

TLB-3010-L

10 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 10 mW
- 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-3010-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-3010-L** provides the best combination of performance features available, offering a unique combination of optical power, wide tunability, and low power dissipation. The **TLB-3010-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-3010-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}		0.3	0.6	1.0	mA
29	Peak etalon photodiode photocurrent	I_{EPD}		0.02	0.04	0.08	mA
30	Power Dissipation	P_{dis}	70 C			4.0	W
			75 C			4.8	W

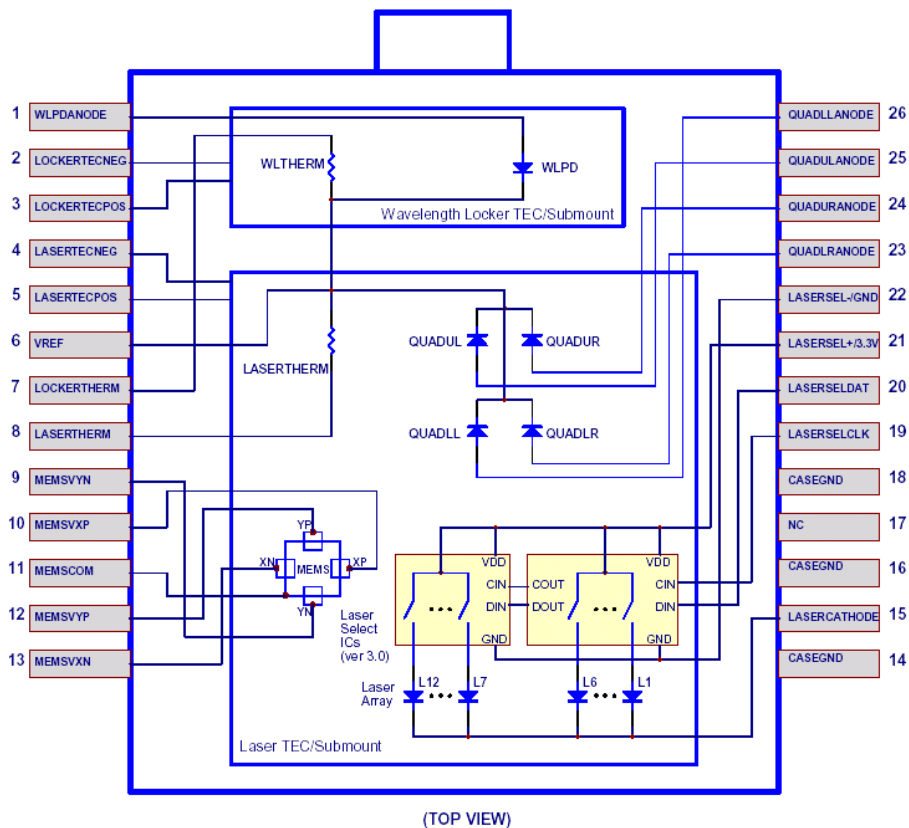
#	Parameter	Symbol	Test Condition	Min.	Typical	Max.	Unit
31	Change of emission frequency with chip temperature			-15		-10	GHz/C
32	Change of emission frequency with laser bias current			-1.5		0	GHz/mA
33	Etalon photodiode linearity	$\Delta I_{EPD}/\Delta P_{op}$		-5		+5	%
34	Etalon photodiode dark current		$V_{EPD}=5V,$ $T_{laser}=25C$			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

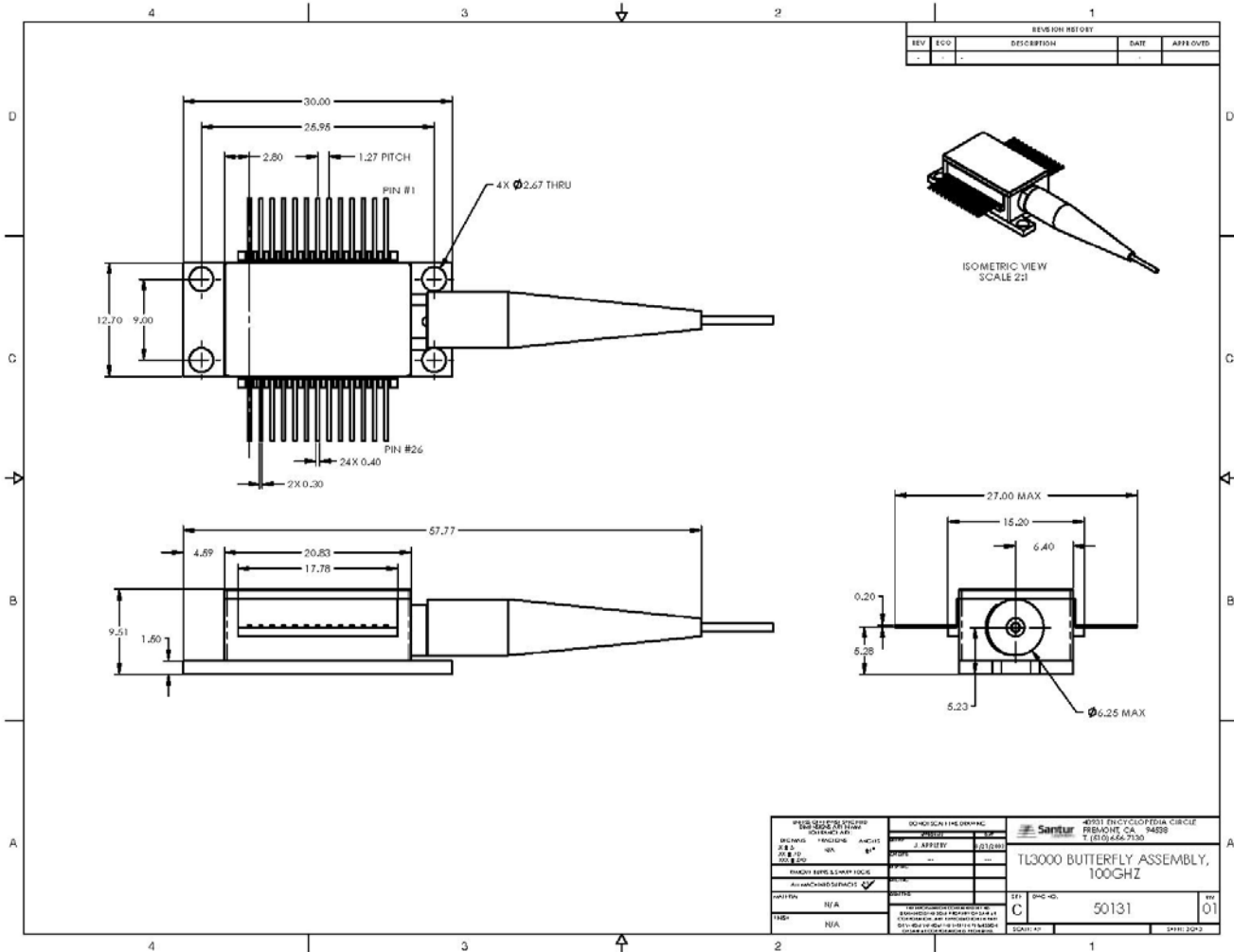
#	Parameter	Notes	Min	Max	Unit
1	Fiber type	Fujikura Panda PM			
2	Connector type	FC/UPC			
3	Pigtail length		0.8	2.1	m
4	Jacket diameter	900 μ m			
5	Mode field diameter		9.5	10.5	μ m
6	Cladding diameter		122	128	μ m
7	Bending radius		15		mm
8	Fiber proof strength		100		Kpsi
9	Polarization alignment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





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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.

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