

Small Form Factor

155Mbps LC Single Mode Laser Transceiver for ATM, SONET OC-3/SDH STM-1

FEATURES

- Full compliant with all major standard
- Single +3.3 V Power Supply
- Multisourced 2x5 package style with LC receptacle
- PECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- Class 1 Laser International Safety Standard IEC 825 Compliant
- LC-155B2M1 for 40km Links;

Applications

- ATM 155Mb/s Links
- SONET/SDH Equipment Interconnect
- WDM Application

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Storage temperature	T _s	-60		85	°C	
Lead soldering temperature	T _{SOLD}			260	°C	
Lead soldering time	t _{SOLD}			10	sec.	
Supply voltage	V _{cc}	0		5	V	

Recommended Operating Conditions:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Ambient Operating Temperature	T _A	0		70	°C	
Supply voltage	V _{cc}	3.135	3.3	3.465	V	
Transmitter Data input voltage-Low	V _{IL} - V _{CC}	-1.810		-1.475	V	
Transmitter Data input voltage-High	V _{IH} - V _{CC}	-1.165		-0.880	V	
Transmitter Differential Input Voltage	V _D	0.3		1.6	V	
Data Output Load	R _{DL}		50		Ω	

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Transmitter Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Power supply voltage	V _{CC}	3.135	3.3	3.465	V	
Supply current	I _{CC}			140	mA	
Output optical power(avg.)	P _O	-5		0	dBm	Note(1)
Optical extinction ratio		10			dB	Note(1)
Center wavelength	λ_c	1274	1310	1355	nm	
Spectral width	$\Delta \lambda$			3	nm	
Optical risetime	t _r			1.3	ns	Note(2)
Optical falltime	t _f			1.3	ns	Note(2)
Output Eye	Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					

Note(1). Launched power is power coupled into a single mode fiber.

Note(2). These are 10%~90% values

Receiver Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Power supply voltage	V _{CC}	3.135	3.3	3.465	V	
Supply current	I _{CC}			130	mA	
Data output voltage-Low	V _{OL} - V _{CC}	-1.950		-1.620	V _{CC}	
Data output voltage-High	V _{OH} - V _{CC}	-1.045		-0.740	V _{CC}	
Optical input sensitivity(avg.)	P _{IN}			-34	dBm	Note(1)
Optical input saturation(avg.)	P _{SAT}	-7.5			dBm	Note(1)
Optical wavelength	λ		1310		nm	
Signal detect-Assert	P _A			-35	dBm	
Signal detect-Deassert	P _D	-48			dBm	
Signal detect-Hysteresis	P _A -P _D	0.5			dB	

Note(1). With BER better than or equal 1×10^{-10} , measured in the center of the eye opening with $2^{23}-1$ PRBS at 155 Mbps

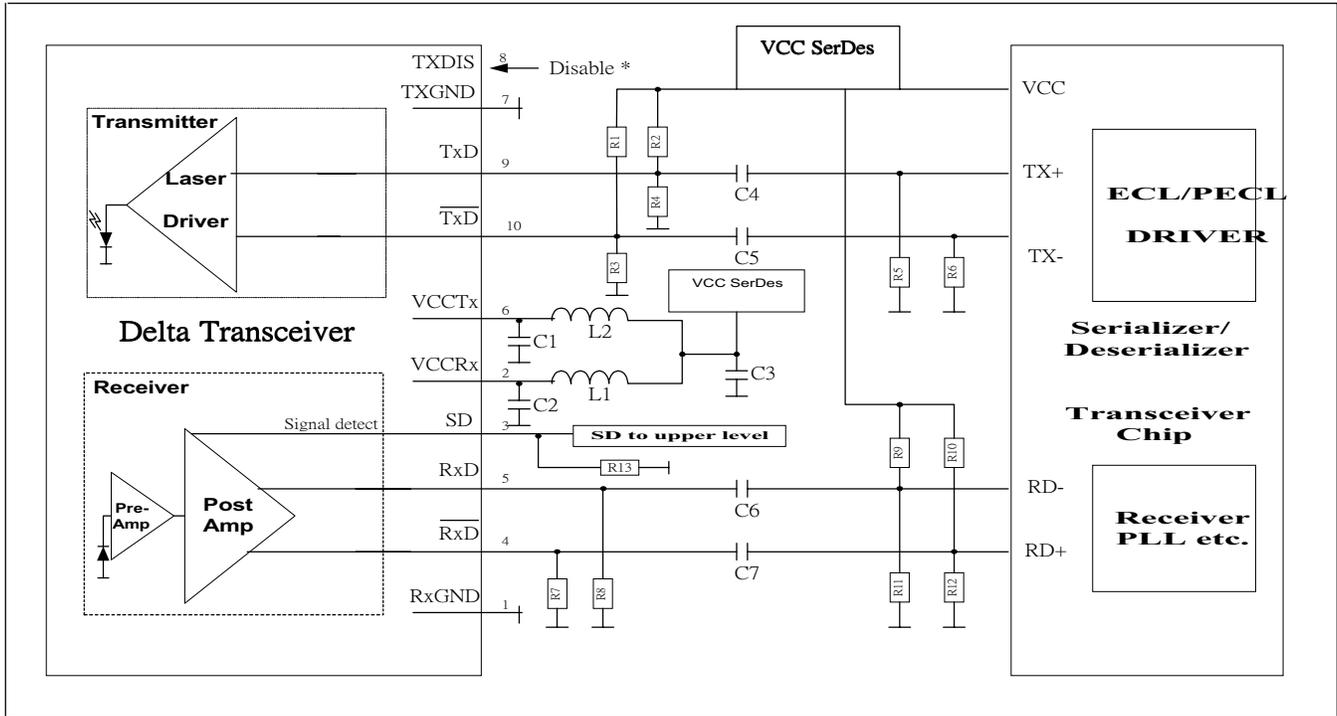
Note(2). These are 20%~80% values

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Recommended Circuit Schematic

Small Form Factor Multimode 1310nm 155M ATM 2x5 Transceiver, DC/DC , 3.3V Transceiver Version



- C1/2/3 = 4.7 uF
- C4/5/6/7 = 10 nF
- L1/2 = 1 uH
- R1/2 = 130 Ω
- R3/4 = 82 Ω
- R7/8 = 150 Ω
- R13 = 270 Ω.

* Disable Pin truth table

Input Level (LV-TTL)	TX Function
Low	ON
High	OFF
NIC	ON

R5/6/9/10/11/12 Depend on SerDes chip used and desired line termination (50 Ω Strip line)

Value of R5/6/9/10/11/12 may vary as long as proper 50 Ω termination to VEE ,it depend on SerDes chip used and desired line termination. Reset depends on the power OFF and then ON.

For good EMI performance the power supply filter is require. Use short tracks from the inductor L1/2 to the module VccTx/VccRx . This recommend Circuit uses 3.3V power supply and SerDes Chip using 3.3 / 5 V power supply.

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Test Item	Reference	Qty'	Evaluation
(#1) Electromagnetic Interference EMC	FCC Class B EN 55022 Class B CISPR 22	5	(1) Satisfied with electrical characteristics of product spec. (2) No physical damage
(#2) Immunity : Radio Frequency Electromagnetic Field	EN 61000-4-3 IEC 1000-4-3	5	
(#3) Immunity : Electrostatic Discharge to the Duplex SC Receptacle	EN 61000-4-2 IEC 1000-4-2 IEC 801.2	5	
(#4) Electrostatic Discharge to the Electrical Pins	MIL-STD-883C Method 3015.4 EIAJ#1988.3.2B Version 2, Machine model	5	

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