

980 nm Pump Laser Diode

Model #: BFLD-980F

Description: The 980 nm pump laser diodes utilizes a planar construction with chip on subcarrier. The high power chip is hermetically sealed in an epoxy-free and flux-free 14-pin butterfly package and fitted with a thermistor, thermoelectric cooler, and monitor diode.

The BFLD-980F pump module uses FBG stabilization to “lock” the emission wavelength. It provides a noise-free narrowband spectrum, even under changes in temperature, drive current, and optical feedback. Wavelength selection is available for applications that require the highest performance in spectrum control with the highest available powers. This module complies Telcordia GR-468-CORE requirement.

Features:

- Kink-free operating power up to 600mW
- Epoxy-free, and flux-free 14-PIN butterfly package with SM Hi1060 or PM fiber
- Fiber Bragg grating stabilization
- Wavelength selection available
- Integrated thermoelectric cooler, thermistor, and monitor diode



Applications:

- Dense wavelength division multiplexing (DWDM) erbium doped fiber amplifiers (EDFA)
- Reduced pump-count EDFA architectures
- Very long distance cable television (CATV) trunks and very high node count distribution

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage temperature	T _s	-40	-	85	°C	2000 Hours
Operating case temperature	T _{op}	-5	-	75	°C	
LD Forward Current	I _F	-	-	1300	mA	
LD Reverse Current	I _R	-	-	10	μA	
LD Reverse Voltage	V _{LR}	-	-	2	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}	-	-	3.5	V	
Relative Humidity	RH	0	-	95	%	Non condensing
Lead Soldering Time	-	-	-	10	Sec.	260 C°
Fiber Axial Pull Force	-	-	-	5	N	
Fiber Side Pull Force	-	-	-	2.5	N	

Electro-Optical Characteristics (at 25°C laser temperature, unless otherwise noted)

Parameter	Symbol	Min.	Typical	Max.	Unit	Condition
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LD Threshold Current	I_{th}	-	45	80	mA	CW
Optical Output Power	P_f	-	-	600	mW	I_f (BOL) < 900mA
LD Forward Current	I_f	-	-	1200	mA	P_f = rated power
Kink Free Power	P_{kink}	450	-	-	mW	$\geq 1.2 * \text{Rated Power}$
Kink Free Current	I_{kink}	$\geq 1.2 * I_f$ (BOL)			mA	(1)
LD Forward Voltage	V_f	-	-	2.5	V	P_f = rated power
Center Wavelength	λ_c	975	976	977	nm	Peak, P_f = rated power
Peak Wavelength Turning	$\Delta\lambda_p/\Delta T_{amb}$	-	-	0.02	Nm/°C	T: FBG Temp.
Spectral Linewidth	$\Delta\lambda$	-	-	2	nm	RMS @ -13 dB
Spectra Stability		-0.5	-	0.5	nm	P_f =rated power, t=60s
Monitor Responsivity	I_m/P_f	-	1	20	$\mu\text{A}/\text{mW}$	$V_{pd}=5\text{V}$, P_f =rated power
Monitor Responsivity Stability		-	-	20	%	@All operating Temperature
Monitor Dark Current	I_d	-	-	50	nA	$V_{pd}=5\text{V}$
TEC Current	I_{TEC}			2	A	$T_{case}=75^\circ\text{C}$
TEC Voltage	V_{TEC}			3.5	V	$T_{case}=75^\circ\text{C}$
IEC Module Power Consumption	P			5	W	$T_{case}=75^\circ\text{C}$
Tracking Error	TE	-0.5	-	0.5	dB	$T_c=-5\sim+75^\circ\text{C}$, ref. to (2)
Thermistor Resistance	R_{TH}	9.5	10	10.5		$T_{stg} = 25^\circ\text{C}$
Thermistor B Constant	B_{TH}		3900		K	$T_{stg} = 25^\circ\text{C}$

Notes:

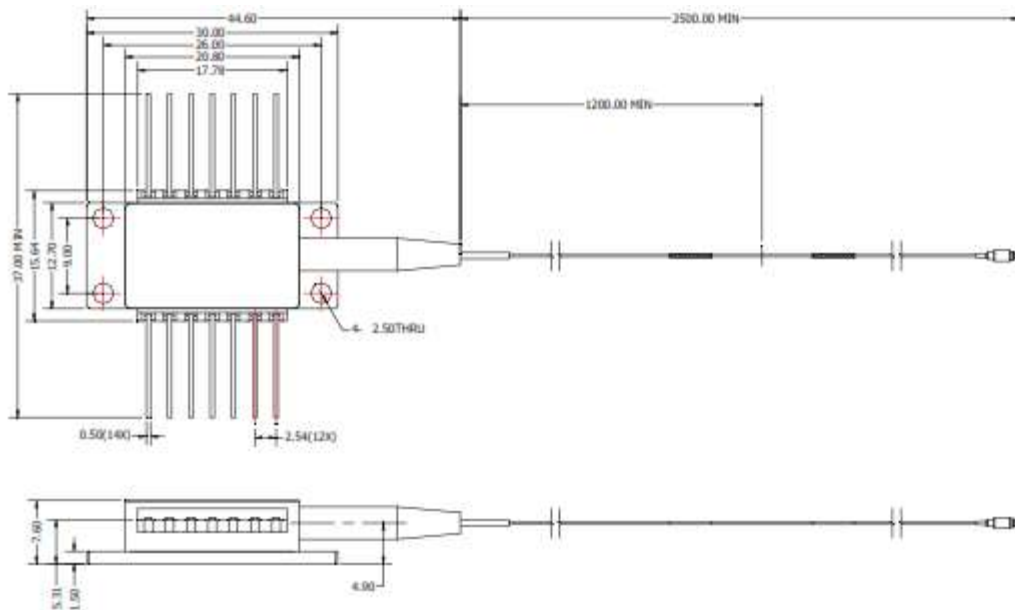
[1] Kink Current is defined as the current which deviation of light versus current slop (dL/dI) from a linear fit is beyond +/-50%, $P_{kink} \geq 1.2 * \text{Rated Power}$, $I_{kink} \geq I_f$ (BOL)*1.2

[2] Tracking error is defined at a given case temperature, it is the change in fiber power, at a constant monitor current, relative to the value measured at case 25°C

Fiber Pigtail Specifications

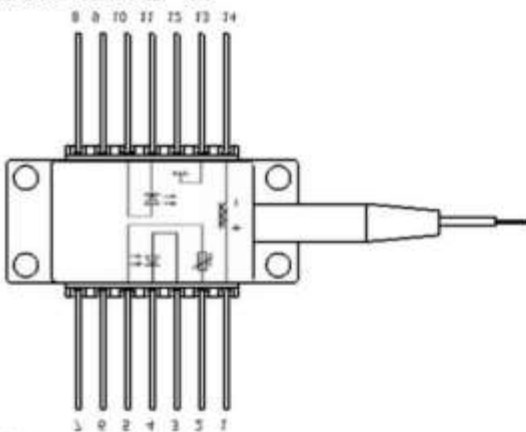
Parameters	Description
Fiber Type	SM fiber or PM fiber
Jacket Type	900 μm tight tube
Pigtail Length	1.0 \pm 0.1 m
Connector Type	FC/APC

Package Drawing and Pin Function:



DIMENSION: MM

GENERAL TOLERANCE: 0.1



PIN	DESIGNATIONS	PIN	DESIGNATIONS
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

Notes:

Dimensions are in millimeters. All dimensions are ± 0.1 mm unless otherwise specified. (Unit: mm).

Ordering Information: BFLD-XXXXF-B-C-D-E-F

XXX: wavelength	B: FBG	C –output power (mW)	D: fiber type	E: connector type	F: jacket type
974 – 974 nm	F – with FBG	100 – 100 mW	SM – SMF	FA - FC/APC	0 – bare fiber
976 – 976 nm	N – no FBG	200 – 200 mW	PM – PM fiber	SA - SC/APC	1 – 900 um loose tube
		400 – 400 mW		N - none	
		500 – 500 mW		X - specify	
		600 – 600 mW			