CA2871-040-XX-BT DWDM High Power DFB Butterfly Laser

Overview

The CA2871-040-XX-BT DWDM High Power 40 mW DFB Butterfly Laser component is characterized for use as a CW optical source in CATV and DWDM networks. The CA2871-040-XX-BT is dc-coupled with a built-in TEC, thermistor, and monitor photodiode. The device is mounted in a 14-pin, OC-48 pinout compatible butterfly package with the optical isolator mounted on the TEC. The CA2871-050-XX-BT incorporates a high efficiency coupling scheme to deliver 40 mW of CW optical power.

Applications

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

Features

- 40 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 Compatibl
- Telcordia Technologies™ GR-468 Compliant
- PM Fiber
- -20°C to +65°C Operating Temperature Range
- RoHs compliant

Specification

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

Parameter	Symbol	Condition	Limits			Unit
			Min.	Typ.	Max.	
Threshold Current	Ith	CW	-	35	40	mA
Operating Current	Iop	CW	-	-	300	mA
Operationg Voltage	Vop	CW, If=Iop	-	2	2.5	V
Output Power from Fiber End	Pf	CW	40	-	50	mW
Central Wavelength	Λc	CW, If=Iop	1530	1550	1560	nm
Wavelength Drift	-	After 10 years	-	-	0.3	nm
Side Mode Suppression Ratio	SMSR	CW, If=Iop	35	40	-	dB
Line Width	Δλ	CW, FWHM	150		300	KHz
Monitor Current	Imon	CW, If=Iop, Vrd=5V	0.1	-	3	mA
Dark Current (MPD)	Id	Vrd=5V	-	-	500	nA
Isolation	Iso	Tc=0~65℃	35		-	dB
Thermistor Resistance	Rth	Tld=25℃	9.5	10	10.5	KΩ
Extinction Ratio	ER	Iop, 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

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Ratings		Unit
			Min.	Max.	
Storage Temperature	Tstg	-	-40	+85	℃
Operating Temperature	Top	-	-20	+65	℃
LD Forward Current	If	CW	-	400	mA
LD Reverse Voltage	Vr	-	-	1	V
MPD Forward Current	I_{MPD}	-	-	10	mA
MPD Reverse Voltage	V_{MPDR}	-	-	10	V
TEC Voltage	Vc	-	-2.5	+2.5	V
TEC Current	Ic	-	-2	+2	A
Thermistor Temperature	Tth	ATC Operation	-20	+65	℃
Lead Soldering Time	Tsold	260℃	-	10	Sec
Environmental Operating Humidity	Xop	Top<30℃	-	95	%
Environmental Storage Humidity	Xst	Top<30℃	-	95	%
ESD	-	HBM: R=1500 ohm, C=100 pF	500	-	V
Fiber yield strength	-	-	-	1	Kgf
Fiber bend radius	-	-	-	20	mm

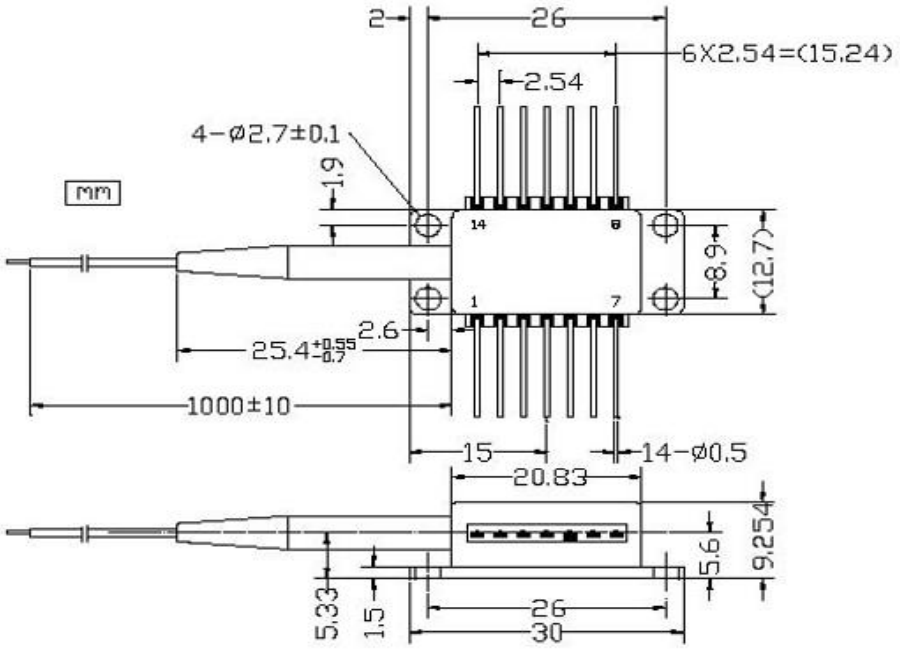
RF Characteristics

Parameter	Symbol	Test Conditions 测试条件	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 ℃	--	± 0.5	--	dB
		If=Iop 45 MHz-2400 MHz T=25 ℃	--	± 1.0	--	
RF return loss	S_{11}	50 – 870 MHz, P=P_F, @ 50 ,	6	7		dB
Relative Intensity Noise	RIN	CW, P_o= 10 mW, Note 1	--	--	-155	dB/Hz
2nd Order Intermodulation	IMD2	Note 2, 42 MHz, @ f_2-f_1	--	--	-48	dBc
3rd Order Intermodulation	IMD3	Note 2, 511.25 MHz, @ $2f_1$-f_2	--	--	-60	dBc

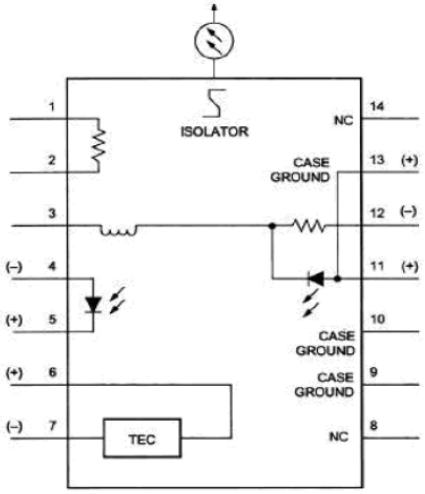
Note 1: Test condition: P_o=10 mW, f = 500 MHz, Optical reflection<-40 dB, 0 km fiber.

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



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: CA2871-040-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			

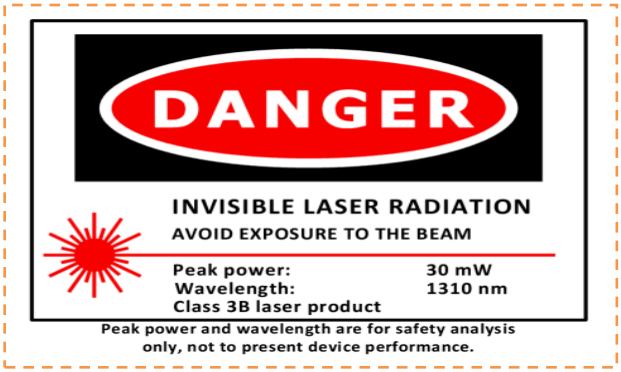
ITU Grid Channel Numbering

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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