

DWDM 50 GHz C Band 300 pin Transponder T300-CB-10NRZ-MFF-Y

The **T300-CB-10NRZ-MFF-Y** Transponder is a multi rate, optical interface designed for 10 Gb/s DWDM data transmission in the full C band with 50GHz ITU-T channel grid according to the following Telecom and Datacom standards:

- 300PIN MSA rev.4;
- IEEE802.3ae - 2002 (9.953 - 10.312 Gb/s – 11.09 Gb/s);
- SDH / STM64; ITU-T G691 (9.953 Gb/s);
- SDH / OTU2; ITU-T G709 (10.709 – 11.09 Gb/s);
- SONET / OC192; GR 253 Core (9.953 Gb/s);
- SONET / OC192 with FEC (10.709 – 11.09 Gb/s).

The module is a 10 Gb/s Electro-optical transponder containing a transmitter, a receiver and a 1:16 SERDES. The module gets the low bit rate electrical signals (1/16 bit rate of transmitted HF signal) from a 300 pins pluggable connector, performs the 3R regeneration of both transmitted and received HF signals. On the Transmitter side, a well stable tuneable laser source is used to allow the full tunability of the emitted wavelength over the C+ band compliant to the ITU-T grid with 50 GHz spacing while the Electrical to Optical signal conversion is performed by a Mach-Zehnder modulator. On the Receiver side, a VOA is available to adjust the optical receiver power level while the Optical to Electrical signal conversion is performed by an APD photodetector with integrated low noise transimpedance amplifier.



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The **T300-CB-10NRZ-MFF-Y** operates in a wide temperature range from -5 to +70 °C with very low power consumption, and extremely good features both for heat dissipation and electromagnetic shielding. The excellent jitter performances are fully compliant with both Telecom and Datacom standards showing:

- jitter transfer function with less than 0.03 dB peaking over all frequencies and transfer bandwidth well below 8 MHz;
- jitter tolerance and generation compliant to ITU-T, TELCORDIA and IEEE requirements.

As well as all Teleoptix product lines, the **T300-CB-10NRZ-MFF-Y** has been designed, engineered and is currently manufactured according to the highest quality levels requested by the major Telecom and Datacom networks equipment manufacturers.

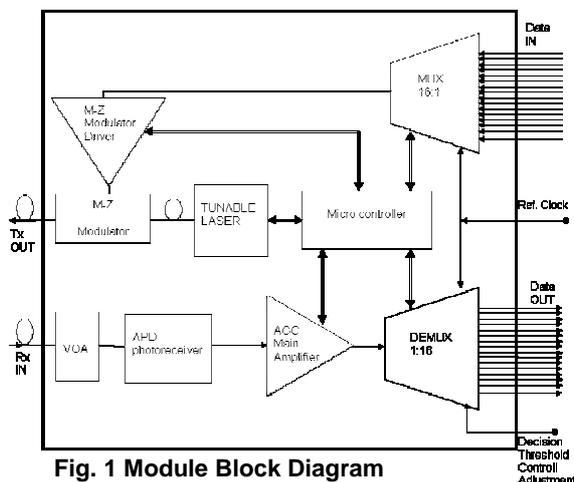
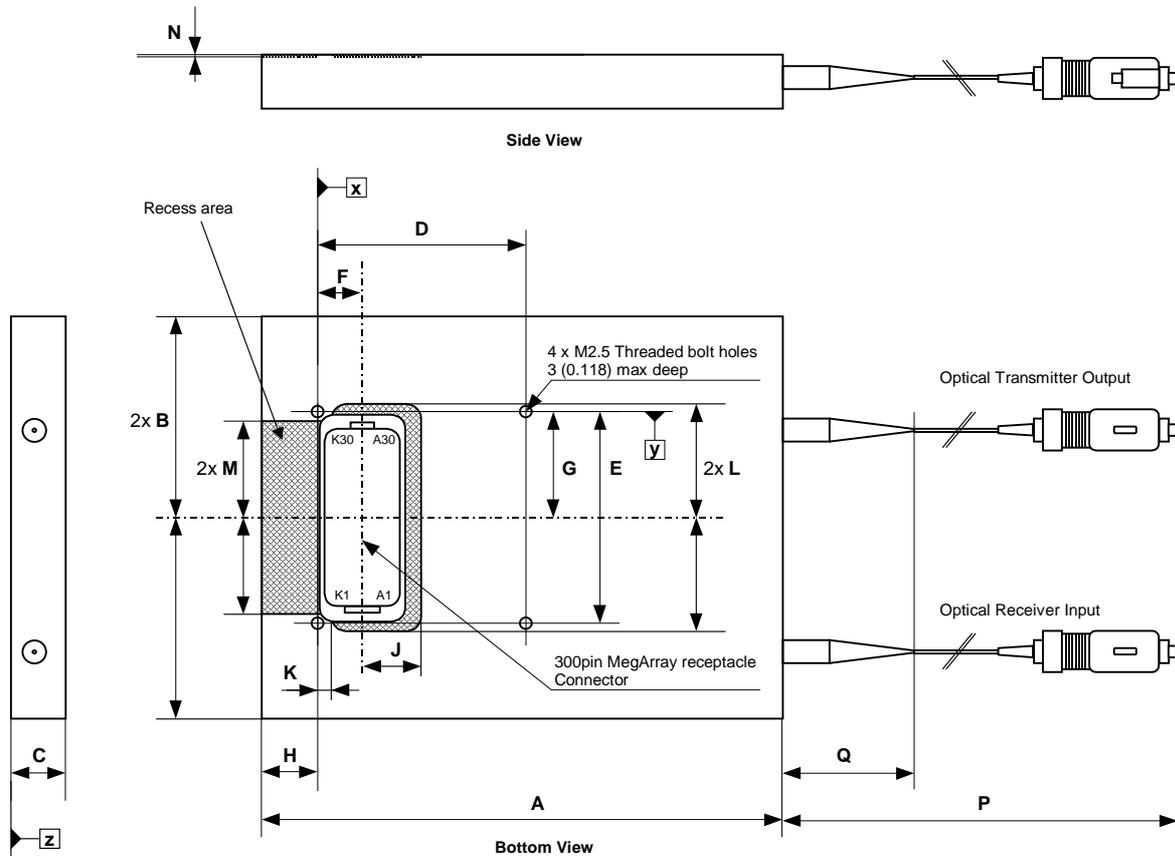


Fig. 1 Module Block Diagram

MECHANICAL SPECIFICATIONS



PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Length	A			114.3	mm
Width	2XB			88.9	mm
Height	C			13.5	mm

POWER SUPPLY

PARAMETER	CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
+5.0 V Power Supply Voltage		VCC5.0	+4.75	+5.0	+5.25	V
+5.0 V Supply Current	Operating	ICC5.0		250		mA
+3.3 V Power Supply Voltage		VCC3.3	+3.13	+3.3	+3.47	V
+3.3 V Supply Current	Operating	ICC3.3		1250		mA
-5.2 V Power Supply Voltage		VEE5.2	-5.46	-5.2	-4.94	V
-5.2 V Supply Current	Operating	IEE5.2		100		mA
Power Consumption	Operating	P		6.0	9.0	W



HIGH SPEED ELECTRICAL INTERFACE CHARACTERISTICS (*)

PARAMETER	CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Tx [0:15] Input data	LVDS Differential Amplitude	TXDIN[0:15]P; TXDIN[0:15]N	0.2		3.4	Vpp
	LVDS Input Low Voltage		0.7			V
	LVDS Input High Voltage				2.4	V
	Differential Input impedance	ZDin	80	100	120	Ohm
Rx [0:15] Output data	LVDS Differential Amplitude	RXDOUT[0:15]P; RXDOUT[0:15]N	0.5	0.6	1.2	Vpp
	LVDS Common Mode Output Voltage		1.1	1.2	1.3	V
	Differential Output impedance	ZDout	80	100	120	Ohm
Tx Ref. Clock Input Amplitude	LVPECL Differential	TXREFCLKP; TXREFCLKN	0.2		0.9	Vpp
Tx Ref. Clock Duty Cycle			40	50	60	%
Tx Ref. Clock Impedance	Differential input	ZClkIn	80	100	120	Ohm
Tx Ref. Clock Frequency		Fo		BR/16		
Tx Ref. Clock tolerance		ΔFo	-200		+200	ppm
Rx Ref. Clock Input Amplitude	LVPECL Differential		0.2		0.9	Vpp
Rx Ref. Clock Duty Cycle			40	50	60	%
Rx Ref. Clock Impedance	Differential Output	ZClkIn	80	100	120	Ohm
Rx Ref. Clock Frequency		Fo		BR/16		
Rx Ref. Clock tolerance		ΔFo	-100		+100	ppm

JITTER PERFORMANCE CHARACTERISTICS (*)

PARAMETER	CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Jitter Transfer Bandwidth		JBW			4	MHz
Jitter Transfer Peaking	f < 4 MHz	JTP			0.1	dB
Jitter Tolerance	Telcordia GR253-core	JT	Compliant to Mask			
Jitter Generation	50 kHz < f < 80 MHz	JG				
	Telcordia GR253-core		Compliant to Mask			
Jitter Transfer Bandwidth		JBW			4	MHz

OPTICAL CHARACTERISTICS (*)

PARAMETER	CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Optical Output Power	Modulated;	P _o	+4.5		+7	dBm
Optical Output Power	Shut down;	P _o -SD			-40	dBm
Channel Emitted Wavelength	ITU-T channel grid – C band	λ_c	1529,55		1568,36	nm
			196,00		191.15	THz
Channel Wavelength Spacing		$\Delta\lambda_c$		50		GHz
Channel Wavelength Stability	EOL; respect to ITU-T channel emitted Wavelength	$\Delta\lambda$	-2.5		+2.5	GHz
Dynamic Extinction Ratio	PRBS 2 ³¹ -1; with Bessel Filter	ER		12		dB
Eye Mask Margin	PRBS 2 ³¹ -1; with Bessel Filter; ITU-T G959		10	15		%
Spectral Width	@ -20dB from peak value				0.3	nm
Side Mode Suppression Ratio		SMSR	40			dB
Chromatic Dispersion Tolerance		DT	0		800	ps/nm
Chromatic Dispersion Penalty		DP			2	dB
Receiver Sensitivity	DT=0; back to back; BER<1x10 ⁻¹² ; PRBS 2 ³¹ -1	S _o			-24	dBm
Dispersion Limited Receiver Sensitivity	DT=800ps/nm; SMF fiber; BER<1x10 ⁻¹² ; PRBS 2 ³¹ -1; OSNR > 30dB/0.1nm	S			-22	dBm

(*): Unless otherwise specified the above characteristics are referred to EOL and full operating condition range. The typical values are referred to Operating Case Temperature of +25 °C, nominal power supply condition, BOL.

ORDERING CODE

On the ordering code “Y” must be substituted by:

	Modulator Version	Receiver Version
A	Zero Chirp	APD + VOA
B	Zero Chirp	APD
C	Negative Chirp	APD + VOA
D	Negative Chirp	APD

ORDERING INFORMATION:
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