

Si photodiodes for visible to near infrared region

The S16008 series is a surface mount type Si photodiode with high sensitivity in the visible to near infrared region. This provides higher sensitivity than the previous S2387 series.

Features

- High sensitivity in visible to near infrared region
- Low dark current
- Superior linearity
- Compatible with lead-free solder reflow

Applications

- Analytical instruments
- Optical measurement equipment
- PCR testing equipment

Structure / Absolute maximum ratings

Type no.	Photosensitive area size (mm)	Package	Window material	Refractive index of window material	Absolute maximum ratings			
					Reverse voltage V_R (V)	Operating temperature T_{opr}^{*1} (°C)	Storage temperature T_{stg}^{*1} (°C)	Soldering temperature (°C)
S16008-33	2.4 × 2.4	Glass epoxy	Silicone resin	1.54	30	-40 to +100	-40 to +100	260 (3 times)*2
S16008-66	5.8 × 5.8							
S16008-1010	10 × 10							

*1: 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.

*2: See reflow soldering conditions (P.9).

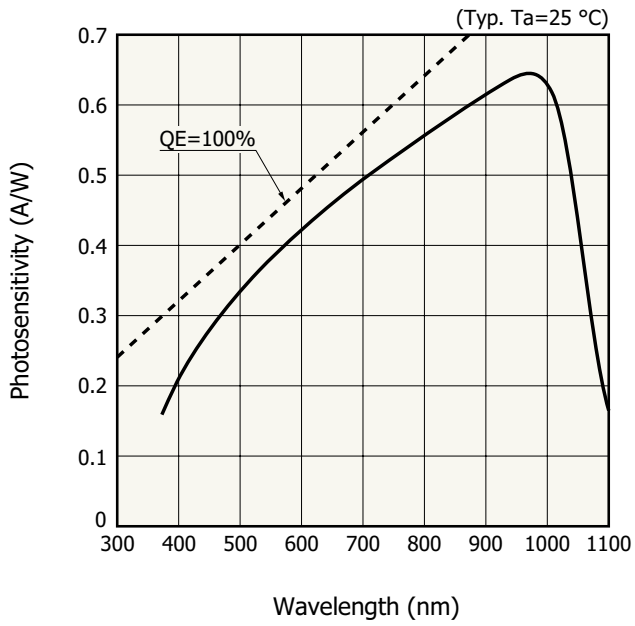
S16008-33: JEDEC J-STD-020 MSL 2a, S16008-66: JEDEC J-STD-020 MSL 3, S16008-1010: JEDEC J-STD-020 MSL 4

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)

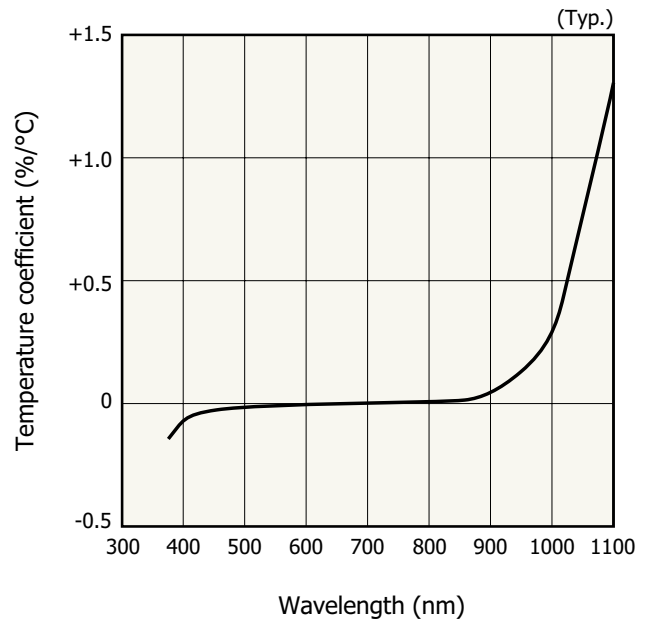
Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photosensitivity S $\lambda = \lambda_p$ (mA/W)	Dark current I_D $V_R = 10$ mV		Temp. coefficient of I_D ΔT_{ID} (times/°C)	Rise time t_r $V_R = 0$ V $R_L = 1$ k Ω 10 to 90% (μ s)	Terminal capacitance C_t $V_R = 0$ V $f = 1$ MHz (nF)	Noise equivalent power NEP $V_R = 0$ V $\lambda = \lambda_p$ (W/Hz ^{1/2})	Shunt resistance R_{sh} $V_R = 10$ mV	
				Typ. (pA)	Max. (pA)					Min. (G Ω)	Typ. (G Ω)
S16008-33	380 to 1100	960	640	0.01	5	1.12	1.5	0.7	9.0×10^{-16}	2	50
S16008-66				0.1	50		9	4	2.0×10^{-15}	0.2	10
S16008-1010				0.5	200		29	13	2.8×10^{-15}	0.05	5

Spectral response



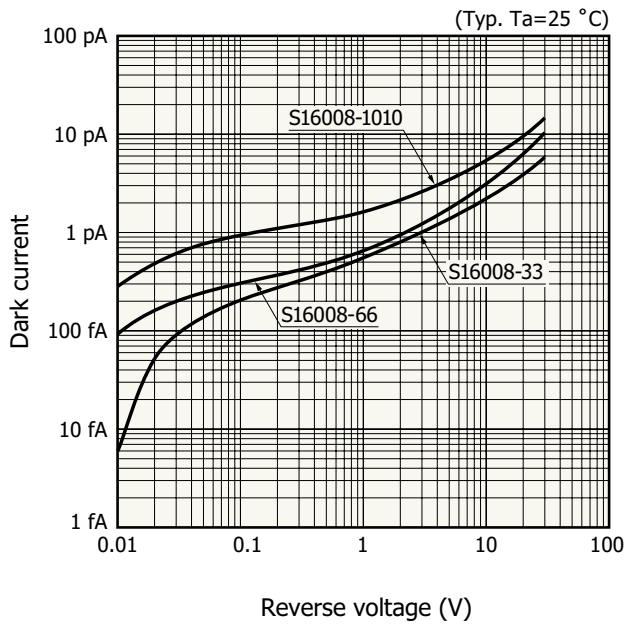
KSPDB0407EB

Photosensitivity temperature characteristics



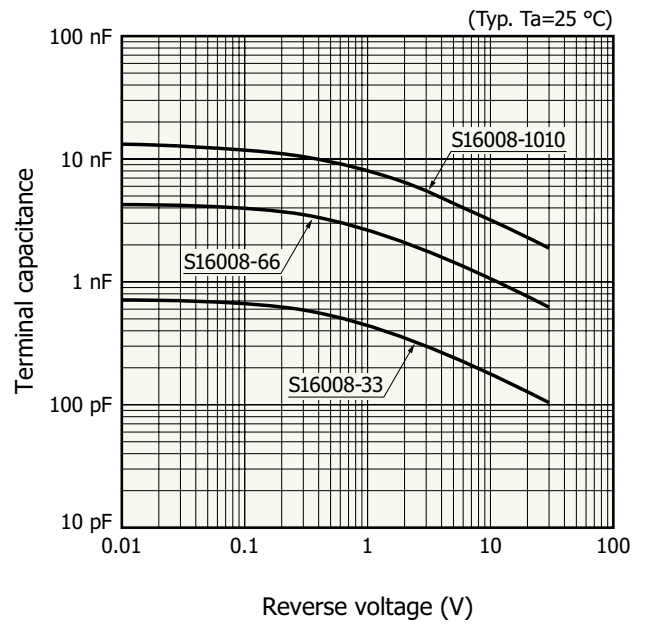
KSPDB0415EA

Dark current vs. reverse voltage



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Terminal capacitance vs. reverse voltage

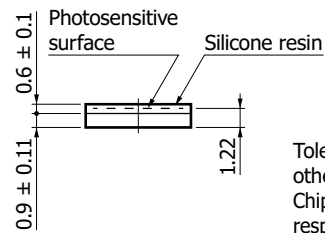
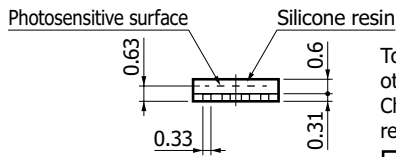
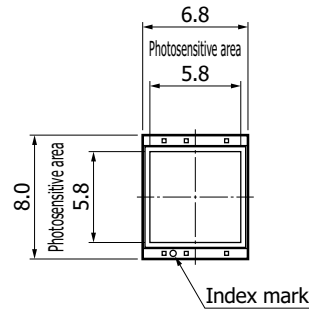
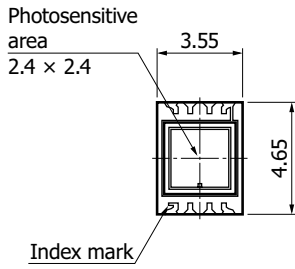


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Dimensional outlines (unit: mm)

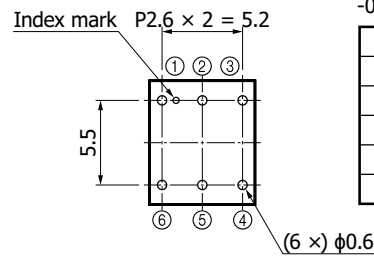
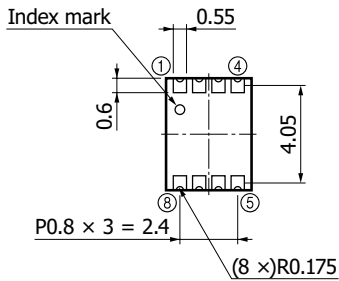
S16008-33

S16008-66



Tolerance unless otherwise noted: ± 0.1
Chip position accuracy with respect to package center: ± 0.1

Tolerance unless otherwise noted: ± 0.15
Chip position accuracy with respect to package center
 $-0.1 \leq X \leq +0.1$
 $-0.1 \leq Y \leq +0.1$



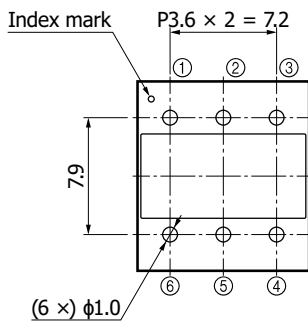
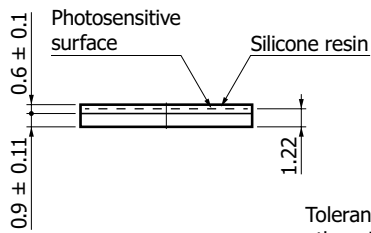
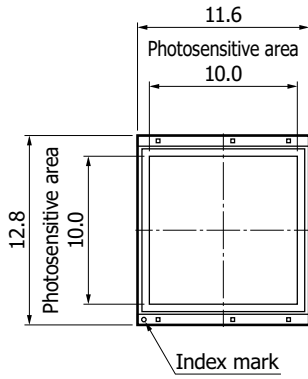
①	NC
②	NC
③	Anode
④	NC
⑤	Cathode
⑥	NC
⑦	NC
⑧	NC

①	NC
②	Cathode
③	NC
④	NC
⑤	Anode
⑥	NC

KSPDA0223EC

KSPDA0224EB

S16008-1010



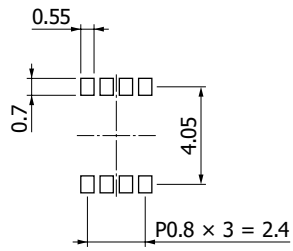
Tolerance unless
otherwise noted: ± 0.15
Chip position accuracy with
respect to package center
 $-0.1 \leq X \leq +0.1$
 $-0.1 \leq Y \leq +0.1$

①	NC
②	Cathode
③	NC
④	NC
⑤	Anode
⑥	NC

KSPDA0230EA

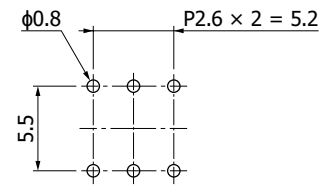
Recommended land patterns (unit: mm)

S16008-33



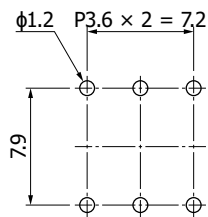
KSPDC0101EA

S16008-66



KSPDC0105EA

S16008-1010



KSPDC0109EA

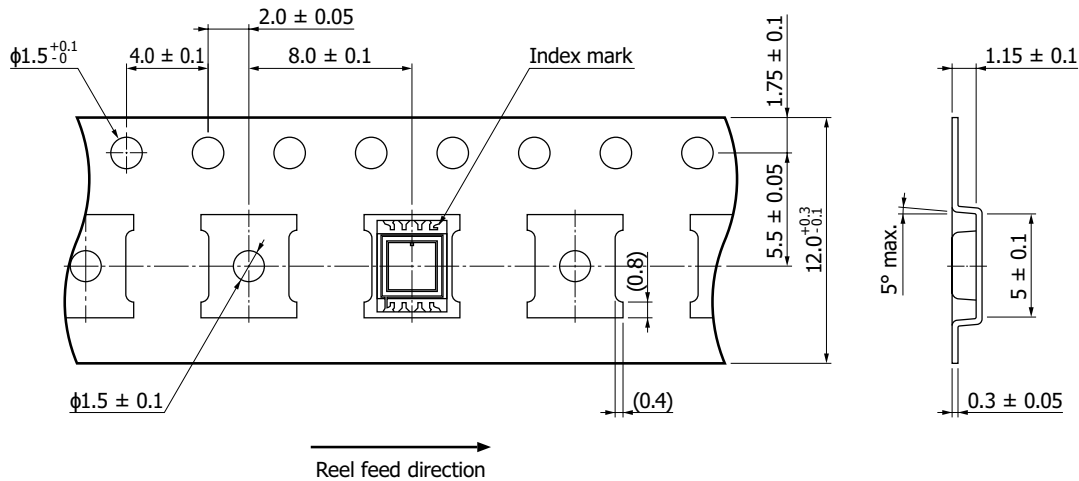
Standard packing specifications

S16008-33

- Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
$\phi 180$ mm	$\phi 60$ mm	12 mm	PS	Conductive

- Embossed tape (unit: mm, material: PS, conductive)



KSPDC0102EA

- Packing quantity

1000 pcs/reel

- Packing state

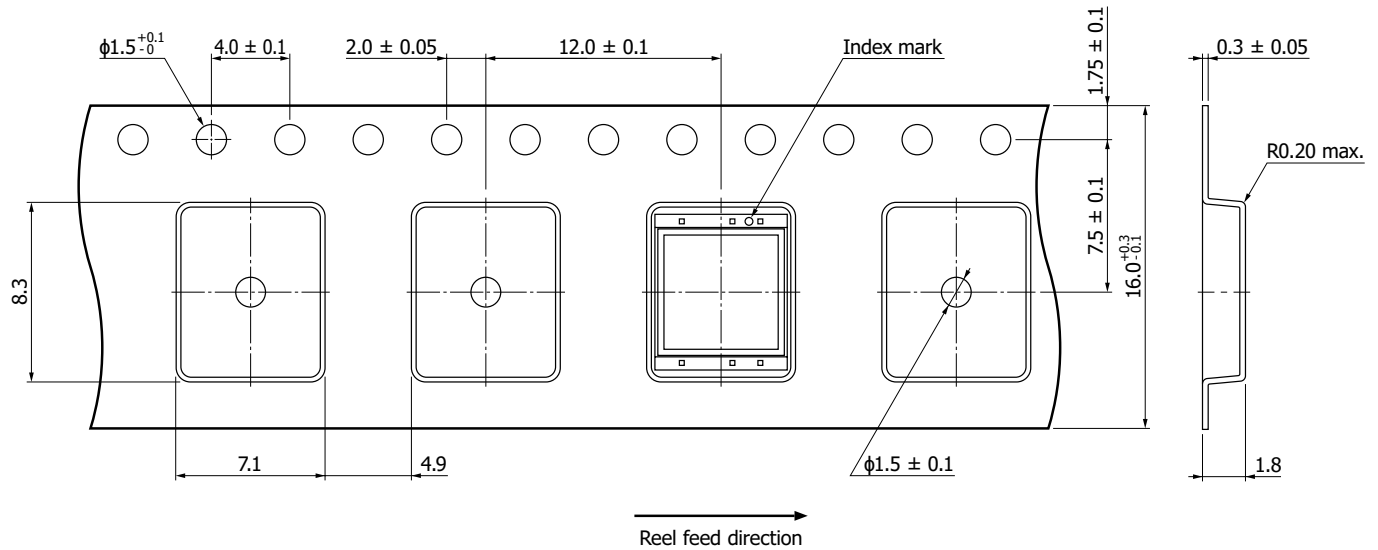
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

S16008-66

- Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
φ330 mm	φ100 mm	16 mm	PS	Conductive

- Embossed tape (unit: mm, material: PS, conductive)



KSPDC0106EA

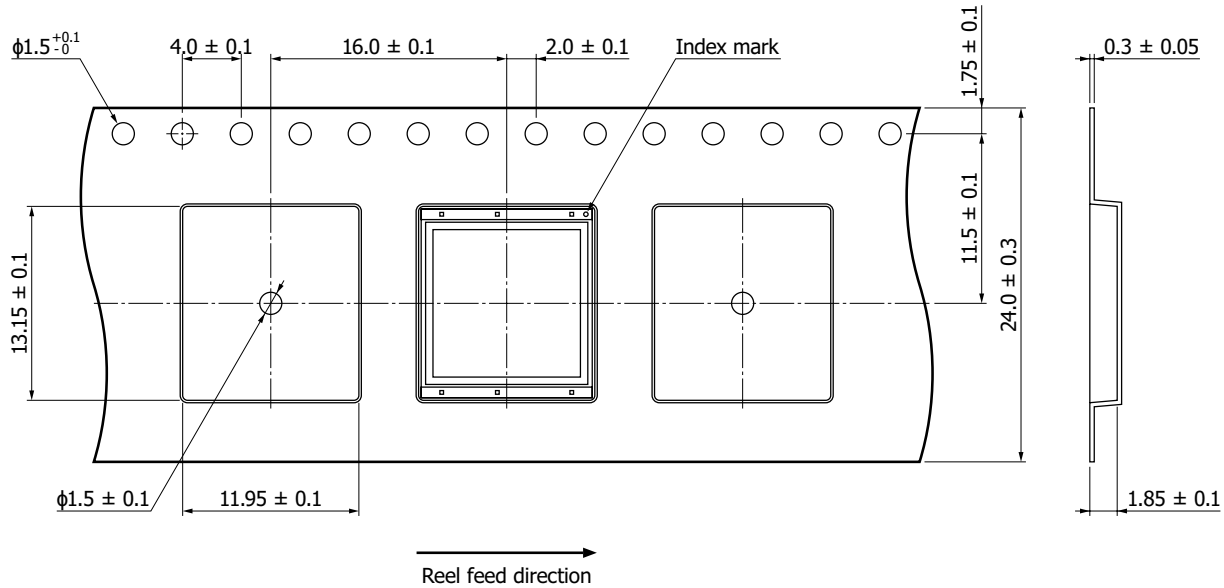
- Packing quantity
100 pcs/reel
- Packing state
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

S16008-1010

- Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
φ330 mm	φ100 mm	24 mm	PS	Conductive

- Embossed tape (unit: mm, material: PS, conductive)



KSPDC0110EA

- Packing quantity
100 pcs/reel

- Packing state
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

