

RX77R1A

2.5 Gbps Fiber Optic Receiver with Clock Recovery and Retiming



These RX77R1A 2.5 Gbps fiber optic receivers are designed for use in telecommunication and high-speed data communication applications. The receivers operate at SONET OC-48 and SDH STM-16 data rate. The receivers convert received optical signals in the range of 1200 nm to 1600 nm wavelength into single-ended data and differential clock outputs. The receivers consist of either InGaAs APD or PIN photodiode, a GaAs transimpedance amplifier, and a clock and data recovery (CDR) IC.

Key Features

- Optimized for SONET OC-48 and SDH STM-16 data rate
- Operation from 1200 nm to 1600 nm
- APD and PIN versions available
- Typical sensitivity : -32 dBm with APD
-24 dBm with PIN
- Operating case temperature range
 - APD : 0 °C to 65 °C
 - PIN : 0 °C to 65 °C
- SC or FC/PC connector

Applications

- Telecommunication
 - SONET/SDH
 - Metropolitan area networks
 - Wide area networks
- High speed data communications

Characteristics with Ordering Information

Product Code	PD Type	PD Module Type
RX77R1A-P1000	PIN-PD	Mini-DIL
RX77R1A-P2000	PIN-PD	8-Pin Butterfly
RX77R1A-P3000	APD	Mini-DIL
RX77R1A-P4000	APD	8-Pin Butterfly

For the detailed information of PD type, please contact us.

2 | RX77R1A 2.5 Gbps Fiber Optic Receiver with Clock Recovery and Retiming

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Note
Supply voltage					
Vcc	4.75	5.0	5.25	V	
Vee	-5.45	-5.2	-4.95	V	
Supply current					
Icc	-		180	mA	
Iee	-		300	mA	
APD bias	40	-	60	V	Note 1
PIN bias	-	5	-	V	
Output data & clock voltage (single-ended)					
	0.5	0.7	0.9	V	
Output data rise/fall time	-	100	150	ps	20%~80%
Output clock rise/fall time	-	100	150	ps	20%~80%
Clock duty cycle	45	50	55	%	
Jitter generation				Uirms	G.958
Jitter tolerance				Uirms	G.958
Jitter transfer peaking	-	-	0.1	dB	

Note 1: Internal high-voltage supplier
 Note: Measured internally AC coupled
 Note: Measured with a 2²³ - 1 PRBS, 2488.32 Mbps

Optical Characteristics

Parameter	Min	Typ	Max	Unit	Note
Bit Rate		2488.32		Mbps	
Receiver Sensitivity					
APD	-	-32		dBm	Note 1
PIN	-	-24		dBm	
Maximum Input Power					
APD	-	-	-7	dBm	
PIN	-	-	0	dBm	

Note 1: At 1.5 μm wavelength, 1°ø10⁻¹⁰ BER with 2²³ - 1 PRBS

Absolute Maximum Ratings

These are absolute stress ratings only. Subjecting to stresses higher than these ratings may adversely affect device reliability or cause permanent damages to the device.

Parameter	Min	Typ	Max	Unit	Note
Supply voltage					
Vcc	-		+6	V	
Vee	-6		-	V	
Operating case temperature					
APD	0		75	°C	
PIN	0		75	°C	
Relative humidity	-		90	%RH	
Fiber bend radius	30		-	mm	

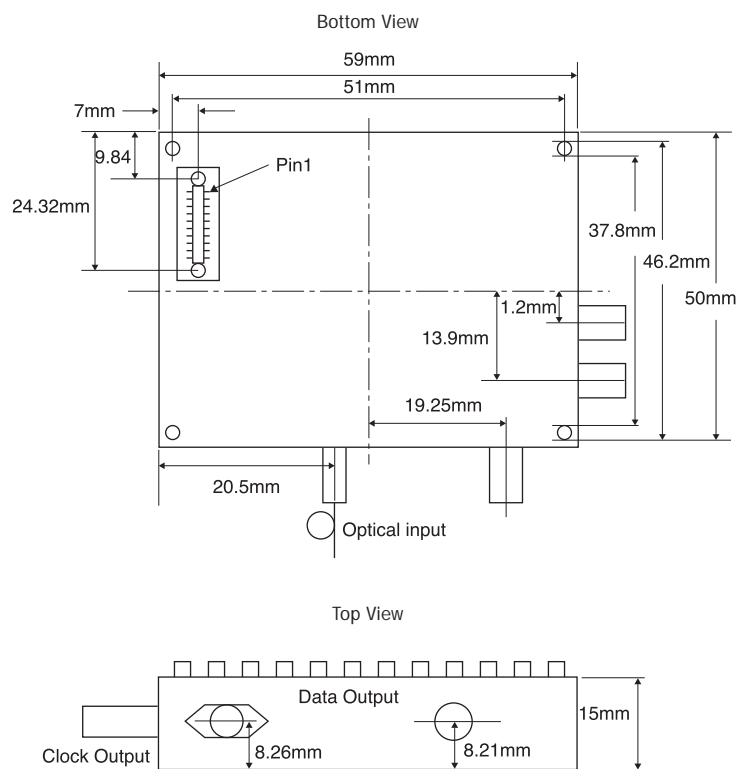
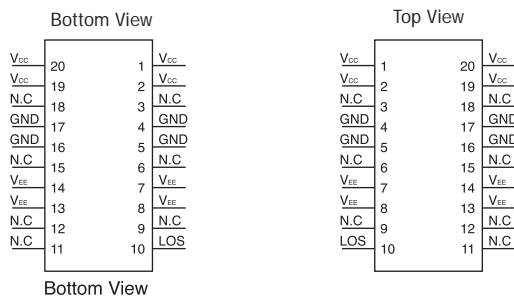
3 **RX77R1A 2.5 Gbps Fiber Optic Receiver with Clock Recovery and Retiming**

Outline Diagram

Dimensions are in millimeters.

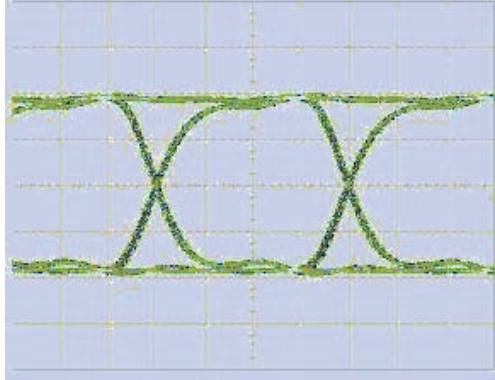
PIN information

1. Vcc	6. NC	11. NC	16. GND
2. Vcc	7. Vee	12. NC	17. GND
3. NC	8. Vee	13. Vee	18. NC
4. GND	9. NC	14. Vee	19. Vcc
5. GND	10. LOS	15. NC	20. Vcc



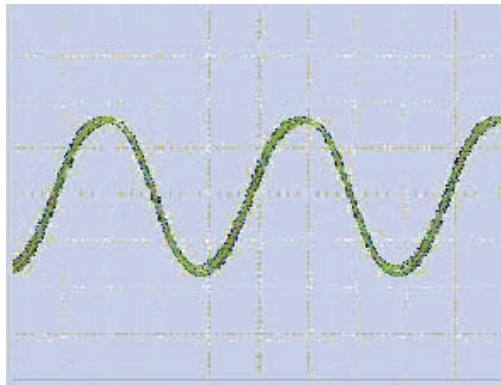
Performance Characteristics

Eye Diagram of Receiver



Horizontal Axis: 100p sec/div
Vertical Axis: 200 mV/div

Clock Diagram of Receiver



Horizontal Axis: 100p sec/div
Vertical Axis: 200 mV/div

For further information, please contact:

Samsung Optoelectronics Division
416 Maetan-3Dong, Paldal-Gu
Suwon, Kyungki-Do
Korea 442-742
Phone: (82) 31-200-8703
Fax: (82) 31-200-8811

E-mail:
optoamer@samsungelectronics.com
optoeuaf@samsungelectronics.com
optoasia@samsungelectronics.com
URL: www.samsungfiberoptics.com

Samsung Electronics Company Limited reserves the right to change products and specifications without notice. Copyright 2001 © Samsung Electronics Co, Ltd. All rights reserved.

2/1/2001 printed in Korea