Tunable Lasers

Tunable Lasers 2

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Low Power Dissipation Design High-Power Widely Tunable Laser Module

TL2010-C / TL2020-C

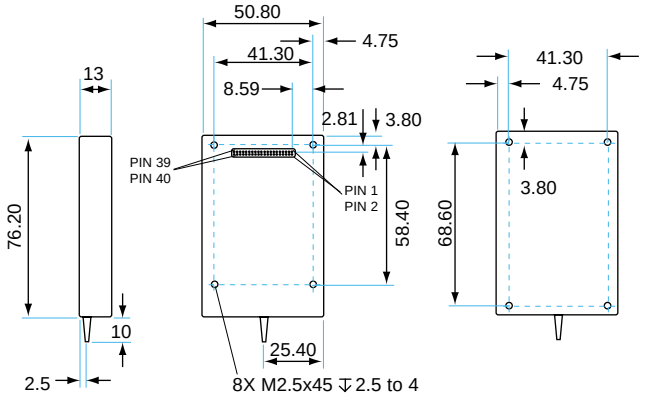
- *1550 nm CW DFB tunable laser module for DWDM systems*
- *Small form-factor,low power-dissipation package*
- *<5.5W power dissipation at 70°C case*
- *High operating temperature,to 75°C case*
- *High optical power (up to 20 mW) without an SOA*
- *Tunable over entire C-Band: 36 nm tuning range*
- *Highly reliable DFB performance and wavelength stability with no possibility of mode hop*
- *Integrated wavelength locker for 25 GHz channel spacing or higher*
- *Excellent Relative Intensity Noise (RIN): -140 dB/Hz typical*
- *Narrow line-width:3 MHz typical*
- *High Side Mode Suppression Ratio (SMSR): 50 dB typical*
- *Built-in thermoelectric cooler (TEC)*
- *Built-in Digital Signal Processor (DSP) and control electronics*
- *Compatible with OIF tunable laser MSA*

Santur Corporation introduces a new,compact 10 or 20 mW widely tunable transmission laser using its own proprietary packaging technology. This package provides for a highly efficient, small form factor module with the lowest power dissipation in the industry.

Ideally suited for use in a wide variety of DWDM systems,the Santur TL2010/TL2020-C provides the best combination of performance features available,offering a unique combination of high optical power,wide tunability, and low power dissipation.The TL2010/TL2020-C module includes an integrated wavelength locker,industry standard electrical interface,and a uniquely stable and reliable DFB laser design.

High-powered performance,reliability,ease of manufacture,and economies of scale derived from the exclusive,proven design differentiate this product from others in the industry.

TL2010/TL2020-C Mechanical Outline



Module connector is a Samtec FTSH-120-03-F-DV-ES or equivalent.
Customer to use CLP-120-02-G-D-P or equivalent soldered fl ush to board.

(Measurements in mm.)

Pin Description

1	VCC	2	DIS*
3	VCC	4	MS*
5	VCC	6	RST*
7	VCC	8	SRQ*
9	GND	10	FATAL*
11	GND	12	ALM*
13	GND	14	TXD
15	GND	16	RXD
17	TRST	18	IRDY*
19	TDO	20	IOCLK
21	TDI	22	IOMODE
23	TMS	24	IOMODE1
25	TCK	26	A0
27	RESERVED	28	A1
29	RESERVED	30	A2
31	RESERVED	32	RESERVED
33	RESERVED	34	RESERVED
35	RESERVED	36	RESERVED
37	RESERVED	38	RESERVED
39	RESERVED	40	RESERVED

*active low

Part Number Format

TL20x0-C-00y(-A)	x	Power	y Channel Spacing
	1	10 mW	1 50 GHz
	2	20 mW	2 25 GHz
	-A	ASCII command set, instead of standard OIF MSA binary interface	

Specifications for the TL2010-C and TL2020-C

Parameter		Symbol	Conditions	TL2010-C Min.	TL2010-C Typ.	TL2010-C Max.	TL2020-C Min.	TL2020-C Typ.	TL2020-C Max.
Output Power									
Radiant output power from pigtail	mW	P peak	-	-	10	-	-	20	-
Over wavelength	dB	Power Variation	-	0.3	-	0.3	-0.3	-	0.3
Over temperature	dB		-	0.3	-	0.3	-0.3	-	0.3
Optical Characteristics									
Wavelength tuning range	nm	• R	-	35	36	-	35	36	-
Channel Spacing	GHz		ITU Grid	25	50	-	25	50	-
Lower wavelength limit	nm		-	-	-	1528.77	-	-	1528.77
Upper wavelength limit	nm		-	1563.86	-	-	1563.86	-	-
Wavelength switching speed		T switch seconds	-	-	2	15	-	2	15
Spectral linewidth	MHz	f w f w f	FWHM	-	3	10	-	3	10
Frequency inaccuracy over life	GHz	f d f d f	Steady-state	-1.5	-	1.5	-1.5	-	1.5
Side mode suppression ratio	dB	SMSR	-	40	50	-	40	50	-
Optical isolation	dB	ISO	-	30	-	-	30	-	-
Relative intensity noise	dB/Hz	RIN	20 MHz to 10 GHz	-	-137	-130	-	-143	-135
Electrical Power Supply									
Supply voltage with respect to GND	V	V cc	-	3.15	3.3	3.45	3.15	3.3	3.45
Peak supply current while tuning	A	I cc	-	-	-	3.0	-	-	3.0
Total power dissipation,steady-state	W	P d	T case =25 ºC	-	1.8	2.3	-	1.8	2
	W		T case =70 ºC	-	2.2	3.5	-	3.5	5.5
	W		T case =75 ºC	-	2.5	4	-	3.7	6.5
Fiber Pigtail									
Fiber type	m		Fujikura Panda PM	-	-	-	-	-	-
Length of pigtail	mm	L	-	1.0	-	-	1.0	-	-
Bending radius	N	R	-	35	-	-	35	-	-
Tensile strength (fiber to case)	-	F	-	-	-	5	-	-	5
Optical connector			FC/UPC R-Type (narrow key)	-	-	-	-	-	
Key alignment			Slow axis	-	-	-	-	-	-
Absolute Maximum Ratings									
Case Operating Temperature*	ºC	T op op	-	-5	-	75	-5	-	75
Storage Temperature*	ºC	T stg stg	-	-40	-	85	-40	-	85
Signal Pin Voltage	V		-	-	-	5.5	-	-	5.5
Power Pin Voltage	V		-	-	-	3.6	-	-	3.6
*non-condensing									

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