

Specification

1X9 Form Factor

Duplex SC Receptacle

Optical Transceivers

STM-1 / OC-3 / 100BASE

155.52Mbit/s



Ordering Information

T S P - D _x A A 2 - 6 B M

Temperature

1 : +0 ~ +70°C

2 : -40 ~ +85°C

Model Name	Voltage	Device type	Interface	SD/LOS	Temperature	Distance
TSP-D1AA2-6BM	3.3 V	FP / PIN	DC / DC	LVPECL	+0 ~ +70°C	30km
TSP-D2AA2-6BM			Coupling		-40 ~ +85°C	

Features

- ROHS Compliant
- Industry Standard 1x9 Footprint
- Laser wavelength 1310nm FP LD
- Single 3.3 Power Supply
- LVPECL Signal Output
- Wave Solder able and Aqueous Washable
- Uncooled Laser Diode with MQW structure
- Complies with Telcordia (Bellcore) GR-468-CORE
- Up to reach 90 km Transmission Distance

Applications

- Fast Ethernet
- SONET / SDH
- Routers
- Switches

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Storage temperature	T _s	-40	-	85	°C
Supply voltage	VCC	0	-	4.5	V
Soldering Temperature (10sec)	T _{sold}	-	-	260	°C
Input voltage	V _{IN}	0	-	VCC	V
Output Current		-	-	30	mA

Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	VCC	3.15	3.3	3.45	V
Operating Case temperature (TSP-D1AA2-6BM)	Top	0	-	70	°C
Operating Case temperature (TSP-D2AA2-6BM)		-40		85	
Current	Icc	-	-	180	mA

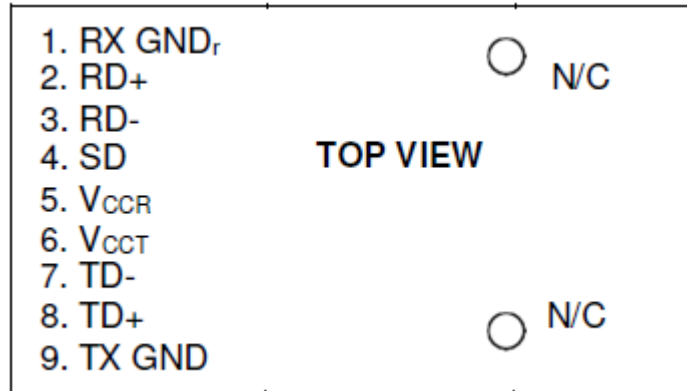
Transmitter Specifications (Vcc = 3.15 ~ 3.45V ; Top = 0 ~ 70°C / Top = -40 ~ 85°C)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Output Optical Power	Pout	0	--	+5	dBm
Extinction Ratio	ER	10	--	--	dB
Center Wavelength	λ	1275	1310	1345	nm
Spectral Width (RMS)	$\sigma\lambda$	--	--	2.5	nm
Relative Intensity Noise	RIN	--	--	-116	dB/Hz
Output Eye	Compliant with ITU-T G.957				
Electrical Characteristics					
Transmitter Data Input Voltage - High	V _{IH} -Vcc	-1.16	--	-0.88	V
Transmitter Data Input Voltage - Low	V _{IL} -Vcc	-1.81		-1.48	V

Receiver Specifications ($V_{cc} = 3.15 \sim 3.45V$; $T_{op} = 0 \sim 70^{\circ}C$ / $T_{op} = -40 \sim 85^{\circ}C$)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Optical Input Power-maximum	P_{max}	-3	--	--	dBm
Receiver Sensitivity (PRBS= $2^{23}-1$; BER $\leq 10^{-10}$)	Sens	--	--	-37	dBm
Operating Center Wavelength	λ	1260		1600	nm
Signal Detect – Asserted	P_{SA}	--	--	-37	dBm
Signal Detect – De-asserted	P_{SD}	-45	--	--	dBm
Signal Detect – Hysteresis	P_{SH}	0.5		5	dB
Electrical Characteristics					
Data Output Voltage - High	$V_{OH} - V_{CC}$	-1.025		-0.88	V
Data Output Voltage - Low	$V_{OL} - V_{CC}$	-1.81		-1.62	V
Signal Detect Output Voltage - High	$V_{OH} - V_{CC}$	-1.025	--	-0.88	V
Signal Detect Output Voltage - Low	$V_{OL} - V_{CC}$	-1.81		-1.62	V

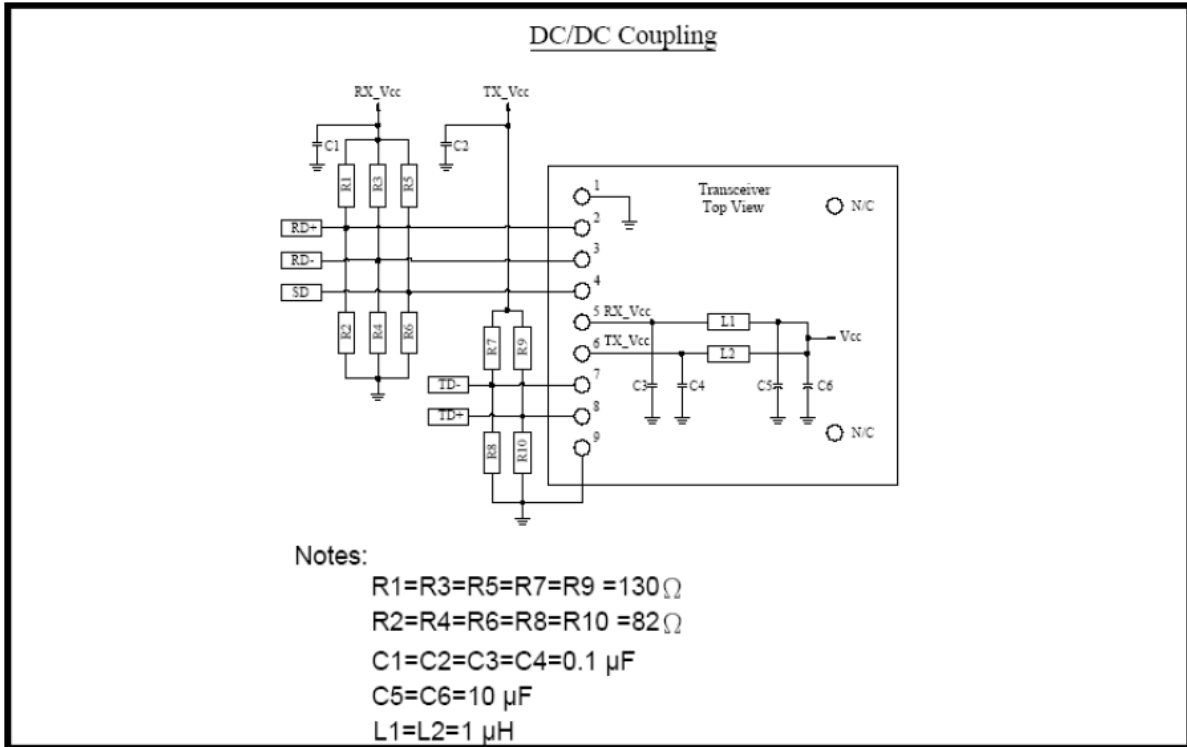
Pin Definition and Descriptions



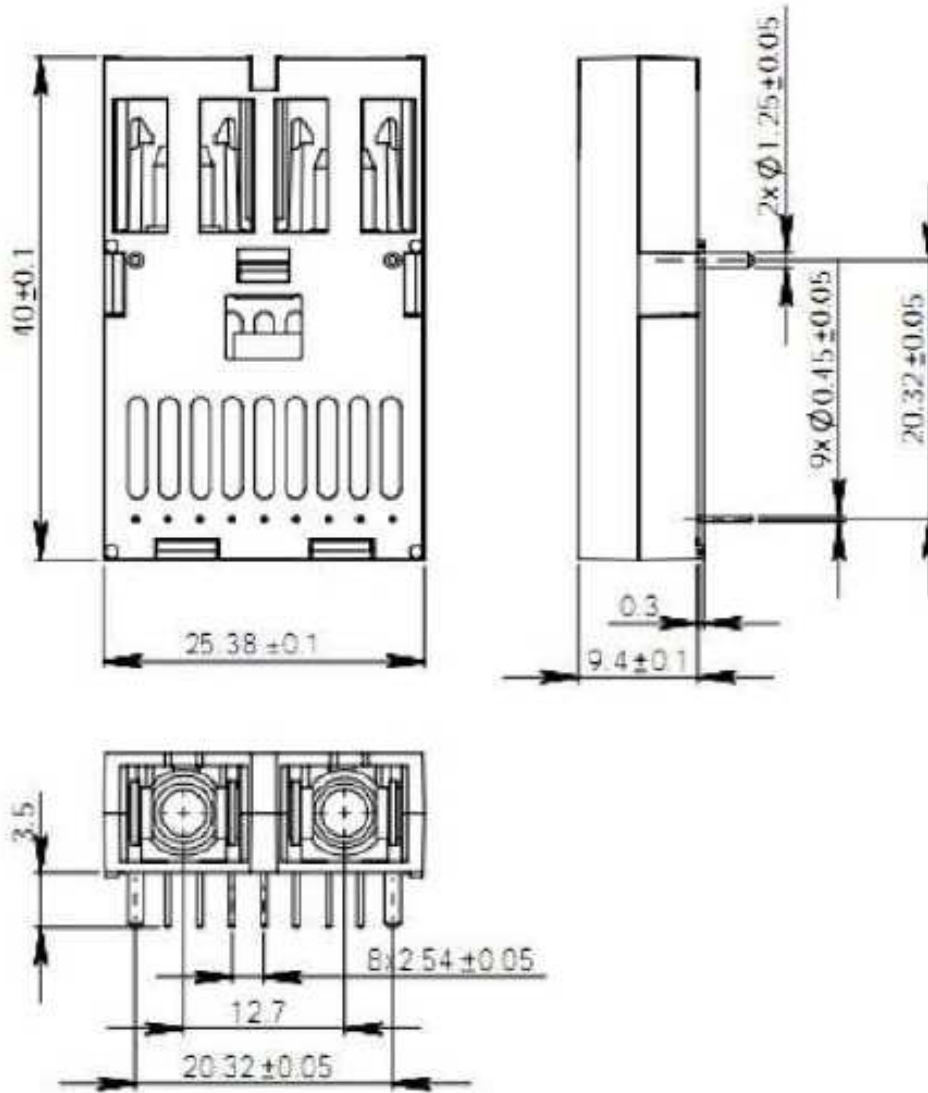
Top VIEW

Pin	Name	Description
1	RX GND	Receiver Signal Ground
2	RD+	Receiver Data Out
3	RD-	Receiver Data Out Bar
4	SD	Signal Detect
5	V _{CCR}	Receiver Power Supply
6	V _{CCT}	Transmitter Power Supply
7	TD-	Transmitter Data In Bar
8	TD+	Transmitter Data In
9	TX GND	Transmitter Signal Ground

Recommended Circuit Diagram



Mechanical Outlines (Unit : mm)



ESD

Normal ESD precautions are required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.



Contact Information

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