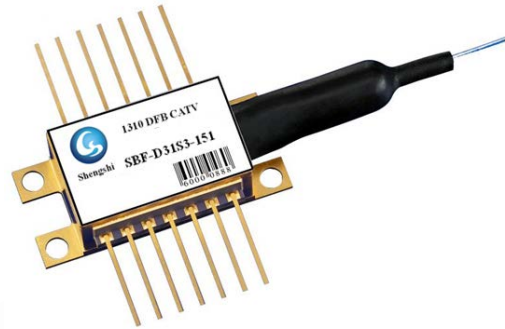




# 1310nm Butterfly Laser Diode

## Features

- High linearity high power MQW DFB LD chip
- Built-in isolator, TEC,hermistor and Monitor PD
- Optimized for 2.5 Gb/s Modulation Rates
- 14-pin butterfly cooled package
- single mode FC/APC connector or customized
- Output power 2~32mW



## Applications

CATV forward-path

1310nm broadcast and point-to-point applications

## Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Max.	Unit
Operating Case Temperature	Tc	I=Iop	-20	80	°C
Storage Temperature	Tstg	-	-40	85	°C
Laser Forward Current	If	-	-	150	mA
Laser Reverse Bias	Vr	-	-	2	V
Photodiode Reverse Bias	Vrpd	-	-	10	V
TEC Current	Itec	-20 °C < Tc < +65 °C, Top=25 °C If=100 mA	-2	+2	A
TEC Voltage	Vc		-2.5	+2.5	V
ESD	-	ESD - HBM: R=1500 ohm, C=100 pF	-500	+500	V
Lead Solder Temperature	-	-	-	260	°C
Lead Soldering Time	-	-	-	10	S
Fiber Bend Radius	-	-	30	-	mm
Fiber Yield Strength	-	-	-	1	kgf



## Optical & Electrical Characteristics

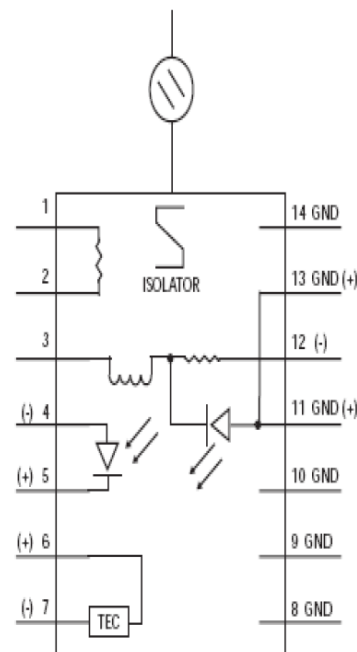
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Center Wavelength	$\lambda_c$	CW	1300	1310	1320	nm
Spectral Width (-3 dB)	$\Delta\lambda$	CW	-	0.5	1	nm
Optical Output Power*	$P_o$	CW, TL=25 °C	-	-	32	mW
Optical Isolation	IS	T=25 °C	30	35	-	dB
Side-mode Suppression Ratio	SMSR	CW	35	-	-	dB
Threshold Current	$I_{th}$	TL=25 °C	-	10	15	mA
Operating Current	$I_{op}$	CW	-	-	100	mA
Forward Voltage	VF	CW	-	1.2	2.0	V
Monitor Current	$I_{mon}$	V <sub>rpd</sub> =5 V	100	-	1500	μA
Monitor Dark Current	$I_D$	V <sub>rpd</sub> =5 V	-	-	100	nA
Operating Case Temperature	T	-	-20	-	60	°C
Tracking Error	$\gamma$	TE=10log(P <sub>o</sub> (T <sub>c</sub> )/P <sub>o</sub> (25°C))	-1	-	1	dB
Thermistor Resistance	$R_t$	T=25 °C	9.5	-	10.5	KΩ
Thermistor B Constant	B	T=25 °C	-	3900	-	K
TEC Current	IC	$\Delta T=40^\circ C$	-	-	1.0	A
TEC Voltage	VC	$\Delta T=40^\circ C$	-	-	2.0	V
Frequency Range	F	-	45	-	2500	MHz
Cut-off Frequency	F <sub>c</sub> (-3dB)	If=I <sub>op</sub>	4	-	-	GHz
RIN	N <sub>r</sub>	CW, If=I <sub>op</sub> , f=2.5GHz	-	-155	-150	dB/Hz
Carrier Noise Ratio	CNR	Note 1	51	-	-	dB
Composite Second Order	CSO		-	-	-57	dBc
Composite Triple Beat	CTB		-	-	-65	dBc

Note 1: ① If=I<sub>op</sub>, Optical Modulation, Index=3.2%/channel (minimum), 60 PAL-D unmodulated carries (47 to 550MHz), 10km singlemode fiber, -1dBm received power, Receiver responsivity=0.85A/W.

② If=I<sub>op</sub>, Optical Modulation Index=3.2%/channel (minimum), CNR, CSO, CTB tested value at worst case over all test frequencies. NTSC 120ch., 10km singlemode fiber, -1dBm received power, Receiverresponsivity=0.85A/W

## Pin Description:

Pin	Description	Pin	Description
1	Thermistor	8	Ground
2	Thermistor	9	Ground
3	LD (N) bias	10	Ground
4	Detector (P)	11	LD (P), ground
5	Detector (N)	12	LD (N), RF modulation
6	TEC (+)	13	LD (P), ground
7	TEC (-)	14	Ground



## Package Outline

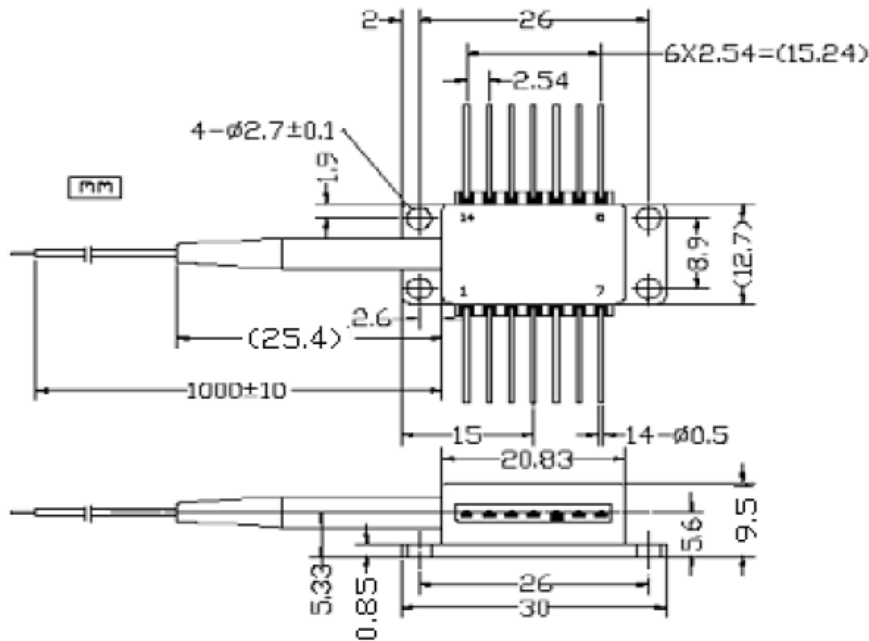
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## Order Information

### SBF-X31XX-XXX

S	BF	-X	31	X	X	-X	X	X
Mode	Product Type	Chip	Wavelength	Insulator	Bandwidth	Connector	Pigtail Length	Power Range
		D: DFB	31: 1310nm	S: Single B: Dual W: Without	2: 2.5Gb/s	1: FC/APC 2: FC/PC 3: SC/APC 4: SC/PC 5: LC/PC W: Without	05: 0.5M 10: 1.0M	P2: >2mW P3: >3mW ..... P32: >32mW

Additional requirements can be settled through friendly negotiation.

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