TSSLS-CXXEE3C Optical Transceiver

25Gb/s CWDM Transceivers, With Diagnostic Monitoring
Duplex SFP28 10km Transceiver

Features

- Operating data rate up to 25.78Gbps
- Up to 10km transmission distance
- High sensitivity Pin photodiode and TIA
- LC duplex connector
- Hot pluggable 20pin connector
- Low power consumption <1.2 W
- 0 to 70°C operating wide temperature range
- Single +3.3V±5% power supply
- Compliant with SFF-8472
- Fully RoHS Compliant

Applications

- 25GE LR
- CPRI Option 10/e CPRI

Product Description

The SFP28 Transceiver is designed for use in Ethernet/eCPRI/ CPRI links up to 25.78 Gb/s data rate and up to 10 km link length.

They are compliant with SFF8472, SFF-8431, SFF-8432. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Temp	Reach	Other
SFP28	25.78G	CWDM	1.5~7dBm	PIN	< -14.dBm	0~70°C	10km	DDM

CWDM:1271nm、1291nm、1311nm、1331nm、1351nm、1371nm

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Absolute Maximum Rating

These values represent the damage threshold of the module. Stress in excess of any of the individual Absolute Maximum Ratings can cause immediate catastrophic damage to the module even if all other parameters are within Recommended Operating Conditions.

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	V_{CC}	0	+3.6	V
Storage Temperature	Tc	-40	+85	°C
Relative Humidity	RH	5	95	%
RX Input Average Power	Pmax	-	0	dBm

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	VCC	3.14	3.3	3.46	V
Supply current	Icc	-	-	1200	mA
Operating Case Temperature	Tc	0	-	70	°C

Notes:

[1] Supply current is shared between VCCTX and VCCRX.

[2] In-rush is defined as current level above steady state current requirements.

Electrical Characteristics

The following electrical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Data Rate	VCC	-	25.78125	-	Gbps	
Power Consumption	P	-	-	1500	mW	
Transmitter						
Input Differential Impedance	R_{IN}		100		Ω	
Single-ended Data Input Swing	V_{IN}	90		450	mVp-p	
Transmit Disable Voltage	VDIS	2		VCCHOST	V	
Transmit Enable Voltage	VEN	VEE		VEE+0.8	V	
Transmit Fault Assert Voltage	VFA	2		VCCHOST	V	
Transmit Fault De-Assert	VFDA	VEE		VEE+0.4	V	
Receiver						
Single-ended Data Output Swing	VOD	200		450	mVp-p	
LOS Fault	VLOSFT	2		VCCHOST	V	
LOS Normal	VLOSNR	VEE		VEE+0.4	V	

Optical Characteristics

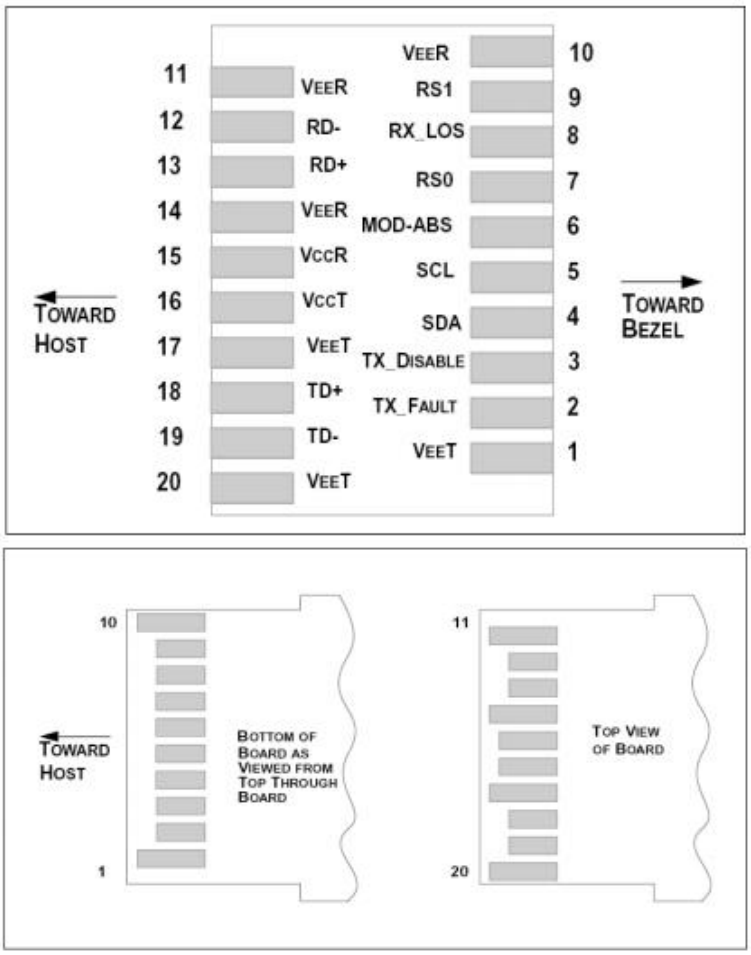
The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ	1271,1291,1311,1331,1351,1371			nm	
Wavelength Drift	Δλ	-6.5		+6.5	nm	
Average Output Power	Pavg	1.5		7	dBm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Launch Power of OFF Transmitter	POFF	-		-30	dBm	
Extinction Ratio	ER	3.5	-	-	dB	
Transmitter Dispersion Penalty	TDP	-	-	2.7	dB	
Receiver						
Center Wavelength	λ	1260		1350	nm	
Receiver Sensitivity(AVG)	RSENSE			-14.0	dBm	1
Receiver Overload (AVG)	Pmax	2.0			dBm	
Optical Return Loss				-26	dB	
LOS Assert	LOSA	-30	-		dBm	
LOS De-Assert LOS	LOSD			-17	dBm	
LOS Hysteresis	RSENSE	0.5	1.9		dB	

Note:

[1] Measured at 25.78125Gb/s, ER>3.5dB, PRBS 231-1 and BER better than or equal to 5E-5;

Sfp28 Transceiver Electrical Pad Layout



Pin Definition

Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0 [5]	Rate Select 0
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	Rate Select 1
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground

15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

Notes:

[1] Module circuit ground is isolated from module chassis ground within the module.

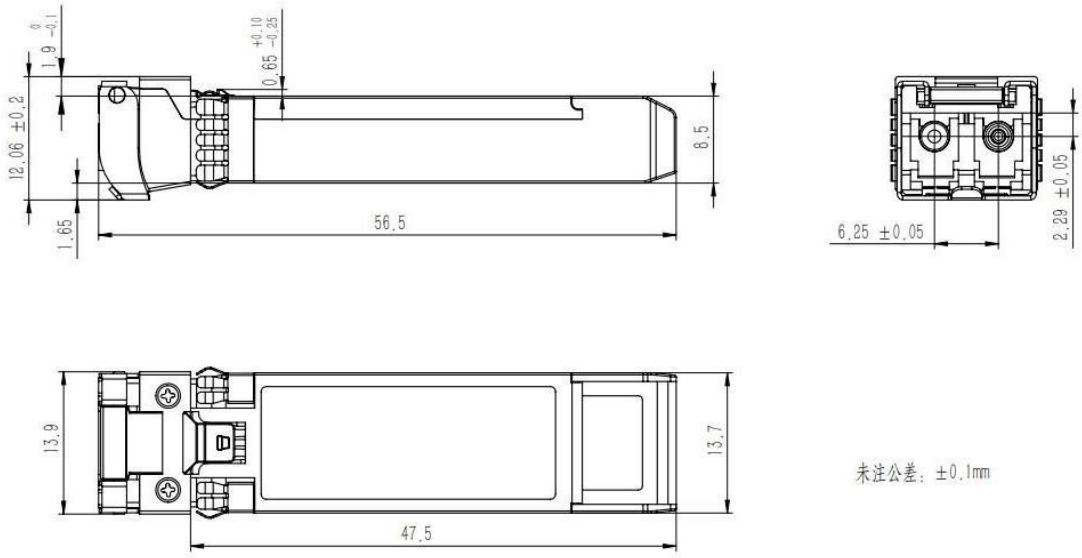
[2].should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15Vand 3.6V.

[3]Tx_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VccT inside the module.

[4]Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull this contact up to Vcc_Host with a resistor in the range 4.7 kΩ to10 kΩ.Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.

[5] RS0 and RS1 are module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.

Mechanical Dimensions



Ordering Information

Part Number	Product Description
TSSLS-CXXEE3C	25Gbps SFP28 CWDM, 0°C ~ +70°C; ‘XX’ for 1271nm/1291nm/1311nm /1331nm/1351nm/1371nm

Important Notice

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