

Product Bulletin



2.5 Gb/s SONET/SDH Mini-DIL Optical Receiver Module ERM 537/547

The JDS Uniphase ERM 537/547 series consists of small form factor (SFF) 2.5 Gb/s SONET/SDH optical receivers with InGaAs PIN or avalanche photodiodes and high bandwidth linear transimpedance amplifiers. They are available with differential outputs. The differential outputs can be used for added gain or for signal monitoring.

Identical pinouts are available for short haul (ERM 537) and long haul (ERM 547) receivers. Both devices come in an eight-pin mini DIL package with 8.7/125 μm single mode fiber sheathed in a 900 μm tight jacket. The same pinout and package allow system designers to implement single-board designs.

JDS Uniphase ERM 537/547 receivers are available with industry standard FC, SC, and LC connectors.

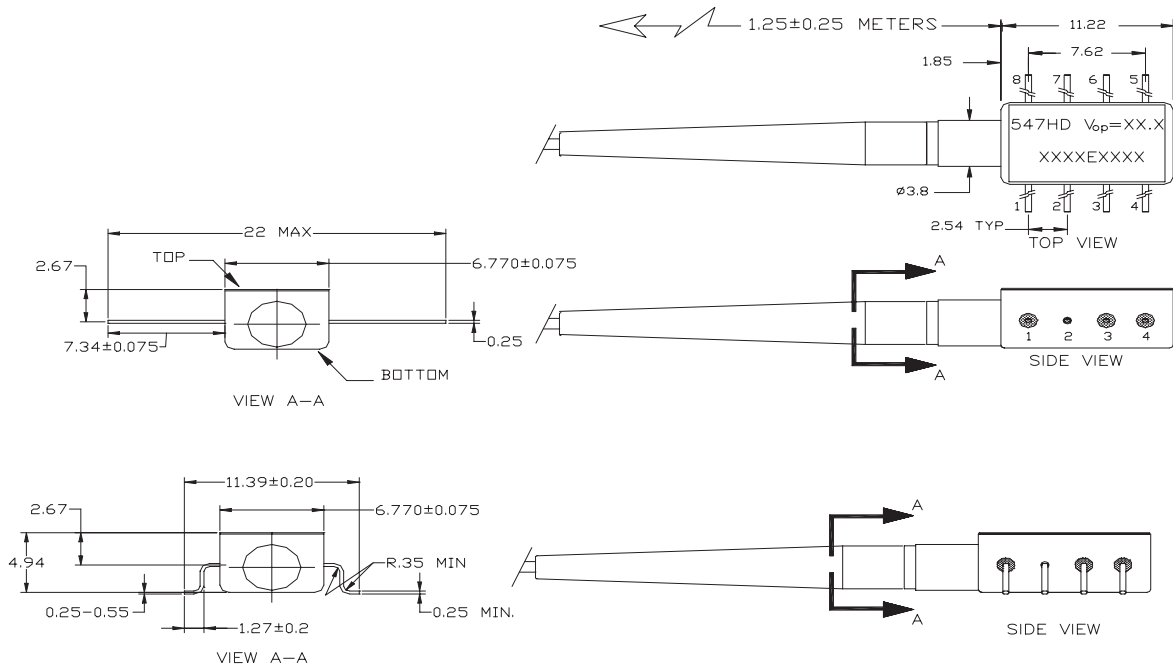
Key Features

- InGaAs PIN or avalanche photodiode with transimpedance amplifier
- High sensitivity: -24 dBm typical for PIN; -33 dBm typical for APD
- Differential output configuration
- Small form factor

Applications

- High sensitivity, short or long haul digital receivers
- SONET/SDH receivers
- Digital receivers in transponder

Dimensions Diagram (Specifications in mm unless otherwise noted.)



Pinout

PIN	Differential Output
1	V_{pd} (cathode)
2	GND
3	Output (+)
4	GND
5	GND
6	Output (-)
7	GND
8	V_{cc} (+)

- Note:
- Pin #5 can be used as an option of thermistor output for APD receiver.
 - Output (+): Light "on" = Logic "high"
Output (-): Light "on" = Logic "low"

DC Operating Parameters

Parameter	Minimum	Typical	Maximum
APD breakdown voltage	35 V	-	70 V
PD bias voltage	4.75 V	5.0 V	25 V
Supply voltage	3.15 V	3.3 V	3.45 V
Supply current	-	40 mA	60 mA

Maximum Ratings

Parameter	Minimum	Typical	Maximum
Power supply	-0.5 V	-	4.0 V
PD bias voltage	-	-	25 V
Optical input power			
APD	-	-	0 dBm
PIN	-	-	7 dBm
Operating case temperature	-40 °C	-	85 °C
Storage temperature	-40 °C	-	85 °C

Specifications

Parameter	Measurement Conditions	Minimum	Typical	Maximum
	(Temperature = 25 °C, λ = 1550 nm, R_L = 50 Ω All specifications without connector.)			
Responsivity				
APD	V_b -1.5 V	8.5 A/W	-	-
PIN	5 V	0.85 A/W	-	-
Dark current				
APD		-	10 nA	40 nA
PIN		-	0.5 nA	2.0 nA
Transimpedance		3000 Ω	4500 Ω	-
Sensitivity				
APD	BER = $1 \cdot 10^{-10}$, M = 10	-31 dBm	-33 dBm	-
PIN	BER = $1 \cdot 10^{-10}$	-22 dBm	-24 dBm	-
3 dB bandwidth		1.8 GHz	-	-
Maximum output voltage		400 mV	500 mV	600 mV
Low frequency cutoff		-	30 kHz	-
Output return loss	f = 50 MHz to 1.8 GHz	7 dB	15 dB	-
Optical back reflection		-	-40 dB	-30 dB
Overload				
APD	BER = $1 \cdot 10^{-10}$, M = 3	-7 dBm	-3 dBm	-
PIN	BER = $1 \cdot 10^{-10}$	-2 dBm	0 dBm	-

Ordering Information

For more information on this or other products and their availability, please contact your local JDS Uniphase account manager or JDS Uniphase directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at sales@jdsu.com.

Precautions for Use

Electrostatic Discharge (ESD) protection is imperative. We recommend the use of grounding straps, antistatic mats, and other standard ESD protective equipment when handling or testing an InGaAs PIN or any other junction photodiode. Lead soldering temperature should not exceed 260 °C for more than 10 seconds. Fiber feed through tube temperature should not exceed 120 °C. Fiber pigtailed should be handled with less than 10 N pull and with a bending radius greater than 1 inch.



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