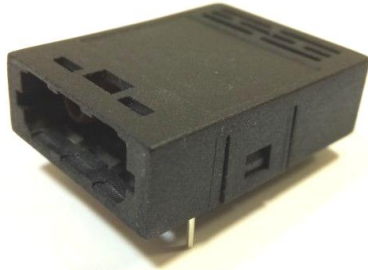


# 1.25 Gigabit Ethernet – POF Transceiver



## 1x8, F07 Connector, 850 nm VCSEL for POF, RoHS Compliant

*Preliminary Datasheet*



### Features

- 850 nm VCSEL
- Data Rate: 125Mb/s to 1.25 Gb/s, NRZ
- Single +3.3 V Power Supply
- RoHS Compliant and Lead-free
- AC/AC Differential Electrical Interface
- 1x8 Footprint
- JIS F07 Connector
- Eye Safety  
Designed to meet Laser Class 1 comply with EN60825-1

### Applications

- Gigabit Ethernet links
- High speed backplane interconnects
- Switched backbones

### Description

The CT-1250PS8-SB17 from Coretek Opto Corp. is a high performance and cost-effective module for serial optical data communication applications specified for data-rates from 125Mb/s to 1.25 Gb/s. It operates with +3.3 V power supply. The module is intended for plastic optical fiber, operates at a nominal wavelength of 850 nm and with 1x8 foot-print. 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 dual fiber connector transceiver designed for use in Gigabit Ethernet applications and to provide 1.25Gb/s short 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

This laser based single mode transceiver is a CLASS 1 LASER PRODUCT, Hazard level 1. It complies with IEC 60825-1 Ed.2: 2007-03 and FDA performance standards for laser products (21 CFR 1040.10 and 1040.11) except for deviations pursuant to Laser Notice 50, dated June 24, 2007.

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## Product Information

Model Number	Operating Voltage & SD Output	Wavelength	Output Power	Sensitivity	Distance
CT-1250PS8-SB17	3.3 V AC/AC	850 nm	-7.5 ~ -3 dBm	-20 dBm	5 m (POF) *Att. <=2.5dB@850nm 50 m (HPCF)

## ABSOLUTE MAX RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTE
Storage Temperature	T <sub>S</sub>	-40	85	°C	
Supply Voltage	V <sub>CC</sub>	0	6	V	
Lead Soldering Temperature/Time	T <sub>SOLD</sub>		260	°C	10 sec on lead
Data Input Voltage	---	0	V <sub>CC</sub>	V	

## OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTE
Ambient Operating Temperature	T <sub>A</sub>	-10		70	°C	
Supply Voltage	V <sub>CC</sub>	3.1		3.5	V	
Data Input Voltage Swing	V <sub>ID</sub>	400		1660	mV	

## ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTE
<b>Transmitter</b>					
Transmitter Supply Current	I <sub>CCT</sub>		140	mA	
<b>Receiver</b>					
Receiver Supply Current	I <sub>CCR</sub>		100	mA	
Receiver Data Output Differential Voltage	V <sub>OD</sub>	0.4	1.3	V	

## TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTE
Optical Output Power	P <sub>o</sub>	-7.5		-3	dBm	1
Extinction Ratio	ER	9			dB	
Center Wavelength	λ <sub>c</sub>	830	850	860	nm	
Spectral Width (RMS)	Δλ			0.85	nm	
RIN	RIN			-117	dB/Hz	
Optical Rise time (20%-80%)	t <sub>r</sub>			260	ps	2
Optical Fall time (20%-80%)	t <sub>f</sub>			260	ps	2
Output Eye		Compliant with IEEE802.3z/D5.0				

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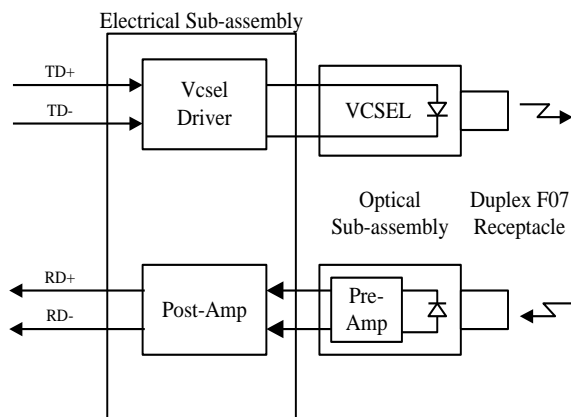
## RECEIVER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTE
Maximum Input Optical Power	$P_{max}$	-3			dBm	3
Receiver Sensitivity	$P_{min}$			-20 -21.5	dBm	3
Operating Wavelength	$\lambda$	630		860	nm	

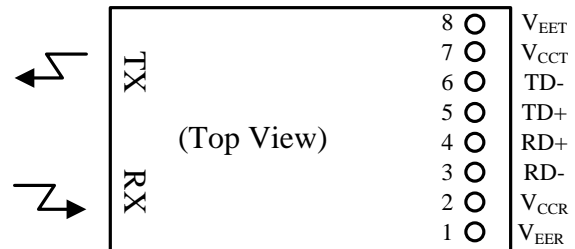
### Notes:

1. Measured average power coupled into 980/1000  $\mu\text{m}$ , 0.5 NA POF or 200/230  $\mu\text{m}$ , 0.4 NA HPCF.
2. These are 20-80% values.
3. Measured with  $2^7-1$  PRBS at  $\text{BER} < 10^{-12}$

## BLOCK DIAGRAM OF TRANSCEIVER



## PIN OUT DIAGRAM OF TRANSCEIVER



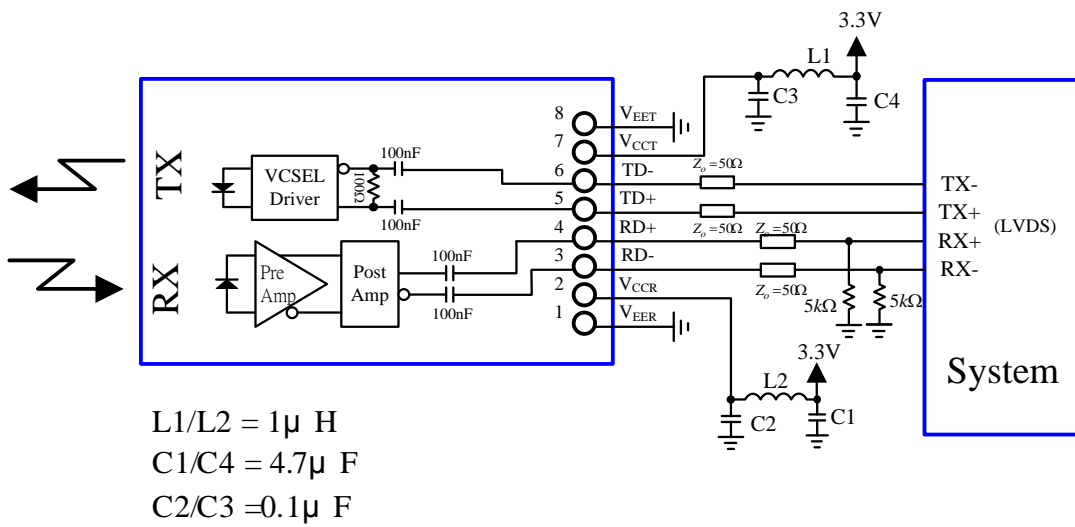
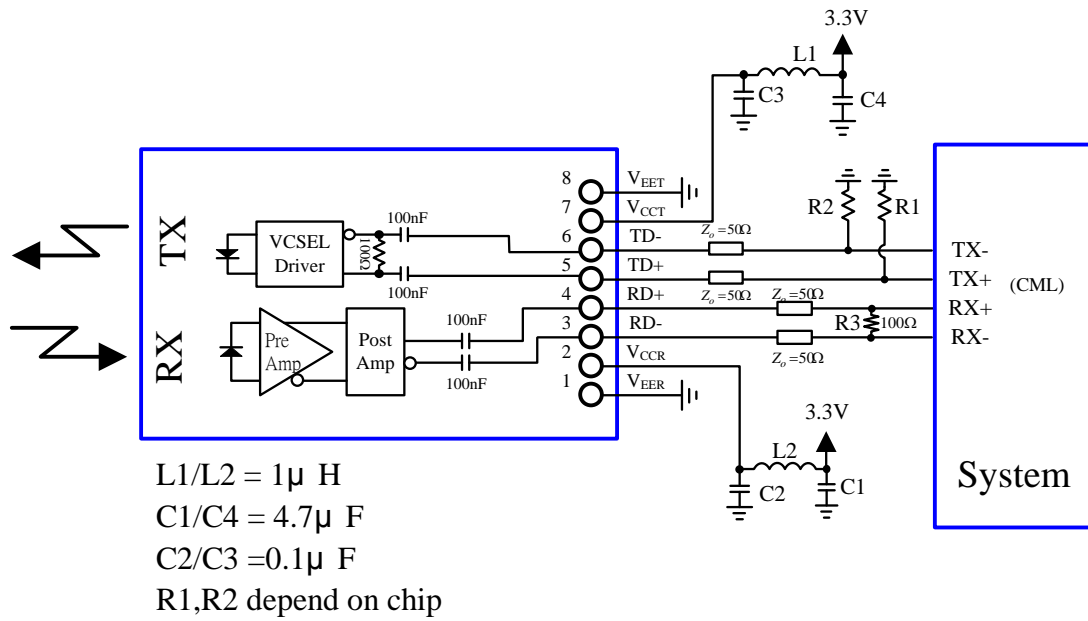
## PIN OUT TABLE

Pin	Symbol	Functional Description
Mounting Posts		
The mounting posts are provided for transceiver mechanical attachment to the circuit board. They should not be connected to the circuit ground.		
1	$V_{EER}$	Receiver Signal Ground
2	$V_{CCR}$	Receiver Power Supply
3	RD-	Receiver Data Inverted Differential Output
4	RD+	Receiver Data Non-inverted Differential Output
5	TD+	Transmitter Data Non-inverted Differential Input
6	TD-	Transmitter Data Inverted Differential Input
7	$V_{CCT}$	Transmitter Power Supply
8	$V_{EET}$	Transmitter Signal Ground

# 1.25 Gigabit Ethernet – POF Transceiver



## RECOMMENDED CIRCUIT SCHEMATIC

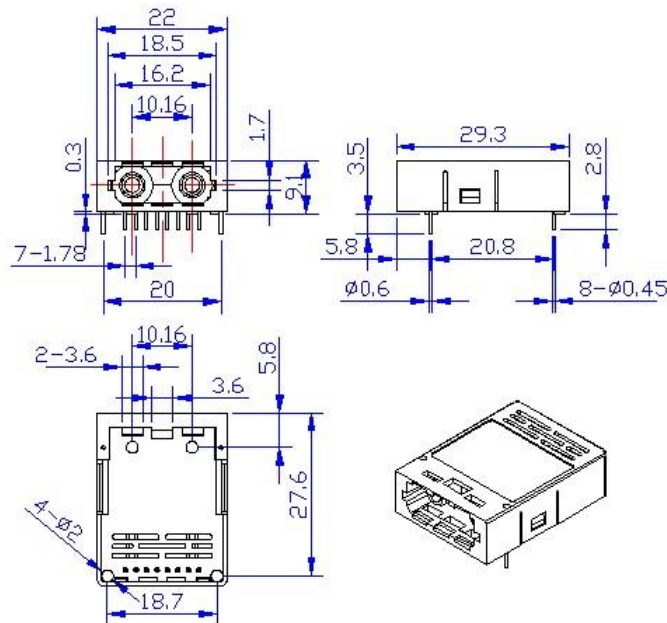


# 1.25 Gigabit Ethernet – POF Transceiver



## MECHANICAL DIMENSIONS

Units in mm



All dimensions are  $\pm 0.2\text{mm}$  unless otherwise specified.

## RECOMMENDED HOST BOARD LAYOUT

Units in mm

TBD

## REVISION HISTORY

Formulate (Revise) Record		
D/M/Y	Version	Description
13/06/2017	A	Initial version
27/02/2018	A1	Change optical power specification & define sensitivity specification

### Claim:

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