

S8552, S8553

Vacuum UV (VUV) monitoring photodiodes

The S8552 and S8553 photodiodes have sensitivity in the vacuum UV region. They are specially suitable for excimer laser (ArF: 193 nm, KrF: 248 nm) monitoring. Their design optimized for use in the VUV region provides improved stability in sensitivity for VUV light irradiation compared to previous products.

Features

- **Improved reliability for excimer lasers (ArF: 193 nm, KrF: 248 nm)**
- **Large photosensitive area**
S8552: 10 × 10 mm
S8553: 18 × 18 mm
- **Windowless package**
S8552: 16.5 × 15.0 mm ceramic package
S8553: 25.5 × 25.5 mm ceramic package

Applications

- **Vacuum UV monitor**
- **Excimer laser monitor**

Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Reverse voltage	VR max	5	V
Operating temperature*	Topr	-20 to +60	°C
Storage temperature*	Tstg	-55 to +80	°C

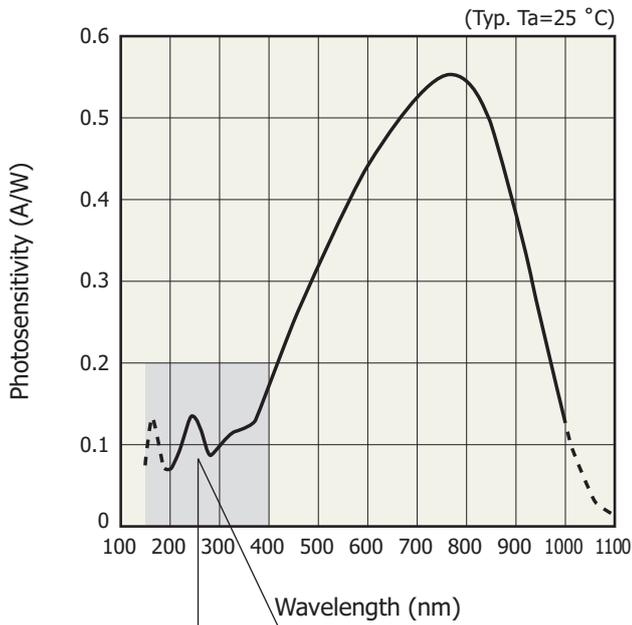
* No dew condensation

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

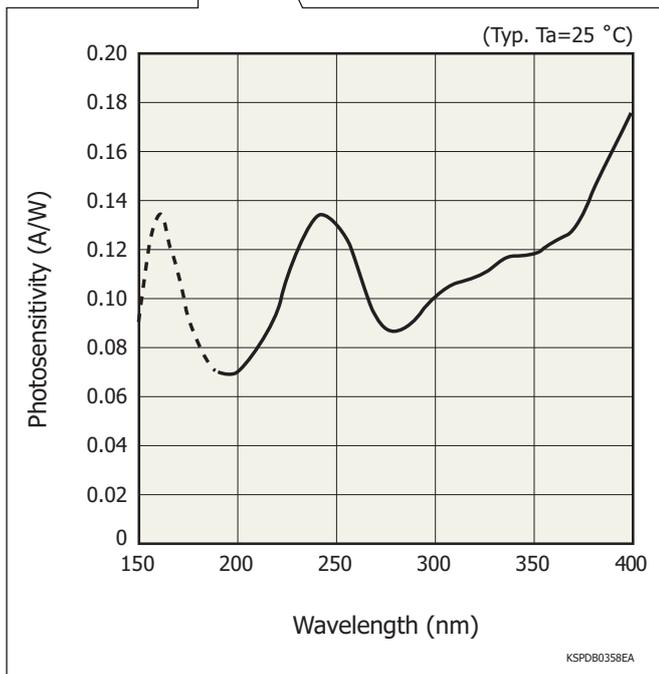
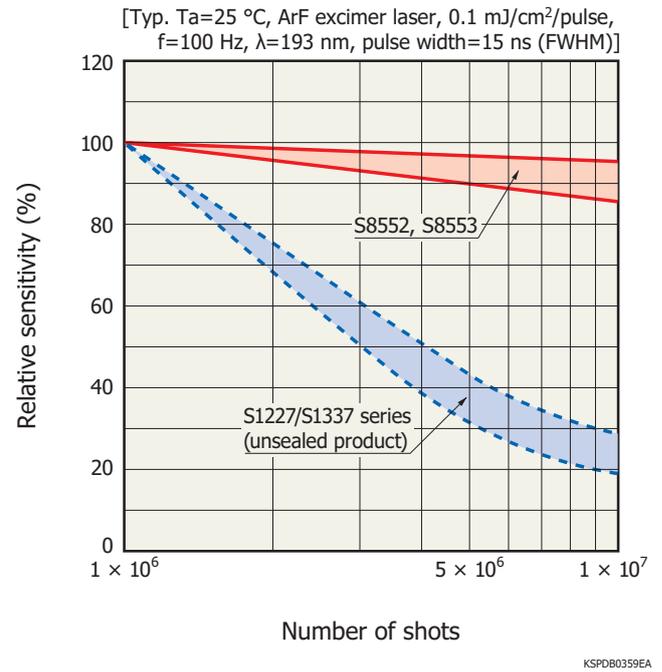
Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	S8552			S8553			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ			190 to 1000			190 to 1000		nm
Photosensitivity	S	$\lambda=193$ nm	45	60	-	45	60	-	mA/W
Dark current	ID	VR=10 mV	-	0.05	1.0	-	0.1	5.0	nA
Terminal capacitance	Ct	VR=0 V, f=10 kHz	-	4.0	-	-	8.0	-	nF
Rise time	tr	VR=0 V, RL=1 k Ω 10 to 90%	-	9	-	-	18	-	μ s

Spectral response

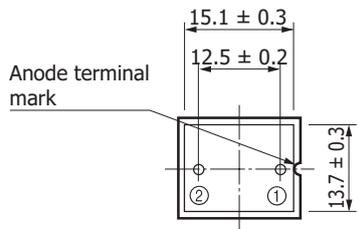
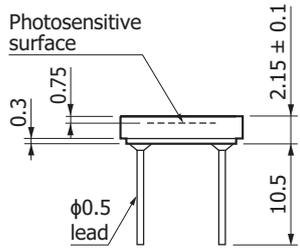
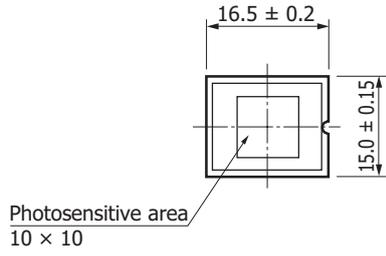


Variation in sensitivity due to VUV exposure

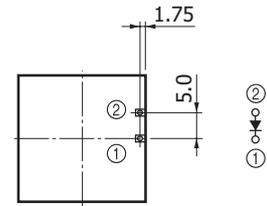
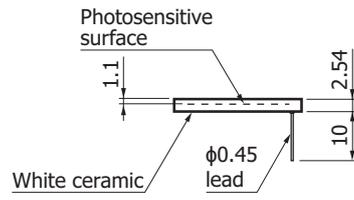
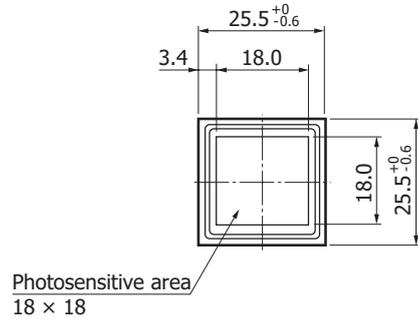


Dimensional outlines (unit: mm)

S8552



S8553



KSPDA0143EA

KSPDA0144EA

Handling precautions

The S8551, S8552 and S8553 use windowless packages with no protection on the photodiode chip. Always use the following precautions when handling these photodiodes.

- Handle the photodiodes in a clean room.
- Never touch the photodiode chip surface and wire bonding.
- Wear dust-proof gloves and dust-proof mask.
- Use an air dust cleaner to blow away dust and foreign matter on the photodiode chip surface.
- Do not clean the photodiodes by any method other than air blow.

Precautions against UV light exposure

- When UV light irradiation is applied, the product characteristics may degrade. Such examples include degradation of the product's UV sensitivity and increase in dark current. This phenomenon varies depending on the irradiation level, irradiation intensity, usage time, and ambient environment and also varies depending on the product model. Before employing the product, we recommend that you check the tolerance under the ultraviolet light environment that the product will be used in.

Related information

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

Precautions

- Disclaimer
- Metal, Ceramic, Plastic products
- Unsealed products

Technical note

- Si photodiodes

Information described in this material is current as of June, 2023.

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.

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