

# RX192DLW (Preliminary Data Sheet)



*Low OSNR optical receiver module with an integrated output limiting amplifier for up to 12.5Gb/s operation.*

November 2001

**Features:**

- RX192DLW: A member of the Multiplex Receiver Family of APDs, PINs, single and differential output products: **Low OSNR** optical receiver module including PIN diode, low noise TIA and a limiting amplifier in a small form factor, low profile package.
- G-S-G-S-G lead configuration (patent pending) for ease of interface with DeMUX chipsets.
- Low power consumption.
- Differential output.
- Eliminates RF connector.
- Non-inverted, AC-coupled or DC coupled output
- Operational Temperature: -20°C to + 75°C.

PIN



**Performance Specifications:**

Parameters	Unit	Worst Case	Typ	Best Case	Comments/Test Conditions
Receiver sensitivity	dBm	-17	-	-	10 Gb/s. BER at $1 \times 10^{-12}$ . $\lambda = 1.5\mu\text{m}$
Maximum operational optical input power*	dBm	+3	-	-	$\lambda = 1.5\mu\text{m}$ ; error free operation, at Room Temperature, $\text{BER} < 10^{-14}$

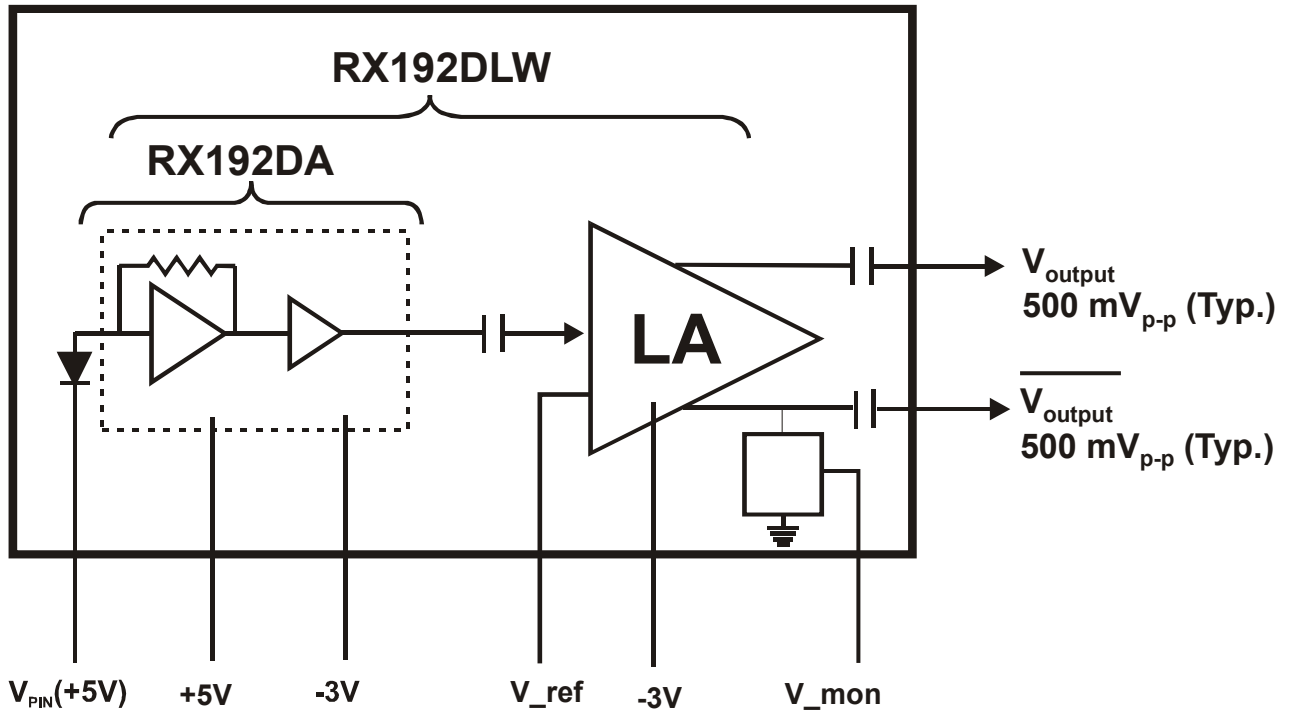
Parameters	Unit	Min	Typ	Max	Comments/Test Conditions
PIN responsivity	A/W	0.75	> 0.8	-	$\lambda = 1.5\mu\text{m}$
TIA transimpedance gain	$\Omega$	-	300	400	Small signal gain
TIA 3dB Bandwidth	GHz	9.5	10.5	-	Small signal frequency response
Receiver low frequency cutoff (3dB)	kHz	-	< 50	100	-20°C to +75°C
TIA transfer function phase linearity deviation	degree	-	< 10	20	(100 kHz to 8 GHz)
TIA transfer function amplitude peaking	dB	-	< 1	1.5	(100 kHz to 9 GHz)
Input optical reflectance	dB	-	-	-27	For $\lambda = 1.3\mu\text{m}$ and $1.5\mu\text{m}$ ; excluding reflection from optical connector.
Output Rise and Fall Time	ps	-	< 40	-	10% - 90%
Total Power consumption	mW	-	-	750	

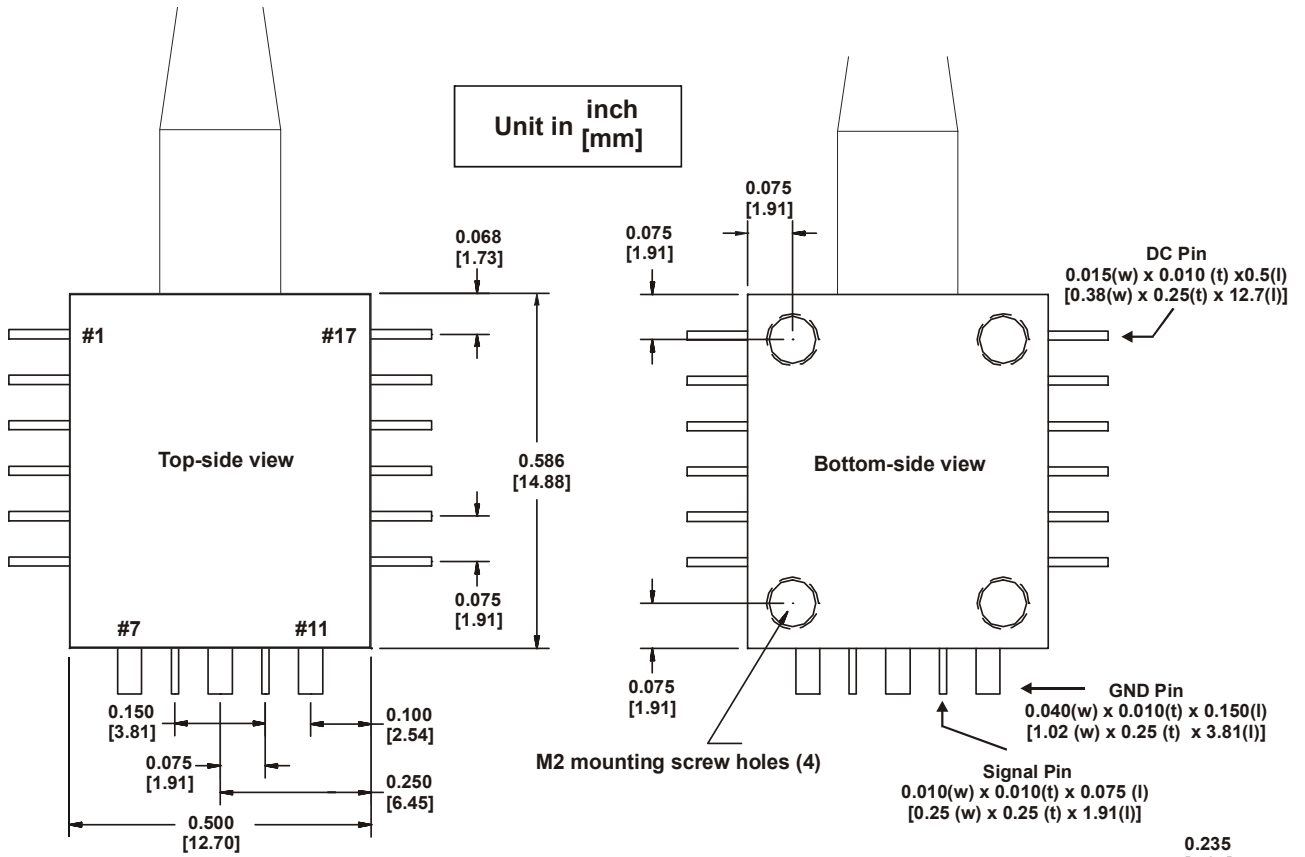
\*These specifications are preliminary.

DC Characteristics (RX192DLW):

Parameters	Unit	Min	Typ	Max	Current (mA; Max)
PIN diode bias (Note-1)	V	+3.3	+5	+10	-
Positive receiver module bias	V	+4.5	+5	+5.5	110
Negative receiver module bias (Note-2)	V	-3.3	-3.0	-2.7	160

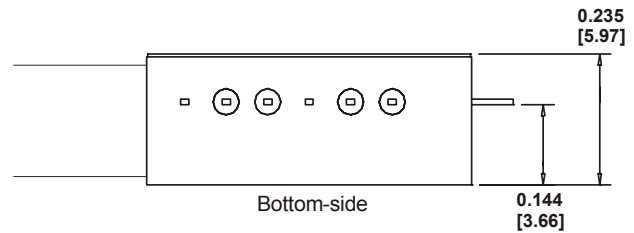
- Note-1. All tests were performed with 5V reverse bias for the PIN photo diode. Increasing the PIN reverse bias will, in general, enhance the receiver sensitivity slightly. Higher reverse bias voltage tends to increase the dark current slightly, however, this increase will not cause any receiver sensitivity degradation.
- Note-2. There may be a modification of this bias voltage requirement in the next version of this offering.





DC Pins

Pin #	Function	Pin #	Function
1	GND	17	GND
2	V_PD	16	NC
3	-2V	15	+5V
4	GND	14	GND
5	-2V	13	V_ref
6	NC	12	V_mon



RF OUTPUT PINS:

Pin #	7	8	9	10	11
Function	GND	$\bar{Q}$	GND	Q	GND

RX192DLW Hermetically Sealed Optical Receiver Package

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Ordering Code Options for PIN Receiver Product Family:

Part Number Description	Connector					Fiber Lengths (meters)			Coupling	
	Electrical		Optical			0.6 (Standard)	1.0	1.5 (Single Mode Fiber)	AC	DC
Symbol	S (SMA)	G (GPO, Standard)	K	SC	FC	-06	-10	-15	Standard	D
<b>MTRX192AR</b> <i>Classic pkg, Analog Output</i>	X	X	X	X	X	X	X	X	X	-
<b>MTRX192L</b> <i>Classic pkg., Digital Output</i>	X	X	X	X	X	X	X	X	X	X
<b>MTRX192AW</b> <i>Classic pkg., Analog Output, Low OSNR, 12.5 Gb/s</i>	X	X	X	X	X	X	X	X	X	-
<b>MTRX192LW</b> <i>Classic pkg., Digital Output, Low OSNR, 12.5 Gb/s</i>	X	X	X	X	X	X	X	X	X	X
<b>RX192DA</b> <i>Coplanar, Differential pkg. Analog Output</i>	-	-	-	X	X	X	X	X	X	-
<b>RX192DL</b> <i>Coplanar, Differential pkg. Digital Output</i>	-	-	-	X	X	X	X	X	X	X
<b>RX192DLW</b> <i>Coplanar, Differential pkg. Digital Output, Low OSNR 12.5 Gb/s</i>	-	-	-	X	X	X	X	X	X	X

**Example:** For a PIN receiver with differential output, a linear amplifier, GPO electrical connector, SC optical connector, AC coupled and standard fiber pigtail length:

Multiplex Ordering Code:    **RX192DLSC-06**

For Product Inquiries please contact:

Phil Altieri  
 Customer Marketing Engineer  
 Multiplex, Inc.  
 5000 Hadley Ave.  
 South Plainfield, New Jersey 07080  
 USA  
 (908) 769- 6214

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