



## T13D-PYZ-WM-TI-D

### 1310nm Coaxial DFB Pigtail Laser Diode with Optional Isolator

#### Description

The Lasermate T13D-PYZ-WM-TI-D is a 1310nm wavelength, Distributed Feedback (DFB) laser diode in pigtailed package with output power up to >2mW, optional isolator, and capable of reaching 2.5Gbps data rate operation. The laser is designed for use in telecommunication applications.



#### Features

- 1310nm InGaAsP/InP MQW-DFB laser diode (LD)
- Data Rate: 155Mbps up to 2.5Gbps
- Uncooled operation at -40 to 85°C
- Hermetically sealed active component
- High performance, high speed InGaAs monitor PIN photodiode (PD)
- Based on Telcordia reliability
- Optional with single-stage isolator

#### Packaging

- Single-mode Fiber pigtailed with optional FC/ST/SC/LC connector

#### Applications

- ATM/SONET OC-3/OC-12/OC-24/OC-48
- SDH STM-1/STM-4/STM-8, ITU-T recommendations
- Stable emitting source at specific wavelength

#### Ordering Information

Read Model No.	T13D-PYZ-WM-TI-D
T13D = Laser	1310nm DFB laser
P = Package	Pigtailed with 9/125um SM fiber
Y = Connector	None <b>(NO)</b> ; FC/PC <b>(FC)</b> ; SC/PC <b>(SC)</b> ; ST/PC <b>(ST)</b> ; LC/PC <b>(LC)</b> ; FC/APC <b>(FA)</b> ; SC/APC <b>(CA)</b> ; ST/APC <b>(TA)</b>
Z = Output power	>0.5mW <b>(M)</b> ; >1mW <b>(H)</b> ; >2mW <b>(2)</b>
W = Pin configuration	A pinout <b>(A)</b> ; C pinout <b>(C)</b>
M = Mount	No flange <b>(0)</b> ; Horizontal mount <b>(1)</b>
T = Operating temperature	-40 to 85°C <b>(4)</b>
I = Isolator	Without isolator <b>(N)</b> ; With isolator <b>(I)</b>
D = Data rate	1.25Gbps <b>(1G)</b> ; 2.5Gbps <b>(2G)</b>



## Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Value	Unit	Conditions
Storage temperature	Tstg	-40 to +85	°C	
Operating case temperature	Top	-40 to +85	°C	
Peak optical output power	Po	5	mW	
Forward current (LD)	I <sub>FLD</sub>	100	mA	
Reverse voltage (LD)	V <sub>RLD</sub>	2	V	
Reverse current (PD)	I <sub>RPD</sub>	5	mA	
Reverse voltage (PD)	V <sub>RPD</sub>	15	V	
Soldering temperature	Stemp	260	°C	10 seconds

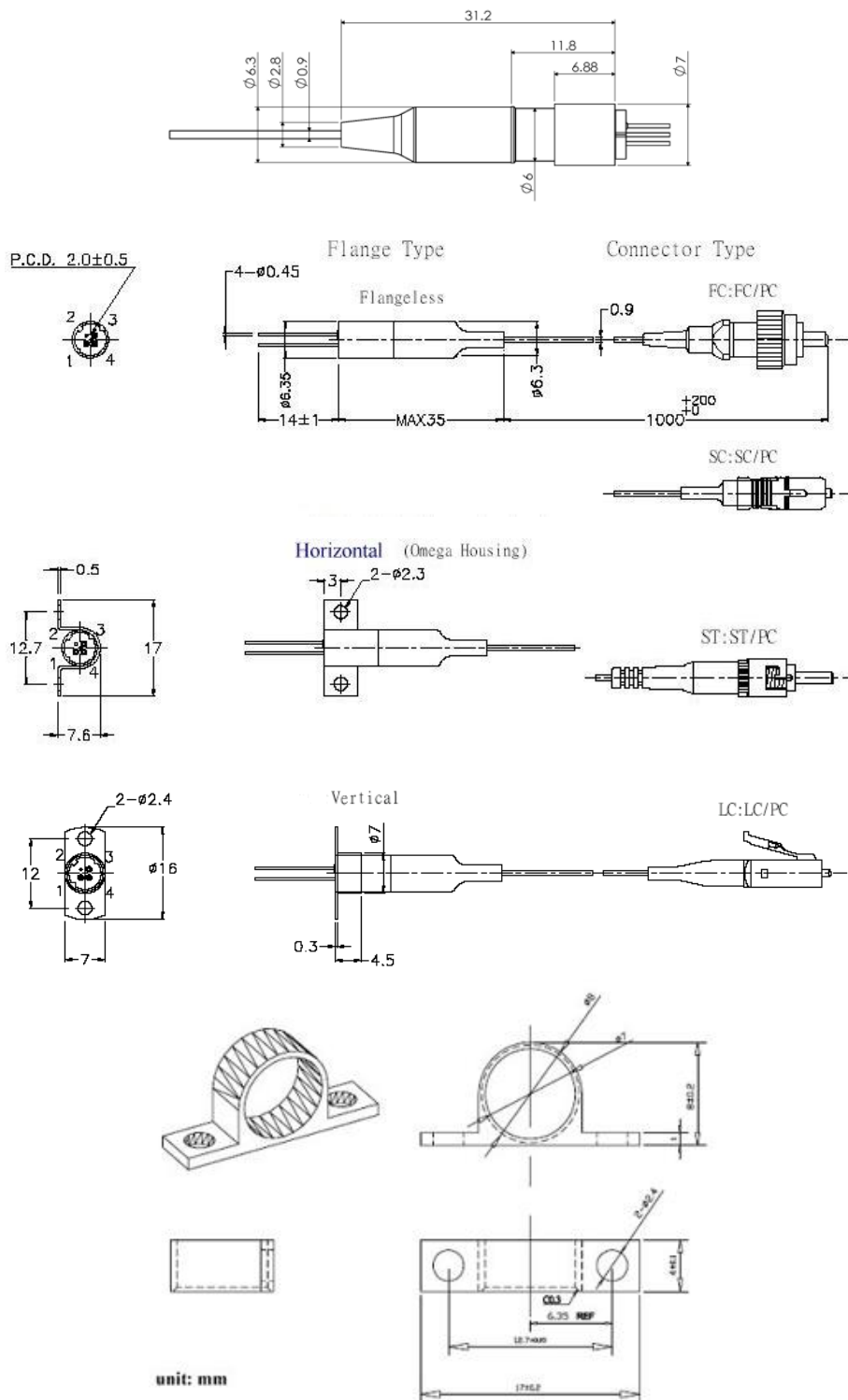
Electro-Optical Characteristics (CW @ T <sub>c</sub> = 25°C unless otherwise noted)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Central wavelength	$\lambda_c$	1300	1310	1320	nm	CW, Pf
Side mode suppression ratio	SMSR	30	40	-	dB	Pf
Spectral width	$\Delta\lambda$	-	0.2	1	nm	Pf
Threshold current	I <sub>th</sub>	-	10	15	mA	CW
Fiber output power	Pf	0.5			mW	CW, I <sub>f</sub> =I <sub>th</sub> +20mA
		1.0				
		2.0				
Operating voltage	V <sub>op</sub>	-	1.1	1.5	V	Pf
Rise time / Fall time	t <sub>r</sub> /t <sub>f</sub>	-	0.1	0.2	nsec	I <sub>b</sub> = I <sub>th</sub> , 20%~80%
Monitor current	I <sub>m</sub>	100	-	1000	uA	Pf, V <sub>rp</sub> =5V
Monitor dark current	I <sub>d</sub>	-	0.1	100	nA	V <sub>rp</sub> =5V
Monitor capacitance	C	-	10	20	pF	V <sub>rp</sub> =5V, f=1MHz
Tracking error*	$\Delta$ Pf/ Pf	-	±1.0	±1.5	dB	APC, T <sub>c</sub> =-40~+85°C

\*I<sub>m</sub>=constant @ Pf, T<sub>c</sub>=25 °C

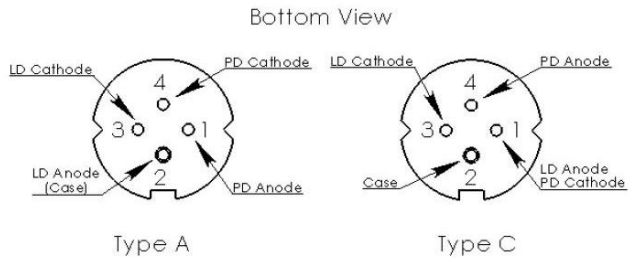
Fiber Pigtail Specifications						
Parameters	Symbol	Min.	Typ.	Max.	Unit	
Fiber type	Single Mode Fiber (Flame Retardant Hytrel Coating)					
Cladding diameter	D <sub>cl</sub>	122	125	128	um	
Mode field diameter	D <sub>mf</sub>	-	10	-	um	
Coating diameter	D <sub>bc</sub>	-	0.9	1	mm	
Pigtail length*	L	0.9	1.0	1.1	m	
Bending radius	R <sub>b</sub>	30	-	-	mm	
Connector	TBD					

\*From the ferrule-end to the bottom of TO-header.

Outline Dimensions (unit: mm)



## Pin Assignment



Pin Number	Type A	Type C
1	PD Anode	LD Anode, PD Cathode
2	LD Anode (case)	Case
3	LD Cathode	LD Cathode
4	PD Cathode	PD Cathode

## Additional Notes

- Avoid eye or skin exposure to laser radiations.
- The device is sensitive to electro-static discharge (ESD). The device should be handled with ESD proof tools. To assemble the device on PCB, proper grounding is required to prevent ESD.
- Specifications are subject to change without notice.