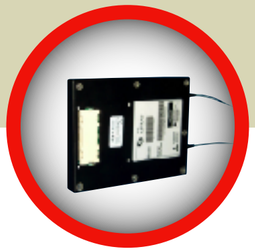
WIRELESS ACCESS & BROADBAND CONNECT

GT10-1310TRS



The GT10-1310TRS is a fully integrated, self contained 10Gb/s electro-optical data transponder. 1550nm single frequency and DWDM versions available. The 1310TRS' convenient features and compact size make it simple to design into cutting edge optical networks, resulting in time and cost savings for the user.

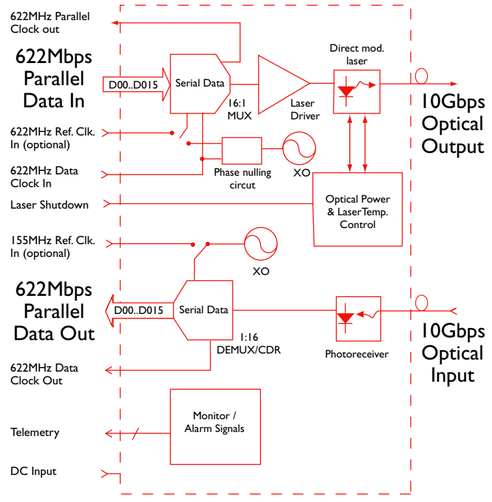
FEATURES

- MSA compatible
- Fully compliant with GR-253-CORE SR-1/IR-1
- IEEE 802.3ae 10Gb Ethernet ready
- OIF99.102.8 compliant SERDES timing
- 622 Mb/s, LVDS electrical interface
- On-board clock/data recovery and 16:1 data muxing/demuxing
- Laser output power clamping capability
- Phase nulling for system (transmit data) clock
- Forward and counter clocking schemes available
- Extended operating temperature range
- 1550nm single frequency and DWDM versions available

APPLICATIONS

Designed for very short reach (VSR) to intermediate reach (IR) deployments including

- Point-to-point high-speed optical data communication
- Metro and access optical network equipment



FEATURE OPTIONS

OPTION	DESCRIPTION	STANDARD CONFIGURATION
100, 1, 2, 3	FC/PC, SPC, UPC, APC optical connector	SC/PC optical connector
105	SC/APC optical connector	
106	LC optical connector	
300	High power option (4mW, min. optical power)	1mW optical output power (per SONET SR-1)
402, 403	SONET IR-1 (+1 to 5dBm Po)/ SONET LR-1 (+4 to 7dBm Po)	SONET short reach (-6dBm to -1dBm output power)
502	Counter clocking (no phase nulling)	Forward clocking (transmit data clock phase nulling)
505	External DEMUX ref. clk.	Internal DEMUX ref. clk.
001, 002	SERDES option A, B	Not specific*

*See GT10-1310TRS App Note B for SERDES independent design guide.
Other options available. Please contact GTRAN for specific requirements.

Model Number GT10-1310TRS Doc. Num. 100200-0004

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GTRAN™
Moving data faster.

GT10-1310TRS

The GT10-1310TRS is an integrated high-speed data transponder module optimized for OC-192/STM-64 applications. A direct modulated 1310 nm laser module and a PIN-detector-based optical receiver module convert data streams between the electrical and optical domains. A high-performance laser driver and receiver amplifiers are incorporated to provide optimum signal levels throughout the assembly. A 16:1 MUX and a 1:16 DEMUX translate the OC-192/STM-64 data rate to multiple signals at STS-12/STM-4 rate, with LVDS interface for convenient integration with lower bit-rate VLSI chips. Low-noise clock/data recovery and clock multiplication electronics based on phase-locked-loops yield full SONET compliance for jitter generation, jitter transfer, and jitter tolerance. MSA compatible status and alarm signals are available to allow monitoring of key operating parameters.

The GT10-1310TRS is manufactured in a compact 4.5" x 3.5" x 0.53" assembly with an integrated heatsink. All sensitive active components are hermetically sealed. The transceiver module runs on a triple +5V, +3.3V, -5.2V supply. All electrical signals are interfaced via a single low profile connector, while the optical signals are provided via fiber pigtails with customer specified connectors.

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Operating Temperature	T_c	-10	+65	C
Storage Temperature	T_{stg}	-40	+85	C
Optical Input Power	P_{in}		+3	dBm
Electrical Input Voltage	V_{in}	0	+3	V
Supply Voltage	V_{cc}	0	+6	V
	V	-0.5	3.6	V
	V	0.5	-7	V

TRANSMITTER

PARAMETER	SYMBOL	MIN	Typ	MAX	UNIT
Electrical					
Diff. Data Input Amplitude (622 Mb/s)[1]	D_{IN}	200		2600	mV_{pp}
Diff. Clock Input Amplitude (622 Mb/s)[1]	MUXICLK	200		2600	mV_{pp}
Diff. Clock Output Amplitude (622 Mb/s)[1]	MUXOCLK	500	740	1100	mV_{pp}
Optical					
Center Wavelength	□	1300		1320	nm
Average Power Output	□	-4		0	dBm
Extinction Ratio	□	8.2			dB
Jitter Generation					
Peak-to-peak	□		per SONET GR-1377		UI
RMS	□				UI

RECEIVER

PARAMETER	SYMBOL	MIN	Typ	MAX	UNIT
Electrical					
Data Input Amplitude (622 Mb/s)[1]	D_O	500	740	1100	mV_{pp}
Clock Output Amplitude (622 Mb/s)[1]	MUXOCLK	500	740	1100	mV_{pp}
Optical					
Wavelength Range	□□	1280		1580	nm
Sensitivity			-17	-16	dBm
Overload		0	+1		dBm
Optical Return Loss		27			dB
Jitter Tolerance			per SONET GR-1377		
Jitter Transfer			per SONET GR-1377		

GENERAL

PARAMETER	SYMBOL	MIN	Typ[4]	MAX[4]	Typ[5]	MAX[5]	UNIT
Supply Voltage	V_{CC}	+4.5	+5.0	+5.25			V
	V_{dd}	+3.1	+3.3	+3.5			
	V_{ee}	-4.7	-5.2	-5.5			
Supply Current	$I_{cc, +5V}$		0.45	0.5	0.38	0.42	A
	$I_{dd, +3.3}$		0.8[3]	1.4	0.4[3]	1.0	
	$I_{ee, -5.2}$		0.75	0.8	1.4	1.4	
Electrical Connector	300 pos. MegArray						
Optical Connector	FC, SC, LC						

1. LVDS compatible
2. Higher power output also available
3. Room ambient conditions
4. SERDES option a
5. SERDES option b

ALARM SIGNALS

- **Laser optical alarm**
- **Laser temperature alarm**
- **Loss of electrical signal (LOS)**

STATUS & MONITORING SIGNALS

- **MUX PLL Lock detect**
- **DEMUX PLL Lock detect**
- **Transmit optical power**
- **Received optical power**
- **Laser DC bias monitor**
- **Laser temperature monitor**

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