

Si photodiode S8551, S8552, S8553

Photodiodes for VUV (Vacuum UV) detection

S8551, S8552 and S8553 are VUV (Vacuum UV) photodiodes suitable for detection of ArF excimer lasers ($\lambda=193$ nm). Designed to provide optimal performance in the VUV range, these photodiodes offer more stable sensitivity even after long exposure to VUV radiation compared with conventional types.

Features

- Reliable detection improves of ArF excimer laser ($\lambda=193$ nm)
- Large active area
S8551: 5.8 × 5.8 mm
S8552: 10 × 10 mm
S8553: 18 × 18 mm
- Windowless package
S8551: TO-8 metal package
S8552: 16.5 × 15.0 mm ceramic package
S8553: 25.5 × 25.5 mm ceramic package

Applications

- ArF excimer laser detection
- Detection of various UV light sources

■ Absolute maximum ratings (Ta=25 °C)

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 condensation

■ Electrical and optical characteristics (Ta=25 °C)

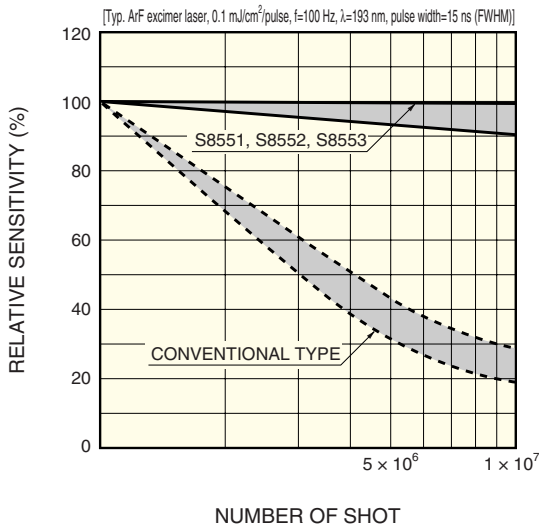
Parameter	Symbol	Condition	S8551			S8552			S8553			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Photo sensitivity	S	$\lambda=193$ nm	45	60	-	45	60	-	45	60	-	mA/W
Dark current	Id	VR=10 mV	-	0.02	0.5	-	0.05	1.0	-	0.1	5.0	nA
Terminal capacitance	Ct	VR=0 V, f=10 kHz	-	1.0	-	-	4.0	-	-	8.0	-	nF
Rise time	tr	VR=0 V, RL=1 k Ω 10 to 90 %	-	2	-	-	9	-	-	18	-	μ s

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

■ Handling precautions

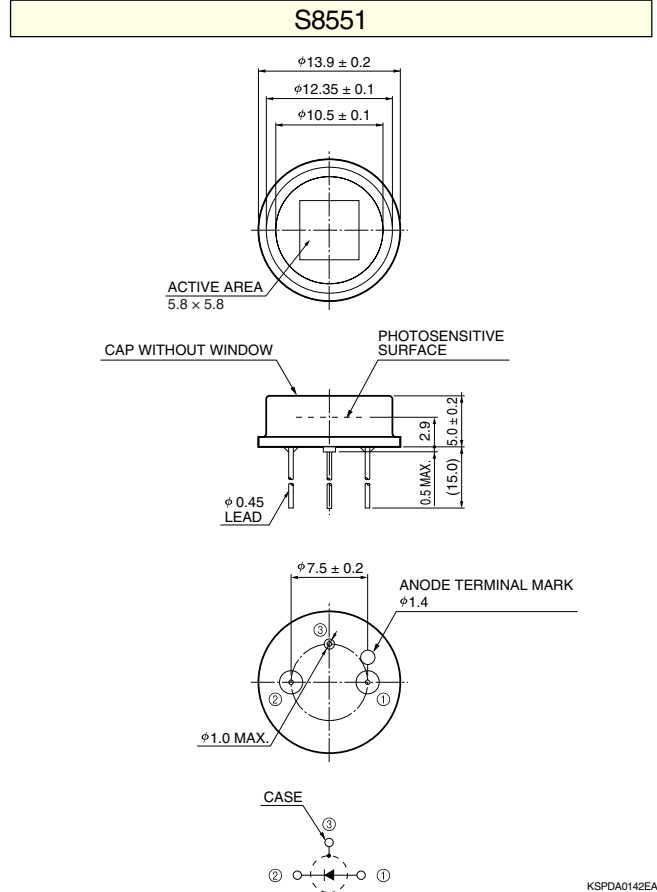
- Handle the photodiodes in a clean room.
- Never touch the photodiode chip surface and wire bonding.
- Wear dust-proof gloves and dust-proof mask.
- Use an air dust cleaner to blow away dust and foreign matter on the photodiode chip surface.
- Do not clean the photodiodes by any method other than air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

Variation in sensitivity due to VUV exposure



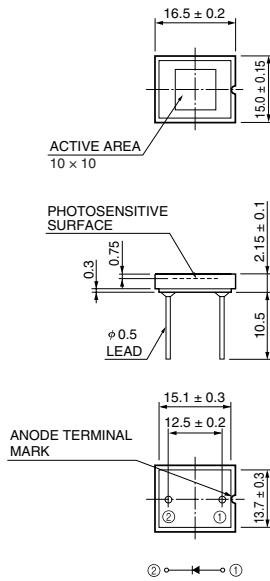
KSPDB0188EB

Dimensional outlines (unit: mm)



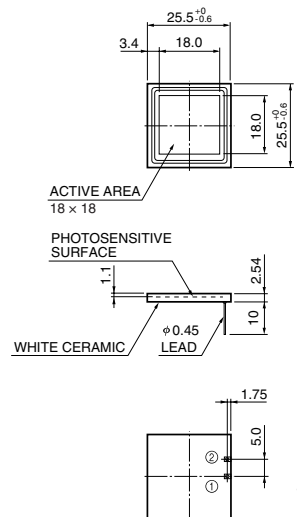
KSPDA0142EA

S8552



KSPDA0143EA

S8553



KSPDA0144EA

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