

Features:

- Dual 850nm PIN receiver
- Rugged LC connector housing including screw mounted OSAs
- 1x10 connector pinout
- -40°C to 85°C operating temperature
- Single 3.3V power supply
- Receivers AC-Coupled
- Conformal coating for harsh environment use
- Passes Pathological Conditions



The RJ-3G-SDI-RX2 is ideal for harsh environment connectivity because of its low cost, availability, and wide perating parameters



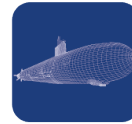
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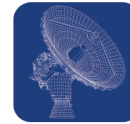
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TACTICAL



SUBSEA
NETWORKING



RADAR &
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EXPLORATION

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Maximum Supply Voltage	V _{CC}	-0.3	4.0	V	
Storage Temperature	T _{sto}	-55	100	°C	
Case Operating Temperature	T _{OP}	-40	85	°C	
Relative Humidity	RH	0	95	%	Based on conformal coating
Selective Soldering Temperature			260	°C	10 seconds, leads only (2,3)
Hand Lead Soldering Temperature			260	°C	10 seconds, leads only (2,3)
Conformal Coating		0.8	1.2	mil	See ruggedization notes

Notes:

- 1) RJ transceivers may be water washed. The process must be followed by an 80°C bake for one hour to ensure the drying of any water inside the shell.
- 2) Solder Posts do not transmit data and do not need a complete solder fill.
- 3) The components should not undergo Wave Soldering under any circumstances.

General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	BR		2.970		Gb/s	3G SDI

Electrical Specifications (T_{OP} = -40 to 85°C, V_{CC} = 3.14 to 3.47 Volts)

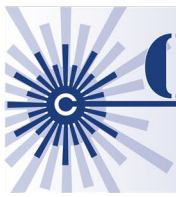
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	V _{CC}	3.14		3.47	V	+/-5%
Total Module Power Dissipation	P _{DISS}			0.83	W	
Receiver						
Supply Current	I _{CC}			120	mA	Per Channel
Output differential impedance			100		Ω	
Single-Ended Output Voltage Swing	V _{SE}	300		500	mV	(1)
Output Rise/Fall Time	t _{R/F}			200	ps	20%-80% (1)
Rise/Fall Time Symmetry	t _{R-F}			50	ps	(1)
Total Jitter	T _{JRX}			0.3	UI	(1)
Combined Overshoot/Undershoot	OS%			10	%	(1)
Signal Detect Assert Voltage	V _{SDA}	2.4		V _{CC}	V	LVTTTL
Signal Detect De-assert Voltage	V _{SDD}	V _{EE}		V _{EE} + 0.5	V	LVTTTL
Pathological Pattern Errors	P _{TRX}			0	Errors	
Notes:						
1) Running 100% Color Bars Pattern						

Pin Configuration

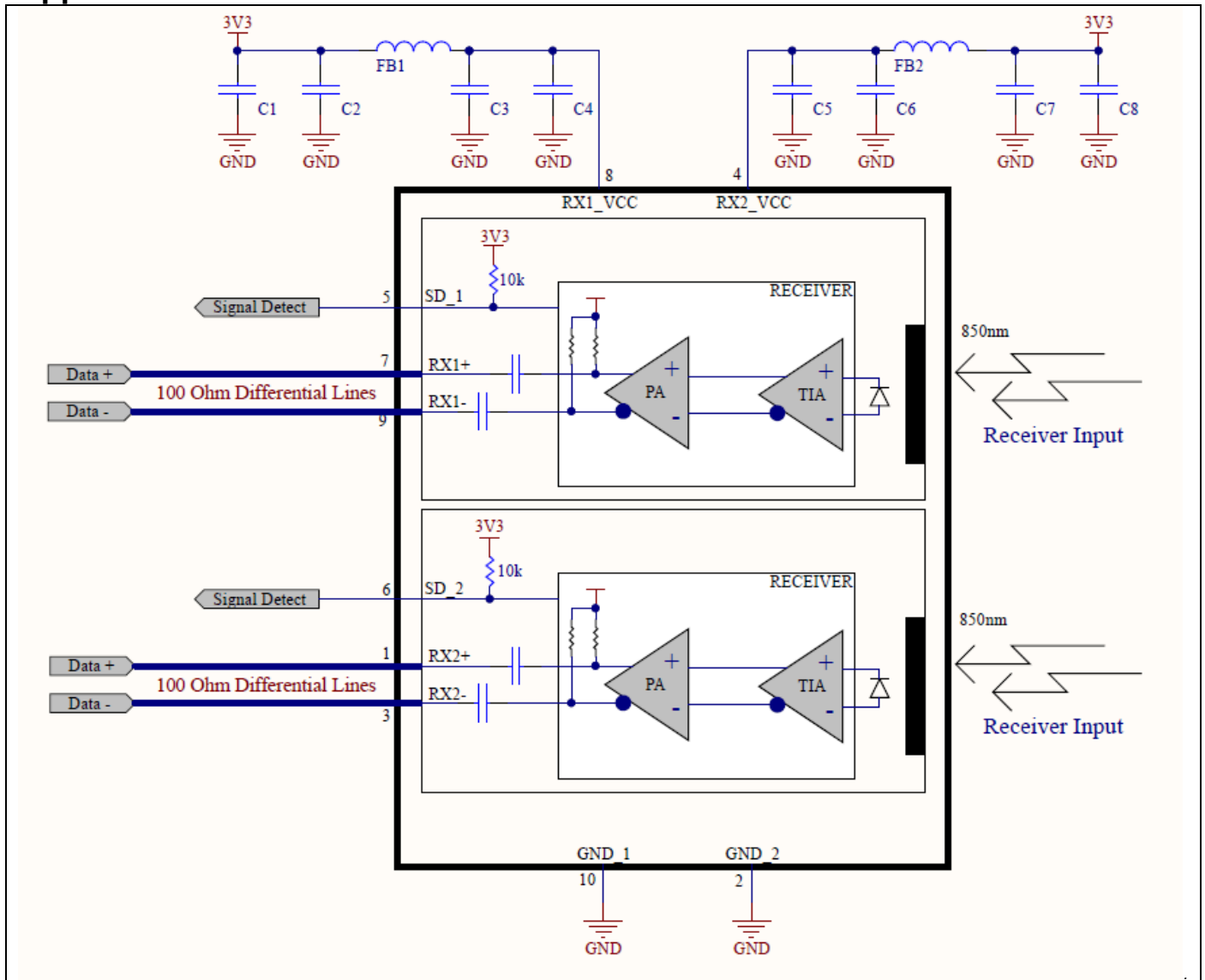
PIN #	Symbol	Description	Logic/ Protocol
1	RD2+	Receiver 2 Non-inverted DATA out. AC Coupled	CML
2	V _{EER2}	Receiver 2 Ground (Common with Transmitter Ground)	N/A
3	RD2-	Receiver 2 Inverted DATA out. AC Coupled	CML
4	V _{CCR2}	Receiver 2 Power Supply	N/A
5	SD1	Signal Detect 1 output Satisfactory Optical Input: Logic "1" Output Fault Condition: Logic "0" Output	LVTTTL
6	SD2	Signal Detect 2 output Satisfactory Optical Input: Logic "1" Output Fault Condition: Logic "0" Output	LVTTTL
7	RD1+	Receiver 1 DATA Out +	CML
8	V _{CCR1}	Receiver 1 Power Supply	N/A
9	RD1-	Receiver 1 DATA Out -	CML
10	V _{EER2}	Receiver 1 Signal Ground	N/A

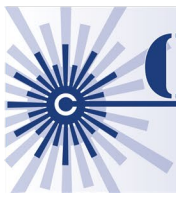
Optical Characteristics (T_{OP} = -40 to 85°C, V_{CC} = 3.14 to 3.47 Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver						
Receiver Sensitivity:	RX _{SENS}			-15	dBm	(2)
RX Overload	RX _{MAX}			0	dBm	
Optical Center Wavelength	λ _C	830		860	nm	
Signal Detect Assert	P _A			-15	dBm	
Signal Detect De-Assert	P _D	-30			dBm	
Signal Detect Hysteresis	P _A - P _D	1		5	dB	
Notes:						
2) PRBS 2 ⁷ -1 at 10 ⁻¹²						

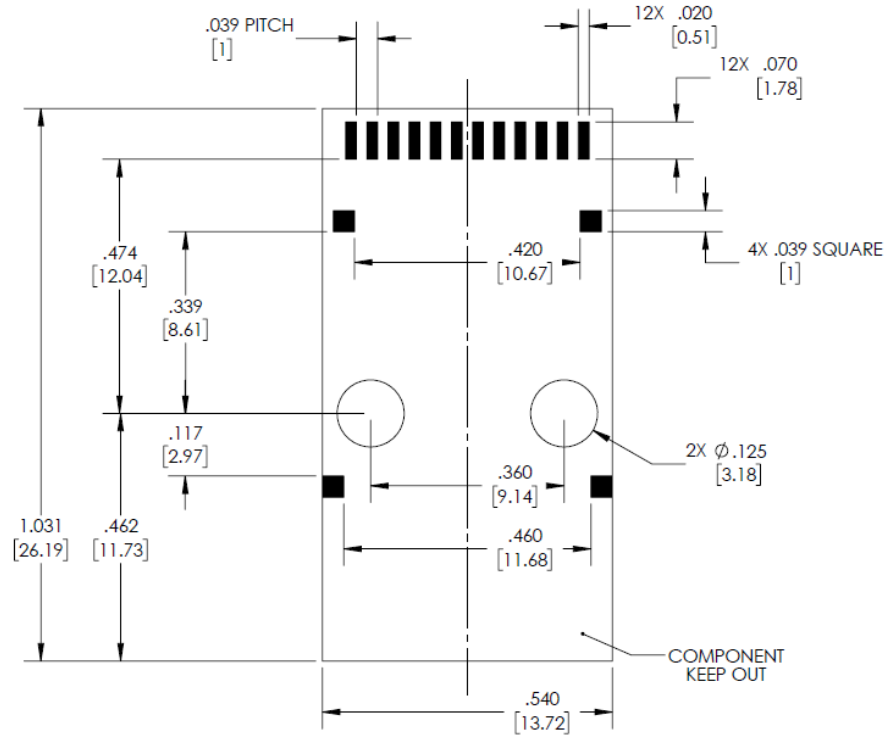


Application Schematic





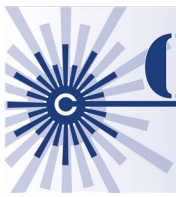
PCB Design Guidelines



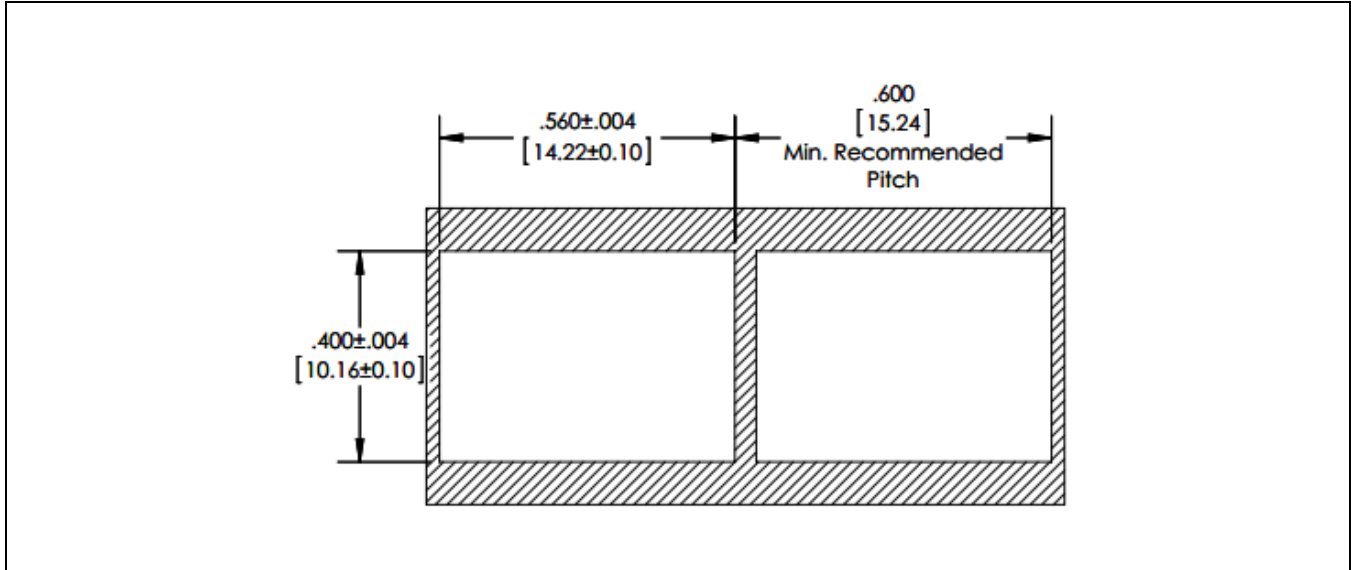
Notes:

1) Pads 0 and 11 are not present

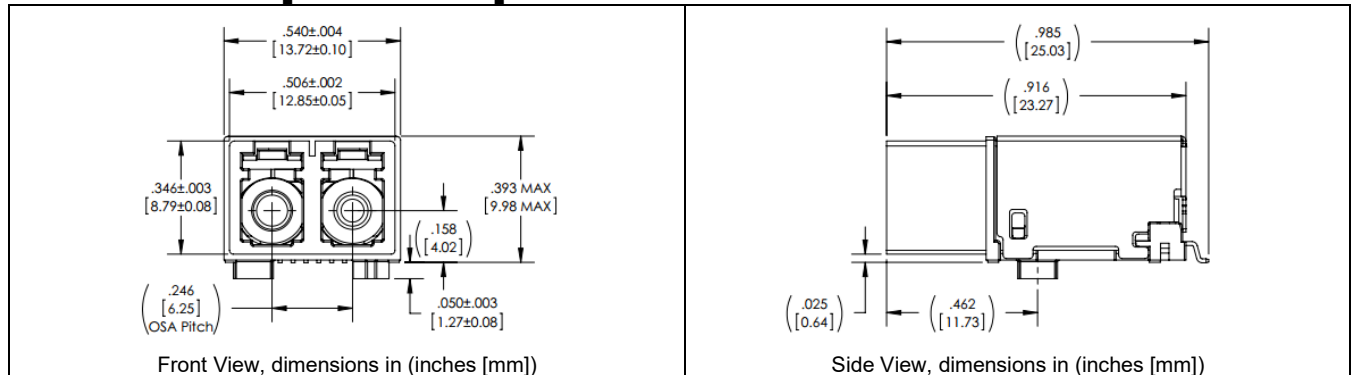




Panel Cutout



LC Connector [Screw Post] Mechanical Dimensions

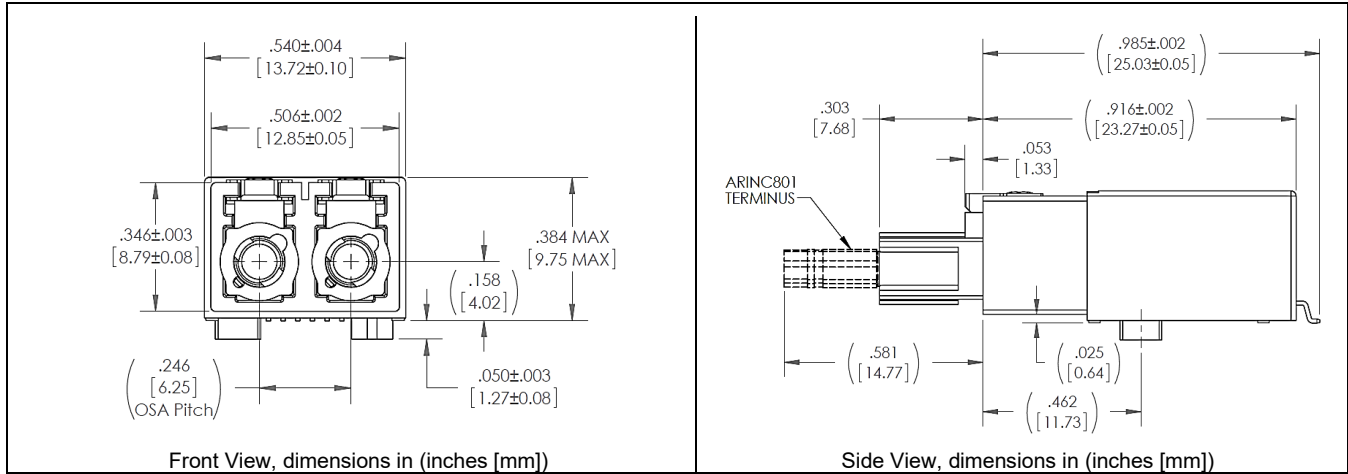


LC Connector [Solder Post] Mechanical Dimensions w/ EMI Shield

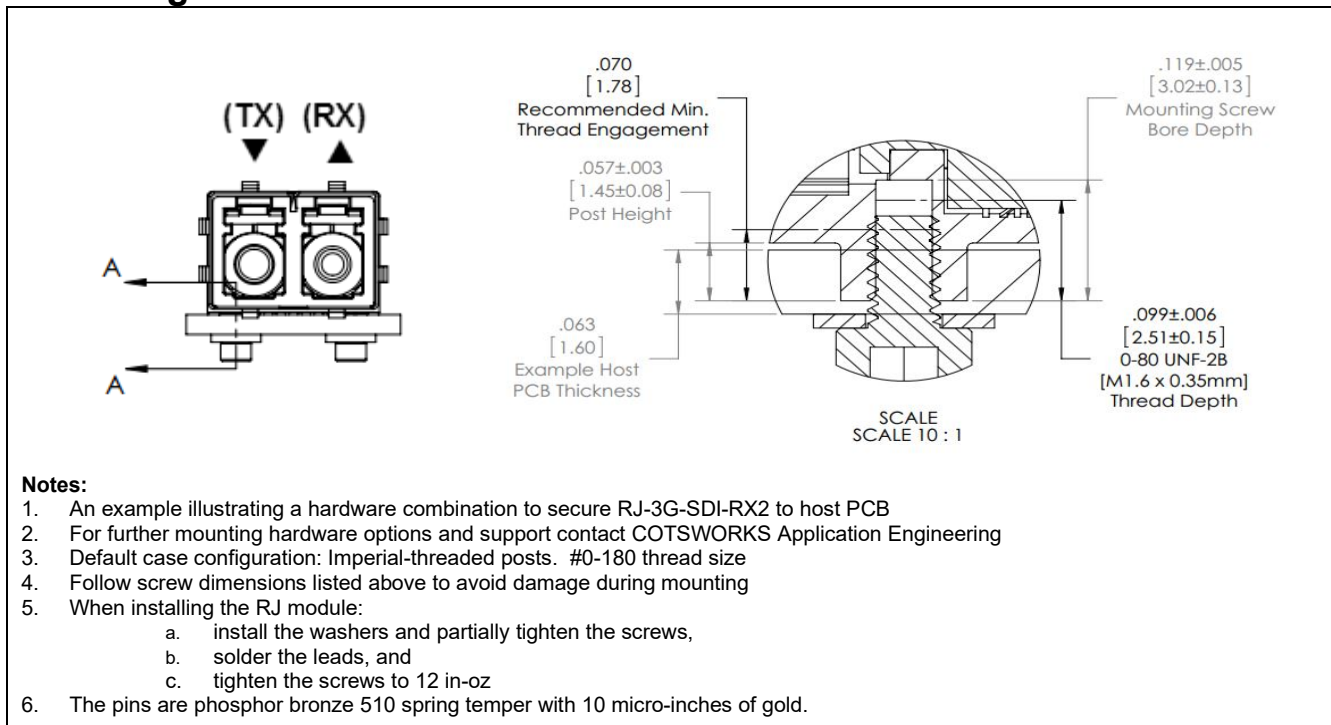


ARINC-801 Connector [Screw Post] Mechanical Dimensions





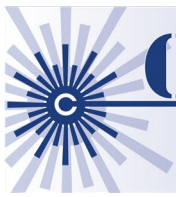
Mounting Hardware Guidelines



Ruggedization Notes

- Parylene C coating can be used for conformal coating with a 1.0 mil ± 0.2 mil thickness through a deposition process.
 - It has a 5600 VPM rating, withstands high temperatures and is extremely resistant to oil/dirt, and object impact.
- This part is also available in a pigtail fiber optic version.
- Transceiver case is nickel-plated.





Reference Information

- 1) IEEE Standard 802.3, 2002 Edition
- 2) Directive 2011/65/EU of the European Parliament and of the Council, “on the restriction of the use of certain hazardous substances in electrical and electronic equipment.” June 8th, 2011

Regulatory Compliance

- COTSWORKS transceivers are Class 1 Laser Products and designed to comply with US FDA regulations.
- These products are designed to comply with Class 1 eye safety requirements of EN (IEC) 60825 and the electrical safety requirements of EN (IEC) 60950.
- This part has an option for compliance with Directive 2011/65/EU covering restriction on certain hazardous substances (RoHS)

Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Ordering Information

RJ-3G-SDI-RX2	-xx-	x	-x-	x	-x-	x
RJ Form Factor	Receptacle Type	Ruggedized Coating	Operating Temp Range	EMI Shield?	RoHS Level	Mounting
3Gbps Data Rate for SDI Video Dual Receivers (MMF)	LC: LC Receptacle LX: ARINC-801 Receptacle	(): Non-coated R: Parylene	A: -40 to 85°C	(): No Shield E: Shield	(): Lvl 5 6: Lvl 6	(): Imperial U: Metric P: Solder Post

Example part number: RJ-3G-SDI-RX2-LC-R-A-U

[3G-SDI RJ Form Factor Dual Receiver, dual LC connectors, Parylene-coated, Industrial operating temperature range, Metric Screw Post Mounting]

