MRX10P3AXASC10
(Brief Datasheet)

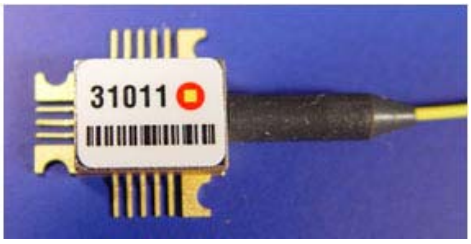
Multiplex, Inc.
Photonics for Communications

High sensitivity *optical receiver front-end module for 10Gb/s point-to-point applications.*

Features:

- A member of the Multiplex's Optical Receiver Family.
- **High sensitivity** optical receiver module including PIN diode and high gain, low noise TIA in a new MSA small form factor, low profile package.
- Gull-Wing lead configuration for thermal compliance consideration.
- RF Gull-Wing output pins designed for more than 15GHz BW.
- Low power consumption.
- Differential, AC-coupled output.
- Case Operational Temperature: -5°C to +80°C.

PIN



Performance Specifications

Parameters	Unit	Worst Case	Typ	Best Case	Comments/Test Conditions
Receiver Sensitivity	dBm	-18	-19.5	-	10 Gb/s. BER at $1x10^{-12}$. λ = 1.5µm.
Overload	dBm	+1	-	-	λ=1.5µm; BER<10^{-14}

Parameters	Unit	Min	Typ	Max	Comments/Test Conditions
PIN responsivity	A/W	0.75	>0.8	-	λ=1.5µm
Receiver transimpedance gain	Ω	-	12K	-	Differential gain
Receiver 3dB Bandwidth	GHz	7.5	8.0	-	Small signal frequency response
Receiver low frequency cutoff (3dB)	kHz	-	< 50	100	
Receiver transfer function phase linearity deviation	degree	-	< 10	20	(100 kHz to 8 GHz)
Receiver transfer function amplitude peaking	dB	-	< 1	2	(100 kHz to 9 GHz)
Input optical reflectance	dB	-	-	-27	For λ=1.3µm and 1.5µm; excluding reflection from optical connector.
Output maximum electrical return loss (S22)	dB	-	-15	-10	50 kHz to 10 GHz
Total Power consumption	mW	-	-	450	
Fiber Pigtail Length	m	0.9	1.0	1.1	

Absolute Maximum Ratings:

Parameters	Symbol	Unit	Rating	Remark
PIN diode bias Voltage	V_pd	V	+12	
Input Optical Power	$P_{(IN)}$	dBm	+3	<3 minutes
TIA Supply Voltage	Vcc	V	4	
Storage Temperature	T_{ST}	^{o}C	-40 to +85	

Precautions:

Stress in excess of the absolute maximum ratings can cause permanent damage to the device. Exposure to absolute maximum ratings for extended periods can adversely affect divice reliability.

DC Operating Characteristics :

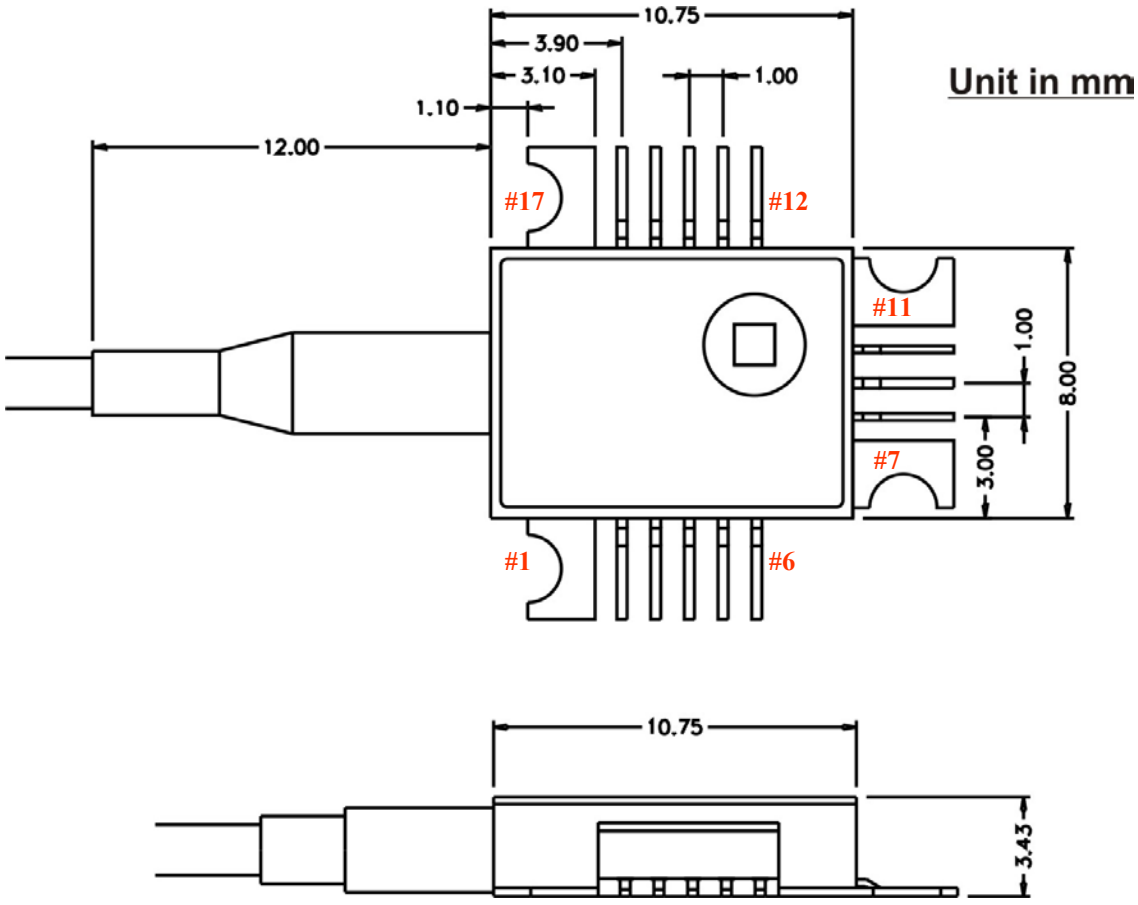
Parameters	Unit	Min	Typ	Max	Current (mA; Max)
PIN diode bias (Note-1)	V	+3.3	+5	+10	-
Positive receiver module bias	V	+3.135	+3.3	+3.465	83

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 should not cause any receiver sensitivity degradation.

Soldering Precautions:

DO NOT SOLDER OR SOLDER REFLOW THE BASE OF THE PACKAGE!

Please see Multiplex application note “MRX & MRP MSA Receivers Recommended Package Soldering Technique”. Soldering to the package base will void the warranty.



Pin Assignments

#1	GND
#2	V_pd
#3	P_mon
#4	NC
#5	NC
#6	GND

#17	GND
#16	NC
#15	NC
#14	Vcc (+3.3V)
#13	NC
#12	GND

#7	#8	#9	#10	#11
GND	QN	GND	Q	GND