



622Mbps 1 x 9 SC Duplex Single Mode Laser Transceiver for ATM, SONET OC-12/SDH STM-4

OPT-622B2J1
OPT-622B2L1
OPT-622B2M1



Features

- Industry Standard 1 x 9 Footprint
- Compliant with existing standards
- Single +3.3 V Power Supply
- PECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- Class 1 Laser International Safety Standard IEC 825 Compliant
- OPT-622B2J1 for 15km Links; OPT-622B2L1 for 30km Links;
OPT-622B2M1 for 40km Links;
- Signal detect indicator PECL: OPT-622B2XX series

Applications

- ATM 622Mb/s Links
- SONET/SDH Equipment Interconnect

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Storage temperature	T _s	-40		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}	3.315	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	
Data Output Load	R _{DL}		50		Ω	

DELTA ELECTRONICS, INC.

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Transmitter Electro-Optical Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Supply current	I _{CC}			140	mA	
Launched power (avg.)	P ₀				dBm	Note (1)
OPT-622B2J1		-15		-8		
OPT-622B2L1		-8		-2		
OPT-622B2M1		-5		0		
Optical extinction ratio		9			dB	Note (1)
Center wavelength	λ_c	1274	1310	1355	nm	
Spectral width (RMS)	σ			4	nm rms	
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 Electro-Optical Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
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}			-28	dBm	Note (1)
Optical input saturation (avg.)	P _{SAT}	-6			dBm	Note (1)
Optical wavelength	λ		1310		nm	
Signal detect - Assert	P _A			-29	dBm	
Signal detect - Deassert	P _D	-40			dBm	
Signal detect - Hysteresis	P _A - P _D	0.5			dB	

Note (1). With BER better than or equal 1×10^{-12} , measured in the center of the eye opening with 2^{23} -1 NRZ PRBS.

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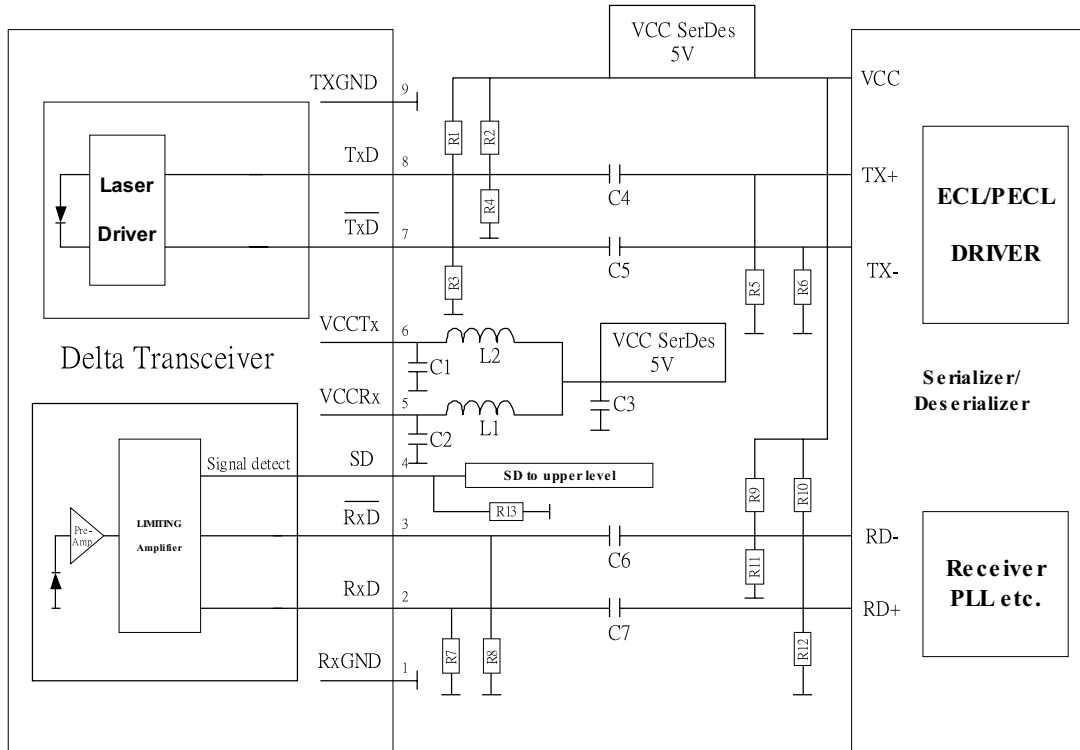
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Recommended Circuit Schematic



- | | |
|-----------------|--|
| C1/2/3 = 4.7 uF | C4/5/6/7 = 100 nF |
| L1/2 = 1 uH | R1/2 = 130 Ω |
| R3/4 = 82 Ω | R7/8 = 150 Ω |
| R5/6/9/10/11/12 | Depend on SerDes chip used and desired line termination (50Ω Strip line) |
| R13 = 270 Ω | When PECL output in SD pin use R13=270. |
| =open | When TTL output in SD pin |

Value of R5/6/9/10/11/12 may vary as long as proper 50Ω termination to VEE, it depends on SerDes chip used and desired line termination. All the transceiver of Delta contains an automatic shutdown circuit. Reset depends on the power OFF and then ON. For good EMI performance the power supply filter is required. Use short tracks from the inductor L1/2 to the module VccTx/VccRx.

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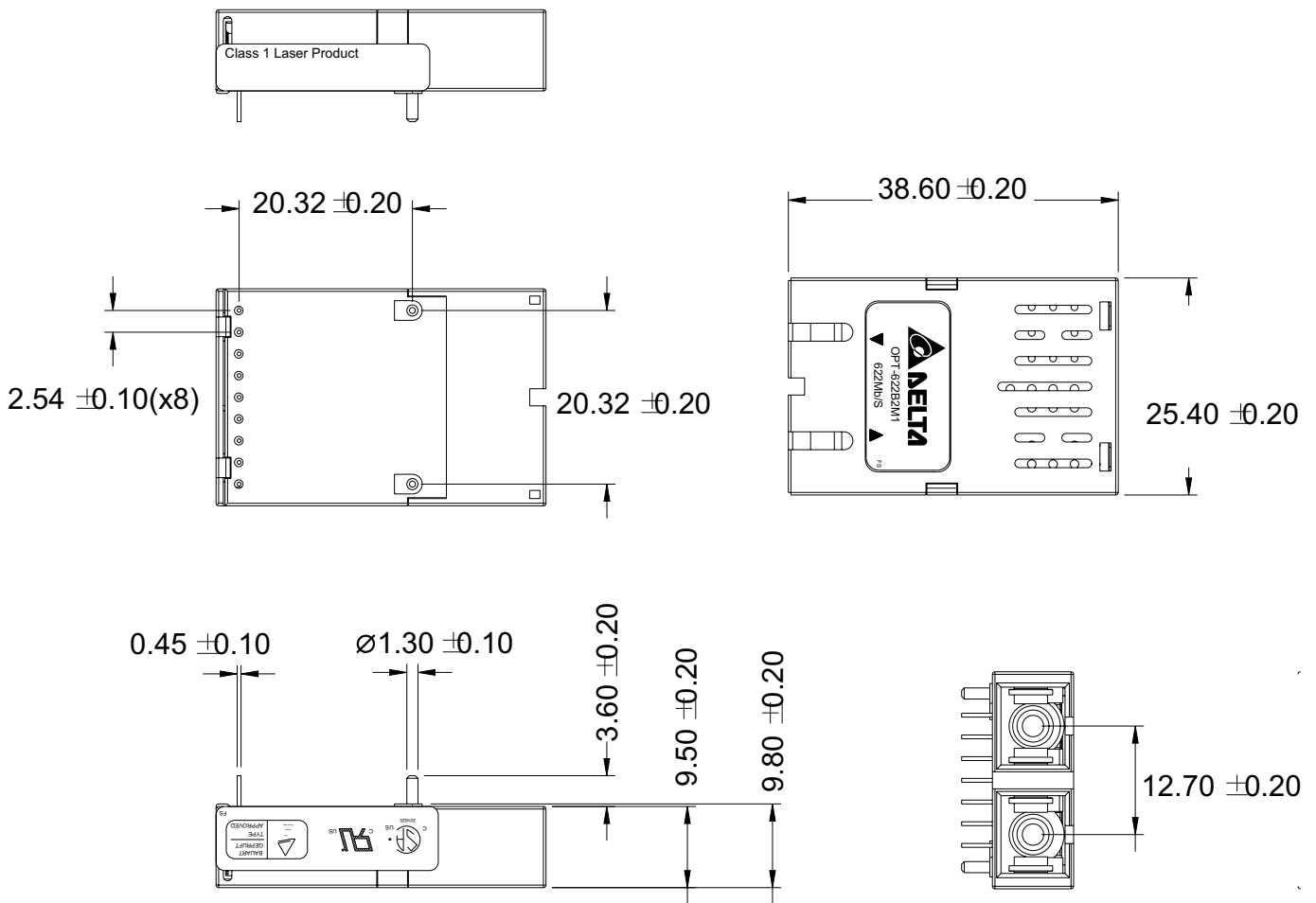
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MECHANICAL DIMENSIONS Unit: mm



LASER SAFETY

This single mode transceiver is a Class 1 laser product. It complies with IEC 825 and FDA 21 CFR 1040.10 and 1040.11. The transceiver must be operated within the specified temperature and voltage limits. The optical ports of the module shall be terminated with an optical connector or with a dust plug.

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