

InGaAs PIN photodiode with preamp G9441-14

ROSA type, 1.3/1.55 μm , 156 Mbps



Features

- $\phi 1.25$ mm sleeve type ROSA (Receiver Optical Sub-Assembly)
- High-speed response: 156 Mbps
- High gain with AGC (Auto Gain Control): 26 V/mW (-30 dBm)
- Low power supply voltage: 3.3 V
- Differential output
- Sensitivity: 0 to -36.5 dBm Typ.
- Optical return loss: 35 dB

Applications

- SDH/SONET
- Optical fiber communications

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.3, +3.8	V
Operating temperature	Topr	-20 to +70 *1	°C
Storage temperature	Tstg	-40 to +85 *1	°C

*1: No condensation

■ Electrical and optical characteristics

(Ta=25 °C, Vcc=3.3 V, Vee=0 V, RL=500 Ω *2, λ =1310 nm, unless otherwise noted)

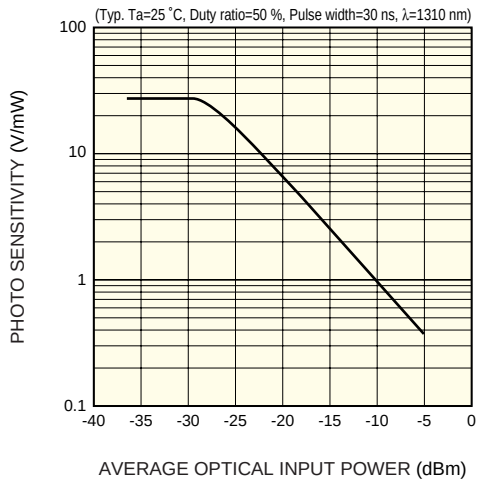
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo sensitivity	S	Pin= -30 dBm *3	18	26	-	V/mW
Supply current	Icc	Dark state, RL= ∞	-	25	35	mA
Output bias voltage	Vo	Dark state, RL= ∞	-	1.5	-	V
Cut-off frequency	fc	Pin= -30 dBm, -3 dB (0 dB at 20 MHz) *3	85	120	-	MHz
Low cut-off frequency	fc-L	-3 dB	-	15	-	kHz
Noise equivalent power	NEP	Dark state, fc-L to 117 MHz *3	-	21	32	nWrms
Minimum receivable sensitivity	Pmin	156 Mbps, NRZ, PN=23, BER=10 ⁻¹⁰ , Extinction ratio=8.2 dB	-	-36.5	-	dBm
Maximum receivable sensitivity	Pmax		-	0	-	
Optical return loss	ORL		28	35	-	dB

*2: Output: Capacitive coupling

This module should be used with a load resistance larger than 500 Ω .

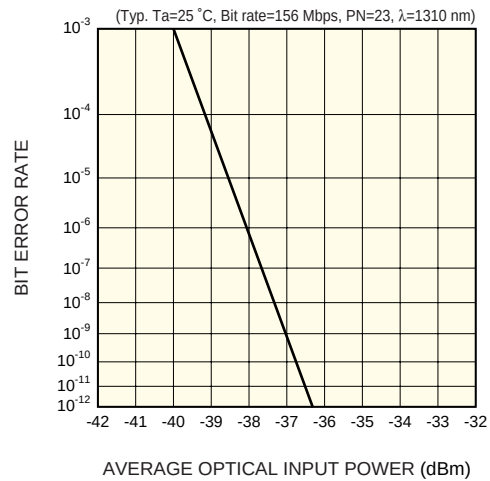
*3: Single-ended (Vout+) measurement

■ Photo sensitivity vs. average input optical power



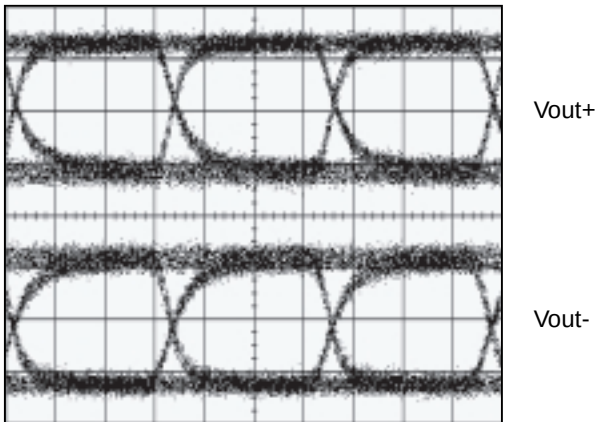
KIRDB0290EB

■ Bit error rate



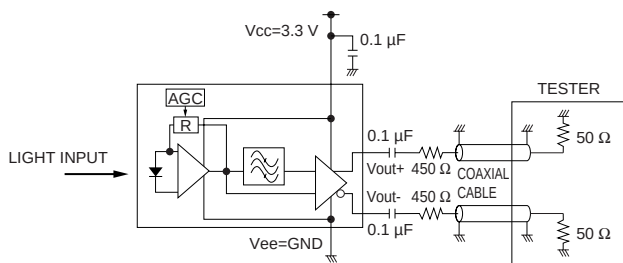
KIRDB0291EB

■ Eye diagram



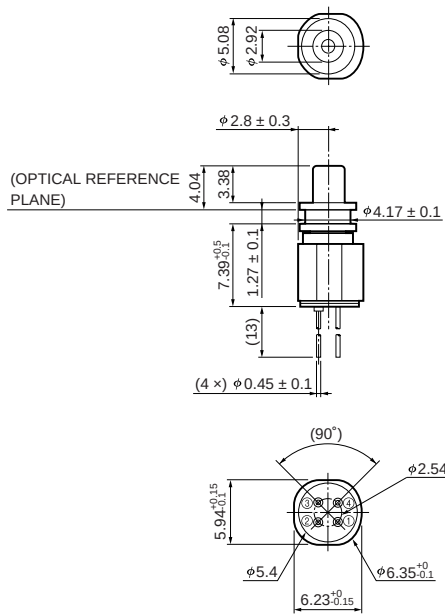
Bit rate=156 Mbps, PN=23, $\lambda=1310$ nm
Pin= -20 dBm

■ Operating circuit example



KIRDC0052EA

■ Dimensional outline (unit: mm)



KIRDA0178EA

HAMAMATSU

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Hamamatsu City, 435-8558 Japan, Telephone: (81) 053-434-3311, Fax: (81) 053-434-5184, <http://www.hamamatsu.com>

U.S.A.: Hamamatsu Corporation, 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH, Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 8, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited, 2 Howard Court, 10 Tevin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB, Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741

Cat. No. KLED1070E01
Jan. 2004 DN