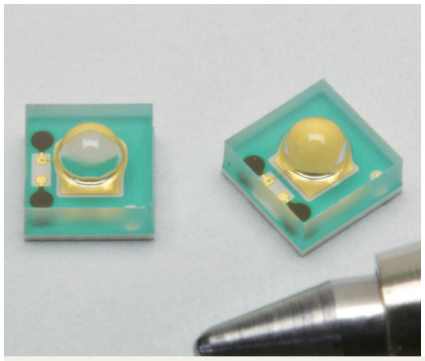
HAMAMATSU
PHOTON IS OUR BUSINESS

InGaAs PIN photodiode



G14448-003L

Surface mount type COB package with lens

The G14448-003L is a compact near-infrared detector available in a surface mount type COB package with lens. Using the lens provides narrow directivity, which allows for pinpoint analysis/measurement and other uses. The small package makes it suitable for inclusion in compact and mobile equipment.

Features

- **Low noise**
- **High sensitivity**
- **High-speed response**
- **Compact surface mount type package with lens (2.8 × 2.8 × 2.0t mm)**
- **Applicable lead-free reflow soldering**

Applications

- **Light level monitor**

Structure

Parameter	Symbol	Specification	Unit
Window material	-	Silicone resin	-
Package	-	Glass epoxy	-
Photosensitive area	-	ϕ0.3	mm

Absolute maximum ratings

Parameter	Symbol	Condition	Specification	Unit
Reverse voltage	V_R max		10	V
Operating temperature	Topr	No dew condensation*	-25 to +105	°C
Storage temperature	Tstg	No dew condensation*	-40 to +105	°C
Reflow soldering conditions	-	JEDEC Level 2	Peak temperature: 260 °C, 2 times	-

* When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

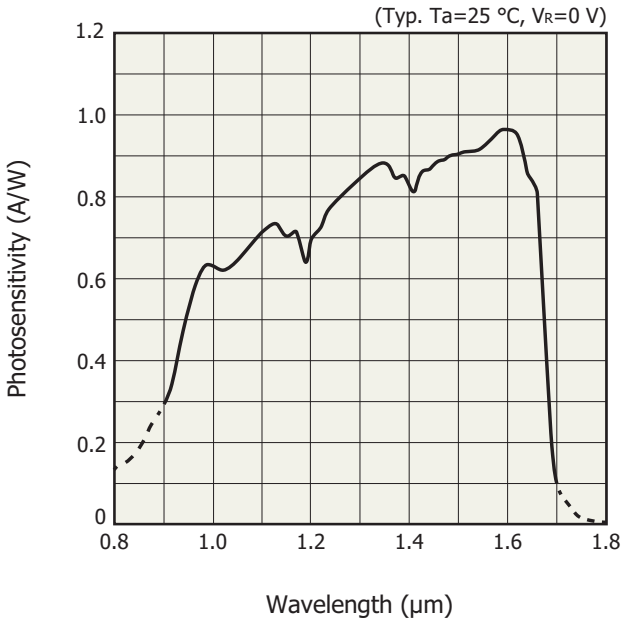
Note: Handle the G14448-003L with tweezers and gloves. Do not touch it with bare hands. As the resin area of the G14448-003L is soft, do not allow sharp or hard objects to come in contact with it, or apply external force to it.
Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

The G14448-003L may be damaged or degraded by static electricity. Be careful when using the G14448-003L.

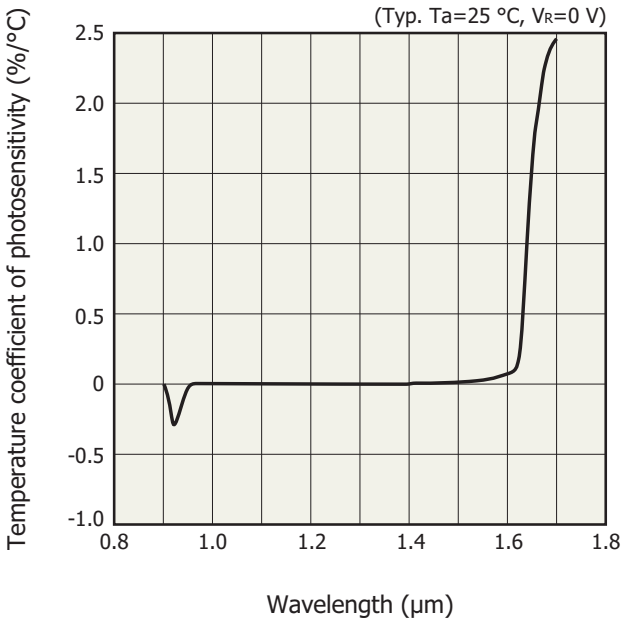
Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ	10% or more of the value at peak	-	0.9 to 1.7	-	μm
Peak sensitivity wavelength	λp		-	1.55	-	μm
Photosensitivity	S	λ=1.3 μm	0.75	0.85	-	A/W
		λ=λp	0.85	0.95	-	
Dark current	ID	VR=5 V	-	100	800	pA
Dark current temperature coefficient	ΔTID	VR=1 V	-	1.09	-	times/°C
Cutoff frequency	fc	VR=5 V, RL=50 Ω	300	600	-	MHz
Terminal capacitance	Ct	VR=5 V, f=1 MHz	-	5	8	pF
Shunt resistance	Rsh	VR=10 mV	100	700	-	MΩ
Detectivity	D*	λ=λp	1.5×10^{12}	5×10^{12}	-	cm·Hz$^{1/2}$/W
Noise equivalent power	NEP	λ=λp	-	5×10^{-15}	2×10^{-14}	W/Hz$^{1/2}$

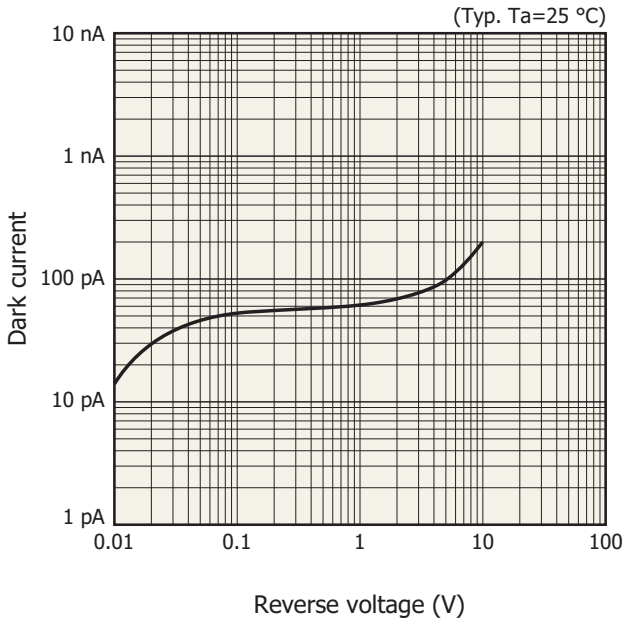
Spectral response



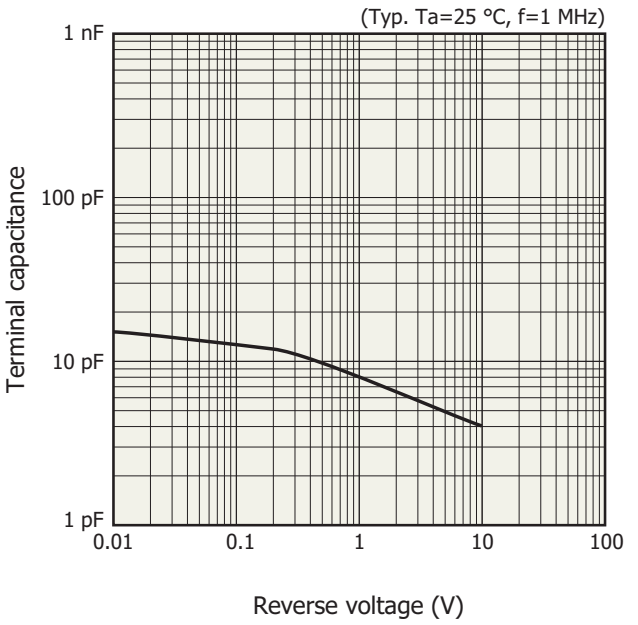
Photosensitivity temperature characteristics



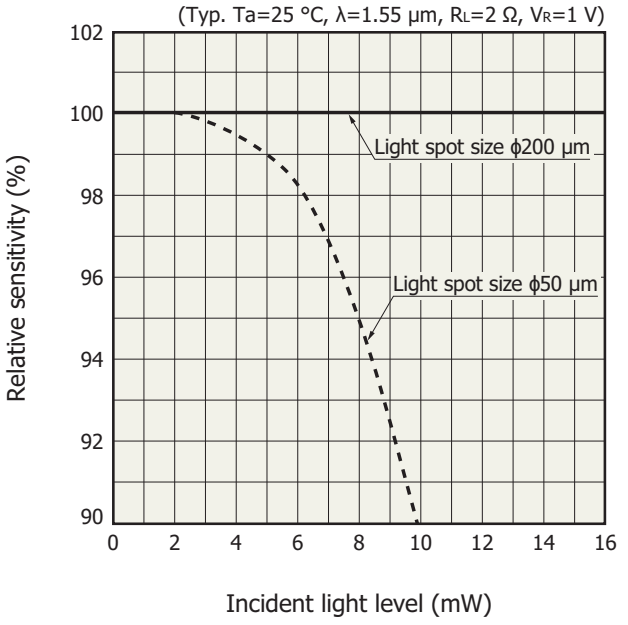
Dark current vs. reverse voltage



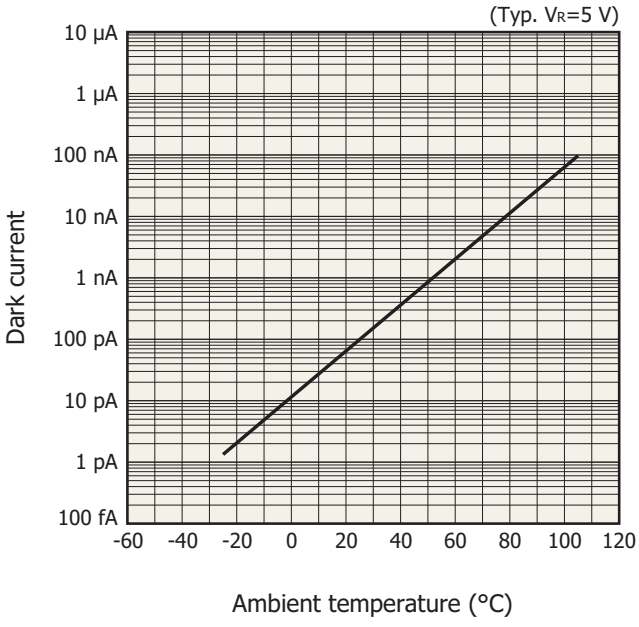
Terminal capacitance vs. reverse voltage



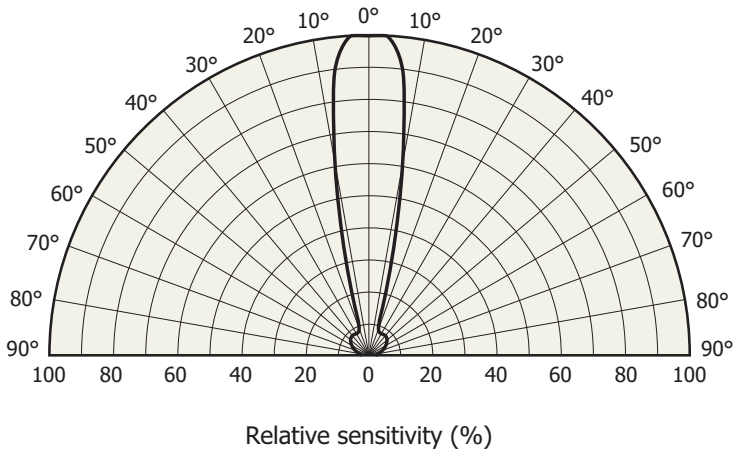
Linearity



Dark Current vs. ambient temperature

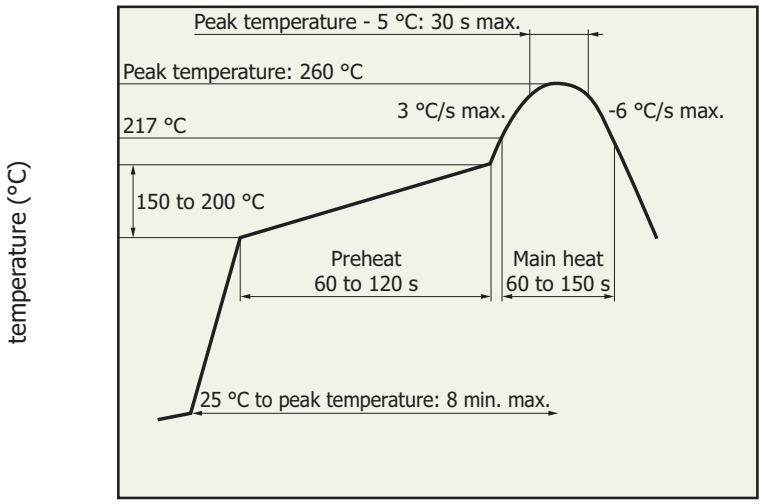


Directivity



KIRDB0657EA

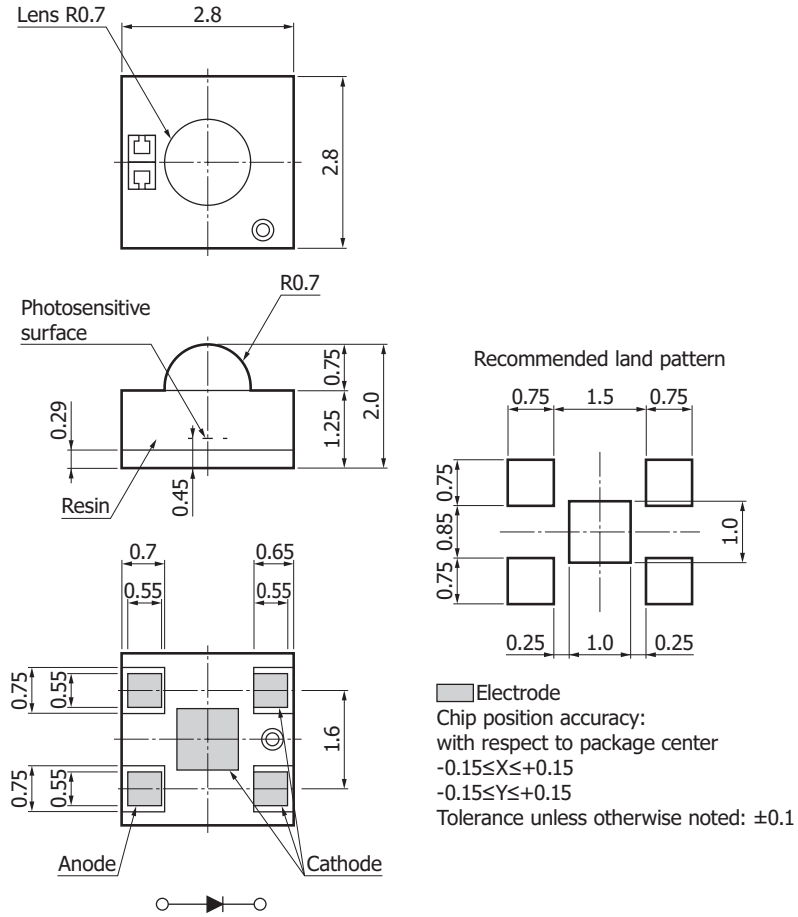
Recommended solder reflow conditions



- After unpacking, store the device in an environment at a temperature range of 5 to 30 °C and a humidity of 60% or less, and perform reflow soldering within 1 year.
- The thermal stress applied to the device during reflow soldering varies depending on the circuit board and the reflow oven that are used.
- When setting the reflow conditions, verify that the reliability of the device is not compromised by the reflow soldering process.

KIRDB0622EA

Dimensional outline (unit: mm)



KIRDA0262EA

Related information

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

■ Precautions
· Disclaimer
· Safety consideration
· Surface mount type products

■ Technical information
· Infrared detectors

Information described in this material is current as of October 2018.
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.
The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

HAMAMATSU www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division
1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81)53-434-3311, Fax: (81)53-434-5184
U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, N.J. 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218, E-mail: usa@hamamatsu.com
Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8, E-mail: info@hamamatsu.de
France: Hamamatsu Photonics France S.A.R.L.: 19, 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, E-mail: infos@hamamatsu.fr
United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44)1707-294888, Fax: (44)1707-325777, E-mail: info@hamamatsu.co.uk
North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01, E-mail: info@hamamatsu.se
Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41, E-mail: info@hamamatsu.it
China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R.China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866, E-mail: hpc@hamamatsu.com.cn
Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No. 158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081, E-mail: info@hamamatsu.com.tw