

# 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)

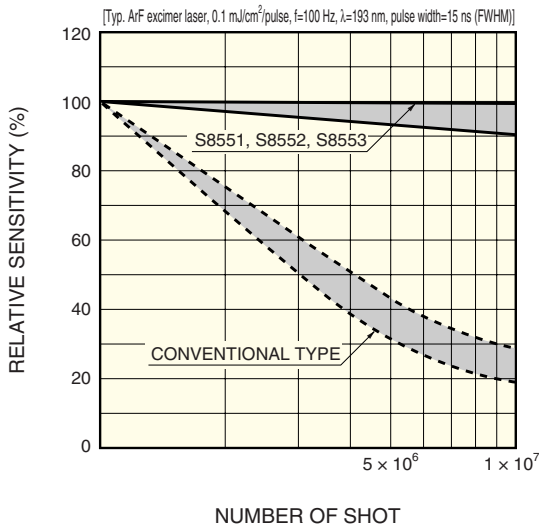
| Parameter            | Symbol | Condition                             | S8551 |      |      | S8552 |      |      | S8553 |      |      | Unit    |
|----------------------|--------|---------------------------------------|-------|------|------|-------|------|------|-------|------|------|---------|
|                      |        |                                       | 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 $\Omega$<br>10 to 90 % | -     | 2    | -    | -     | 9    | -    | -     | 18   | -    | $\mu$ 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

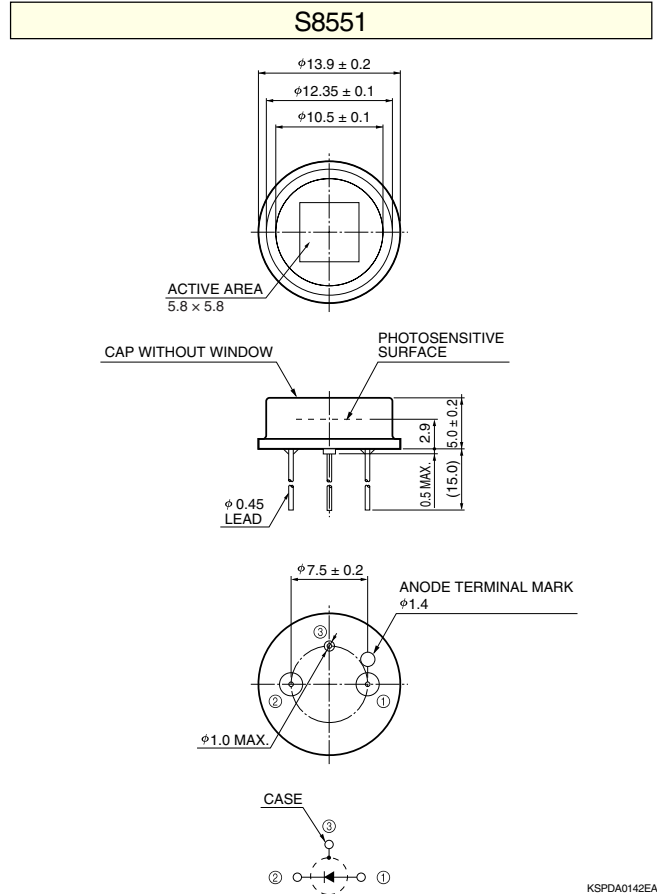
- Handle the photodiodes in a clean room.
- Never touch the photodiode chip surface and wire bonding.
- Wear dust-proof gloves and dust-proof mask.
- Use an air dust cleaner to blow away dust and foreign matter on the photodiode chip surface.
- Do not clean the photodiodes by any method other than air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

## Variation in sensitivity due to VUV exposure



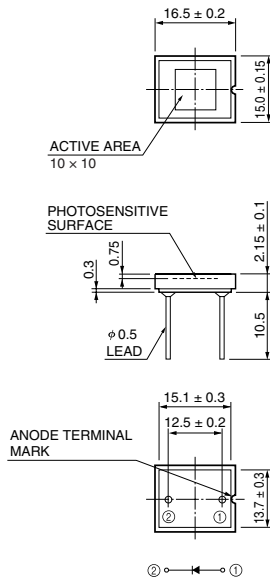
KSPDB0188EB

## Dimensional outlines (unit: mm)



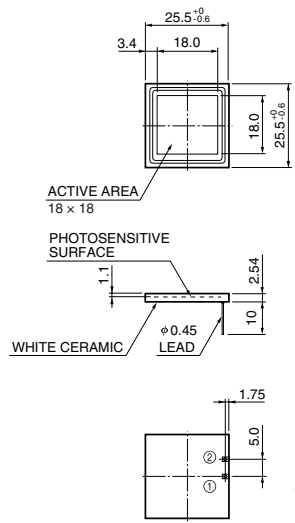
KSPDA0142EA

## S8552



KSPDA0143EA

## S8553



KSPDA0144EA

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