155Mbps 1X9 SC Duplex Receptacle Transceiver Module for ATM, SONET OC-3/SDH STM-1,Fast Ethernet

OPT-155A1H1

Feature

- Multisourced 1x9 package style with Duplex SC receptacle
- Full compliant with all major standard
- PECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- For distance of up to 2km
- Single +5 V power supply

Applications

- SONET/SDH Equipment Interconnect
- 100Base Fast Ethernet
- 155Mbps ATM

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Storage temperature	Ts	-40		85	℃	
Lead soldering temperature	T_{SOLD}			260	℃	
Lead soldering time	t_{SOLD}			10	sec.	
Supply voltage	Vcc	0		6	V	

Recommended Operating Conditions:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Ambient Operating Temperature	T_A	0		70	℃	
Supply voltage	Vcc	4.75		5.25	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}	4.75	5.0	5.25	V	
Supply current	Icc			200	mA	
Output optical power (avg.)	P_O	-20		-14	dBm	Note (1)
Optical extinction ratio		9			dB	Note (1)
Center wavelength	λc		1310		nm	
Spectral width	$\Delta \lambda$			200	nm	
Optical risetime	t_r	0.6		3.0	ns	Note (2)
Optical falltime	t_f	0.6		3.0	ns	Note (2)
Duty Cycle Distortion	DCD			0.6	ns	
Jitter				1.0	ns	

Note (1). Measured at the end of 5 meters of 62.5/125 um Graded index fiber using 155Mbps, PRBS 2^{23}-1 signal at the beginning of life

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

Receiver Performance Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Reference
Power supply voltage	Vcc	4.75	5.0	5.25	V	
Supply current	Icc			100	mA	
Data output voltage-Low	V_{OL}- V_{CC}	-1.85		-1.47	V_{CC}	
Data output voltage-High	V_{OH}- V_{CC}	-1.16		-0.88	V_{CC}	
Optical input sensitivity (avg.)	P_{IN}			-31	dBm	Note (1)
Optical input saturation (avg.)	P_{SAT}	-14			dBm	Note (1)
Optical wavelength	λ		1310		nm	
Output risetime	t_r	0.35		2.2	ns	Note (2)
Output falltime	t_f	0.35		2.2	ns	Note (2)
Jitter				1.0	ns	
Signal detect- Assert	P_A			-33	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 $1x10^{-10}$, measured in the center of the eye opening with 2^{23}-1 PRBS at 155Mbps

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

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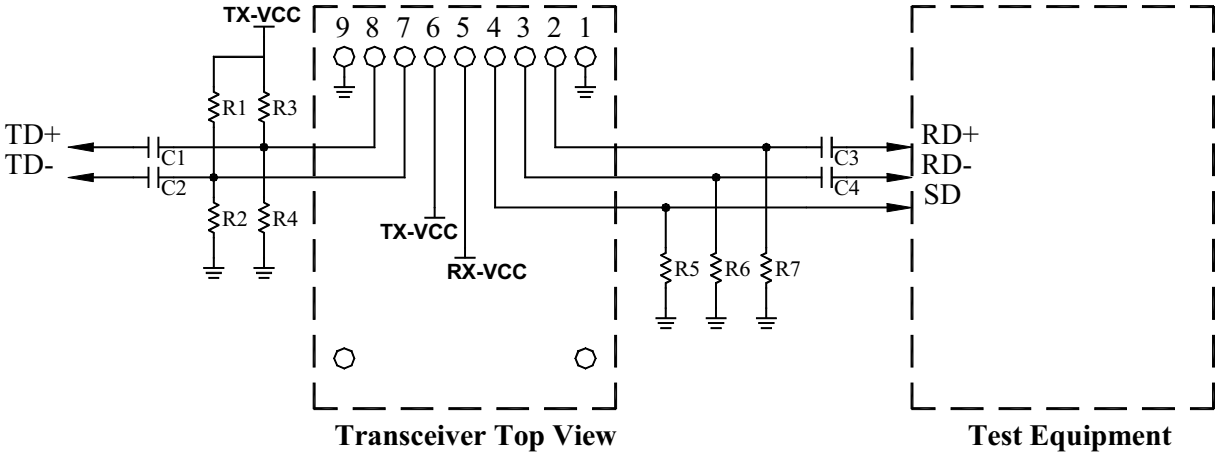
Connection Diagram

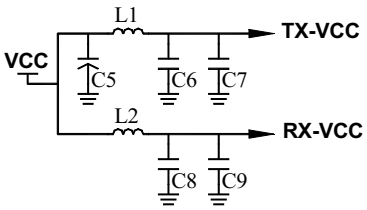
Receiver Signal Ground	1	RX GND
Receiver Data Out	2	RD+
Receiver Data Out Bar	3	RD-
Receiver Signal Dectect	4	SD
Receiver Power Supply	5	RX Vcc
Transmitter Power Supply	6	TX Vcc
Transmitter Data In Bar	7	TD-
Transmitter Data In	8	TD+
Transmitter Signal Ground	9	TX GND

Top View

Recommended Circuit Schematic



Note:
R1=R3=68 Ω
R2=R4=191 Ω
R5=510 Ω
R6=R7=270 Ω
C1=C2=C3=C4=C6=C8=100 nF
C5=100 µF
C7=C9=10 µF
L1=L2=15 µH or ferrite inductor



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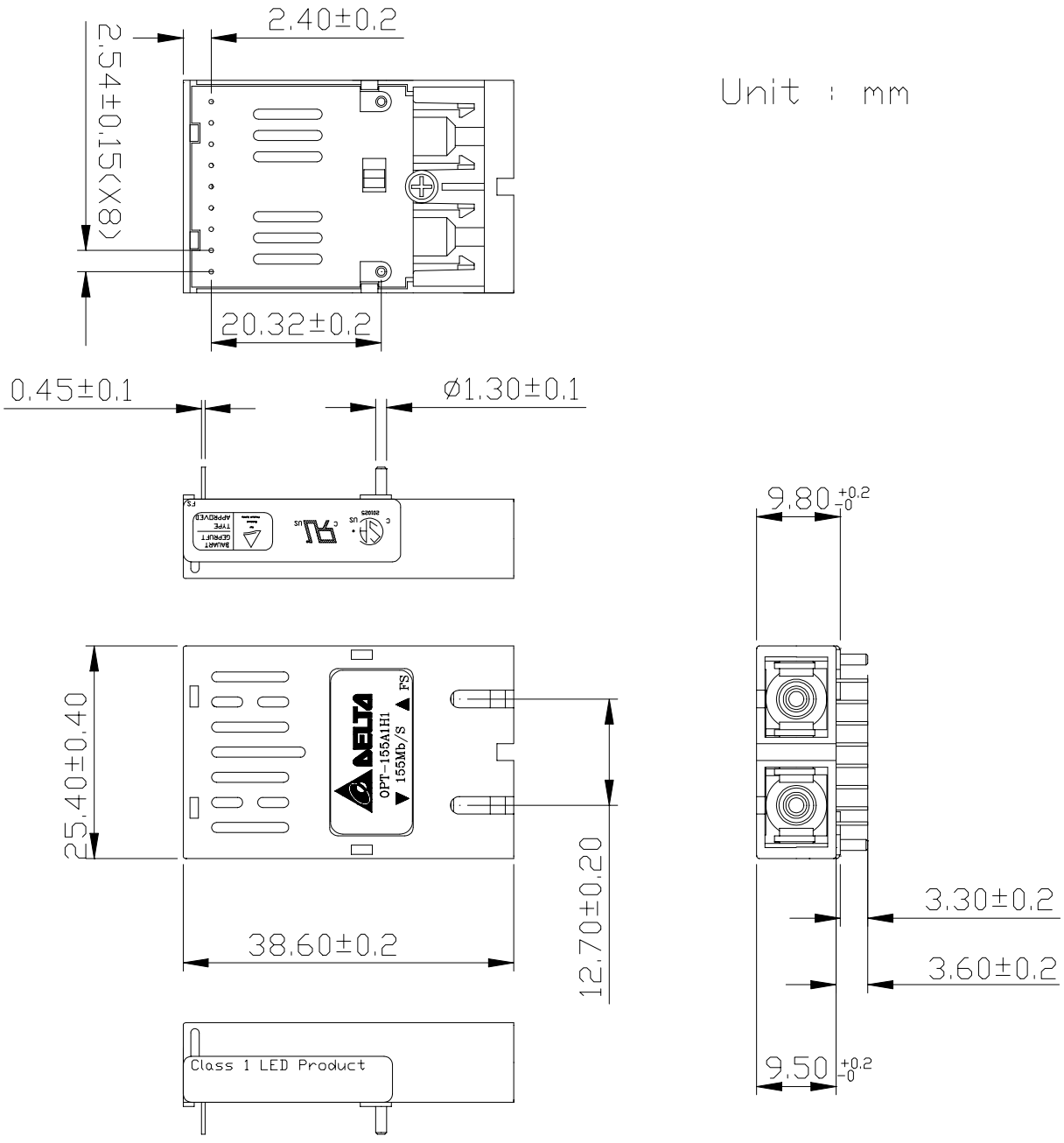
Mechanical Dimensions



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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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