



Advanced Lab Instruments

CA1571-010-XX-SA 10 mW DWDM DFB Butterfly Laser V2.00

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Overview

The CA1571-010-XX-SA 10 mW DWDM DFB Butterfly Laser component is a DWDM laser for forward-path CATV applications, especially digital transmission using Quadrature Amplitude Modulation (QAM). The modules are designed to incorporate high output power while maintaining high linearity. The devices feature standard pin assignments. These devices offer excellent performance in directly-modulation QAM transmission, offering considerable cost savings over externally-modulated solutions. The combination of high performance and very reasonable price make these modules the most cost-effective CATV transmitter solutions in the industry.



Applications

- DWDM digital CATV transmission with external modulation
- Fiber Optic Gyroscopes
- Sensor Component
- Medical
- Test Equipment

Features

- 10 mW Optical Output Power
- ITU 100 GHz C Band DWDM Wavelength Available
- Narrow-linewidth: 150KHz
- Built-in Isolator, TEC, Thermistor and Monitor PD
- OC-48 Pinout Compatible
- Telcordia Technologies™ GR-468 Compliant
- PM Fiber
- -20°C to +65°C Operating Temperature Range
- RoHS compliant



Specification

Electrical/Optical Characteristics (Tc=25°C, unless otherwise noted)

Parameter	Symbol	Condition	Limits			Unit
			Min.	Typ.	Max.	
Threshold Current	I _{th}	CW	-	15	20	mA
Operating Current	I _{op}	CW	-	70	120	mA
Operating Voltage	V _{op}	CW, I _f =I _{op}	-	1.2	1.9	V
Output Power from Fiber End	P _f	CW, @I _{op}	10	-	-	mW
Central Wavelength	λ _c	CW, I _f =I _{op}	1530	1550	1560	nm
Wavelength Drift	-	After 10 years	-	-	0.1	nm
Side Mode Suppression Ratio	SMSR	CW, I _f =I _{op}	35	40	-	dB
Line Width	Δλ	CW, FWHM, 3dB	100	200	300	KHz
Monitor Current	I _{mon}	CW, I _f =I _{op} , V _{rd} =5V	0.1	-	3	mA
Dark Current (MPD)	I _d	V _{rd} =5V	-	-	500	nA
Isolation	I _{so}	T _c =0~65°C	35	-	-	dB
Thermistor Resistance	R _{th}	T _{ld} =25°C	9.5	10	10.5	KΩ
Extinction Ratio	ER	I _{op} , polarization // slow axis	18	20	-	dB
TEC Current	I _{TEC}	ΔT=40K	-	-	1	A
TEC Current	V _{TEC}	ΔT=40K	-	-	2	V

Absolute Maximum Ratings

Parameter	Symbol	Condition	Ratings		Unit
			Min.	Max.	
Storage Temperature	T _{stg}	-	-40	+70	°C
Operating Temperature	T _{op}	-	-20	+65	°C
LD Forward Current	I _f	CW	-	120	mA
LD Reverse Voltage	V _r	-	-	2	V
MPD Forward Current	I _{MPD}	-	-	10	mA
MPD Reverse Voltage	V _{MPDR}	-	-	10	V
TEC Voltage	V _c	-	-2.5	+2.5	V
TEC Current	I _c	-	-2	+2	A
Thermistor Temperature	T _{th}	ATC Operation	-20	+65	°C
Lead Soldering Time	T _{sold}	260°C	-	10	Sec
Environmental Operating Humidity	X _{op}	T _{op} <30°C	-	95	%
Environmental Storage Humidity	X _{st}	T _{op} <30°C	-	95	%
ESD	-	HBM: R=1500 ohm, C=100 pF	500	-	V
Fiber yield strength	-	-	-	1	Kgf
Fiber bend radius	-	-	-	20	mm



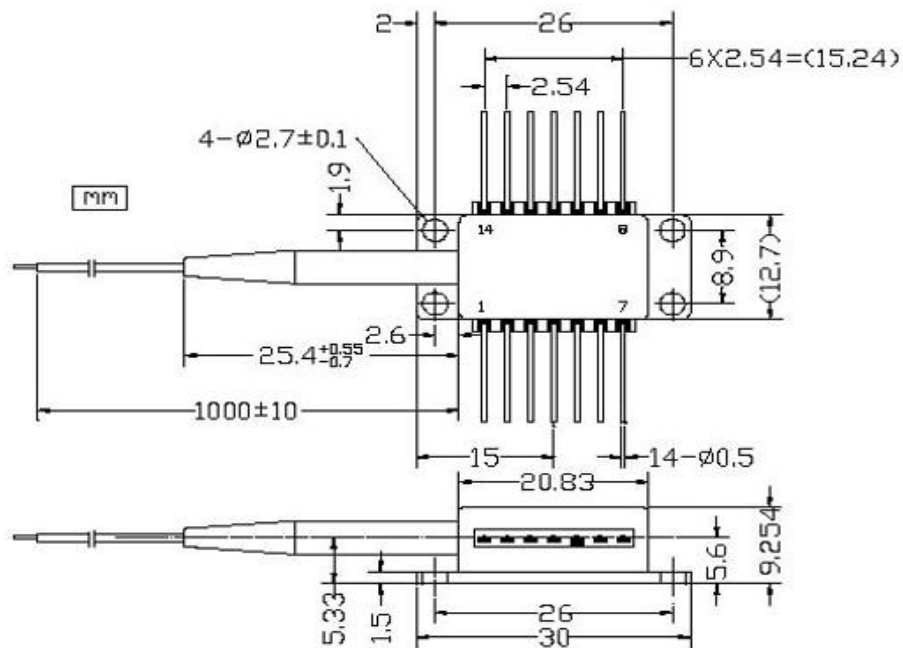
RF Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input impedance	Z_{IN}	nominal		25		Ω
Frequency Range	F	--	45	--	2400	MHz
Frequency Response	$ S_{21} $	If=Iop 45 MHz-870 MHz T=25 °C	--	± 0.5	--	dB
		If=Iop 45 MHz-2400 MHz T=25 °C	--	± 1.0	--	
RF return loss	S_{11}	50 – 870 MHz, P=P _F , @ 50 °C	6	7		dB
Relative Intensity Noise	RIN	CW, P _o = 10 mW, Note 1	--	--	-155	dB/Hz
2 nd Order Intermodulation	IMD2	Note 2, 42 MHz, @ f_2-f_1	--	--	-48	dBc
3 rd Order Intermodulation	IMD3	Note 2, 511.25 MHz, @ $2f_1-f_2$	--	--	-60	dBc

Note 1: Test condition: P_o=10 mW, f = 500 MHz, Optical reflection<-40 dB, 0 km fiber.

Note 2: Test condition: P_o≥ 5 mW, 2 unmodulated carriers (f1=553.25, f2=595.25), 35% OMI/ carrier, 50 km zero dispersion single mode fiber, optical reflection <-40 dB.

Outline Drawing

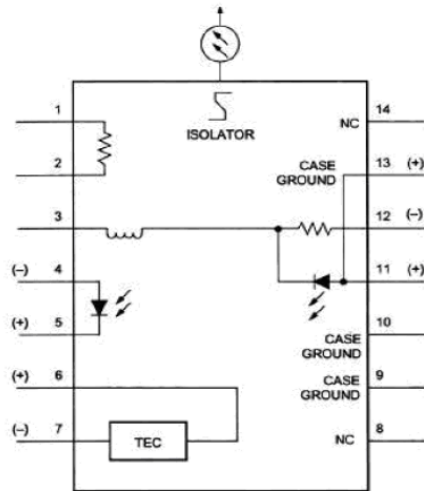




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Electrical Schematics



14-pin BTF Package			
Pin	Function	Pin	Function
1	Thermistor	8	NC
2	Thermistor	9	Case
3	LD (-)	10	Case
4	MPD (-)	11	LD (+), Case
5	MPD (+)	12	LD (-), RF
6	TEC (+)	13	LD (+), Case
7	TEC (-)	14	NC

PN Order Information

PN: CA1571-010-XX-BT

-XX is ITU Channel information

Channel	Frequency (GHz)	Center Wavelength (nm)	Channel	Frequency (GHz)	Center Wavelength (nm)
17	191.7	1563.86	40	194	1545.32
18	191.8	1563.05	41	194.1	1544.53
19	191.9	1562.23	42	194.2	1543.73
20	192	1561.41	43	194.3	1542.94
21	192.1	1560.61	44	194.4	1542.14
22	192.2	1559.79	45	194.5	1541.35
23	192.3	1558.98	46	194.6	1540.56
24	192.4	1558.17	47	194.7	1539.77
25	192.5	1557.36	48	194.8	1538.98
26	192.6	1556.55	49	194.9	1538.19
27	192.7	1555.75	50	195	1537.4
28	192.8	1554.94	51	195.1	1536.61
29	192.9	1554.13	52	195.2	1535.82
30	193	1553.33	53	195.3	1535.04
31	193.1	1552.52	54	195.4	1534.25
32	193.2	1551.72	55	195.5	1533.47
33	193.3	1550.92	56	195.6	1532.68
34	193.4	1550.12	57	195.7	1531.9
35	193.5	1549.32	58	195.8	1531.12
36	193.6	1548.51	59	195.9	1530.33
37	193.7	1547.72	60	196	1529.55
38	193.8	1546.92	61	196.1	1528.77
39	193.9	1546.12			



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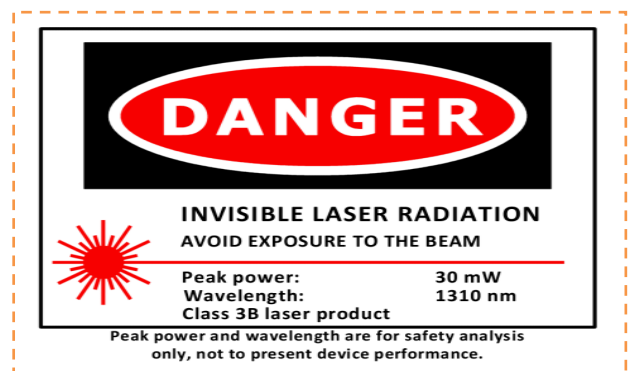
ITU Grid Channel Numbering

Please contact Advanced Lab Instruments Corp. Sales for ITU Wavelength Channel availability.

Safety Information

- The laser light emitted from this laser diode is invisible and potentially harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.
- Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- These **Advanced Lab Instruments Corp.** products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.

Package Dimensions (Unit: mm)



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