

Features:

- Compliant to ARINC 818 1.0625Gbps and 3.1875Gbps data rates
- Dual 850nm VCSEL PIN receiver
- Rugged LC connector housing including screw mounted OSAs
- 1x10 connector pinout
- MIL-STD-883 compliant
- -40 to +85 °C operating temperature, wider options available
- Option for RoHS compliant and lead free per Directive 2002/95/EC
- Single +3.3V power supply
- Receivers AC-Coupled
- Low power dissipation



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



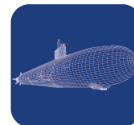
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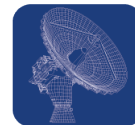
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SUBSEA NETWORKING



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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

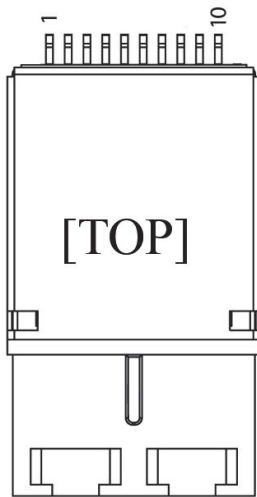
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	BR		3.1875		Gb/s	ARINC 818

Electrical Specifications ($T_{OP} = -40$ to 85°C , $V_{CC} = 3.135$ to 3.465 Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	V_{CC}	3.135		3.465	V	+/-5%
Total Module Power Dissipation	P_{DISS}		0.60	0.80	W	
Receiver						
Supply Current	I_{CC}		85	120	mA	Per Channel
Output differential impedance			100		Ω	CML
Output Voltage Swing	V_{P-P}	0.60	0.75	0.94	V	Differential output
Output Rise/Fall Time			70	150	ps	20%-80%
Signal Detect Assert	SDA	2.4		V_{CC}	V	LVTTTL
Signal Detect De-assert	SDD	V_{EE}		$V_{EE} + 0.5$	V	LVTTTL

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

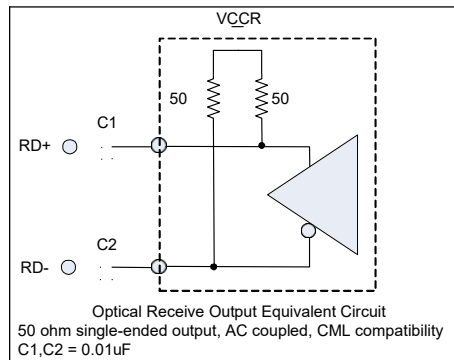

Optical Characteristics ($T_{OP} = -40$ to 85°C , $V_{CC} = 3.135$ to 3.465 Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver						
Receiver Sensitivity:	RX_{SENS}			-15	dBm	3.1875
Average Received Power	RX_{MAX}			0	dBm	
Receiver Elec. 3 dB cutoff freq.				3000	MHz	
Optical Center Wavelength	λ_C	830		860	nm	
Return Loss	RL	12			dB	
Signal Detect Assert	P_A			-15	dBm	
Signal Detect De-Assert	P_D	-30			dBm	
Signal Detect Hysteresis	$P_A - P_D$	0.5	2.25	5	dB	

Notes:

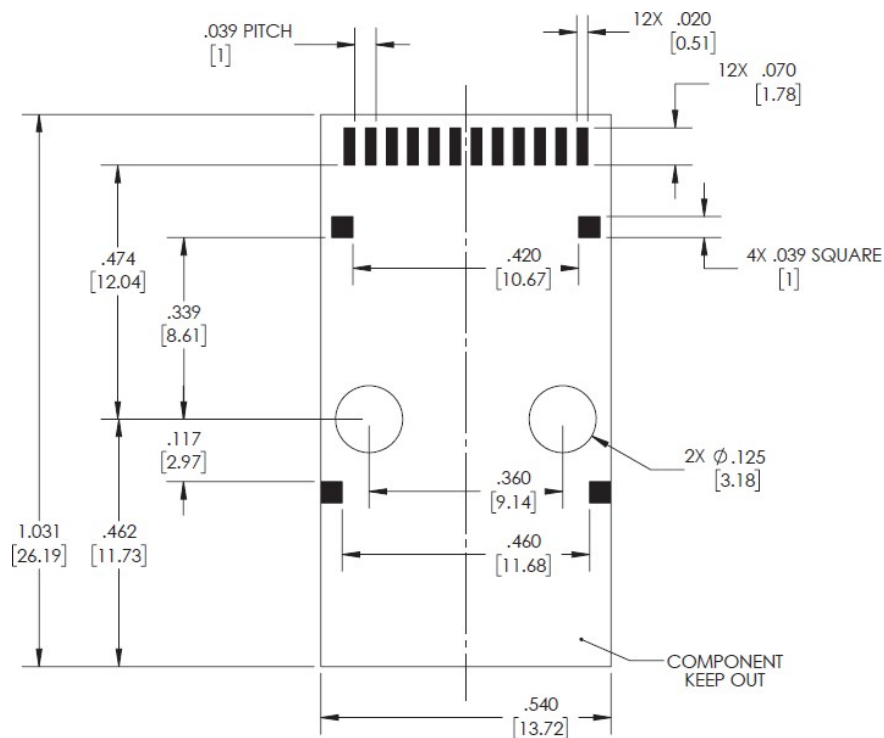
- 1) FC-PI-2-10.0 conformance, PRBS 2⁷-1 at 10⁻¹²

Equivalent Circuits

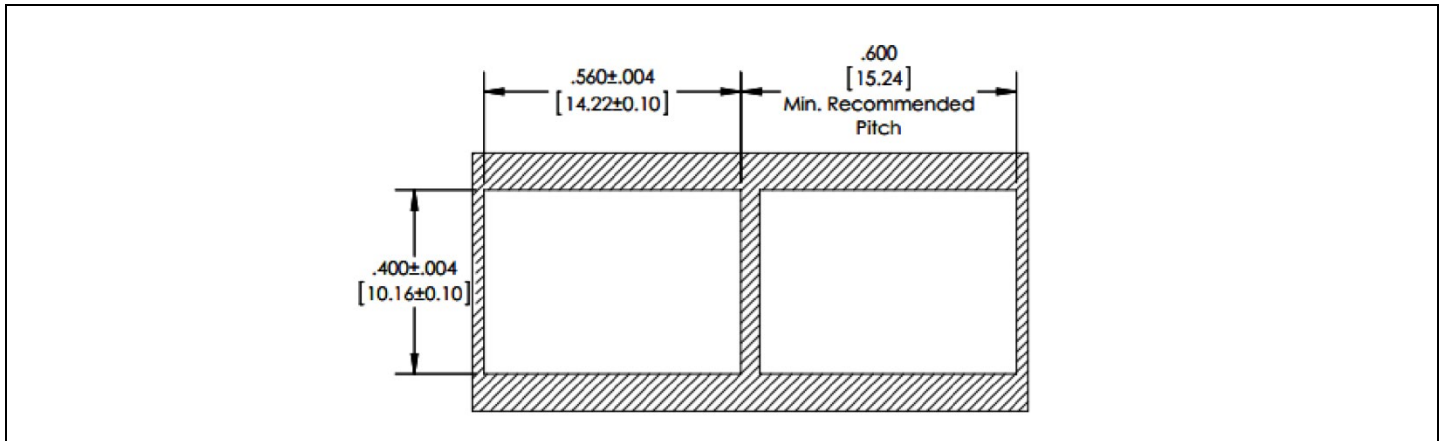


*Drawing shows entire RJ device and dotted line represents laserdriver.
RJ-3G-RX2 is internally AC coupled.*

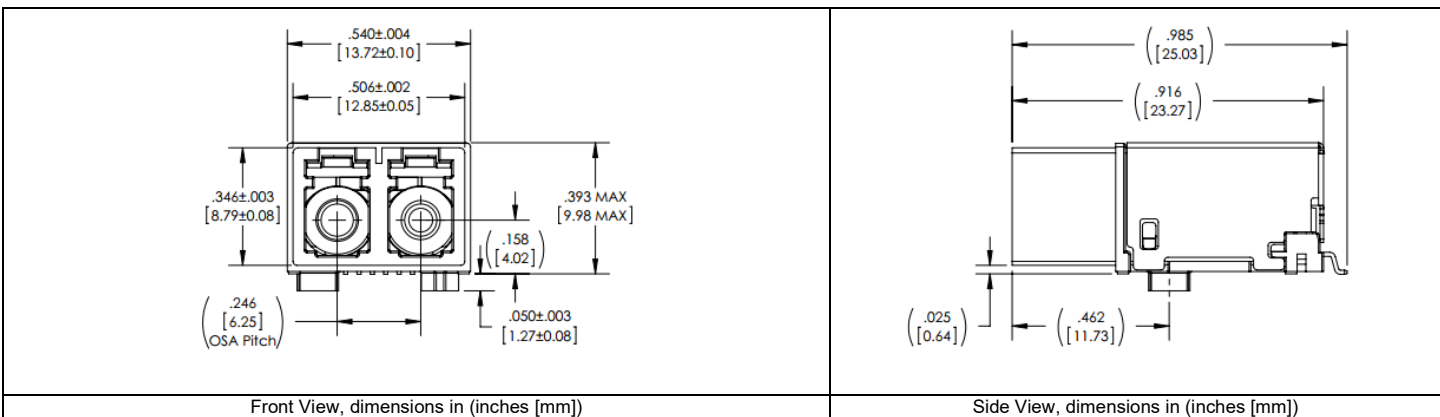
PCB Design Guidelines



Panel Cutout



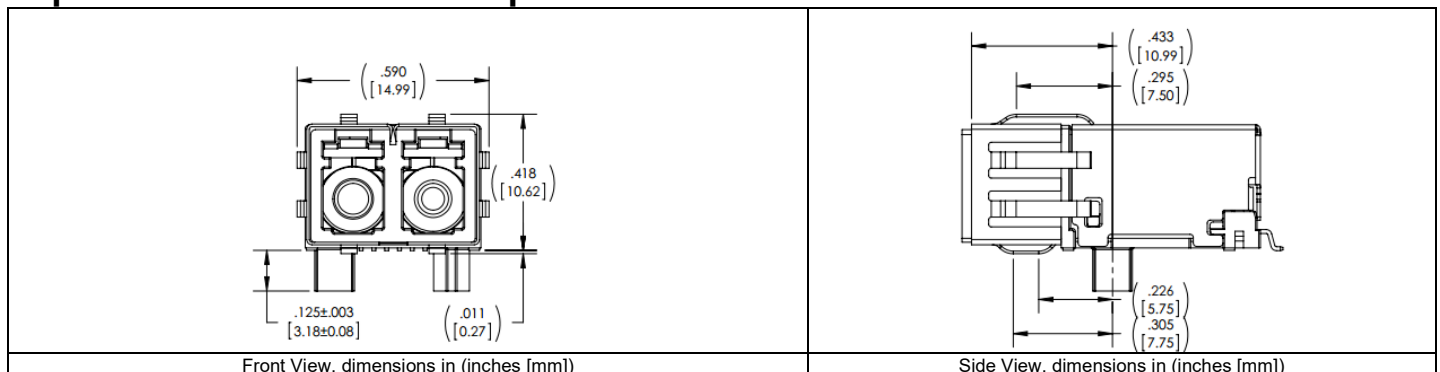
Screw Post Mechanical Dimensions



Front View, dimensions in (inches [mm])

Side View, dimensions in (inches [mm])

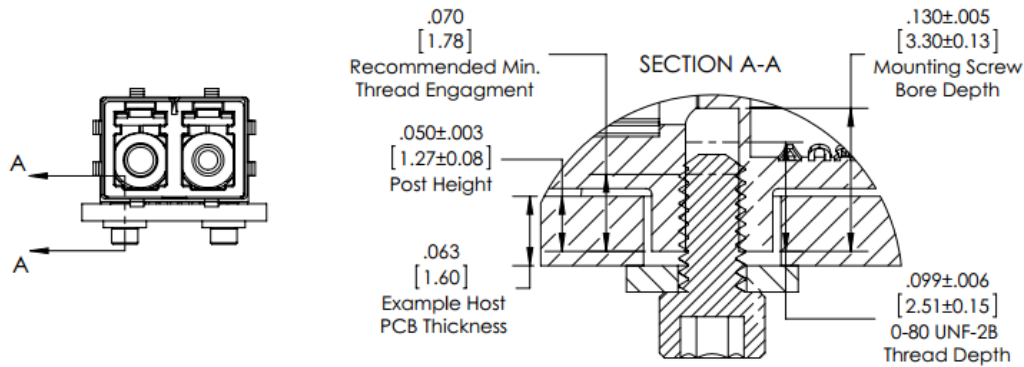
Optional Solder Post and Optional EMI Shield Mechanical Dimensions



Front View, dimensions in (inches [mm])

Side View, dimensions in (inches [mm])

Mounting Hardware Guidelines



Notes:

1. An example illustrating a possible hardware combination to secure RJ-3G to host PCB
2. For further mounting hardware options and support contact COTSWORKS Application Engineering
3. Default case configuration: Imperial-threaded posts. #0-80 thread size
4. Follow screw dimensions above to avoid damage during mounting
5. When installing the RJ module
 - a. install the washers and partially tighten the screws,
 - b. solder the leads,
 - c. tighten the screws to 12 in-0z
6. The pins are phosphor bronze 510 spring temper with 10 micro-inches of gold.

Ordering Information

RJ-3G-RX2	-XX-	X	-X-	X	-X-	X
RJ Form Factor	Connector	Ruggedized Coating	Operating Temp Range	EMI Shield?	RoHS Level	Mounting
3Gbps Max Data Rate		(): Non-coated	A: -40 to 85°C	(): No Shield	(): Lvl 5	(): Imperial
Dual Receivers (MMF)	LC	R: Parylene	M: -40 to 95°C	E: Shield	6: Lvl 6	U: Metric P: Solder Posts

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

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

Contact COTSWORKS for mechanical dimensional information and other configuration options.

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