

1653.7nm 40mW DFB Butterfly Laser

1. Description:

The high power 1653.7nm Laser module utilizes a planar construction with chip on subcarrier. The high power chip is hermetically sealed in a epoxy-free and flux-free 14-pin butterfly package and fitted with a thermistor, thermoelectric cooler, and monitor diode to secure high quality laser performance. Our laser products are Telcordia GR-468 qualified, and in compliance with RoHS directives.

2. Features:

- Industry-standard 14-pin butterfly package;
- Built-in TEC and optical isolator;
- High-performance, multiquantum well (MQW) distributed-feedback (DFB) laser;

Reliability: Telcordia GR-468. RoHS.

3. Applications:

- Production testing of passive components for gas detection;
- Fiber gas detection system;
- Laser sources.

4. Absolute Maximum Ratings:

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage temperature	T _s	-	-40	-	85	°C
Operating case temperature	T _{op}	-	-20	-	70	°C
LD Forward Current	I _F	CW	-	-	500	mA
LD Reverse Current	I _r	-	-	-	2	mA
LD Reverse Voltage	V _{LR}	-	-	-	3	V
PD Forward Current	I _{FPD}	-	-	-	-10	mA
PD Reverse Voltage	V _{RPD}	-	-	-	20	V
TEC current	I _{TEC}	-	-	-	2	A
TEC voltage	V _{TEC}	-	-	1.5	3.5	V
Fiber Bend Radius	-	-	30	-	-	mm
Relative Humidity	RH	Non Condensing	0	-	95%	-
Lead Soldering Time	-	260°C	-	-	10	Second
Fiber Axial Pull Force	-	-	-	-	5	N
Fiber Side Pull Force	-	-	-	-	2.5	N

5. Electro-Optical Characteristics(25°C laser temperature):

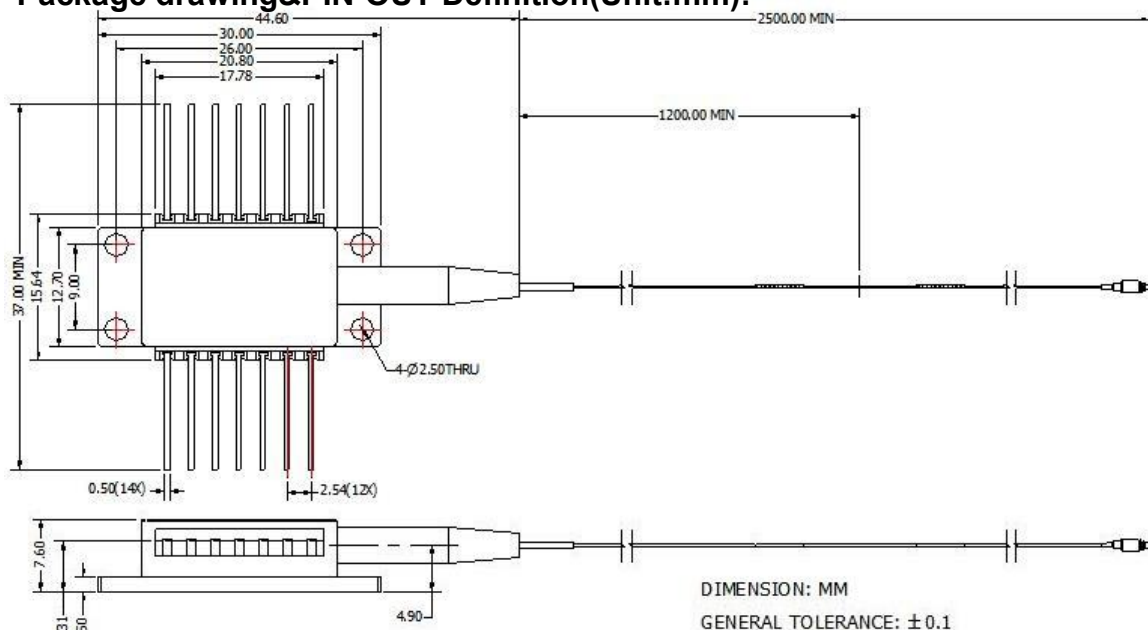
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Center wavelength	λ _c	TL=15~35°C CW	1652.7	1653.7	1654.7	nm
Optical output power	P _o	CW	-	40	-	mW

LD Threshold current	I_{TH}	CW	-	15	40	mA
LD Forward current	I_f	$P_f = \text{Rated Power}$	-	300	400	mA
Optical isolation	-	$-10 < T_C < +70^\circ\text{C}$	30	-	-	dB
Side-mode suppression ratio	SMSR	CW	35	40	-	dB
Monitor responsivity	I_m / P_f	-	-	1	20	uA/mW
Monitor responsivity stability	-	-	-	-	20%	-
Monitor dark current	I_d	$V_{PD} = 5V$	-	-	50	nA
TEC Current	I_{TEC}	$T_{case} = 75^\circ\text{C}$	-	-	2	A
TEC Voltage	V_{TEC}	$T_{case} = 75^\circ\text{C}$	-	-	3.5	V
TEC power consumption	P	$T_{case} = 75^\circ\text{C}$	-	-	5	W
Thermistor Resistance	R_{th}	$T_{stg} = 25^\circ\text{C}$	9.5	10	10.5	Kohm
Thermistor B constant	B_{th}	$T_{stg} = 25^\circ\text{C}$	-	3900	-	K
Wavelength drift (EOL)	$\Delta\lambda$	Tested over 25-year lifetime	-	-	± 0.1	nm
Wave. Temperature coefficient	$\Delta\lambda/\Delta T$	TEC temperature at 15°C to 35°C	-	0.09	-	nm/ $^\circ\text{C}$
Wavelength Current coefficient	$\Delta\lambda/\Delta I$	-	-	0.01	-	nm/mA

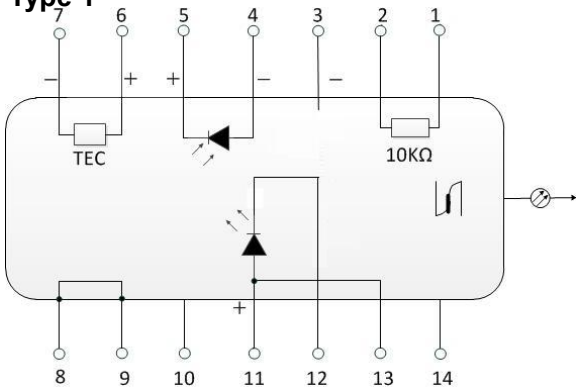
6. Optical Fiber Specifications:

Parameters	Description
Fiber Type	SMF-28e
Pigtail Type	900 μm loose tube
Pigtail Length	$1.0 \pm 0.1\text{m}$
Connector Type	FC/APC

7. Package drawing&PIN-OUT Definition(Unit:mm):

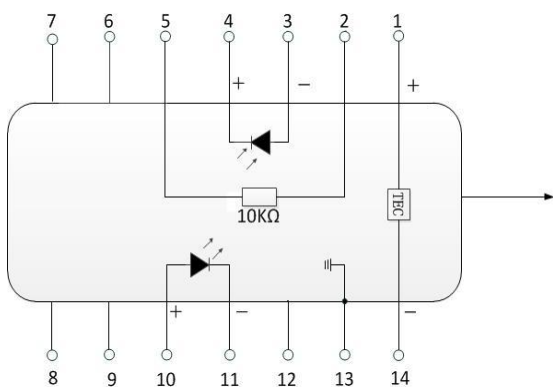


Type 1



PIN	Description	Pin	Description
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	NC	10	NC
4	PD Anode	11	LD Anode
5	PD Cathode	12	LD Cathode
6	TEC(+)	13	LD Anode
7	TEC(-)	14	NC

Type 2



PIN	Description	Pin	Description
1	TEC(+)	14	TEC(-)
2	Thermistor	13	Case Ground
3	PD Anode	12	NC
4	PD Cathode	11	LD Cathode
5	Thermistor	10	LD Anode
6	NC	9	NC
7	NC	8	NC

8. Ordering Information:

BFLD	-XXXX	-XX	XX	-XX	X
Laser type	Wavelength	Output power	Fiber type	Connector type	PIN-OUT
DFB Laser	1653.7:1653.7nm Other	40: 40mW Customized	SM : Single mode PM : Polarization maintaining	FA : FC/APC SA : SC/APC Other	NULL: Type 1 2: Type 2 Customized

e.g.:BFLD-1653.7-40SM-FA(Order information:1653.7nm DFB butterfly laser with 40mW output power, and SM fiber with FC/APC connector, PIN-OUT is Type 1).

For other customized requirements, please contact: sales@boxoptronics.com.