

Small Form Factor Multimode 850 nm 2X5 Fiber Optic Transceiver 1.25Gbit/sec Gigabit Ethernet

FEATURES

- 1.25Gbps Gigabit Ethernet Performance
- Compliant with IEEE802.3 Gigabit Ethernet standard
- Small Form Factor transceiver
- RJ-45 style LC™ connector system
- 850 nm Vertical Cavity Surface Emitting Laser (VCSEL) Source Technology
- Data Link up to 500 Meters min in 50/125um MMF and 300 Meters min in 62.5/125um MMF
- Single + 3.3V Power Supply and PECL Logic Interface (DC Coupled)
- TTL Signal detection output
- Class 1 FDA and IEC laser safety compliant (Laser Class 1 Product)

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		6	V	

Recommended Operating Conditions:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Ambient Operating Temperature	T _A	0		70	°C	
Supply voltage	V _{CC}	3.1		3.5	V	
Transmitter Differential Input Voltage	V _D	0.3		1.6	V	
Data Output Load	R _{DL}		50		Ω	

 DELTA ELECTRONICS, INC.	TITLE			DATE:	
	LC-1250A4F1			2002/03/25	
	WRITTEN	CHECKED	APPROVED	DOCUMENT NO:	REV:
Alston H.	Teddy Kuo	YY Tsai	LC-1250A4F1	S3	

Small Form Factor Multimode 850 nm 2X5 Fiber Optic Transceiver 1.25Gbit/sec Gigabit Ethernet

Transmitter Electro-Optical Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Supply current	I _{cc}			140	mA	
Launched power(avg.)	P _O	-9.5		-4	dBm	
Optical extinction ratio		9			dB	
Center wavelength	λ_c	830	850	860	nm	
Spectral width(RMS)	σ			0.85	nm rms	
Optical risetime	t _r			0.26	ns	Note(1)
Optical falltime	t _f			0.26	ns	Note(1)
Relative Intensity Noise	RIN			-117	DB/Hz	

Note(1).These are unfiltered 20-80% values.

Receiver Electro-Optical Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Supply current	I _{cc}			130	mA	
Data output differential voltage	V _D	0.5	0.7	1.23	V	
Optical input sensitivity(avg.)	P _{IN}			-17	dBm	Note(1)
Optical input saturation(avg.)	P _{SAT}	-3			dBm	Note(1)
Optical wavelength	λ		850		nm	
Signal detect-Assert	P _A			-17	dBm	
Signal detect-Deassert	P _D	-30			dBm	
Signal detect-Hysteresis	P _A -P _D	0.5			dB	

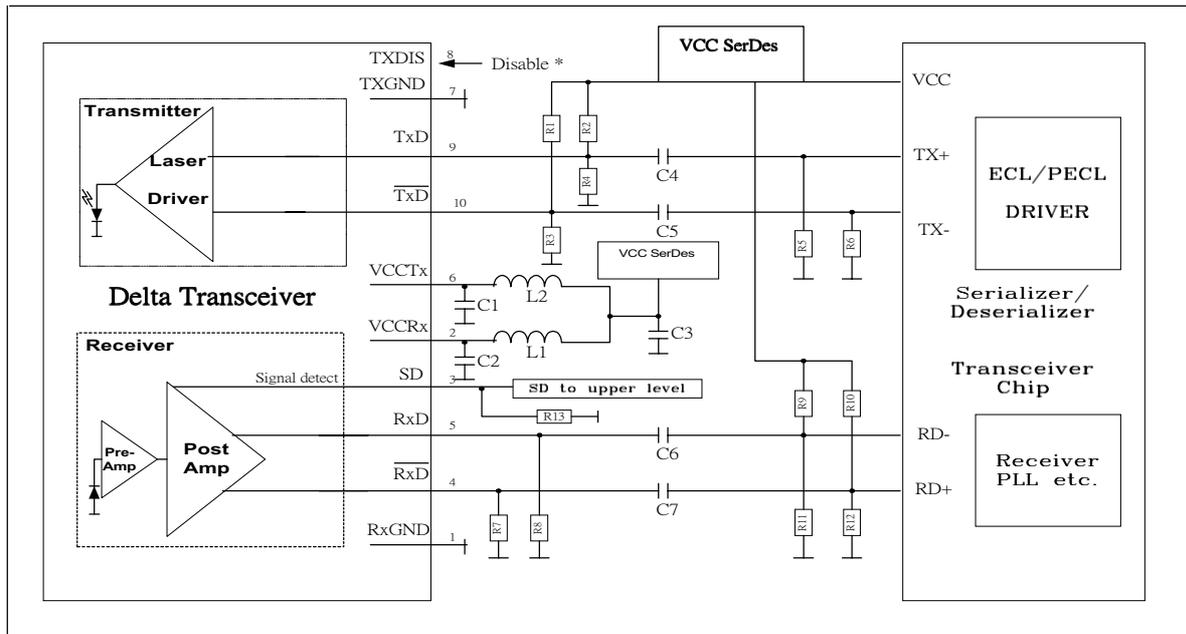
Note(1).With BER better than or equal to 1×10^{-12} , measured in the center of the eye opening with 2^7-1 NRZ PRBS

 DELTA ELECTRONICS, INC.	TITLE			DATE:	
	LC-1250A4F1			2002/03/25	
	WRITTEN	CHECKED	APPROVED	DOCUMENT NO:	REV:
Alston H.	Teddy Kuo	YY Tsai	LC-1250A4F1	S3	

Small Form Factor Multimode 850 nm 2X5 Fiber Optic Transceiver 1.25Gbit/sec Gigabit Ethernet

Recommended Circuit Schematic

Small Form Factor Multimode 850nm Gigabit Ethernet 2x5 Transceiver, 3.3V Transceiver Version



* Disable Pin truth table

C1/2/3 = 4.7 μ F
 C4/5/6/7 = 10 nF
 L1/2 = 1 μ H
 R1/2 = 82 Ω
 R3/4 = 130 Ω
 R7/8 = 150 Ω

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

R5/6/9/10/11/12 Depend on SerDes chip used .
 R13 = 270 Ω (For PECL output).
 R13 = Open (For TTL output).

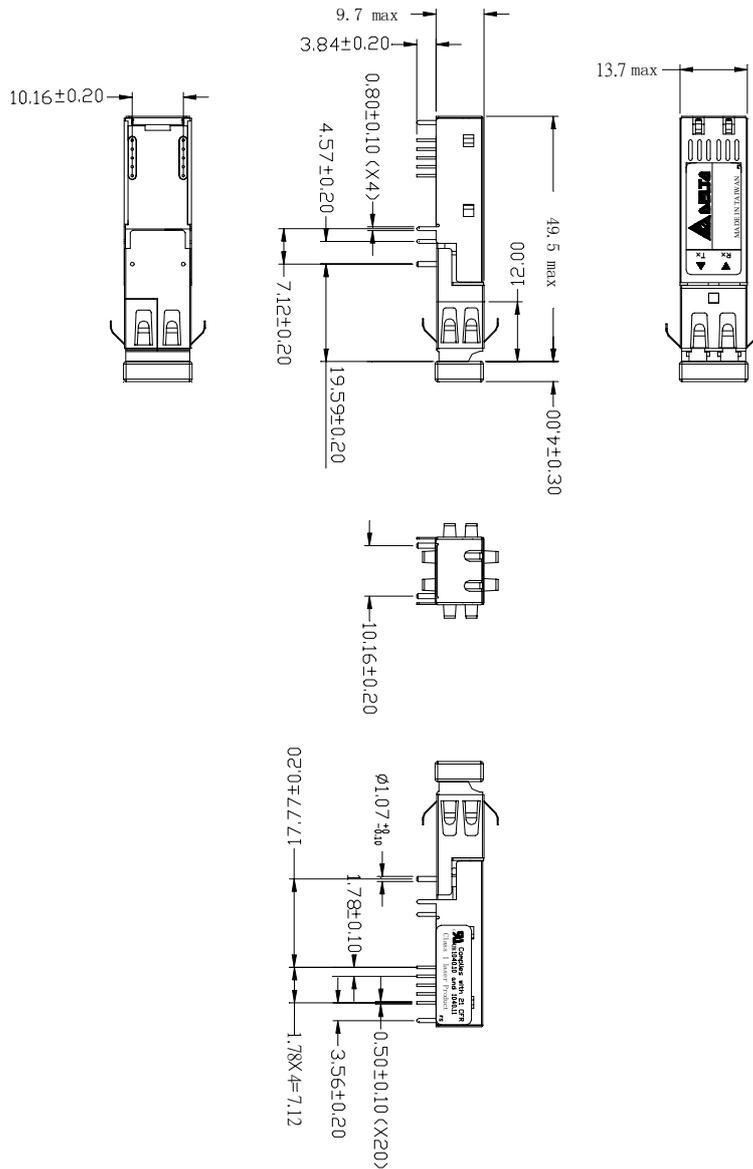
Values of R5/6/9/10/11/12 may vary as long as proper 50 Ω termination to VEE or 100 Ω differential is provided. For good EMI performance, the power supply filter is required. Use short tracks from the inductor L1/L2 to the module VccTx/VccRx.

 DELTA ELECTRONICS, INC.	TITLE			DATE:	
	LC-1250A4F1			2002/03/25	
	WRITTEN	CHECKED	APPROVED	DOCUMENT NO:	REV:
Alston H.	Teddy Kuo	YY Tsai	LC-1250A4F1	S3	

Small Form Factor Multimode 850 nm 2X5 Fiber Optic Transceiver 1.25Gbit/sec Gigabit Ethernet

Mechanical Dimensions

Unit : mm



 <p>DELTA DELTA ELECTRONICS, INC.</p>	TITLE			DATE:	
	LC-1250A4F1			2002/03/25	
	WRITTEN	CHECKED	APPROVED	DOCUMENT NO:	REV:
Alston H.	Teddy Kuo	YY Tsai	LC-1250A4F1	S3	

**Small Form Factor
Multimode 850 nm 2X5 Fiber Optic Transceiver
1.25Gbit/sec Gigabit Ethernet**

Pin Assignments

Pin	FUNCTION	LOGIC FAMILY
1	RX GOUND	0 V _{dc}
2	RX VCC	3.3 V _{dc}
3	SD(RX SIGNLE DETECT)	LV-TTL
4	RX-	LV-PECL
5	RX+	LV-PECL
6	TX VCC	3.3 V _{dc}
7	TX GND	0 V _{dc}
8	TX DISABLE	Note (1)
9	TX+	LV-PECL
10	TX-	LV-PECL

•NOTE (1):

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

 DELTA ELECTRONICS, INC.	TITLE			DATE:	
	LC-1250A4F1			2002/03/25	
	WRITTEN	CHECKED	APPROVED	DOCUMENT NO:	REV:
Alston H.	Teddy Kuo	YY Tsai	LC-1250A4F1	S3	

Small Form Factor Multimode 850 nm 2X5 Fiber Optic Transceiver 1.25Gbit/sec Gigabit Ethernet

Regulatory Compliance

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

 DELTA ELECTRONICS, INC.	TITLE			DATE:	
	LC-1250A4F1			2002/03/25	
	WRITTEN	CHECKED	APPROVED	DOCUMENT NO:	REV:
Alston H.	Teddy Kuo	YY Tsai	LC-1250A4F1	S3	