

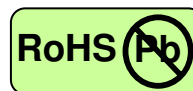
1.25 Gigabit Ethernet-Single Mode Transceiver



2x5 SFF, Duplex LC Connector, 1550nm DFB LD for Single Mode Fiber, RoHS Compliant



Features



- 1550nm DFB LD
- Data Rate: 1.25Gbps, NRZ
- Single +3.3V Power Supply
- RoHS Compliant and Lead-free
- AC/AC Differential Electrical Interface
- Compliant with Multi-Source Agreement (MSA) Small Form Factor (SFF) 2x5 Footprint
- Duplex LC Connector
- Compliance with specifications for IEEE-802.3z Gigabit Ethernet at 1.25 Gbps
- Compliance with ANSI specifications for Fibre Channel applications at 1.06 Gbps
- Eye Safety
Designed to meet Laser Class 1 comply with EN60825-1

Applications

- Gigabit Ethernet links
- Fibre Channel links at 1.06 Gbps
- High speed backplane interconnects
- Switched backbones

Description

The CT-1250TSR-KB8L from Coretek Opto Corp. is a high performance and cost-effective module for serial optical data communication applications specified for single mode of 1.25 Gb/s. It operates with +3.3V power supply. The module is intended for single mode fiber, operates at a nominal wavelength of 1550nm and complies with Multi-Source Agreement (MSA) Small Form Factor (SFF) 2x5 footprint. Each module consists of a transmitter optical subassembly, a receiver optical subassembly and an electrical subassembly. All of them are housed in a plastic package and the combination produces a reliable component.

The module is a duplex LC connector transceiver designed for use in Gigabit Ethernet applications and to provide IEEE-802.3z compliant link for 1.25Gb/s long reach applications. The characteristics are performed in accordance with Telcordia Specification GR-468-CORE.

EMC

Most equipment utilizing high-speed transceivers will be required to meet the following requirements:

- 1) FCC in the United States
- 2) CENELEC EN55022 (CISPR 22) in Europe

To assist the customer in managing the overall equipment EMC performance, the transceivers have been designed to satisfy FCC class B limits and provide good immunity to radio-frequency electromagnetic fields.

Eye Safety

The transceivers have been designed to meet Class 1 eye safety and comply with EN 60825-1.

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Product Information

Model Number	Operating Voltage & SD Output	Distance	LD Type & Wavelength	Output Power	Sensitivity
CT-1250TSR-KB8L	3.3V TTL AC/AC	70 km	1550 nm DFB	0 ~ +5 dBm	≤ -23 dBm

ABSOLUTE MAX RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTE
Storage Temperature	T _S	-40	85	°C	
Supply Voltage	V _{CC}	0	6	V	
Lead Soldering Temperature/Time	T _{SOLD}		260	°C	10 sec on lead
Data Input Voltage	---	0	V _{cc}	V	

OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTE
Ambient Operating Temperature	T _A	0		70	°C	
Supply Voltage	V _{CC}	3.1		3.5	V	
Data Input Voltage Swing	V _{ID}	400		1660	mV	

ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTE
Transmitter					
Transmitter Supply Current	I _{CCT}		200	mA	
TTL Transmit Disable Input Voltage - Low	V _{IL}		0.8	V	
TTL Transmit Disable Input Voltage - High	V _{IH}	V _{cc} -1.3	V _{cc}	V	
Receiver					
Receiver Supply Current	I _{CCR}		100	mA	
Receiver Data Output Differential Voltage	V _{OD}	0.4	1.3	V	
TTL Signal Detect Output Voltage – Low	V _{OL}		0.8	V	
TTL Signal Detect Output Voltage – High	V _{OH}	2.0		V	

TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTE
Optical Output Power	P _O	0		5	dBm	1
Extinction Ratio	ER	9			dB	
Center Wavelength	λ_c	1530	1550	1570	nm	
Spectral Width (-20dB)	$\Delta \lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
RIN	RIN			-120	dB/Hz	
Optical Rise time (20%-80%)	t _r			260	ps	2
Optical Fall time (20%-80%)	t _f			260	ps	2
Output Eye		Compliant with IEEE802.3z/D5.0				

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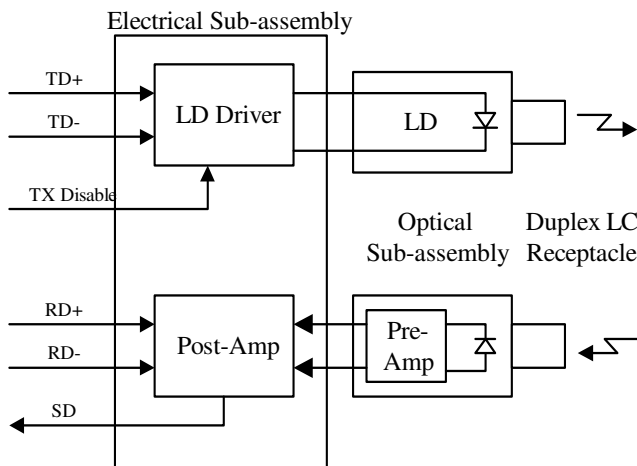
RECEIVER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTE
Maximum Input Optical Power	P_{max}	-3			dBm	3
Receiver Sensitivity	P_{min}			-23	dBm	3
Operating Wavelength	λ	1100		1600	nm	
Optical Return Loss	ORL	12			dB	
Receiver Electrical 3dB Upper Cutoff Frequency	---			1500	MHz	
Loss of Signal - Asserted	P_D			-23	dBm	4
Loss of Signal - Deasserted	P_A	-35			dBm	5

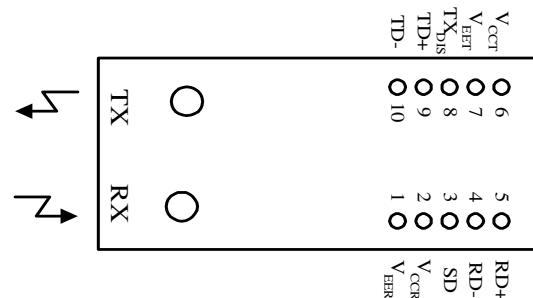
Notes:

1. Measured average power coupled into 9/125 μ m single-mode fiber.
2. These are 20-80% values.
3. Measured with 2^7 -1 PRBS at $BER < 10^{-12}$
4. Measured on transition – low to high
5. Measured on transition – high to low

BLOCK DIAGRAM OF TRANSCEIVER



PIN OUT DIAGRAM OF TRANSCEIVER



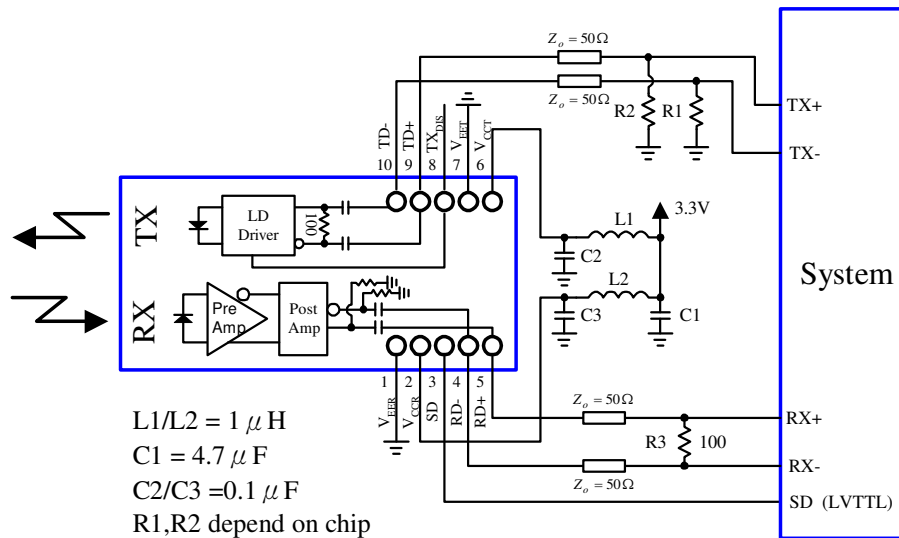
PIN OUT TABLE

Pin	Symbol	Functional Description
Mounting Posts		
1	V_{EER}	Receiver Signal Ground
2	V_{CCR}	Receiver Power Supply
3	SD	Signal Detect is a TTL output. A high level indicates a received optical signal
4	RD-	Receiver Data Inverted Differential Output
5	RD+	Receiver Data Non-inverted Differential Output
6	V_{CCT}	Transmitter Power Supply
7	V_{EET}	Transmitter Signal Ground
8	TX_{DIS}	Transmitter Disable
9	TD+	Transmitter Data Non-inverted Differential Input
10	TD-	Transmitter Data Inverted Differential Input

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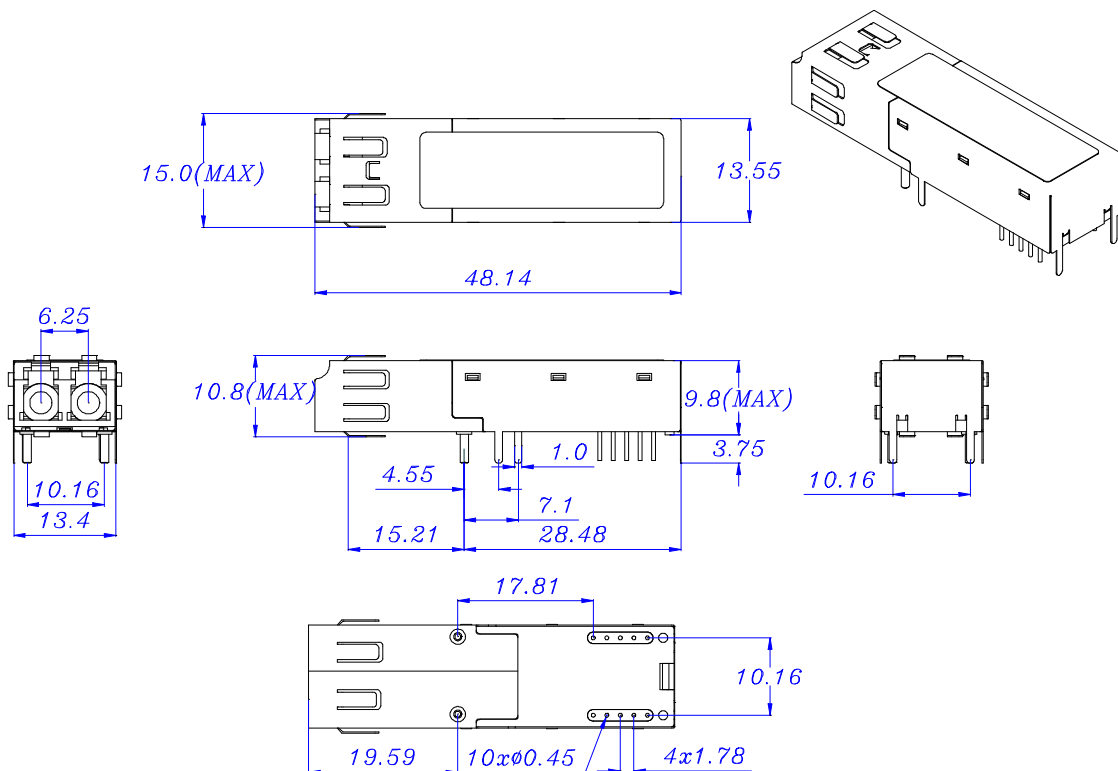


RECOMMENDED CIRCUIT SCHEMATIC



MECHANICAL DIMENSIONS

Units in mm



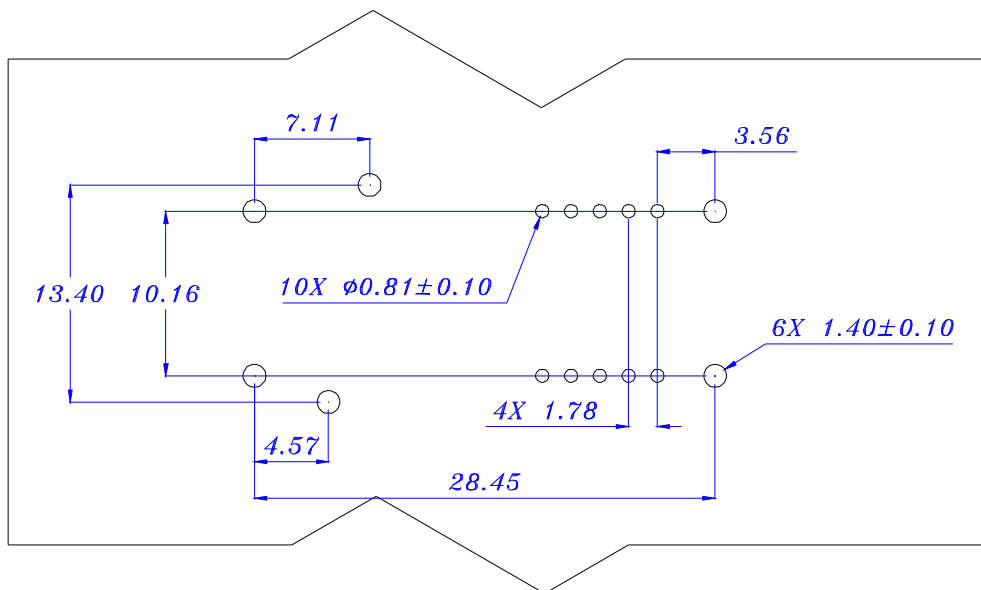
All dimensions are ± 0.2 mm unless otherwise specified.

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RECOMMENDED SFF HOST BOARD LAYOUT

Units in mm



Claim:

CORETEK Opto Corp. reserves the right to make changes in the specification described hereinafter without prior notice.