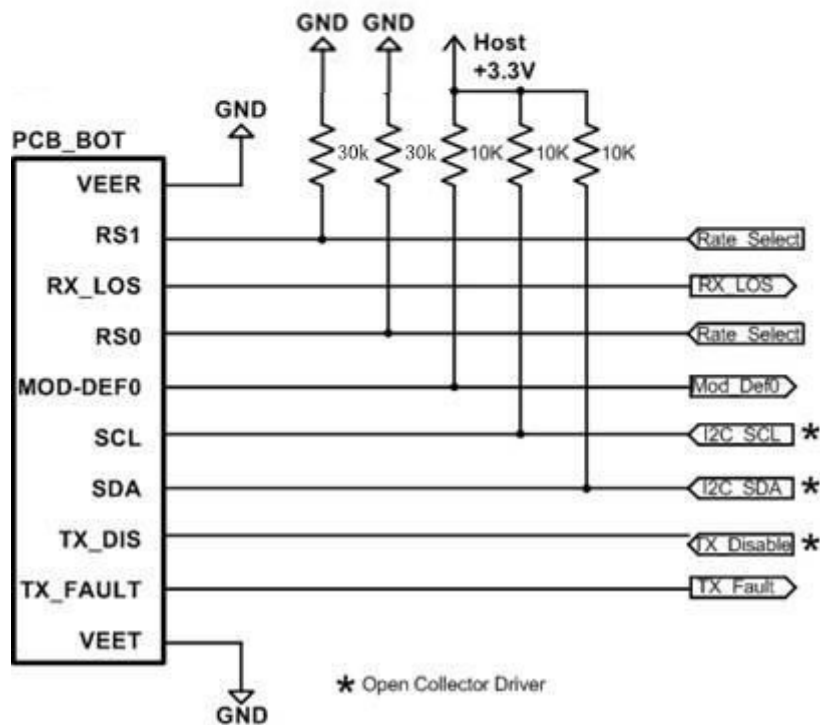
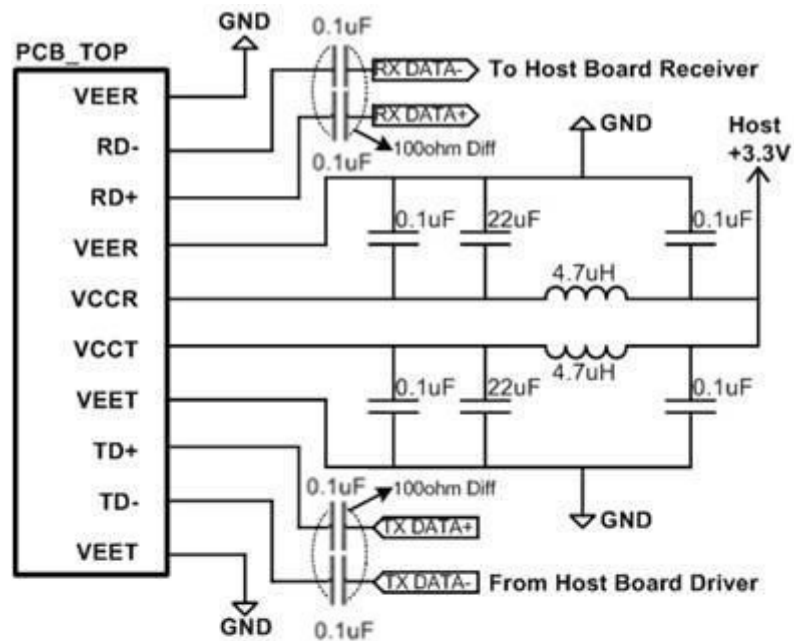
Parameter	Symbol	Units	Min	Max	Accuracy
Transceiver Temperature	DDDTemp	°C	0	+70	±3°C
Transceiver Supply Voltage	DDDVoltage	V	3.15	3.45	±3%
Transmitter Bias Current	DDDBias	mA	0	35	±10%
Transmitter Output Power	DDDTx-Power	dBm	-5	+5	±2dB
Receiver Average Optical Input Power	DDDRx-Power	dBm	-16	-3	±2dB

► Transceiver Block Diagram



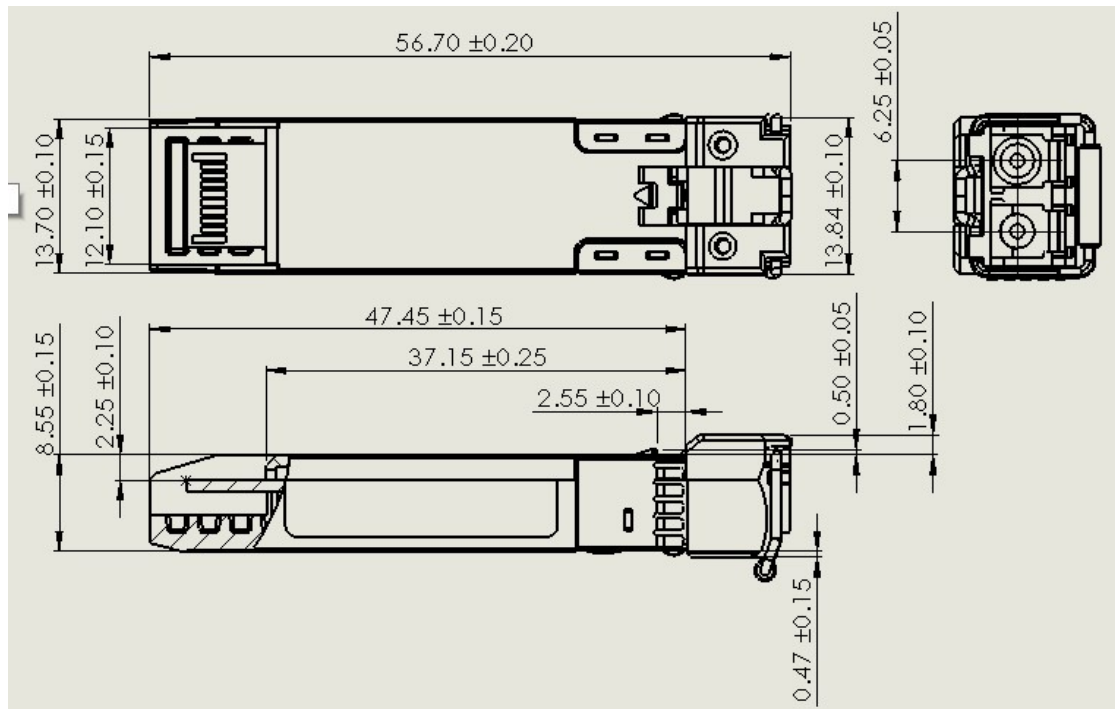
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Recommended Circuit:



Recommended High-speed Interface Circuit

Mechanical Dimensions:



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