

ITTA-3003-C ITTA-3003-L

10Gb/s integrated tunable transmitter assembly with MZ modulator

Integrated Tunable Transmitter Assembly

Features

- Wide tuning range using highly reliable DFB laser arrays
- Excellent wavelength stability with no possibility of mode hop
- Modulated output power of 3.5 dBm
- Chirped modulator (up to 1600ps/nm applications)
- Co-Planar / dual GPPO differential drive <2.7V

Applications

- 1550 nm widely tunable DFB source for DWDM systems
- Small form factor full band tunable 10Gb/s transponders

Benefits

- Size
- Eliminates PM fiber, splicing and reduces fiber handling
- Differential drive enables use of lower cost EML drivers
- Ease of use

*The **ITTA-3003-C** and **ITTA-3003-L** are a new generation of compact C- and L-band widely tunable 10Gb/s modulated sources. They integrate Santur's widely tunable DFB array technology with a semiconductor Mach-Zehnder modulator. The integrated assembly provides for a highly efficient, small form factor assembly that can replace a CW ITLA and LiNbO₃ modulator in many applications.*

*Ideally suited for use in a wide variety of DWDM systems, the Santur **ITTA-3003-C/L** provides the best combination of performance features available. They offer a unique combination of modulated optical power, wide tunability, and excellent modulation characteristics. The module is a combination of the TL3000 tunable laser, with integrated wavelength locker, and a chirped 10Gb/s dual drive semiconductor Mach-Zehnder modulator.*

Excellent performance characteristics, reliability, ease of manufacture, and economies of scale derived from Santur's exclusive, proven design, differentiate this product from others in the industry.



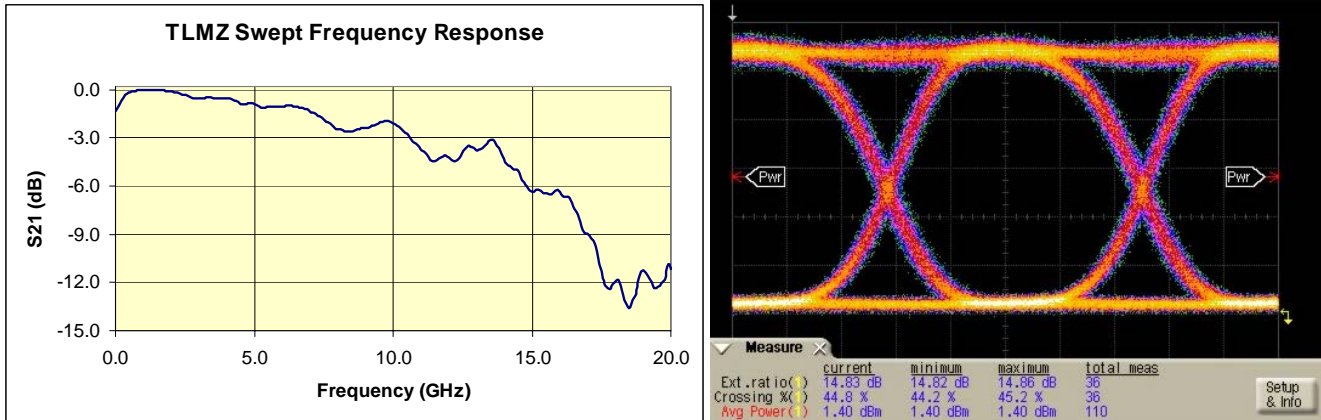
Specifications:

Symbol	Parameter	Conditions	ITTA-3003-C			ITLA-3003-L			Unit
			Min	Typ	Max	Min	Typ	Max	
Standard operating requirements									
	Bit Rate	-	11.3			11.3			Gb/s
	Optical frequency		191.5		196.1	187.6		190.9	THz
	Optical frequency accuracy (EOL)		-2.5		2.5	-2.5		2.5	GHz
	Optical frequency accuracy (BOL)		-1.5		1.5	-1.5		1.5	GHz
T_{switch}	Wavelength switching time			3	30		3	30	s
P-out	Modulated output power		2.6	3.5	4.2	2.6	3.5	4.2	dBm
	Linewidth			2	10		2	10	MHz
SMSR	Sidemode suppression ratio		40			40			dB
OSNR	Optical signal to noise ratio		45			45			dB/0.1nm
RIN	Relative intensity noise	200MHz – 8GHz	-135			-135			dB/Hz
	Linewidth range for SBS suppression		500		1000	500		1000	MHz
Modulator specifications									
V_{π}	DataN arm V_{π}			2.7			2.7		V
V-bias	MZ Bias		-5		0	-5		0	V
V-biasN	MZ bias N		-5		0	-5		0	V
	DC extinction ratio		25			25			dB
E_r	AC extinction ratio		10			10			dB
S21	3dB frequency	-	11			11			dB
	S21-ripple	2-9GHz	-0.5		0.5	-0.5		0.5	dB
S11	Return loss of RF port	50 MHz to 8 GHz			-10			-10	dB
S11	Return loss of RF port	8 to 12 GHz			-5			-5	dB
	Dispersion penalty	At 1600ps/nm, dual drive, 10.7Gb/s			2			2	dB
	Rf Input	Dual GPPO							
Electrical Specifications									
V_{cc}	Positive supply voltage	-	3.15	3.3	3.45	3.15	3.3	3.45	V
V_{ee}	Negative supply voltage		-5.45	-5.2	-4.94	-5.45	-5.2	-4.94	V
I_{cc}	Positive supply current	Peak	-	-	1.4	-	-	1.4	A
I_{ee}	Negative supply current	Peak			1.0			1.0	A
P_d	Total power dissipation, steady-state	$T_{case} = 75^{\circ}C$	-	1.5	3.5	-	1.5	3.5	W
		$T_{case} = 75^{\circ}C$	-	3	6.5	-	3	6.5	W
	SBS modulation	Internal – triangle wave	10		50	10		50	KHz
Fiber Pigtail									
	Fiber type	SMF-28	-	-	-	-	-	-	
L	Length of pigtail	-	1.0	-	-	1.0	-	-	m
R	Bending radius	-	35	-	-	35	-	-	mm
F	Tensile strength (fiber to case)	-	-	-	5	-	-	5	N
	Optical connector	FC/UPC R-Type (narrow key)	-	-	-	-	-	-	
Absolute Maximum Ratings									
T_{op}	Case operating temperature*	-	-5	-	75	-5	-	75	$^{\circ}C$
T_{stg}	Storage temperature range*	-	-40	-	85	-40	-	85	$^{\circ}C$
	Signal pin voltage		-0.3		3.6	-0.3		3.6	V

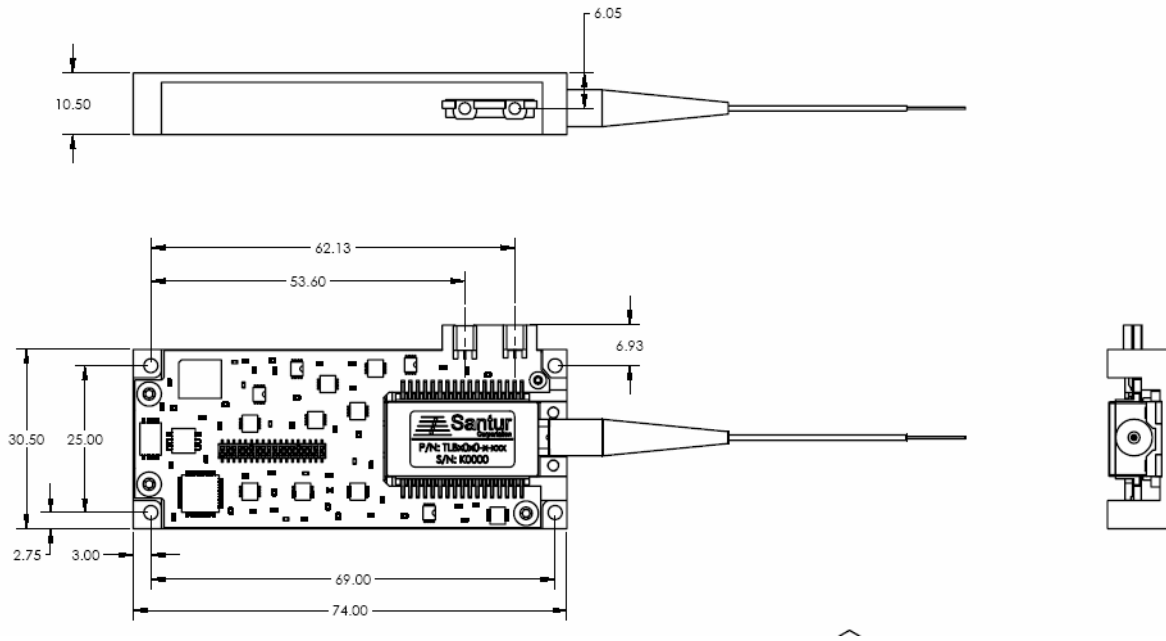
*non-condensing

Custom OEM specifications possible. Contact Santur for your needs.

Performance Characteristics:



Mechanical Outline:



Schematic measurements are in millimeters.

Connector is Samtec CLM-118-02 style.

Connection to customer system is via mating Samtec FTM-118-03 or custom flex jumper.

Connector Pin Assignment

Pin Name	Pin #	Pin #	Pin Name
Manufact.	1	2	MZ Bias 1
Manufact.	3	4	MZ PD 1
GND	5	6	MZ PD 2
Manufact.	7	8	Manufact.
Manufact.	9	10	MZ Bias 2
Manufact.	11	12	MZ MPD
Manufact.	13	14	Manufact.
Manufact.	15	16	Manufact.
Manufact.	17	18	Manufact.
Manufact.	19	20	Manufact.
I2C Clk	21	22	Manufact.
I2C Dat	23	24	-5.2V
OIF DIS_N	25	26	-5.2V
OIF SRQ_N	27	28	GND
OIF MS_N	29	30	GND
OIF TXD	31	32	GND
OIF RXD	33	34	+3.3V
OIF RES_N	35	36	+3.3V

Note: Manufact. pins should be left as no-connects.

Additional information on the communication interface and command set can be found in OIF document oif2005.128.04. See www.oiforum.com.

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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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