

TLB-3020-L

20 mW Full Band Tunable CW Laser Butterfly

Full C Band Tunable CW Laser

Features

- Wide tuning range using highly reliable DFB laser arrays
- Excellent wavelength stability
- CW output power of 20 mW
- Excellent Relative Intensity Noise (RIN): -140 dB/Hz typical
- High Side Mode Suppression Ratio (SMSR): 50 dB typical
- Reduced package size and pin count

Applications

- LR, LR2 and LH DWDM optical transport
- Large form factor full band tunable transponders

Benefits

- DFB laser performance
- Simple control loops
- Integrated laser switch IC

*The **TLB-3020-L** is the third generation of compact 20 mW widely tunable transmission lasers built with Santur's own proprietary DFB laser array, MEMs coupling and packaging technology. Santur's technology provides for a highly efficient, small form factor full band tunable butterfly with the lowest power dissipation in the industry.*

*Ideally suited for use in a wide variety of DWDM Metro and LH systems, the Santur **TLB-3020-L** provides the best combination of performance features available, offering a unique combination of optical power, wide tunability, and low power dissipation. The **TLB-3020-L** includes an integrated wavelength locker a stable DFB laser array and an integrated laser switch IC.*

High-power performance, reliability, ease of control, and economies of scale derived from the exclusive, proven technology, differentiate this product from others in the industry.



TLB-3020-L-DS

This is a technical data sheet – parameters are subject to change without notice.

Specifications:

Absolute Maximum Ratings						
#	Parameter	Symbol	Min.	Max.	Unit	Comments
1	Storage temperature	T_{stg}	-40	85	C	
2	Laser diode reverse voltage	V_{R_max}		2	V	
3	Laser diode forward current	I_{f_max}		400	mA	
4	Etalon photodiode reverse voltage	V_{EPD_max}		10	V	
5	Etalon photodiode reverse current	I_{EPD_max}		3	mA	
6	Quad detector reverse voltage	V_{quad_max}		5	V	
7	Quad detector reverse current	I_{quad_max}		3	mA	
8	MEMs voltage X	V_{X_max}		210	V	
9	MEMs voltage Y	V_{Y_max}		175	V	
10	MEMs current	I_{MEMS_max}		100	μ A	
11	Laser TEC current	I_{OSATEC_max}		3	A	
12	Locker TEC current	I_{WLTEC_max}		1.5	A	
13	Lead Soldering			250C, 5sec		
14	Electrostatic discharge (ESD)	V_{ESD}		500	V	C=100pF, R=1.5k Ω , Human Body Model

#	Parameter	Symbol	Test Condition	Min.	Typical	Max.	Unit
1	Fiber-coupled power	P_{op}	CW		10		mW
2	Wavelength range	λ_{min}		1565		1605	nm
4	Total Tuning Range			40			nm
5	Laser Set Temperature	T_{set}		17		52	C
6	Case Temperature	T_{case}	TEC Active	-5	-	75	C
7	Power variation over case temp			-0.5		0.5	dBm
8	Laser Forward Current @ rated power	I_{op}	-	-	-	350	mA
9	Laser Forward Voltage @ rated power	V_{op}	-	-	-	2.5	V
10	Threshold Current	I_{th}	-	-	65	-	mA
11	Spectral Width	$\Delta\lambda$	FWHM	-	2	5	MHz
12	Side-mode Suppression Ratio	SMSR	-	40	50	-	dB
13	Relative Intensity Noise	RIN	20 MHz to 10 GHz	-	-143	-135	dB/Hz
14	Extinction Ratio	TE/TM	-	20	-	-	dB
15	Optical Isolation	ISO	-	30	35	-	dB
16	MEMS X Voltage	V_{xp}, V_{xn}	-	-	-	205	V
17	MEMS Y Voltage	V_{yp}, V_{yn}	-	-	-	170	V
18	MEMS X snapdown Voltage*	$V_{x snap}$	-	$ V_{x cal} + 10$	-	-	V
19	Laser TEC Current	I_{TEC}	-	-	-	2.1	A
20	Laser TEC Voltage	V_{TEC}	-	-	-	2.5	V
21	Laser Thermistor Resistance	R_{TH}	@ 25 C	9.5	10	10.5	k Ω
22	Laser Thermistor Beta	β		3800		4000	K
23	Locker TEC Current	I_{TEC}	-	-	-	0.8	A
24	Locker TEC Voltage	V_{TEC}	-	-	-	1.3	V
25	Locker Thermistor Resistance	R_{TH}	@ 25 C	9.5	10	10.5	k Ω
26	Locker Thermistor Beta	β		3800		4000	K
27	Etalon max/min ratio			3		8	
28	Total quad detector photocurrent	I_{quad}			0.6		mA
29	Peak etalon photodiode photocurrent	I_{EPD}			0.04		mA
30	Power Dissipation	P_{dis}	70 C			4.0	W
			75 C			4.8	W

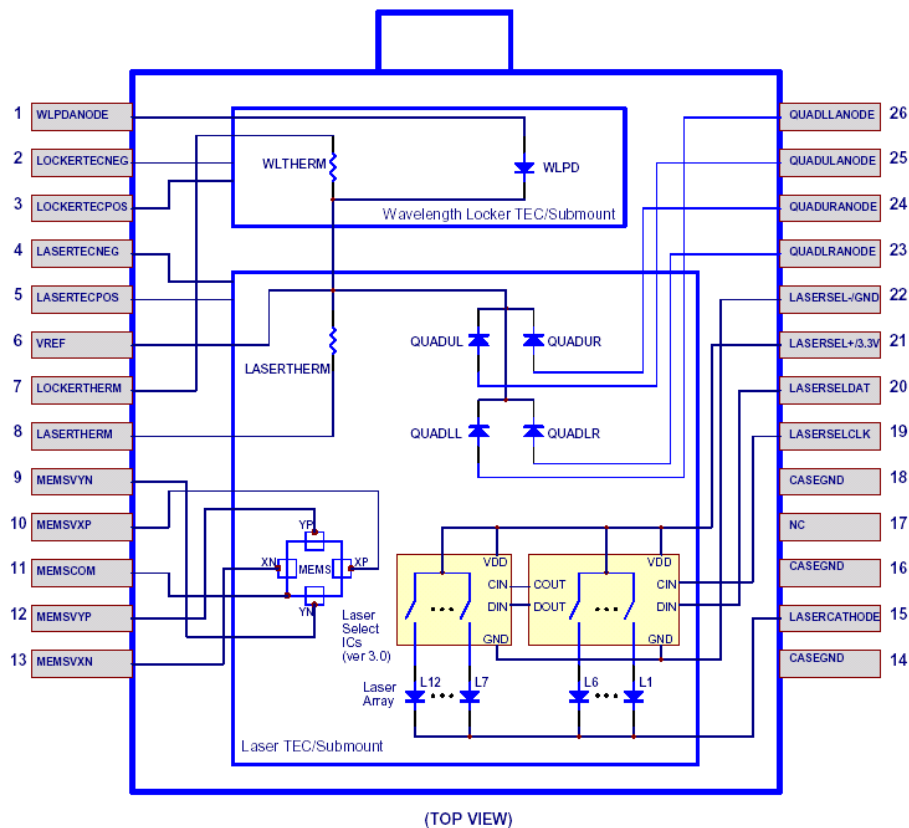
#	Parameter	Symbol	Test Condition	Min.	Typical	Max.	Unit
31	Change of emission frequency with chip temperature			-15		-10	GHz/C
32	Change of emission frequency with laser bias current			-1.5		0	GHz/mA
33	Etalon photodiode linearity	$\Delta I_{EPD}/\Delta P_{op}$		-5		+5	%
34	Etalon photodiode dark current		$V_{EPD}=5V,$ $T_{laser}=25C$			10	nA
35	Quad photodiode dark current		$V_{quad}=5V,$ $T_{laser}=25C$			25	nA
36	Etalon photodiode capacitance		$V_{EPD}=5V,$ $f=1MHz,$ $T_{laser}=25C$		90		pF
37	Quad photodiode capacitance		$V_{quad}=5V,$ $f=1MHz,$ $T_{laser}=25C$		50		pF
38	Frequency capture range			+/-20			GHz
39	Thermal crosstalk	α		0	0.02	0.06	

Fiber Pigtail

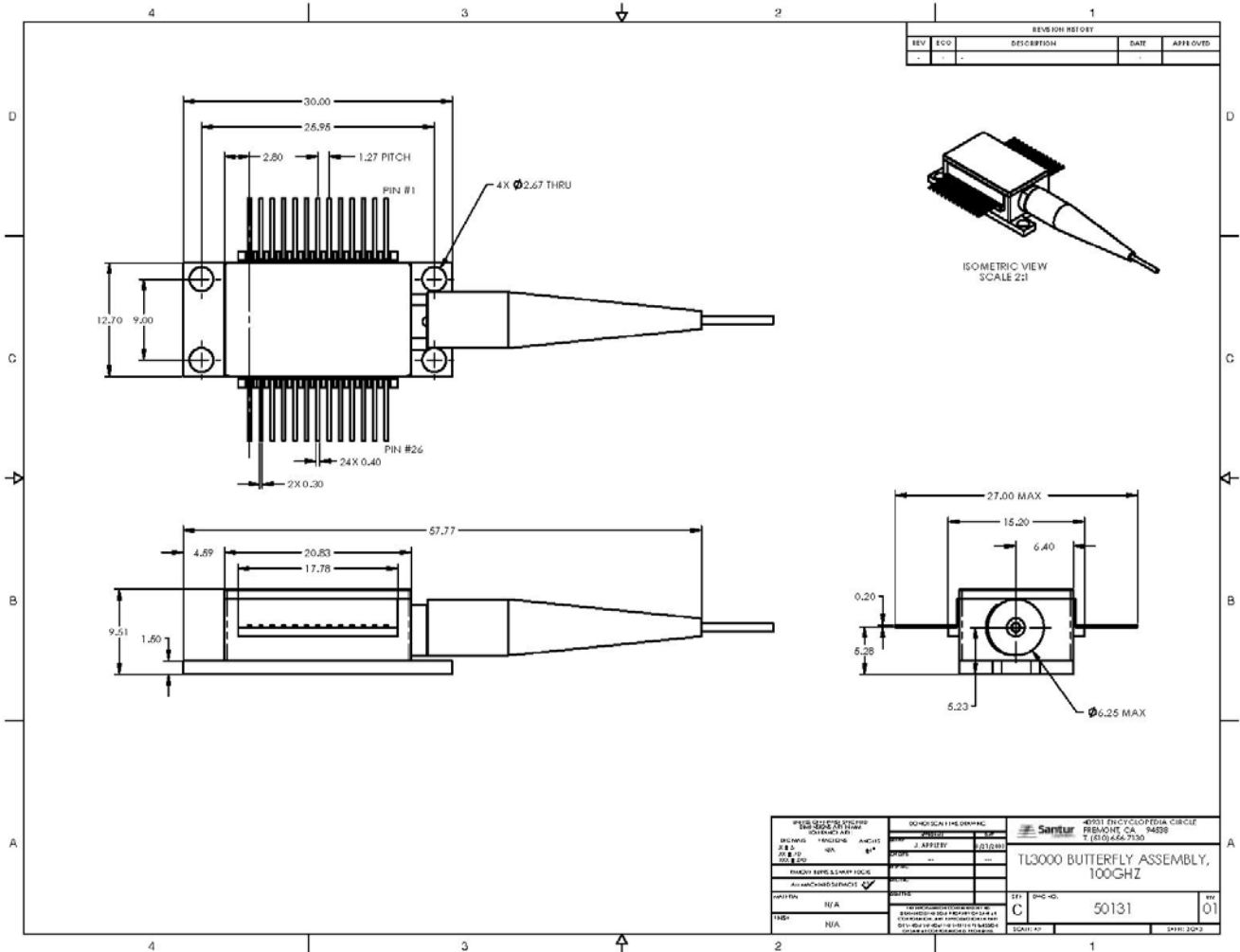
#	Parameter	Notes	Min	Max	Unit
1	Fiber type	Fujikura Panda PM			
2	Connector type	FC/UPC			
3	Pigtail length		0.8	2.1	m
4	Jacket diameter	900 μ m			
5	Mode field diameter		9.5	10.5	μ m
6	Cladding diameter		122	128	μ m
7	Bending radius		15		mm
8	Fiber proof strength		100		Kpsi
9	Polarization alignment	Parallel to slow axis			

Pin Assignment

Pin	Description	Pin	Description
1	Locker PD anode	14	Case Ground
2	Locker TEC (-)	15	Laser Cathode
3	Locker TEC (+)	16	Case Ground
4	Laser TEC (-)	17	NC
5	Laser TEC (+)	18	Case Ground
6	Locker PD cathode/Quad Cathode/ Locker / Laser Thermistors (-)	19	Laser Select CLK
7	Locker Thermistor (+)	20	Laser Select serial DATA input
8	Laser Thermistor (+)	21	Laser Select (+)
9	MEMs V_{yn}	22	Laser Select (-)
10	MEMs V_{xp}	23	Quad LR Anode
11	MEMs Ground	24	Quad UR Anode
12	MEMs V_{yp}	25	Quad UL Anode
13	MEMs V_{xn}	26	Quad LL Anode



Mechanical Outline



TLB-3020-L-DS

This is a technical data sheet – parameters are subject to change without notice.



International Sales Contacts

Benelux and Nordics

Laser 2000 Benelux S.A.
Rue du Moulin 18
5650 Fraire, Belgium
Tel: +32 (0) 71 610 640
Fax: +32 (0) 71 610 649
sales@laser2000.be

China

LuY Broadband Tech. Co.
Room 824 Hua Tong Plaza
No. 19A West Rd. of Che Gong Zhuang
Haidan Dist, Beijing 100044
Tel: +86 (8610) 68700016
Fax: +86 (8610) 6845151
william.lu@luy-tech.com

France

Laser 2000 S.A.
Park d'Affaires
3, Rue de la Plaine
78860 Saint-Nom la Bretèche
Tel: +33 (0) 1 30 80 00 60
Fax: +33 (0) 1 30 80 00 40
contact@laser2000.fr

Germany

Laser 2000 GmbH
Argelsrieder Feld 14
82234 Wessling
Tel: +49 (0) 8153 405-0
Fax: +49 (0) 8153 405-33
contact@laser2000.de

Israel

Bitel Technologies Ltd.
P.O. Box 94, Yehud
Tel: +972-3-632 2655
Fax: +972-3-632 2279
info@bitel.co.il

Japan

Marubun Corporation
Components Dept.
Marubun Daiya Bldg., 8-1
Nihonbashi Odenmachi
Chuo-ku, Tokyo 103-8577
Tel: (03) 3639-9881
Fax: (03) 5644-7627
motizuki@marubun.co.jp

United Kingdom

Laser 2000 (UK) Ltd
Britannia House
Denford Road
Ringstead, Northants NN14 4DF
Tel: +44 (0) 1933 461 666
Fax: +44 (0) 1933 461 699
sales@laser2000.co.uk



This is an OEM product that does not comply with the requirements of 21 CFR Subchapter 1 as applicable. It is the responsibility of the user to report the end product and to certify that it meets all applicable requirements.



DANGER: Fiber output is >10 mWatt at 1555 nm.
Do not look into fiber end.

Santur Corporation
40931 Encyclopedia Circle
Fremont, CA 94538
Phone: (510) 656-7130
Fax (510) 656-7563
www.santurcorp.com
1-866-TUNABLE

© 2005 Santur Corporation. The Santur Corporation logo is a trademark of Santur Corporation. The ITLA-3020-C/L product is registered with the U.S. Office of Patents and Trademarks. All rights reserved. Santur Corporation reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use of application.

TLB-3020-L-DS

This is a technical data sheet – parameters are subject to change without notice.