

Specification

1X9 Form Factor

Duplex SC Receptacle – DSC

Optical Transceivers

STM-1 / OC-3 / 100BASE

155.52Mbit/s



Ordering Information

TSP - D x AA2 - M21



Voltage / Temperature

1: 3.3V / +0 ~ +70°C

2: 3.3V / -40 ~ +85°C

Model Name	Voltage	Category	Device type	SD/LOS	Temperature	Distance
TSP-D1AA2-M21	3.3 V	W/O	FP / PIN	LVPECL	+0 ~ +70°C	60km
TSP-D2AA2-M21		DDMI			-40 ~ +85°C	

Features

- ROHS Compliant
- Standard 1X9 Form Factor
- SONET/SDH Standard Compliant
- Fast Ethernet Standard Compliant
- Laser Class 1 Product –IEC / EN 60825-1 Compliant
- Standard Duplex SC Receptacle Optical Interface
- Single + 3.3 V Power Supply
- Differential LVPECL Data Input and Output
- LVPECL Signal Detect
- Low Power Consumption

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Storage temperature	T _s	-40	-	85	°C
Supply voltage	VCC	0	-	4	V
Relative Humidity	RH	5	-	95	%
Input voltage	V _{IN}	0	-	VCC	V

Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	VCC	3.1	3.3	3.5	V
Operating Case temperature (TSP-D1AA2-M21)	Top	0	-	70	°C
Operating Case temperature (TSP-D2AA2-M21)		-40	-	85	
Current	I _{cc}	-	-	250	mA
Soldering Temperature (10sec)	T _{sold}	-	-	260	°C

Transmitter Specifications ($V_{CC} = 3.1V \sim 3.5V$; $T_{op} = 0 \sim 70^{\circ}C$ / $T_c = -40 \sim 85^{\circ}C$)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Output Optical Power	P_o	-5	--	0	dBm
Extinction Ratio	ER	9	--	--	dB
Center Wavelength	λ	1270	1310	1355	nm
Spectral Width (RMS)	$\sigma\lambda$	--	--	2.5	nm
Rise/Fall time (10-90%)	T_r / T_f	--	--	2	ns
Relative Intensity Noise	RIN	--	--	-120	dB/Hz
Output Eye	Compliant with ITU-T G.957				
Electrical Characteristics					
Transmitter Data Input Voltage - High	$V_{IH} - V_{CC}$	-1.1	--	-0.74	V
Transmitter Data Input Voltage - Low	$V_{IL} - V_{CC}$	-2.0	--	-1.58	V

Receiver Specifications ($V_{CC} = 3.1V \sim 3.5V$; $T_{op} = 0 \sim 70^{\circ}C$ / $T_c = -40 \sim 85^{\circ}C$)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Optical Input Power-maximum	P_{max}	-3	--	--	dBm
Receiver Sensitivity (PRBS=2 ²³ -1 ; BER ≤ 10 ⁻¹⁰)	Sens	--	--	-35	dBm
Operating Center Wavelength	λ	1260		1610	nm
Signal Detect – Asserted	PSA	--	--	-35	dBm
Signal Detect – De-asserted	PSD	-45	--	--	dBm
Signal Detect – Hysteresis	PSH	0.5		6	dB
Electrical Characteristics					
Differential Output Voltage	V_{DIFF}	0.4	--	2.0	V
Signal Detect Output Voltage - High	$V_{OH} - V_{CC}$	-1.1	--	-0.74	V
Signal Detect Output Voltage - Low	$V_{OL} - V_{CC}$	-2.0	--	-1.58	V

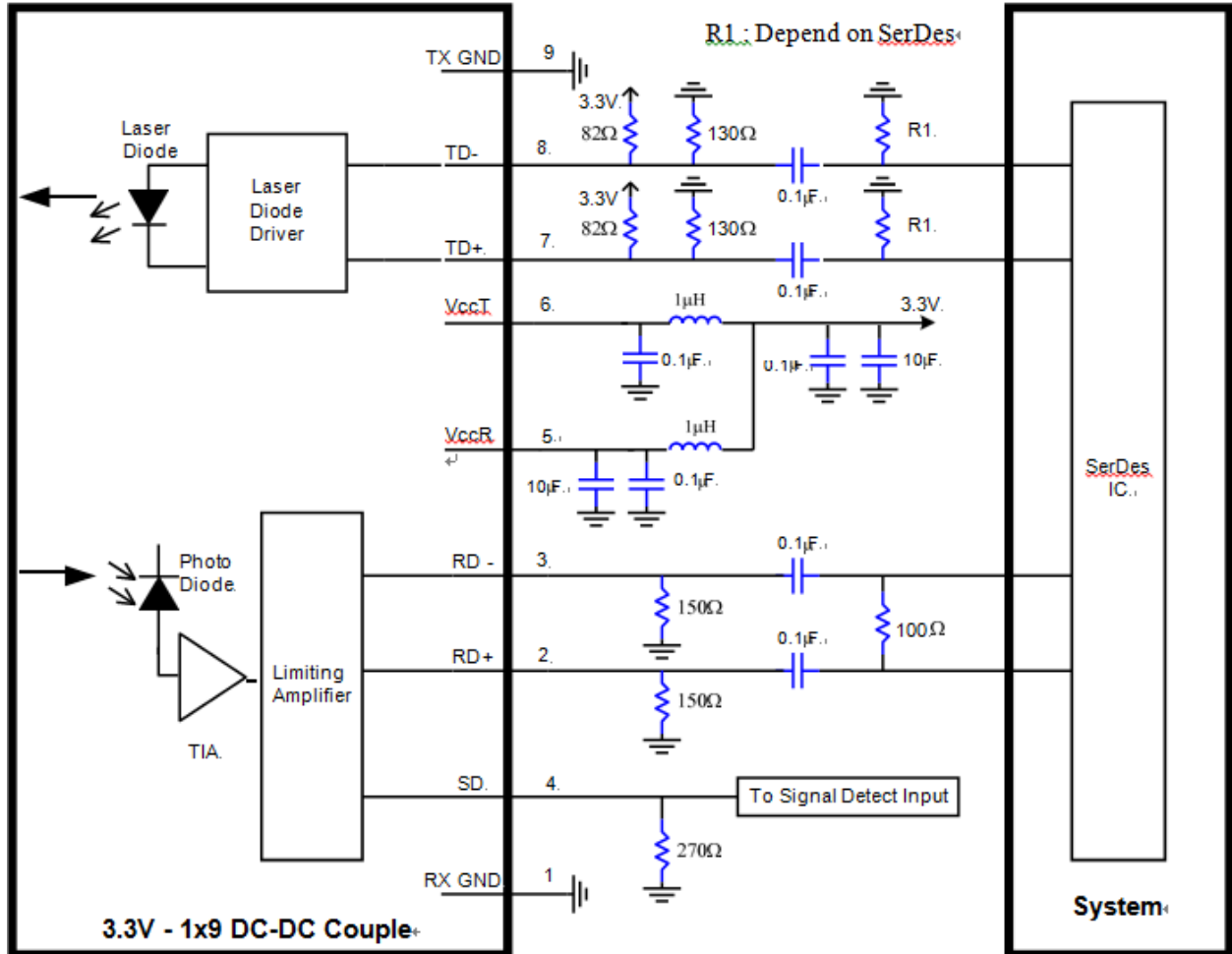
Pin Definition and Descriptions

9. TX GND _r	
8. TD+	N/C
7. TD-	
6. V _{CC} T	
5. V _{CC} R	
4. SD	
3. RD-	
2. RD+	N/C
1. RX GND	

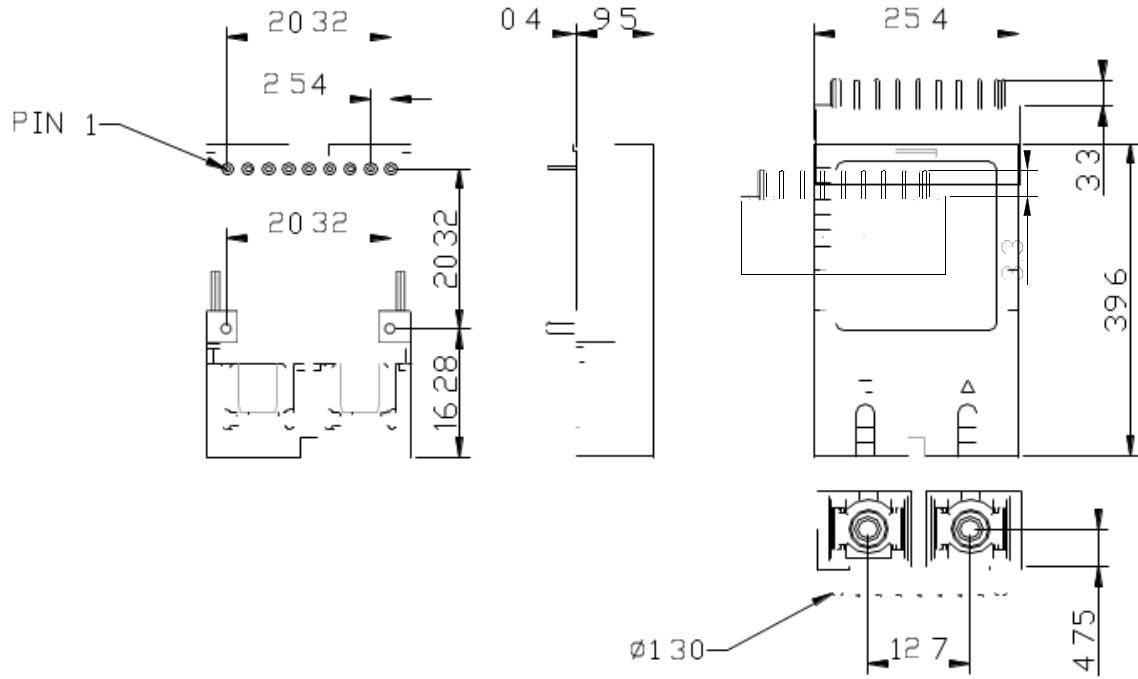
Bottom VIEW

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 _{CC} R	Receiver Power Supply
6	V _{CC} T	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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