

MRV Communications, Inc.

PRELIMINARY

**GIGABIT ETHERNET
SINGLEMODE
TRANSCEIVER – 5LD10
FIBER JACK**

THE SOURCE FOR YOUR SOURCE

FEATURES

- 1300 nm Wavelength
- For Singlemode Applications
- Data rate to 1.25 gb/s
- Low cost design
- Low power consumption
- Single Power Supply
- Fiber Jack Connector
- Multi-sourced 2x5 pinout

LASER TRANSMITTER CHARACTERISTICS (T= 25°C)

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Spectral Width F.P	$\Delta\lambda(\text{RMS})$			4.0	nm
Spectral Width DFB	$\Delta\lambda(\text{RMS})$			0.2	nm
Output Power	P_0	SEE CHART BELOW			
Extinction Ratio		10			dB
Data Rate				1250	Mb/s
Supply Voltage	V_{CC}	4.75	5.0	5.25	V
Supply Current	I_{CC}			140	mA
Power Dissipation	P			700	mW
Input High Voltage	V_{IHS}	$V_{CC}-1.16$		$V_{CC}-0.89$	V
Input Low Voltage	V_{ILS}	$V_{CC}-1.82$		$V_{CC}-1.48$	V
Rise Time (10%-90%)	T_r			0.5	ns
Fall Time (90%-10%)	T_f			0.5	ns
Random Jitter				0.1	ns(p-p)
Duty Cycle Distortion				0.1	ns(p-p)
Data Dependent Jitter				0.1	ns(p-p)
EyeDiagram	IEEE-802.3 Compliant				

LASER TRANSMITTER AVERAGE OUTPUT POWER (T= 0°C to 70°C, 50% DUTY CYCLE)

Part Number 1300 nm Singlemode	Min	Max	Unit	Min	Max	Unit	λ (nm)	Dist. (KM)
-001*(1.3um FP)	0.1	.05	mW	-10.0	-3.0	dBm	1310±10	6
-003(1.3um FP)	0.3	1.0	mW	-5.0	0.0	dBm	1305±3	10
-D005(1.3um DFB)	0.5	1.0	mW	-3.0	0.0	dBm	1310±10	20
-D5003(1.55um DFB)	0.3	1.0	mW	-5.0	0.0	dBm	1550±10	50

NOTE: * Meets 802.3 Giga bit Ethernet spec.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	5.50	VOLTS
Operating Temp		0 - 70	°C
Storage Temp		0 - 85	°C
Lead Soldering Temp/Time		240/10	°C/S

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RECEIVER CHARACTERISTICS (T= 25°C)

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Wavelength	λ	1200		1550	nm
Average Optical Sensitivity		-24.0			dBm
Average max Input Power				-3	dBm
Data Rate				1250	Mb/s
Supply Voltage	V _{cc}	4.75	5.0	5.25	V
Supply Current	I _{cc}		110	125	mA
Power Dissipation	P		550	630	mW
Output High Voltage	V _{OH}	V _{cc} -1.03		V _{cc} -0.89	V
Output Low Voltage	V _{OL}	V _{cc} -1.82		V _{cc} -1.63	V
Signal Detect Load		5			K Ω
Rise/Fall Times	TrTf			0.5	ns
Signal Detect Threshold-Assertion				-22.0	dBm
Signal Detect Threshold - Deassertion		-31.0			dBm
Data dependent Jitter				0.1	ns
Hysteresis		2.0			dB
Duty Cycle Distortion				0.1	ns(p-p)
Signal Detect Timing-Assertion				100	μ s
Signal Detect Timing-Deassertion				100	μ s

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V _{cc}	5.25	VOLTS
Output Current	I _o	50	mA
Operating Temp		0 - 70	°C
Storage Temp		0 - 85	°C
Lead Soldering Temp/Time		240/6	°C

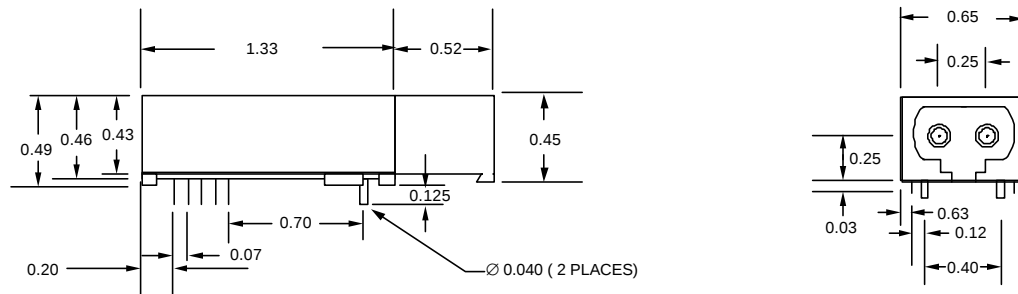
Ordering Information

MRTRFJ XXX – 5LD10

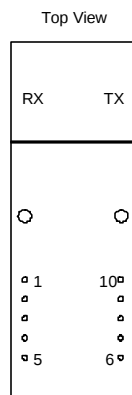
└─────────── Output Power

Note: Preliminary data. Specifications are subject to change.

Outline Drawing

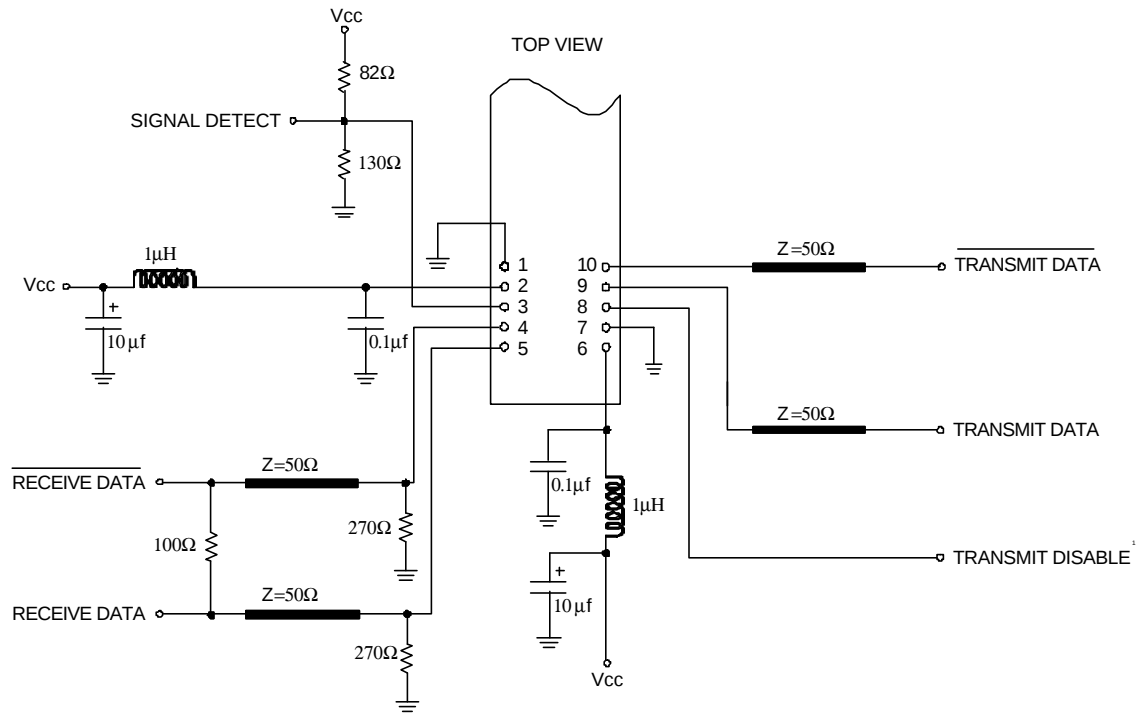


PIN Assignments



PIN	Function
1	RX Vee
2	RX Vcc
3	SIGNAL DETECT
4	Rx Data
5	Rx Data
6	TX VCC
7	TX Vee
8	TX Disable
9	TX Data
10	TX Data

Recommended Termination Circuits



Note:

- 1) To disable Transmitter apply TTL Logic level "1"
- 2) CLASS 1 DEVICE. THIS PRODUCT CONFORMS TO THE APPLICABLE REQUIREMENTS OF 21 CFR1040 AT THE DATE OF MANUFACTURE (CDRH).THIS PRODUCTS ALSO MEETS THE REQUIREMENTS OF EN 60950 AND EN 60825 (TUV). APPLICABLE TO DEVICES WITH MAXIMUM OUTPUT POWER OF 1mW.
- 3) TRANSMIT PINS 9 AND 10 ARE AC – COUPLED AND TERMINATED THROUGH 50 OHM RESISTORS.