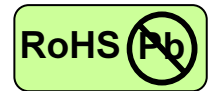


2.488 Gb/s ATM – Multi-mode Transceiver



SFF Bi-Di, Single SC Connector, 1310 nm FP LD for Multi-mode Fiber, RoHS Compliant



Features

- 1310 nm FP LD
- Multi-rate: from 1.062 to 2.67 Gb/s, NRZ
- Single +3.3 V Power Supply
- RoHS Compliant and Lead-free
- AC/AC Differential Electrical Interface
- Compliant with Multi-Source Agreement (MSA) Small Form Factor (SFF) 2x5 Footprint
- Single SC Connector
- Compliance with ATM standard
- Compliance with specifications for IEEE-802.3z Gigabit Ethernet at 1.25 Gb/s
- Compliance with ANSI specifications for Fibre Channel applications at 1.06 Gb/s
- Eye Safety
Designed to meet Laser Class 1 comply with EN60825-1

Applications

- ATM/SONET/SDH
- Gigabit Ethernet
- Fibre Channel Links

Description

The CT-2500TBF-MB1C from Coretek Opto Corp. is a high performance and cost-effective module for serial optical data communication applications specified for multi-rate from 1.062 to 2.67 Gb/s. It operates with +3.3 V power supply. The module is intended for multi-mode fiber, operates at a nominal wavelength of Tx: 1310 nm / Rx: 1550 nm and complies with Multi-Source Agreement (MSA) Small Form Factor (SFF) 2x5 footprint. Each module consists of a bi-directional optical subassembly that combines a transmitter with a receiver and an electrical subassembly. All of them are housed in a metal package and the combination produces a reliable component.

The module is a single fiber connector transceiver designed to provide ATM/SONET OC-48/SDH STM-16 compliant link at 2.488 Gb/s, Gigabit Ethernet compliant link at 1.25 Gb/s, Fibre Channel compliant link at 1.062 and 2.125 Gb/s 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 product. It complies with IEC 60825-1/A2: 2001 and FDA performance standards for laser products (21 CFR 1040.10 and 1040.11) except for deviations pursuant to Laser Notice 50, dated July 26, 2001.

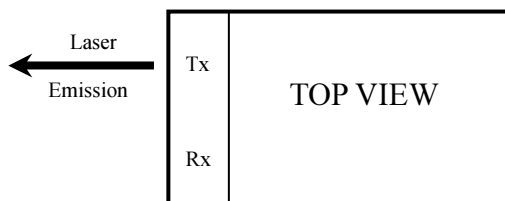
CLASS 1 LASER PRODUCT

To meet laser safety requirements the transceiver shall be operated within the Absolute Maximum Ratings.

Note: All adjustments have been made at the factory prior to shipment of the devices. No maintenance or alteration to the device is required. Tampering with or modifying the performance of the device will result in voided product warranty. Failure to adhere to the above restrictions could result in a modification that is considered an act of “manufacturing”, and will require, under law, recertification of the modified product with the U.S. Food and Drug Administration (ref. 21 CFR 1040.10 (i)).

Laser Emission Data

Wavelength	: 1310 nm
Maximum total output power (as defined by IEC : 7 mm aperture at 14 mm distance)	: 15.6 mW / 11.9 dBm
Beam divergence (full angle) / NA (half angle)	: 11° / 0.1 rad



Required Labels

IEC : “Class 1 Laser Product”

FDA : “Complies with 21 CFR 1040.10 and 1040.11”

2.488 Gb/s ATM – Multi-mode Transceiver



Product Information

Model Number	Operating Voltage & SD Output	Distance	LD Type & Wavelength	Output Power	Sensitivity
CT-2500TBF-MB1C	3.3 V TTL AC/AC	300 m	1310 nm FP	-10 ~ -3 dBm	≤-16 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	-10		-3	dBm	1
Extinction Ratio	ER	8.2			dB	
Center Wavelength	λ _c	1270	1310	1360	nm	
Spectral Width (RMS)	Δλ			4	nm	
RIN	RIN			-120	dB/Hz	
Optical Rise time (20%-80%)	t _r			180	ps	2
Optical Fall time (20%-80%)	t _f			180	ps	2
Jitter Generation (peak to peak)				0.1	UI	
Output Eye						Compliant with ITU recommendation G.957

2.488 Gb/s ATM – Multi-mode Transceiver



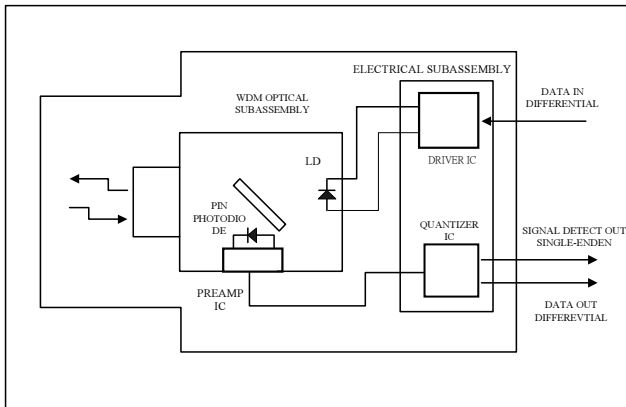
RECEIVER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTE
Maximum Input Optical Power	P_{max}	-3			dBm	3
Minimum Input Optical Power	P_{min}			-16	dBm	3
Operating Wavelength	λ	1480		1580	nm	
Signal Detect - Asserted	P_A			-16	dBm	4
Signal Detect - Deasserted	P_D	-31			dBm	5
Signal Detect - Hysteresis	$P_D - P_A$	0.5			dB	

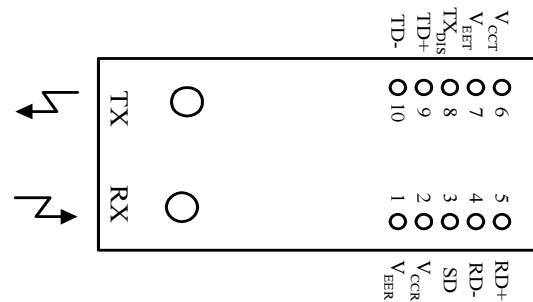
Notes:

1. Measured average power coupled into 62.5/125 μm multi-mode fiber.
2. These are 20-80% values.
3. Measured with $2^{23}-1$ PRBS at $\text{BER} < 10^{-10}$
4. Measured on transition – low to high
5. Measured on transition – high to low

BLOCK DIAGRAM OF TRANSCEIVER



PIN OUT DIAGRAM OF TRANSCEIVER



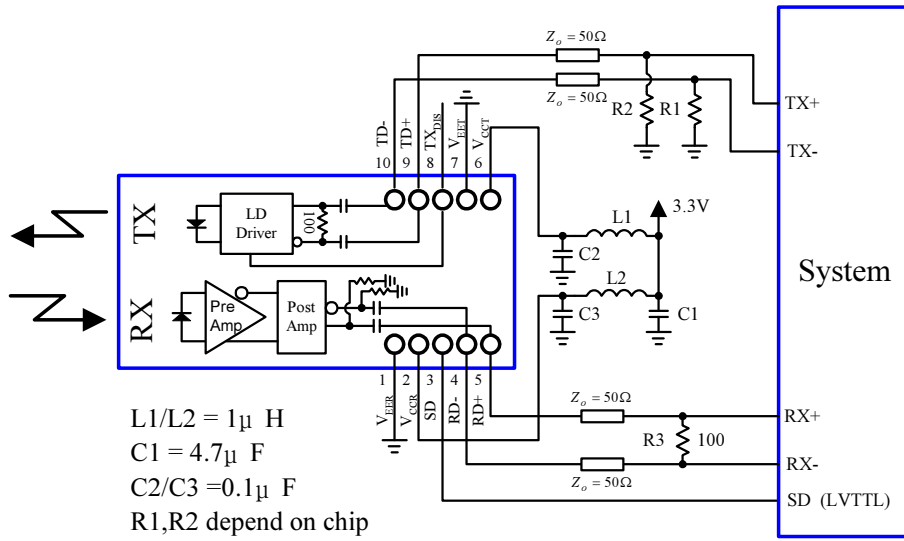
PIN OUT TABLE

Pin	Symbol	Functional Description
Mounting Posts		
The mounting posts are provided for transceiver mechanical attachment to the circuit board. They should not be connected to the circuit ground but can be connected to the chassis ground.		
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

2.488 Gb/s ATM – Multi-mode Transceiver

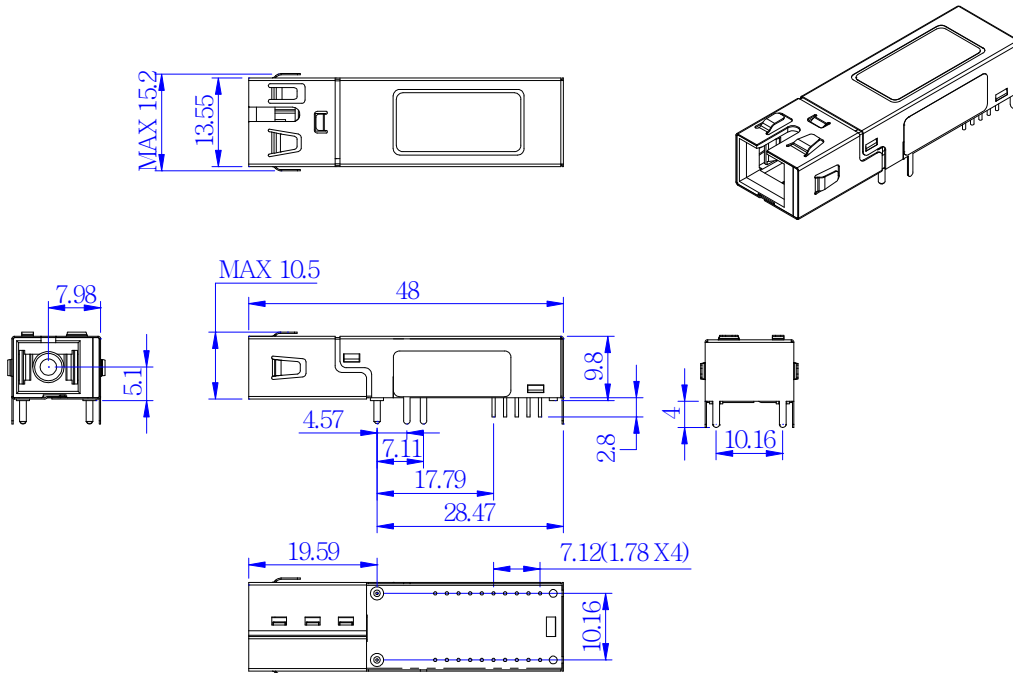


RECOMMENDED CIRCUIT SCHEMATIC



MECHANICAL DIMENSIONS

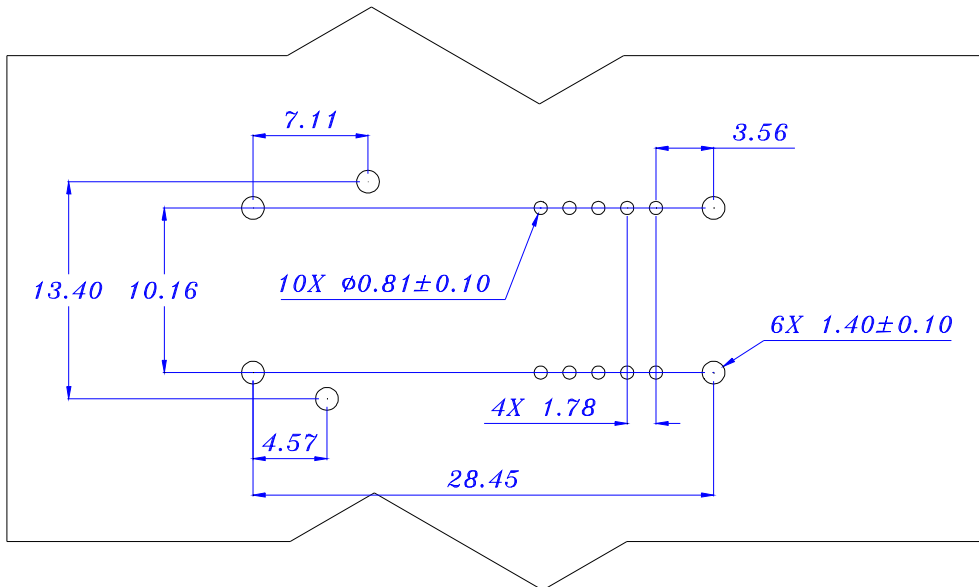
Units in mm



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

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.