Single-mode 2.5Gbps 2x5 SFF Optical Transceiver

Features

- LC duplex receptacle
- Standard 2 x 5 footprint
- 1310nm or 1550nm laser transmitter with automatic power control
- AC coupled LVPECL compatible data input and output
- Transmitter disable input
- LOS signal detect output
- Single 3.3V power supply

Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Data Rate (NRZ)	B	-	2.4883	-	Gb/s
Optical Output Power (avg.) (1) (5) (6)					
-1 (2)	P_o	-10	-	-6	dBm
-2 (3) (4)	P_o	-5	-	0	dBm
-3	P_o	-3	-	+2	dBm
Extinction Ratio	ER	9	-	-	dB
Optical Wavelength					
1310nm FP LD (2)	λ_C	1270	1310	1360	nm
1310nm DFB LD (3)	λ_C	1260	1310	1360	nm
1550nm DFB LD (4)	λ_C	1520	1550	1580	nm
Spectral Width					
1310nm FP LD (RMS) (2)	$\Delta\lambda$	-	-	2.5	nm
1310nm DFB LD (-20dB) (3)	$\Delta\lambda$	-	-	1	nm
1550nm DFB LD (-20dB) (4)	$\Delta\lambda$	-	-	1	nm
Side Mode Suppression Ratio					
1310nm DFB LD (3)	SMSR	30	-	-	dB
1550nm DFB LD (4)	SMSR	30	-	-	dB
Output Rise Time (20-80%)	t_r	-	-	180	ps
Output Fall Time (20-80%)	t_f	-	-	180	ps
Data Differential Input Voltage	V_i	500	-	2400	mV_{p-p}
Tx Disable Input	V_{DIL} V_{DIH}	0 2	- -	0.8 V_{CC}	V
Supply Voltage	Vcc	2.97	3.3	3.63	V
Supply Current	I_{CC}	-	-	110	mA

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Parameter	Symbol	Min.	Typ.	Max.	Unit
Receiver					
Data Rate (NRZ)	B	-	2.4883	-	Gb/s
Optical Input Sensitivity (avg.) (1) (7)	P_{IN}	-	-	-18	dBm
Saturation	P_{SAT}	0	-	-	dBm
Optical Wavelength	λ	1100	-	1600	nm
Output Rise Time (20-80%)	t_r	-	-	175	ps
Output Fall Time (20-80%)	t_f	-	-	175	ps
Data Differential Output Voltage	V_o	600	-	1200	mV_{p-p}
Signal Detect Asserted (avg.)	P_A	-	-	-18	dBm
Signal Detect Deasserted (avg.)	P_D	-28	-	-	dBm
Signal Detect Hysteresis	P_{HYS}	0.5	2	-	dB
Supply Voltage	Vcc	2.97	3.3	3.63	V
Supply Current	I_{CC}	-	-	100	mA

Notes：

(1) With 0.275 NA, 9/125μm fiber.
(2) Compliant to GR-253-CORE SONET OC-48 SR-1 and ITU-T G.957 STM-16 I-16.
(3) Compliant to GR-253-CORE SONET OC-48 IR-1 and ITU-T G.957 STM-16 S-16.1.
(4) Compliant to GR-253-CORE SONET OC-48 IR-2 and ITU-T G.957 STM-16 S-16.1.
(5) Class 1 eye safe per FDA and IEC.
(6) Transmitter eye mask diagram is compliant to ITU-T G.957 Eye Diagram.
(7) 2^{23} -1 PRBS, BER= 10^{-10}.
(8) The transmitter output should not be viewed directly.

Absolute Maximum Ratings

Parameter		Min.	Max.	Unit
Operating Temperature	-1	0	70	°C
	-2	-40	85	°C
Storage Temperature		-40	100	°C
Lead Soldering Limits		-	240/10	°C /sec
Supply Voltage		-0.2	4	V

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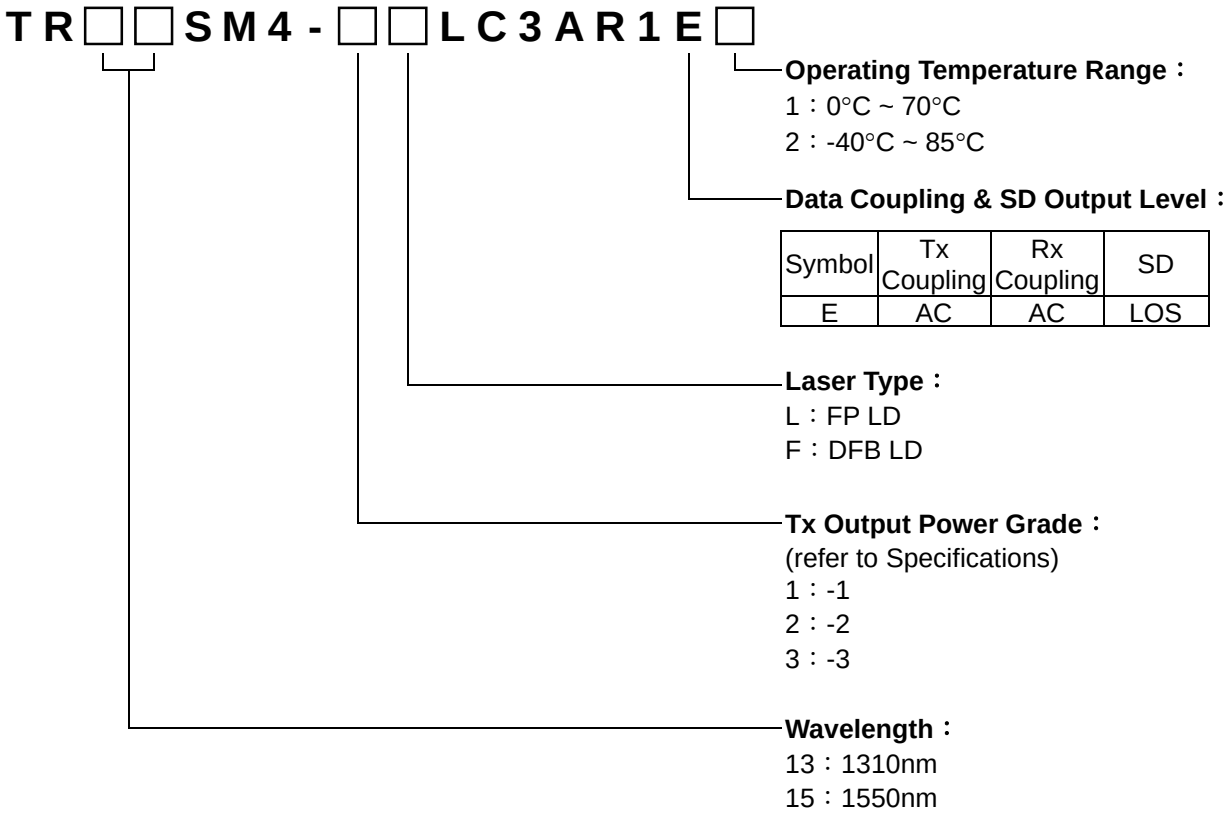
Ordering Information



Part Number	Laser Type	Power Budget (1)	Recommended Maximum Reach (2)	Compliant to SONET OC-48 / SDH STM-16 (4)
TR13SM4-1LLC3AR1E□	1310nm, FP	8dB	14Km	SR-1 / I-16
TR13SM4-2FLC3AR1E□	1310nm, DFB	13dB	28Km	IR-1 / S-16.1
TR15SM4-2FLC3AR1E□	1550nm, DFB	13dB	40Km	IR-2 / S-16.2

Notes：

(1) Power Budget (min.) = TX Output Power (min.) - RX Sensitivity (min.)
(2) Assuming connector loss 3dB; 1310nm fiber attenuation coefficient 0.35dB/Km; 1550nm fiber attenuation coefficient 0.25dB/Km.
(3) The maximum reach value is recommended, not guaranteed. The exact transmission distance depends on fiber loss, connector loss and system penalty.
(4) SONET/SDH standard specification is defined in GR-253-CORE/ITU-T G.957.

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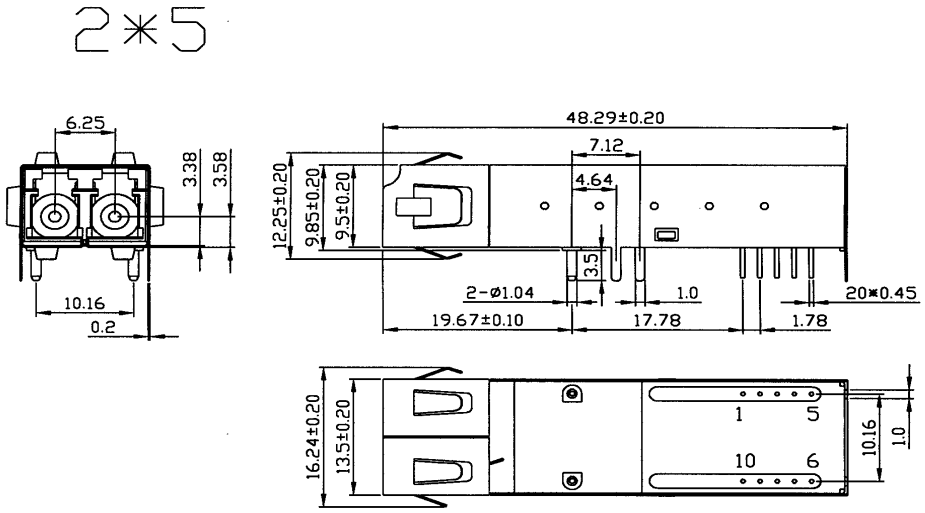
Outline Drawing



UNIT：mm

Pinout Description

Pin No.	Symbol	Description
1	V_{EER}	Receiver Ground
2	V_{CCR}	Receiver Power Supply
3	SD	Receiver Signal Detect(LOS)
4	RD-	Receiver Data Out (Inverted)
5	RD+	Receiver Data Out
6	V_{CCT}	Transmitter Power Supply
7	V_{EET}	Transmitter Ground
8	TDis	Input Logic Low Level to Switch Laser “ON” Input Logic High Level to Switch Laser “OFF”
9	TD+	Transmitter Data in
10	TD-	Transmitter Data In (Inverted)

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