HR1161PDS

InAlGaAs PIN Preamp

HITACHI

ADE-208-1513A (Z)

Preliminary
Rev.1
Mar. 2002

Description

The HR1161PDS is the dual output type receiver for 10 Gb/s 1.3 μm short and medium haul communication systems incorporated with InAlGaAs PIN photo diode and SiGe Preamp. Optical signal is launched into the small non-hermetic ceramic package through single mode fiber pigtail terminated with SC type connector.

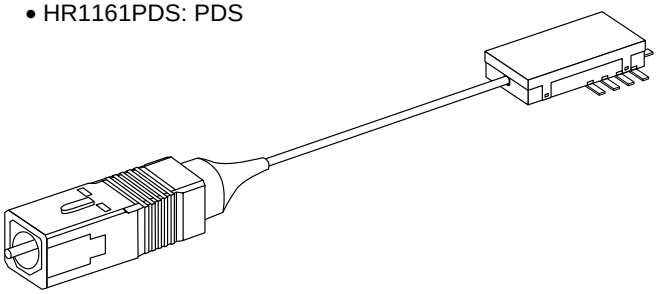
Features

- Small non-hermetic ceramic package
- Low voltage operation (V_{CC} = +3.3 V, Vpd = +5 V)
- Single mode fiber attached

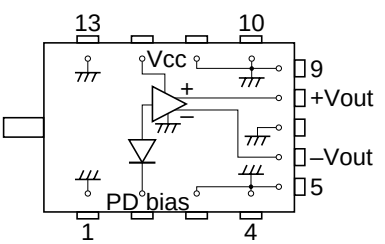
Fiber Specifications

- Mode field diameter: 9.5 ± 1.0 μm
- Cutoff wavelength: 1.10 to 1.27 μm
- Outer diameter: 125 μm nominal
- Jacket diameter: 900 μm nominal
- Fiber minimum bend radius: 30 mm

Package Type
• HR1161PDS: PDS



Internal Circuit (Top View)



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Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit	Condition
Operating temperature	Topr	–0 to +85	°C	
Storage temperature	Tstg	–40 to +85	°C	
IC supply voltage	V_{cc}	–0.5 to +5	V	
PD supply voltage	Vpd	–0.5 to +15	V	
Input power	P_O max	2	dBm	

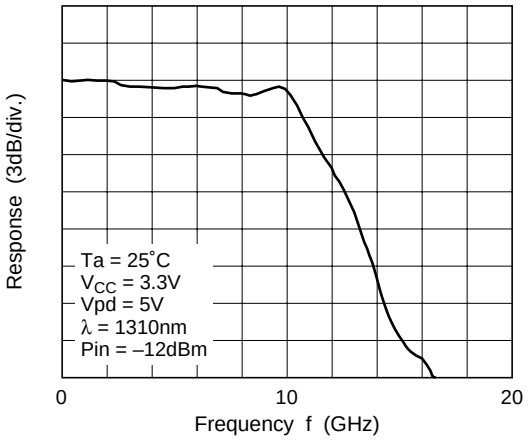
Optical and Electrical Characteristics

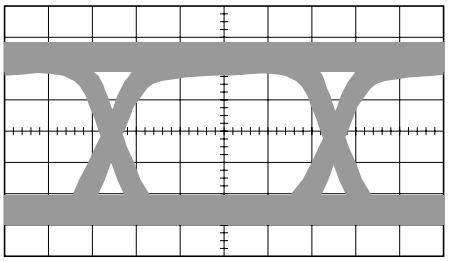
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Wavelength range	λ	1260	—	1360	nm	
Responsivity	Resp	0.7	0.8	—	A/W	V_{cc} = +3.3 V, Vpd = +5.0 V, λ = 1310 ± 5 nm, Pin = 100 μW
Transimpedance	T_z	340	590	730	Ω	
Bandwidth	BW	7	8	—	GHz	V_{cc} = +3.3 V, Vpd = +5.0 V, Pin = –12 dBm, –3 dB, ZI = 50 Ω, AC coupled
Sensitivity	P_s	—	–18	–17	dBm	V_{cc} = +3.3 V, Vpd = +5.0 V, λ = 1310 ± 5 nm, ZI = 50 Ω, AC coupled
Overload	Pmax	0.5	3	—	dBm	V_{cc} = +3.3 V, Vpd = +5.0 V, λ = 1310 ± 5 nm, ZI = 50 Ω, AC coupled
Positive supply current	I_{cc}	10	46	62	mA	V_{cc} = +3.3 V, Vpd = +5.0 V, Pin = 0
Positive supply voltage	V_{cc}	3.0	3.3	3.6	V	Recommended V_{cc} value
PD supply voltage	Vpd	4.7	5.0	5.3	V	Recommended Vpd value
Optical return loss	ORL	—	—	–27	dB	

Typical Characteristic Curves

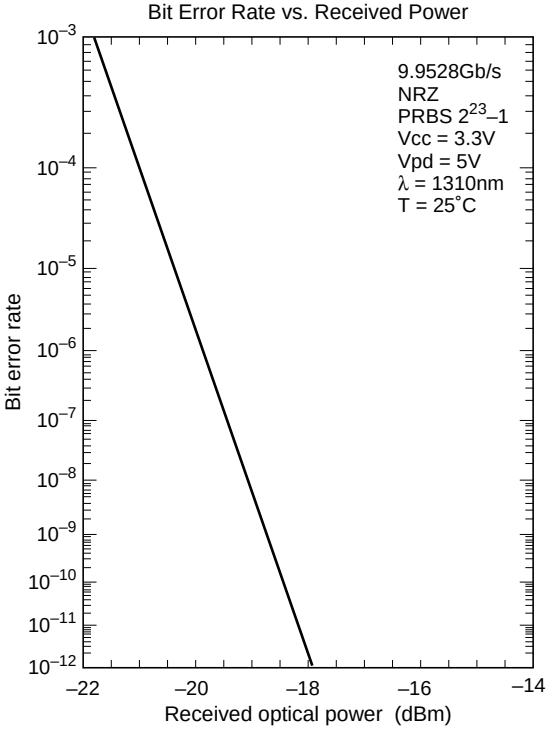
Frequency Response



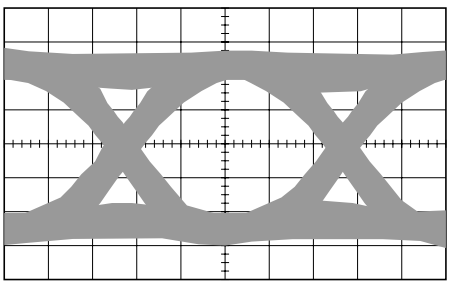


Input wave form

Bit Error Rate vs. Received Power



Optical Pulse Response (Pin = –12dBm, Ta = 25˚C)



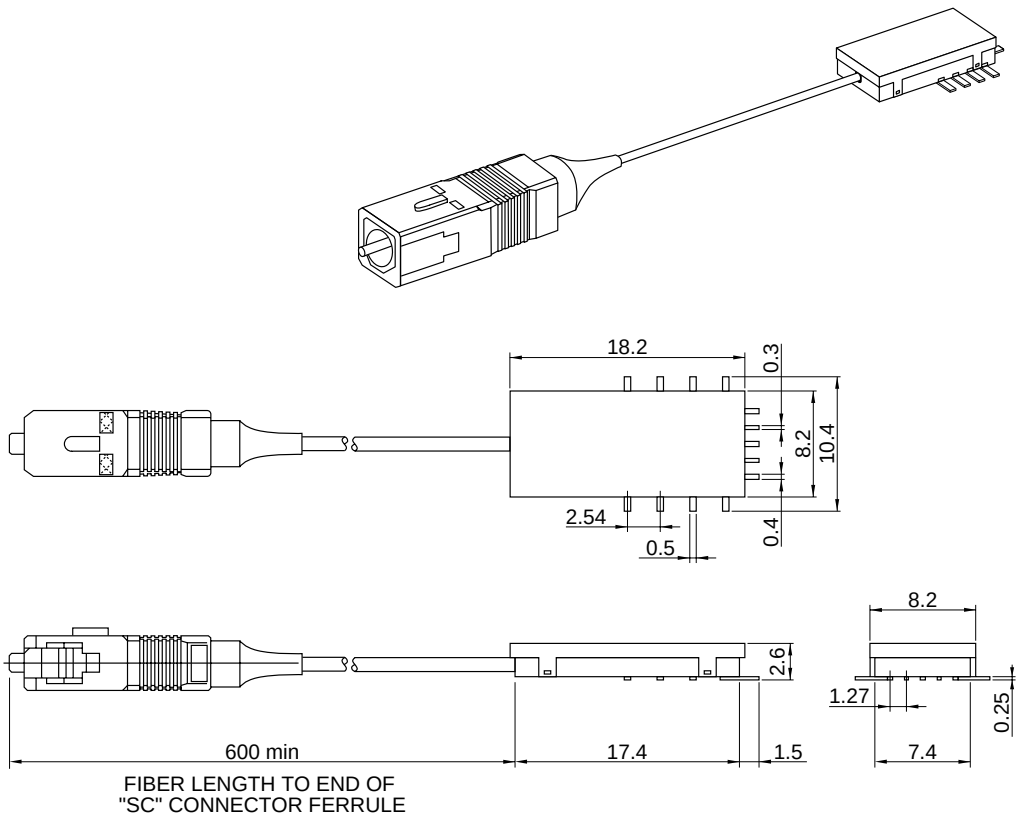
20ps/div.

Output wave form

Test conditions
Tc = 25˚C
Vcc = +3.3V
Vpd = 5V
Pin = –12dBm
PN13
at 1310nm

Pacage Dimensions

Unit: mm



Hitachi Code	LD/PDS
JEDEC	—
JEITA	—
Mass (reference value)	—

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