

# 622Mbps 2x10pin LC Singlemode Optical Transceiver (SFF)

## Features

- LC duplex receptacle
- Standard 2 x 10 footprint
- 1310nm or 1550nm laser transmitter with automatic power control function
- AC or DC coupled PECL/LVPECL compatible data input and output
- Transmitter disable input
- PECL or TTL signal detect output
- Single 3.3V or 5V power supply



622Mbps 2x10pin LC Singlemode Optical Transceiver (SFF)

## Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	
<b>Transmitter</b>						
Data Rate (NRZ)	B	-	622	-	Mb/s	
Optical Output Power (avg.) (1) (3)						
TR13SM2-1L	$P_o$	-12	-	-6	dBm	
TR13SM2-2L	$P_o$	-6	-	0	dBm	
TR15SM2-2F	$P_o$	-3	-	2	dBm	
Extinction Ratio						
TR13SM2-1L		8.3	-	-	dB	
TR13SM2-2L		10	-	-	dB	
TR15SM2-2F		10	-	-	dB	
Optical Wavelength						
	$\lambda$	1260 1530	1310 1550	1360 1570	nm	
Spectral Width						
TR13SM2-1L	$\Delta\lambda$	-	1	4	nm	
TR13SM2-2L	$\Delta\lambda$	-	1	4	nm	
TR15SM2-2F	$\Delta\lambda$	-	0.1	1	nm	
Tx Disable Input						
	$V_{DIL}$	0	-	0.8	V	
	$V_{DIH}$	2	-	$V_{CC}$	V	
Output Rise Time (10-90%)						
	$t_r$	-	-	0.8	ns	
Output Fall Time (10-90%)						
	$t_f$	-	-	0.8	ns	
Data Input (6)						
	DC Coupled	$V_{IL}$	$V_{CC}-1.810$	-	$V_{CC}-1.475$	V
		$N_{IH}$	$V_{CC}-1.165$	-	$V_{CC}-0.880$	V
	AC Coupled (Differential)	$V_I$	0.25	-	1.6	V
Laser Bias Monitor (BM)						
		-	0.1	-	mA/mW	
Laser Power Monitor (TPM)						
TR13SM2-1L		-	7.5	-	V/mW	
TR13SM2-2L		-	0.95	-	V/mW	
TR15SM2-2F		-	0.95	-	V/mW	
Supply Voltage						
	$V_{CC}$	3.10 4.75	3.3 5.0	3.50 5.25	V	
Supply Current						
	$I_{CC}$	-	-	110	mA	

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Parameter	Symbol	Min.	Typical	Max.	Unit	
<b>Receiver</b>						
Data Rate (NRZ)	B	-	622	-	Mb/s	
Optical Input (avg.) Sensitivity (1) (5)	P <sub>IN</sub>	-	-	-29	dBm	
Saturation	-	-3	0	-	dBm	
Optical Wavelength	λ	1100	-	1600	nm	
Output Rise Time (10-90%)	t <sub>r</sub>	-	-	0.8	ns	
Output Fall Time (10-90%)	t <sub>f</sub>	-	-	0.8	ns	
Data Input (6)	DC Coupled	V <sub>IL</sub>	V <sub>cc</sub> -1.810	-	V <sub>cc</sub> -1.475	V
		N <sub>IH</sub>	V <sub>cc</sub> -1.165	-	V <sub>cc</sub> -0.880	V
Data Output (6)	AC Coupled (Differential)	V <sub>I</sub>	0.6	-	1.8	V
		V <sub>OL</sub>	V <sub>cc</sub> -1.840	-	V <sub>cc</sub> -1.62	V
	V <sub>OH</sub>	V <sub>cc</sub> -1.045	-	V <sub>cc</sub> -0.88	V	
Signal Detect Asserted (avg)	P <sub>A</sub>	-	-	-29	dBm	
Signal Detect Deasserted (avg)	P <sub>D</sub>	-40	-	-	dBm	
Hysteresis	-	-	3	-	dB	
Supply Voltage	V <sub>cc</sub>	3.10	3.3	3.50	V	
		4.75	5.0	5.25	V	
Supply Current	I <sub>cc</sub>	-	-	100	mA	

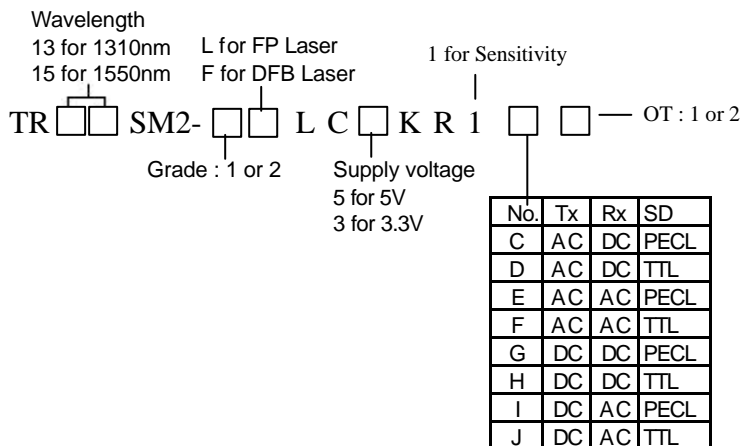
Note:

- (1) With 0.275 NA, 9/125μm fiber.
- (2) Driven with a differential signal.
- (3) Class 1 eye safe per FDA and IEC.
- (4) Eye mask diagram is compliant to ITU-T G.957 Eye Diagram.
- (5) 2<sup>23</sup> -1 PRBS, BER= 10<sup>-10</sup>.
- (6) Compatible with PECL/LVPECL logic levels.
- (7) The transmitter output should not be viewed directly.

## Absolute Maximum Ratings

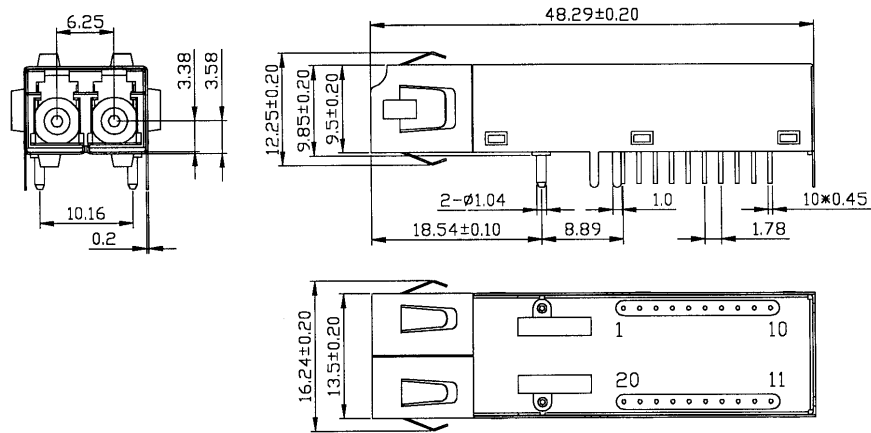
Parameter	Min	Max	Unit	
Operating Temperature	-1	0	70	°C
	-2	-40	85	°C
Storage Temperature	-40	100	°C	
Lead Soldering Limits	-	240/10	°C/sce	
Supply Voltage	5V	-0.2	7	V
	3.3V	-0.2	4	V

## Ordering Information



# 622Mbps 2x10pin LC Singlemode Optical Transceiver (SFF)

## Pin Description



Pin No.	Pin Name	Description
1	V <sub>PD</sub>	Receiver PD Bias Supply
2	V <sub>EER</sub>	Receiver Ground
3	V <sub>EER</sub>	Receiver Ground
4	RPM	Receiver Power Monitor
5	NC	No Connection
6	V <sub>EER</sub>	Receiver Ground
7	V <sub>CCR</sub>	Receiver Power Supply (5V/3.3V)
8	SD	Receiver Signal Detect
9	$\overline{RD}$	Receiver Data Out(Inverted)
10	RD	Receiver Data Out
11	V <sub>CCT</sub>	Vcc Power Supply (5V/3.3V)
12	V <sub>EET</sub>	Transmitter Ground
13	TD <sub>is</sub>	Input Logic Low Level to Switch Laser "ON" Input Logic High Level to Switch Laser "OFF"
14	TD	Transmitter Data in
15	$\overline{TD}$	Transmitter Data In(Inverted)
16	V <sub>EET</sub>	Transmitter Ground
17	BM-	Laser Diode Bias Current Monitor-Negative End
18	BM+	Laser Diode Bias Current Monitor-Positive End
19	TPM-	Transmitter Power Monitor-Negative End
20	TPM+	Transmitter Power Monitor-Positive End