SFP28 25G Duplex 1310nm 300m LC Optical Transceiver

TS3112A-CN/TS3112A-IN

FEATURES

- Supports 25Gbps data rate
- 1310nm DFB laser and PIN photo-detector
- Duplex LC receptacle optical interface compliant
- Single +3.3V power supply
- Power dissipation < 1.5W
- Hot-pluggable SFP28 form factor
- Internal CDR on both Transmitter and Receiver channel
- Maximum link length of 300m
- Operating temperature range:
- Commercial: 0℃~+70℃/Industrial:-40℃~+85℃
- RoHS Compliant
- Digital diagnostics functions are available via the I2C interface

APPLICATIONS

- 25GBASE-LR Ethernet

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Part Number	From Factor	Data Rate	Media	Distance (km)	Wavelength (nm)	Temperature (℃)
TS3112A-CN	SFP28	25G	SMF	0.3	1310	0~70
TS3112A-IN						-40~85

1. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit.
Storage temperature	TS	-40	85	℃
Power Supply Voltage	Vcc	0	3.6	V
Relative Humidity	RH	5	95	%

2. RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ.	Max.	Unit.
Operating Case Temperature (Commercial)	Tc	0		70	℃
Operating Case Temperature (Industrial)	Tc	-40		85	℃
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Supply Current	Icc			450	mA
Data Rate		-	25.78	-	Gbps

3. OPTICAL CHARACTERISTICS

Optical transmitter Characteristics							
Parameter		Symbol	Min	Typical	Max	Unit	Notes
Launched Power (avg.)		Pout	-7		2	dBm	
Operating Wavelength Range		λ c	1295	1310	1325	nm	
Spectral Width (-20dB)		σ			1	nm	
Extinction Ratio		ER	3.5			dB	
Side Mode Suppression Ratio		SMSR	30			dB	
Differential data input swing		VIN,PP	180		700	mV	
Input Differential Impedance		ZIN	90	100	110	Ω	
TX Disable	Disable		2.0		Vcc	V	
	Enable		0		0.8	V	
TX Fault	Fault		2.0		Vcc	V	
	Normal		0		0.8	V	
Output Eye Diagram		Complies with IEEE802.3z eye masks when filtered					
Optical receiver Characteristics							
Parameter		Symbol	Min	Typical	Max	Unit	Notes
Receiver Sensitivity		S			-10	dBm	1
Receiver Overload		Pmax	0.5			dBm	

Wavelength Range		λc	1295	1310	1325	nm	
LOS	Optical De-assert	Pd			-13	dBm	
	Optical Assert	Pa	-30				
LOS		High	2.0		Vcc	V	
		Low			0.8	V	
LOS hysteresis			0.5			dB	
Differential data output swing		Vout,PP	300		900	mV	

Notes:

1) Measured at ER>3.5dBm, PRBS 2^31-1 and BER better than or equal to 5E-5

4. PIN DESCRIPTIONS

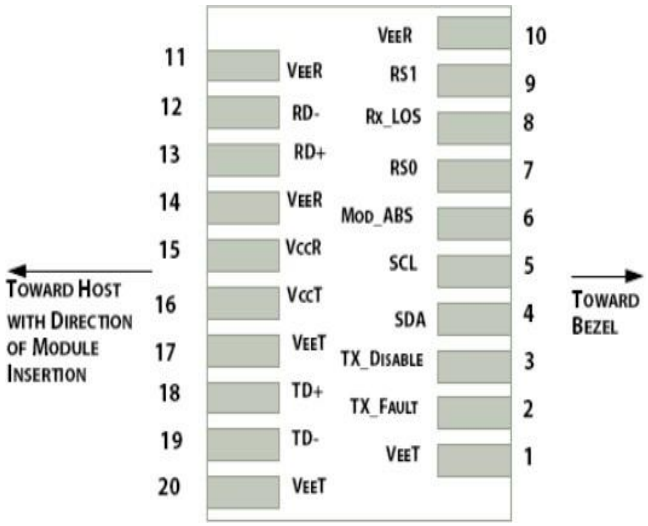
Pin	Symbol	Function/Description	Ref.
1	VeeT	Transmitter Ground	1
2	TX_Fault	Transmitter Fault	2
3	TX_Disable	Transmitter Disable. High: Transmitter off; Low: Transmitter on	
4	SDA	2-Wire Serial Interface Data Line	2
5	SCL	2-Wire Serial Interface Clock	2
6	Mod_ABS	Module Absent, Connect to VeeT or VeeR in Module	
7	RS0	Rate Select 0, optionally controls SFP module receiver	
8	RX_LOS	Receiver Loss of Signal indication. High: loss of signal; Low: signal detected	
9	RS1	Rate Select 1, optionally controls SFP module transmitter	
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Receiver Inverted Data Output	
13	RD+	Receiver Data Output	
14	VeeR	Module Receiver Ground	1
15	VccR	Receiver Power 3.3V Supply	
16	VccT	Transmitter Power 3.3V Supply	
17	VeeT	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	VeeT	Module Transmitter Ground	1

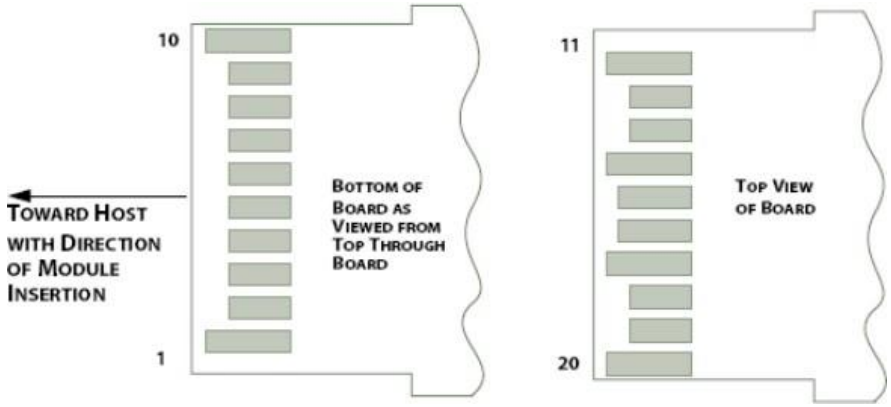
Notes:

1) Module ground pins GND are isolated from the module case

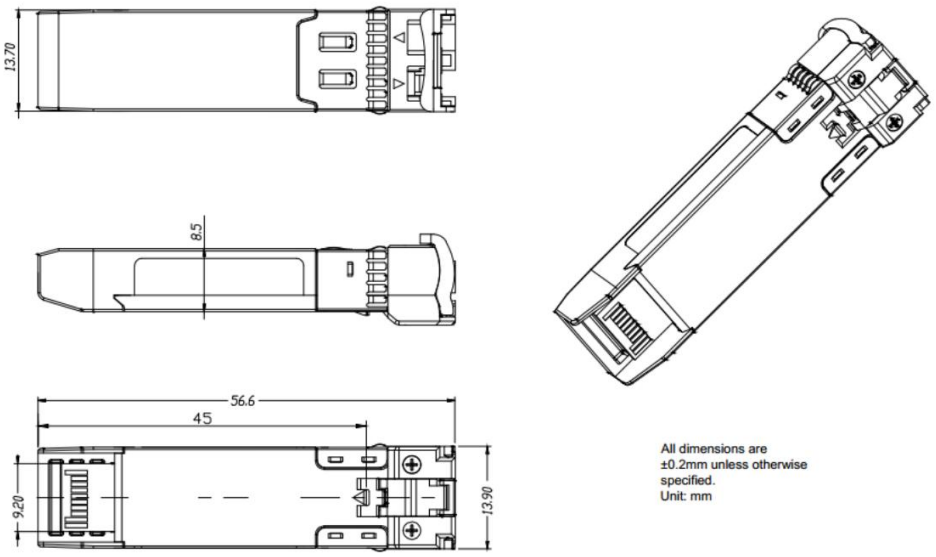
2) Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board

5. PIN DIAGRAM





6. Mechanical Design Diagram



7. LABEL DIAGRAM