

# 2.5 Gb/s DWDM Transceiver (STM16TR)

The STM16TR is designed for use in optical transport and high-speed data communication systems equipped with Dense Wavelength Division Multiplexing (DWDM).

The STM16TR features a 1.5 $\mu\text{m}$  EML with an electro-absorptive modulator driver. The device is capable of 640km transmission at 2.5 Gb/s in DWDM system. The stability of the wavelength over operating case temperature ranges is within  $\pm 15\text{pm}$  without a wavelength locker.

The STM16TR is available with a PIN-PD or APD detector and includes Limiting Amplifier (LIA). APD bias supplying circuitry is included in the APD type receiver. The wavelength of the optical input signal can range from 1200 nm to 1600 nm.

## Features

### Transmitter

- ▶ Compliant with OC-48/STM-16 (2.5 Gb/s) specifications
- ▶ Long-haul transmission up to 640km
- ▶ Electro-absorption modulated laser diode
- ▶ Wavelength range: 1528.77 nm ~ 1563.86 nm
- ▶  $\pm 15$  pm wavelength stability without a wavelength locker
- ▶ Clocked / Non-clocked selectable
- ▶ Transmitter enable control input

### Receiver

- ▶ PIN-PD or APD type
- ▶ Wavelength range: 1200 nm ~ 1600 nm
- ▶ High sensitivity
- ▶ Internal APD bias supply
- ▶ LOS alarm output
- ▶ Differential data outputs

### Common

- ▶ RS232 and I2C serial interface
- ▶ Dual power supply: +3.3 V and -5.2 V
- ▶ Low power dissipation

## Applications

- ▶ Telecommunications
  - Inter-office SONET/SDH
  - Metropolitan and long-haul DWDM networks
- ▶ High-speed data communications

## Specifications of Electrical Characteristics

Parameter		Min	Typ	Max	Unit
Data rate		-	2.5	-	Gb/s
Supply voltage	V <sub>CC</sub>	3.13	3.3	3.47	V
	V <sub>EE</sub>	-5.46	-5.2	-4.94	V
Power dissipation		-	3	-	W
<b>Transmitter</b>					
Input data / Clock level	Single-ended	300	900	1300	mVp-p
	Differential	150	450	650	mVp-p
<b>Receiver</b>					
Data output voltage		600	-	1200	mV

## Specifications of Optical Characteristics

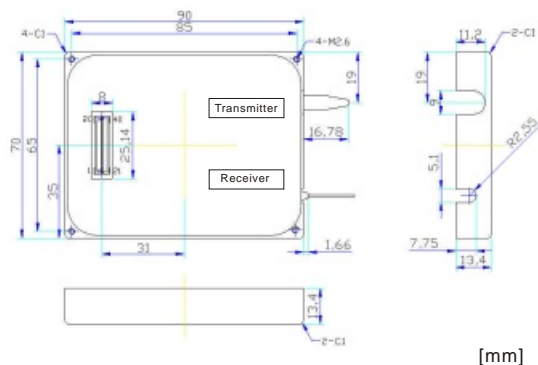
Parameter		Min	Typ	Max	Unit
<b>Transmitter</b>					
Average optical output power		-3.0	-	2.0	dBm
Output power variation		-0.5	-	0.5	dBm
Center wavelength range		ITU-T Standard 1528.77~1563.86			nm
Spectral width		-	-	0.5	nm
Side mode suppression ratio (SMSR)		30	-	-	dB
Extinction ratio		10.0	-	-	dB
<b>Receiver</b>					
Minimum sensitivity <sup>1</sup>	PIN-PD	-	-22.0	-20.0	dBm
	APD	-	-32.0	-30.0	dBm
Overload <sup>1</sup>	PIN-PD	-1.5	-	-	dBm
	APD	-8.0	-	-	dBm

1. At 1.55 μm wavelength and 1 x 10<sup>-10</sup> BER with 2<sup>23</sup>-1 NRZ pseudo-random data

## Pin Configurations

Pin No.	Description	Pin No.	Description
1	Ground	21	Ground
2	Ground	22	Loss of signal
3	Ground	23	Ground
4	Ground	24	Data output-
5	V <sub>CC</sub>	25	Data output+
6	V <sub>CC</sub>	26	Ground
7	V <sub>CC</sub>	27	Ground
8	Ground	28	Clock input -
9	Ground	29	Clock input +
10	Ground	30	Ground
11	V <sub>EE</sub>	31	Data input -
12	V <sub>EE</sub>	32	Data input +
13	Wavelength deviation alarm	33	Ground
14	Clocked-mode selection	34	LD bias alarm
15	Don't connect	35	TX enable
16	RS232TX	36	Module ID
17	RS232RX	37	Module ID
18	Ground	38	I2CSDA
19	Ground	39	I2CSCL
20	Ground	40	Ground

## Outline Drawings



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