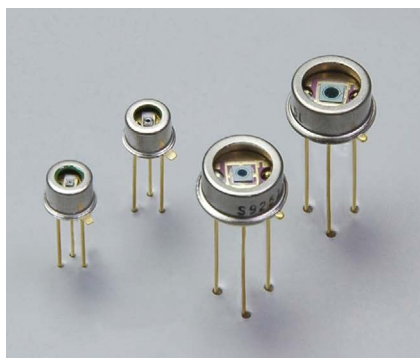




S9251/S12092 series

**High sensitivity in near infrared range
($\lambda=900$ nm)**

These are Si APDs that offer enhanced 900 nm band near-infrared sensitivity. They are suitable for applications such as optical rangefinders.

Features

- High sensitivity in near infrared range ($\lambda=900$ nm)
- Stable operation

Applications

- Optical rangefinders
- FSO (free space optics)

Structure / Absolute maximum ratings

Type no.	Dimensional outline/ Window material*1	Package	Effective*2 photosensitive area size (mm)	Absolute maximum ratings			
				Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)	Forward current I _F max (mA)	Reverse current I _R max (μA)
S12092-02	(1)/K	TO-18	φ0.2	-20 to +85	-55 to +125	10	200
S12092-05			φ0.5				
S9251-10	(2)/K	TO-5	φ1.0				
S9251-15			φ1.5				

Note: 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.

*1: K=borosilicate glass

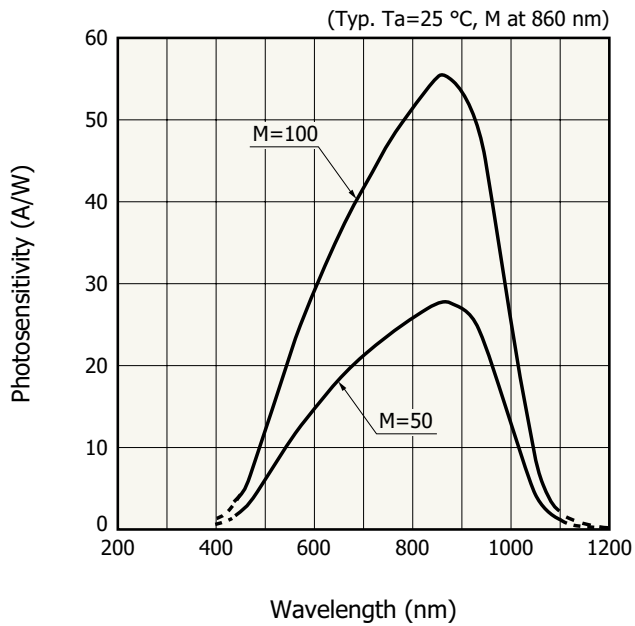
*2: Area in which a typical gain can be obtained

Electrical and optical characteristics (Typ. T_a=25 °C, unless otherwise noted)

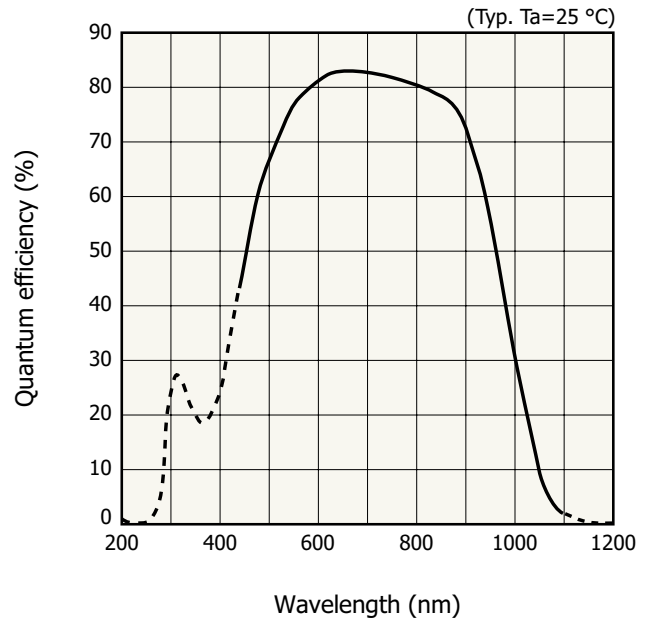
Type no.	Spectral response range λ (nm)	Peak*3 sensitivity wavelength λ_p (nm)	Photo- sensitivity S M=1 $\lambda=900$ nm (A/W)	Quantum efficiency QE M=1 $\lambda=900$ nm (%)	Breakdown voltage V _{BR} I _D =100 μA		Temp. coefficient of V _{BR} (V/°C)	Dark*2 current I _D		Cutoff*3 frequency f _c R _L =50 Ω (MHz)	Terminal*3 capacitance C _t (pF)	Excess*3 noise figure x $\lambda=900$ nm	Gain M $\lambda=900$ nm
					Typ.	Max.		Typ.	Max.				
S12092-02	440 to 1100	860	0.52	72	250	350	1.85	0.1	1	400	0.4	0.3	100
S12092-05								0.2	2		0.7		
S9251-10								0.4	4		1.9		
S9251-15								0.8	8		3.6		

*3: Values measured at a gain listed in the characteristics table

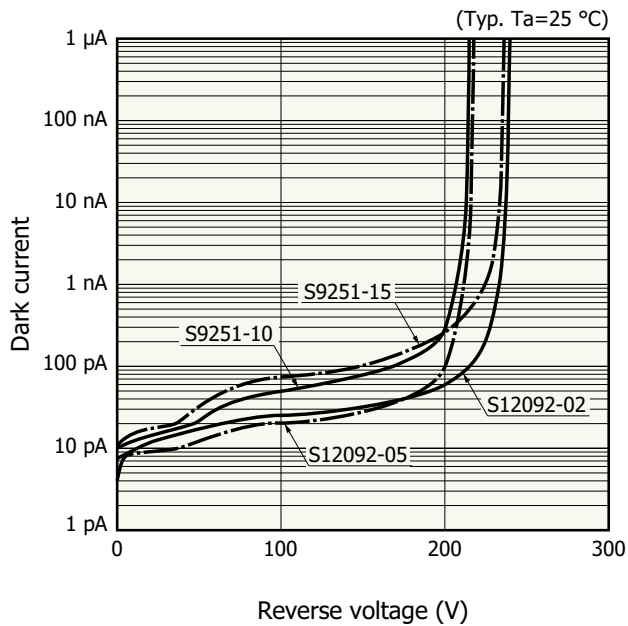
Spectral response



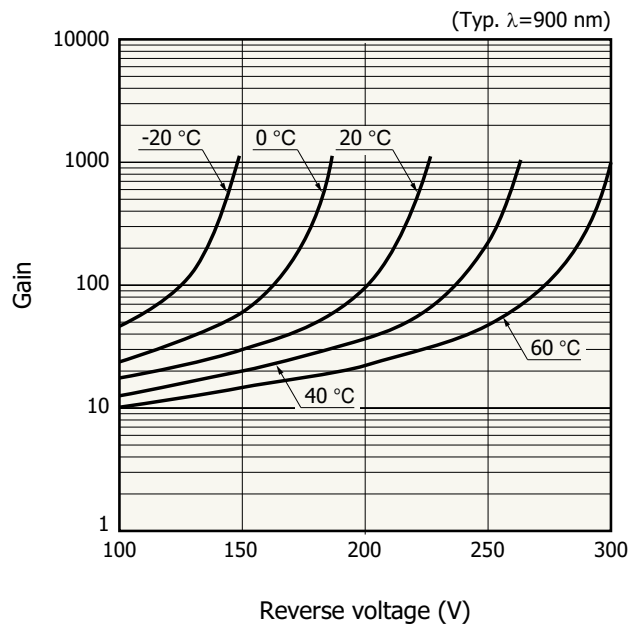
Quantum efficiency vs. wavelength



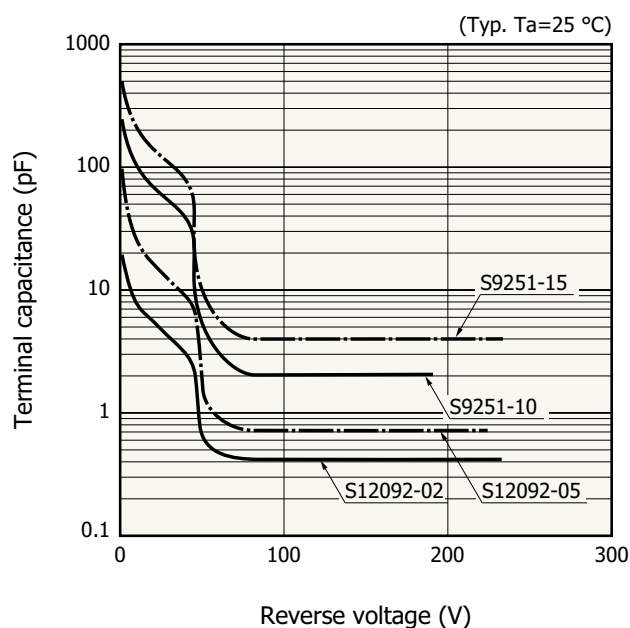
Dark current vs. reverse voltage



Gain vs. reverse voltage

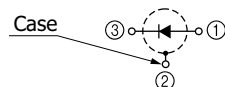
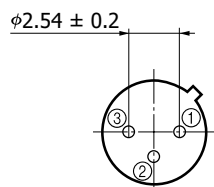
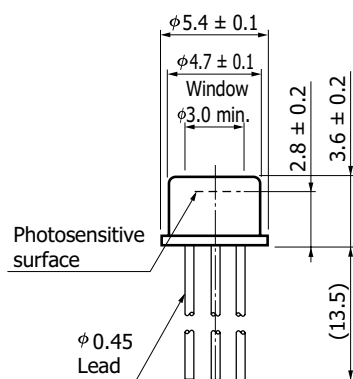


Terminal capacitance vs. reverse voltage



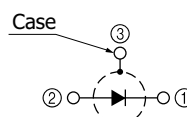
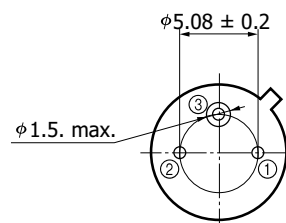
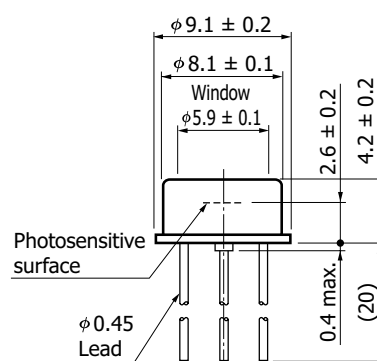
Dimensional outlines (unit: mm)

(1) S12092-02/-05



KAPDA0029EB

(2) S9251-10/-15



KAPDA0030EB

Replacements for previous products

Previous product (listed on the previous datasheet)	Replacement (listed on this datasheet)
S9251-02	S12092-02
S9251-05	S12092-05

* Products that have been removed from this datasheet

Recommended soldering conditions

Solder temperature: 260 °C (10 s or less, once)

Solder the leads at a point at least 1 mm away from the package body.

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

Related information

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

■ Precautions

- Disclaimer
- Precautions / Metal, ceramic, plastic package products

■ Catalogs

- Technical note / Si APD

Information described in this material is current as of February 2026.

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. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.