

# Small Form Factor Pluggable Transceiver (TRP)



The TRP transceiver is compatible with the Small Form Factor Pluggable Multi-Source Agreement (MSA). They comply with OC-48/STM-16 /SONET/SDH specifications and support multi-rate SONET OC-12, OC-3 additionally. Digital diagnostics functions are implemented via the 2-wire serial bus. The transmitter features the ability to interface to both LVPECL and CML differential logic level data inputs via ac-coupled inputs. The receiver features ac-coupled differential CML logic level data outputs, a LVTTTL logic level LOS Alarm output. The transceivers are designed to be used in a single power supply (+3.3V) and an operating temperature range of -40°C to +85°C / 0°C to +70°C.

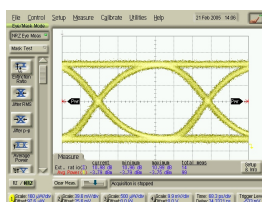
## Features

- Multi-sourced agreement compliant SFP package
- Compliance with OC-48/STM-16 SONET/SDH specifications and Multi-rate OC-3, OC-12
- Uncooled 1310nm FP LD or 1310nm/1550nm DFB-LD with automatic output power control
- LC duplex receptacle
- LVTTTL transmitter disable input
- Wide dynamic range receiver with InGaAs PIN photodiode at wavelength from 1.2 μm to 1.6 μm
- LVTTTL Loss-of-signal output
- Single +3.3V power supply
- AC-coupled LVPECL / CML compatible data inputs and CML compatible data outputs
- Operating temperature range of -40°C to +85°C / 0°C to +70°C
- Built-in digital diagnostic
- Metal package for lower EMI

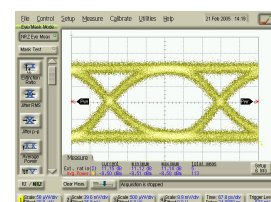
## Applications

- Metropolitan area network
- FTTx network
- Fiber channel and Gigabit Ethernet

## Eye diagram



<Back-To-Back>



<After 15Km Transmission>

1.25Gbps Data Rate, NRZ PRBS 2<sup>23</sup>-1

## Transmitter Optical and Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Unit
Power supply current		$I_{\text{CCT}}$	-	100	-	mA
Average optical output power	SR	$P_o$	-10.0	-7	-3.0	dBm
	IR		-5.0	-2.0	0	
	LR		-2.0	0	+3.0	
Center wavelength	SR/IR-1	$\lambda_c$	1266	1310	1360	nm
	LR-1		1280	1310	1335	
	IR-2/LR-2		1500	1550	1580	
Spectral width (RMS)		$\Delta\lambda_{\text{RMS}}$	-	-	4.0	nm
Spectral width (-20dB)		$\Delta\lambda_{-20}$	-	-	1	nm
Side-mode suppression ratio		SMSR	30			dB
Extinction ratio		ER	8.2			dB

## Receiver Optical and Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Unit
Power supply current		$I_{\text{CCR}}$	-	70	-	mA
Maximum input power		$P_{\text{MAX}}$	0	-	-	dBm
Average sensitivity <sup>1</sup>		$P_i$	-	-22.0	-20.0	dBm
Signal detect switching threshold						
Assert		$LST_D$	-	-	-23	dBm
Deassert		$LST_I$	-30	-	-	dBm
Signal detect hysteresis		HYS	0.5	2.0	5	dB
Signal detect voltage						
LOW		$V_{\text{OL}}$	0		0.8	V
HIGH		$V_{\text{OH}}$	2.4		$V_{\text{CC}}$	V

1.  $1 \times 10^{-10}$  BER with  $2^{23}-1$  NRZ pseudo-random data.

## Ordering Information

Package Type	Speed	Wavelength	Length	Voltage	Temp
TRP	- XX -	XX	- XX -	X	X
	01 : 155Mbps	3F : 1310nm FP	02 : 2Km	3 : 3.3V	C : 0~70
	04 : 622Mbps	3D : 1310nm DFB	15 : 15Km	5 : 5.0V	I : -45~85
	08 : 1.25Gbps	5F : 1550nm FP	40 : 40Km		
	16 : 2.5Gbps	5D : 1550nm DFB	80 : 80Km	O : Others	O : Othfer

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