

## Features

- SMPTE 297-2006 compatible
- Robust error free transmission of signals from 50Mbps to 3Gbps
- Supports video pathological patterns for SD-SDI and HD-SDI
- SFF package with single LC receptacle
- Metal enclosure for lower EMI
- +3.3V single power supply.
- Compliant ROHS and lead free

## Applications

- SMPTE 297-2006 compatible optical -to- electrical interfaces

## Descriptions

The CRF55D6-21-SDI is a single channel optical receiver module designed to convert optical serial digital signals to electrical serial digital signals as defined in SMPTE 297-2006 . The CRF55D6-21-SDI is specifically designed for robust performance in the presence of SDI pathological patterns for SMPTE 259M, SMPTE 292M and SMPTE 424M serial rates.

## Ordering Information

Part Number	Package	Temperature Range
CRF55D6-21-SDI	SFF	0°C to 70°C

### Functional Block Diagram

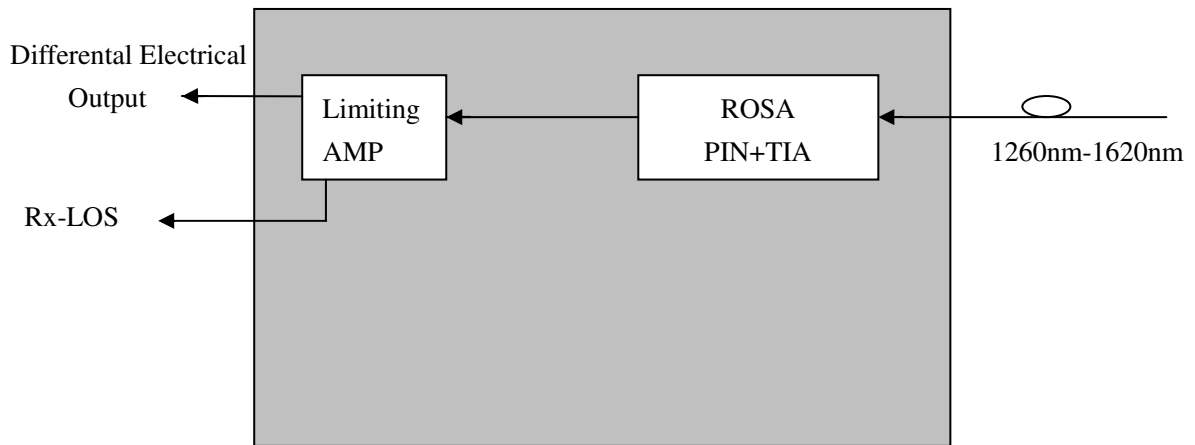
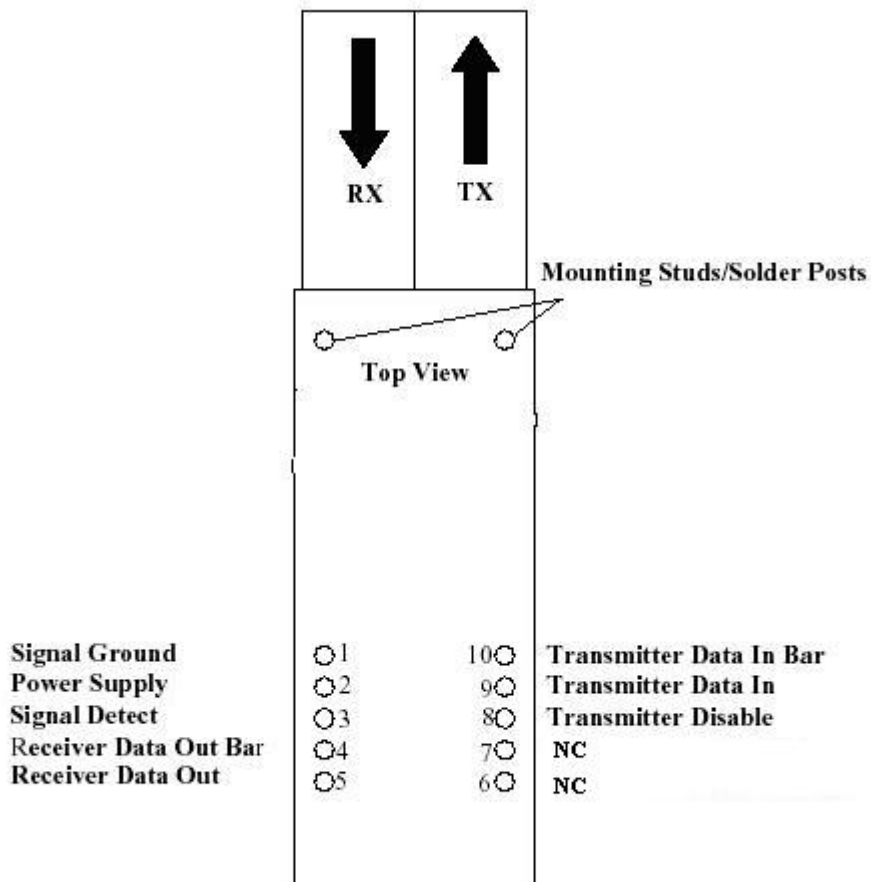


Figure 1: CRF55D6-21-SDI Functional Block Diagram

### Pin Description

#### Pin Out Diagram



### Pin Function Definitions

Pin#	Name	Function	Notes
		Mounting Studs/Solder Poster	Note 1
1	GND	Signal Grounding	Note 2
2	VCC	Power Supply	Note 3
3	SD	Signal Detect	Note 4
4	RD-	Receiver Data Out Bar	Note 5
5	RD+	Receiver Data Out	Note 5
6	NC	-	-
7	NC	-	-
8	TxDis	Transmitter Disable	Note 6
9	TD+	Transmitter Data In	Note 7
10	TD-	Transmitter Data In Bar	Note 7

#### Note:

1. The two mounting studs did not be connected to the interior of ground. They are provided for transceiver mechanical attachment to the circuit board. It is recommended that the holes in the circuit board be connected to chassis ground.
2. Directly connect these pins to the ground plane.
3. Provide +3.3V DC via the recommend Host Board power supply filter circuit. Locate the power supply filter circuit as close as possible to the VCC pin.
4. Normal optical input levels to the receiver result in logic "0" output. Low optical input levels to the receiver result in a logic "1" output.
5. These are the differential receiver outputs.
6. LVTTTL logic level, to enable module connect to TTL logic low "0".
7. These are the differential transmitter inputs. They are DC-coupled.

### Recommended Host Board Supply Filtering

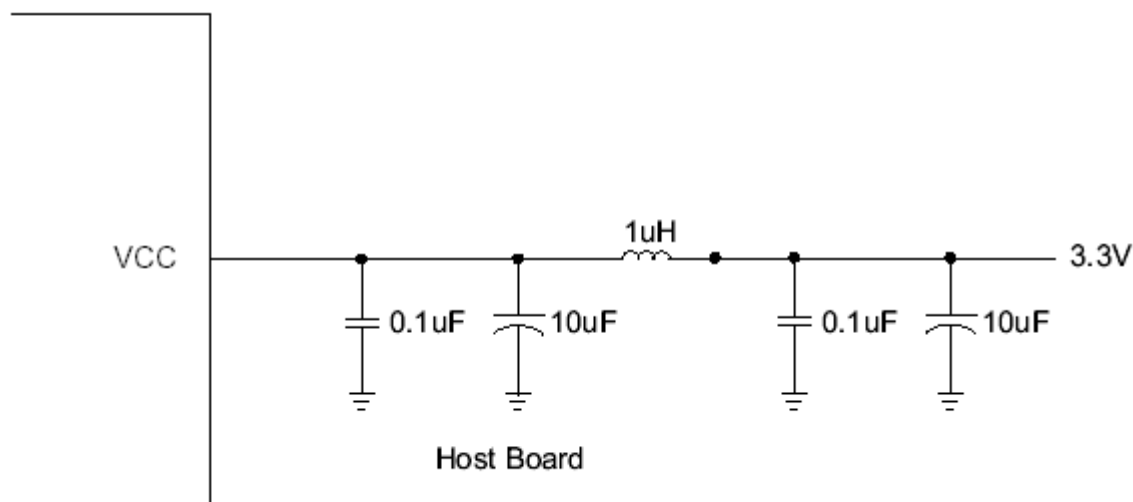


Figure 2: Recommended Host Board Supply Filtering

## Performance Specifications

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T <sub>ST</sub>	-40	+85	°C
Operating case Temperature	T <sub>case</sub>	-20	+85	°C
Input Voltage	-	GND	VCC	V
Power Supply Voltage	VCC-VEE	-0.5	+3.6	V

### Operating Environment

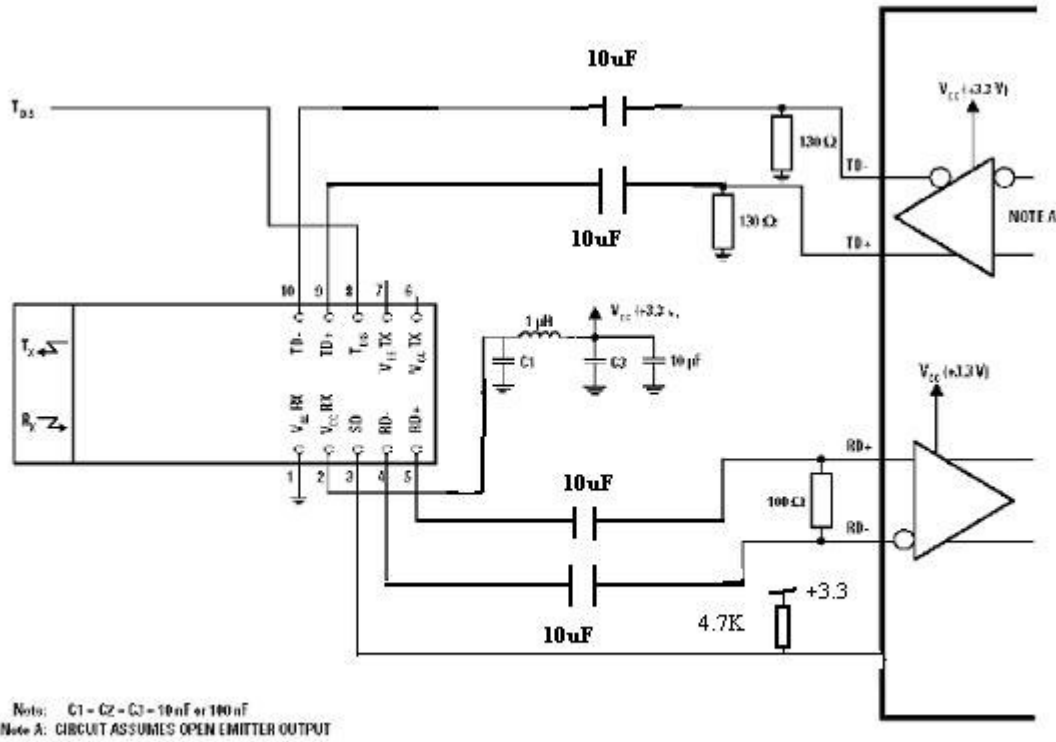
Parameter	Symbol	Min.	Max.	Unit
Power Supply Voltage	VCC	+3.1	+3.5	V
Operating Temperature	To	0	+70	°C

### Receiver O-E characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Bit Rate	BR	50	-	3000	Mbps	-
Wavelength	$\lambda$	1260	-	1620	nm	-
Saturation	Ps	-3	-	-	dBm	-
LOS Asserted	-	-35	-	-	dBm	-
LOS De-Assert	-	-	-	-22	dBm	-
LOS Hysteresis	-	-	3	-	dB	-
LOS LOW voltage	VLout	-	-	0.8	V	-
LOS HIGH voltage	VHout	2.0	-	-	V	-
Sensitivity for SMPTE 259M 143-360Mbps	-	-	-22	-20	dBm	Pathological PRBS
		-	-24	-22	dBm	
Sensitivity for SMPTE 292M 1.485Gbps	-	-	-22	-20	dBm	Pathological PRBS
		-	-24	-22	dBm	
Sensitivity for SMPTE 424M 2.97Gbps	-	-	-19	-18	dBm	Pathological PRBS
		-	-21	-20	ps	
Data Outputs Voltage	Vpp	400	800	1000	mV	-
Input Power Monitoring Accuracy		-1		+1	dB	-

**Note:** The sensitivity specification refers to the input power levels for BER = 1E-12 against PRBS 2<sup>23</sup>-1.

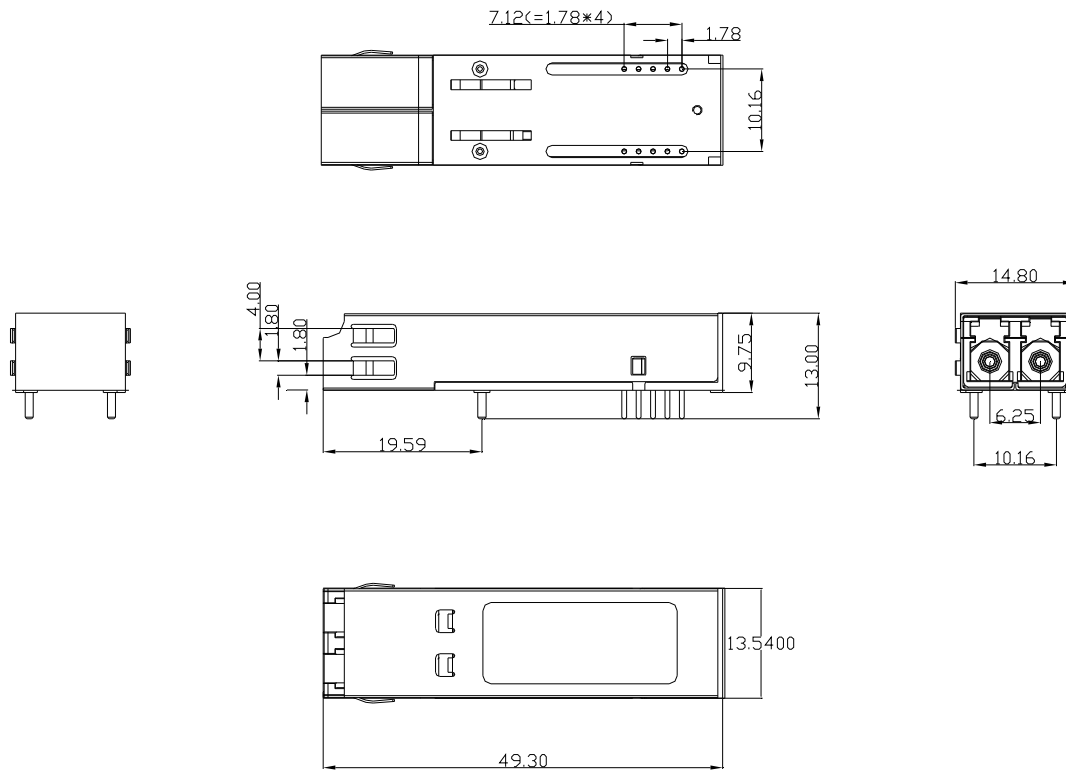
Recommended Circuit



Note: C1 - C2 - C3 = 10uF or 100nF  
 Note A: CIRCUIT ASSUMES OPEN EMITTER OUTPUT

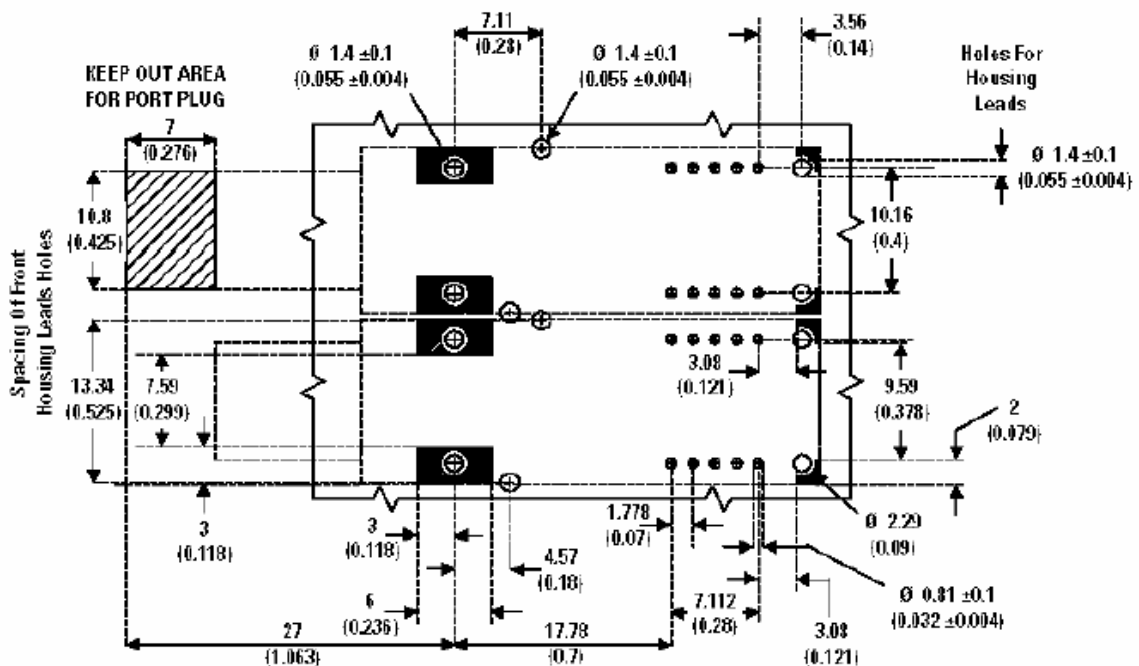
Figure 3: Recommended Circuit

Package information



Unit: mm

Recommended Board Layout Hole Pattern



1550nm Single Optical Receiver



CRF55D6-21-SDI

Preliminary Data sheet

VER0.0/05-19-2016

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For More Information

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