25GBASE- SFP28 1270nmTX/1310nmRX 40km Industrial DOM Transceiver

SFP28-25G-BX40-I-LL

Applications

- 25GBASE-ER
- CPRI Option 10/e CPRI

Standards

- SFF-8472
- SFF-8402
- SFF-8432
- SFF-8431
- CEI-28G-VSR

Features

- Up to 40 km Transmission Distance
- LC Single Connector
- Low Power Consumption <1.5W
- -40℃ to 85℃ Operating Case Temperature Range
- Single 3.3V±5% Power Supply
- Compliant with SFF-8472

Description

The SFP28 transceiver is designed for use in Ethernet/eCPRI/ CPRI links up to 25Gb/s data rate and up to 40km link length. They are compliant with SFF8472, SFF-8402, SFF-8432 and applicable portions of SFF-8431. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T_S	-40	85	℃
Supply Voltage	V_{CC}	-0.3	3.6	V
Relative Humidity	RH	0	95	%

II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature Range	T_C	-40		85	℃
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Bit Rate	BR		25.78125		Gb/s
Max Supported Link Length	L			40	km

III. Electrical Characteristics (Tc=-40℃ to 85℃ and Vcc= 3.135 to 3.465V)

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	V_{CC}	3.14	3.3	3.46	V	
Supply Current	I_{CC}			360	mA	
Transmitter						
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	T_{FA}	2.2		V_{CCHOST}	V	
Transmit Fault De-Assert Voltage	V_{FDA}	V_{EE}		V_{EE}+0.4	V	
Receiver						
Single Ended Data Output Swing	V_{OD}	200		450	mVp-p	
LOS Fault	V_{LOSFT}	2.2		V_{CCHOST}	V	
LOS Normal	V_{LOSNR}	V_{EE}		V_{EE}+0.4	V	

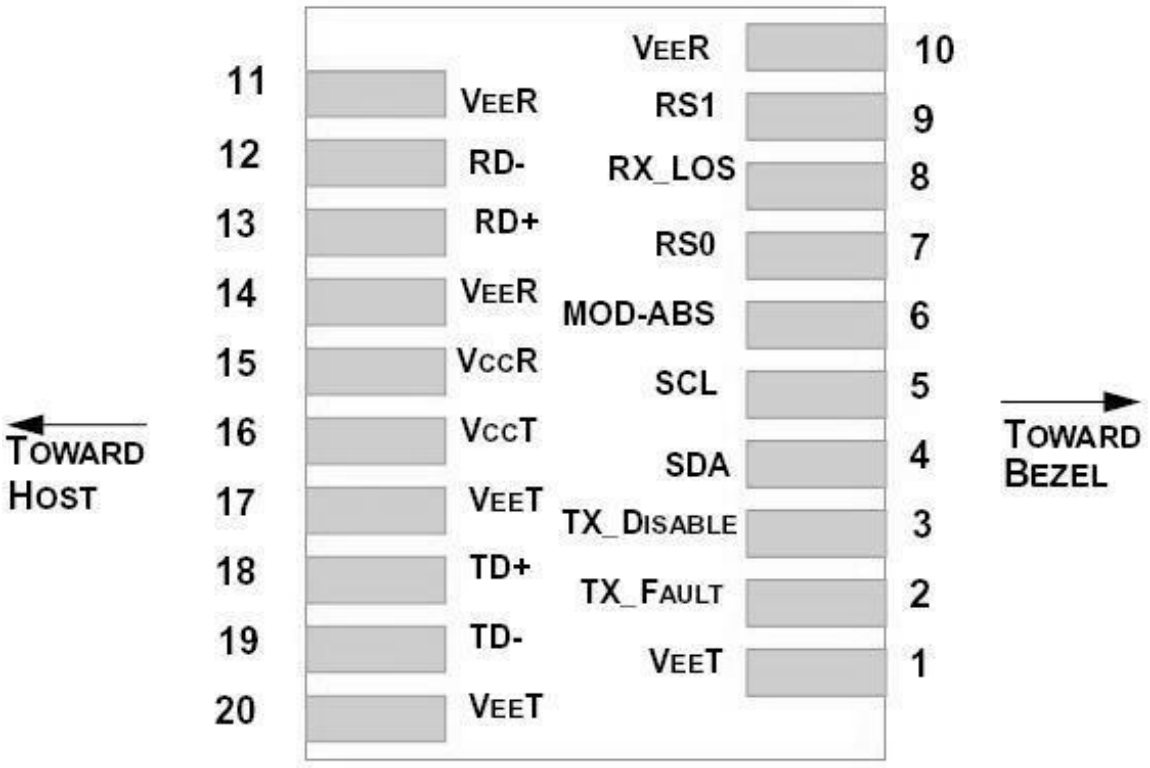
IV. Optical Parameters (T_{OP} = 0 to 70 ℃, V_{CC} = 3.00 to 3.60 Volts)

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter						
Center Wavelength	λ	1260	1270	1280	nm	1
		1300	1310	1320	nm	2
Side Mode Suppression Ratio	SMSR	30			dB	
Optical Output Power	Pav	0		6	dBm	
Extinction Ratio	ER	4			dB	
Transmitter and Dispersion Penalty	TDP			1.5	dB	
Average Launch Power of OFF Transmitter	P_{OFF}			-30	dBm	
Receiver						
Center Wavelength	λ	1300	1310	1320	nm	1
		1260	1270	1280	nm	2
Overload				-6	dBm	
Receiver Power	Pav	-18			dBm	3
Assert LOS	LOS_A	-30			dBm	
De-Assert LOS	LOS_D			-20	dBm	
LOS Hysteresis		0.5			dB	

Note:

1. RTX330-238.
2. RTX330-239.
3. Measured with 25.78125Gb/s, PRBS 231-1, NRZ, ER>4dB, BER<5E-5.

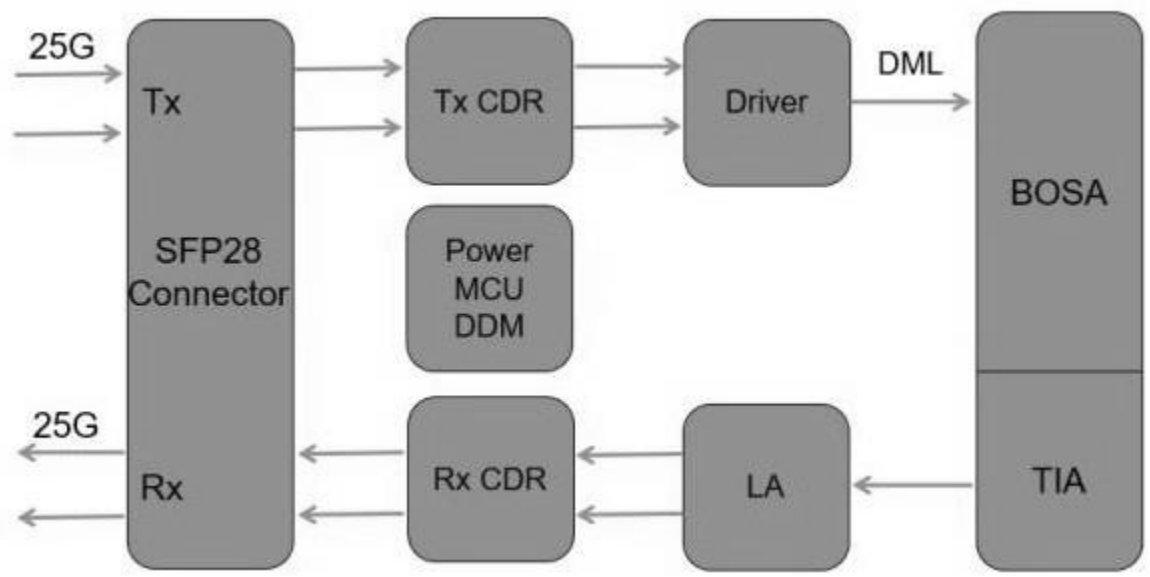
V. Pin Assignment



VI. Transceiver Pin Descriptions

Pin No.	Symbol	Logic	Description
1,17,20	$V_{EE}T$		Connected to signal ground on the host board
2	TX Fault	LVTTL Output	Module transmitter fault output
3	TX Disable	LVTTL Input	Module transmitter disable control
4	SDA	LVTTL Input/Output	2-wire serial interface data
5	SCL	LVTTL Input/Output	2-wire serial interface clock
6	MOD-ABS		Module absent (connected to Module ground)
7	RS0	LVTTL Input	Rate select 0 (Rx) :Low=CDR Bypass ; High=CDR Select
8	LOS	LVTTL Output	Receiver loss of signal
9	RS1	LVTTL Input	Rate select 1 (Tx) :Low=CDR Bypass ; High=CDR Select
10,11,14	$V_{EE}R$		Connected to signal ground on the host board.
12	RD-	CML Output	Receiver inverted data output, internally AC coupled and terminated
13	RD+	CML Output	Receiver non-inverted data output, internally AC coupled and terminated.
15	$V_{CC}R$		Receiver power 3.3V supply
16	$V_{CC}T$		Transmitter power 3.3V supply
18	TD+	CML Input	Transmitter non-inverted data input, internally AC coupled and terminated.
19	TD-	CML Input	Transmitter inverted data Input, internally AC coupled and terminated.

VII. Principle Diagram



VIII. Mechanical Dimensions: