

InGaAs PIN photodiode with preamp



G9820 series

TO-46 package, 1.3/1.55 μm , 2.5 Gbps

G9820 series is a family of high-speed receivers specifically developed for 1.3/1.55 μm band optical fiber communications. These devices incorporate a high-speed, high-sensitivity InGaAs PIN photodiode integrated with a high-speed preamp, allowing easy connection to a latter-stage circuit. Lens window types are also available for efficient and easy coupling to an optical fiber.

Features

- High-speed response
- High gain with AGC (Auto Gain Control)
- Low power supply voltage: 3.3 V
- Differential output
- Sensitivity: -25.5 to +1 dBm

Applications

- Optical fiber communications
- Fiber channel
- Gigabit Ethernet
- SDH/SONET (STM-16/OC-48)

Absolute maximum ratings

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5, +5.0	V
Operation temperature *1	Topr	-40 to +85	$^{\circ}\text{C}$
Storage temperature *1	Tstg	-40 to +85	$^{\circ}\text{C}$

*1: No condensation

Electrical and optical characteristics

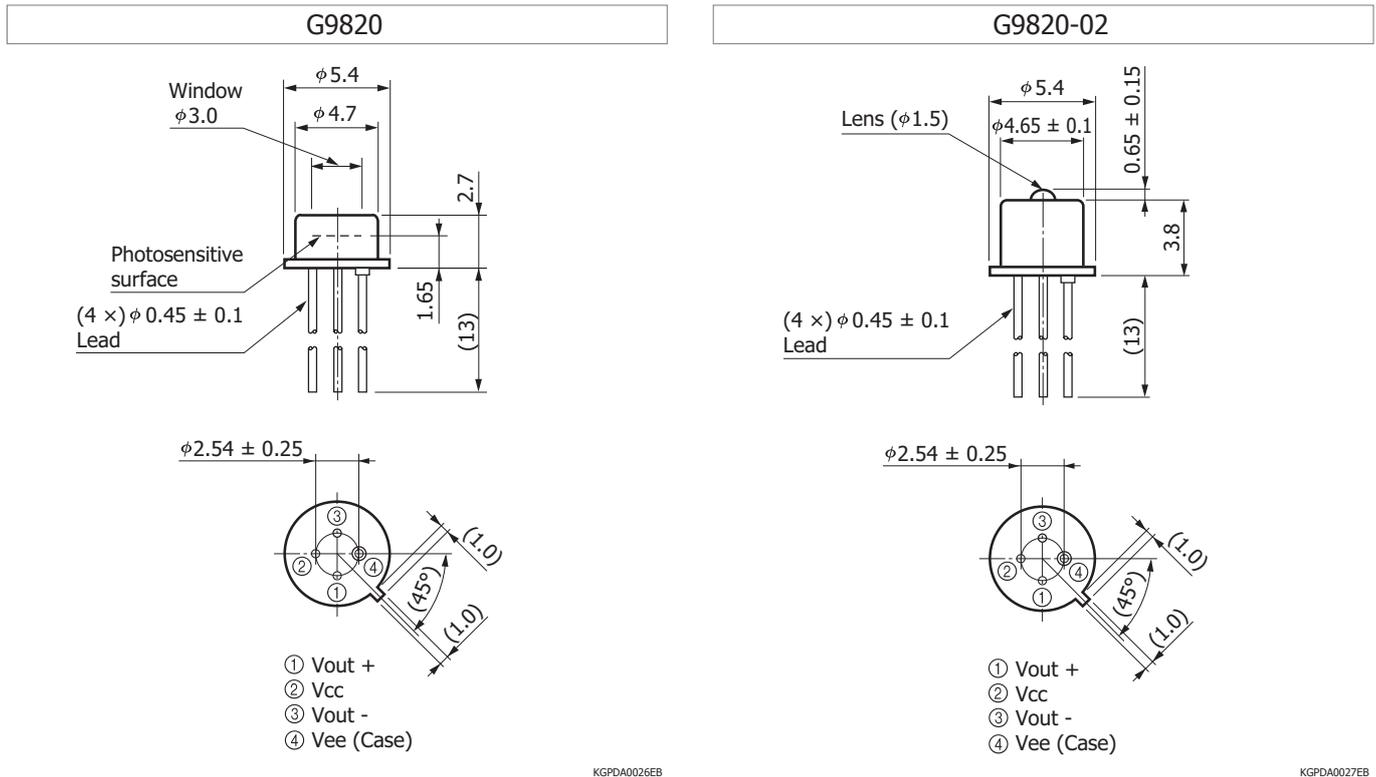
(Ta=25 $^{\circ}\text{C}$, Vcc=3.3 V, Vee=0 V, RL=50 Ω *2, λ =1.31 μm , unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo sensitivity	S	Pin= -22 dBm *2 *3	1.0	1.5	-	V/mW
Supply current	Icc	Dark state, RL= ∞	-	45	60	mA
Output bias voltage	Vo	Dark state, RL= ∞	-	3.0	-	V
Cutoff frequency	fc	Pin= -22 dBm, -3 dB *2	1.7	2.1	-	GHz
Low cutoff frequency	fc-L	Pin= -22 dBm, -3 dB	-	3.0	-	kHz
Noise equivalent power	NEP	Dark state, to 1875 MHz, *2 *3	-	310	500	nWrms
Minimum receivable sensitivity	Pmin	2.5 Gbps, PRBS=2 ²³ -1 BER=10 ⁻¹⁰	-	-25.5	-23.5	dBm
Maximum receivable sensitivity	Pmax	Extinction ratio=10 dB	+1	-	-	
Output impedance	Rout		40	50	60	Ω

*2: Output: capacitive coupling

*3: Single-ended (Vout+) measurement

Dimensional outlines (unit: mm, tolerance unless otherwise noted: ± 0.2)



Related information

www.hamamatsu.com/sp/ssd/doc_en.html

Precautions

- Disclaimer
- Metal, ceramic, plastic package products

Technical information

- Infrared detectors

Information described in this material is current as of September 2017.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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