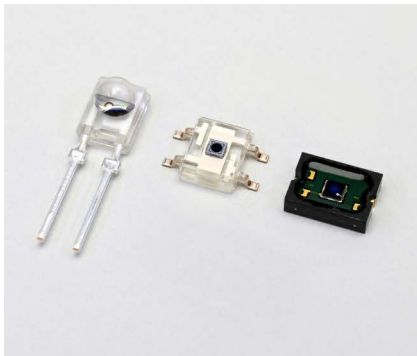


Si PIN photodiodes



S10783

S10784

NEW
S11062-35GT

High-speed detectors with plastic package

These are photosensors for high-speed APC (automatic power control) supporting laser diodes with an emission wavelength of 660 nm or 780 nm. The S10783 is a surface-mount type, the S10784 is a plastic package with lens, and the S11062-35GT is a surface-mount type leadless package that supports lead-free reflow soldering. The S11062-35GT can reduce stray light by shielding the outside of the photosensitive area.

Features

- **High-speed response**
300 MHz typ. ($\lambda=650$ nm, $V_R=2.5$ V)
250 MHz typ. ($\lambda=780$ nm, $V_R=2.5$ V)
- **High sensitivity**
S10783, S11062-35GT: 0.46 A/W typ. ($\lambda=660$ nm)
S10784: 0.45 A/W typ. ($\lambda=660$ nm)
- **Light-shielding outside of photosensitive area**
(S11062-35GT)

Applications

- Laser diode monitors of optical disk unit (high-speed APC)
- Sensors for red laser diode

Structure

Parameter	Symbol	S10783	S10784	NEW S11062-35GT	Unit
Photosensitive area size	-	$\phi 0.8$	$\phi 3.0$	$\phi 0.79$	mm
Effective photosensitive area	-	0.5	7.0	0.49	mm ²
Package	-	Plastic	Plastic with lens	Glass epoxy	-
Sealing material	-	-	-	Silicone resin	-

Absolute maximum ratings

Parameter	Symbol	S10783	S10784	NEW S11062-35GT	Unit
Reverse voltage	V_R max		20		V
Power dissipation	P		50		mW
Operating temperature*1	T _{opr}		-25 to +85		°C
Storage temperature*1	T _{stg}		-40 to +100		°C
Soldering temperature	T _{sol}		-	245 (twice)*2	°C

*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: Reflow soldering, JEDEC J-STD-020 MSL 5a, see P.8

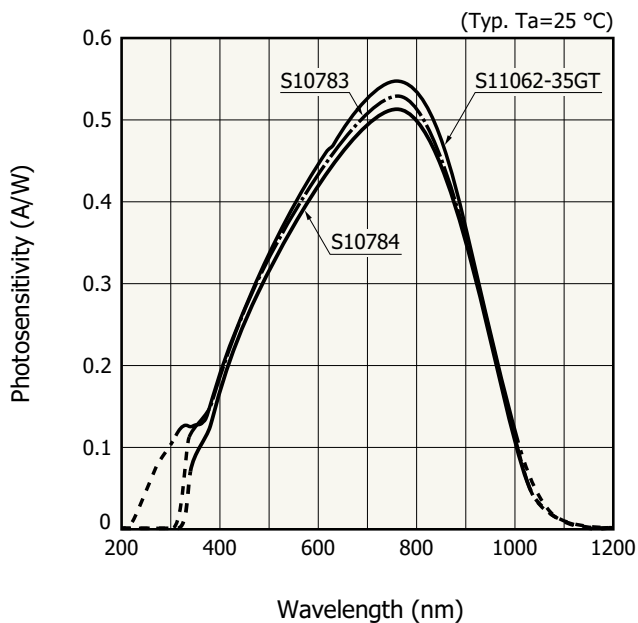
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

S10783 and S10784 do not support lead-free soldering. For details on reflow soldering conditions, please contact our sales office.

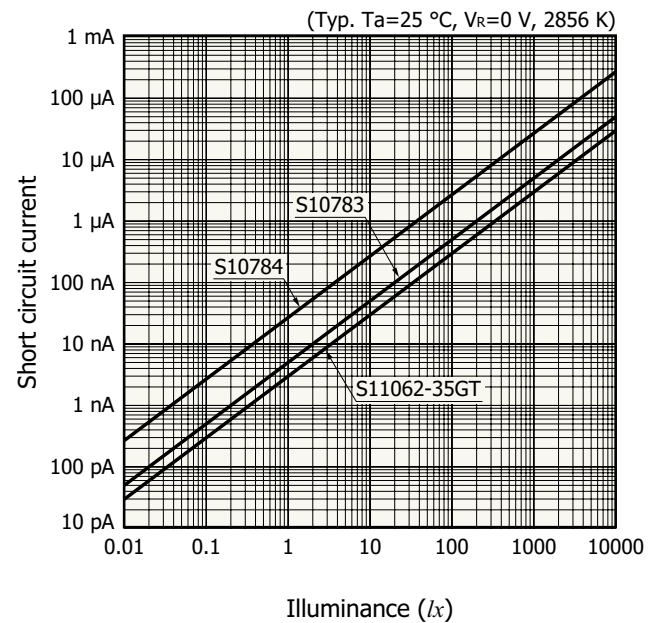
Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	S10783			S10784			NEW S11062-35GT			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		330 to 1040			340 to 1040			330 to 1000			nm
Peak sensitivity wavelength	λ_p		-	760	-	-	760	-	-	760	-	nm
Photosensitivity	S	$\lambda=660$ nm	0.41	0.46	-	0.40	0.45	-	0.41	0.46	-	A/W
		$\lambda=780$ nm	0.47	0.52	-	0.46	0.51	-	0.47	0.52	-	
Dark current	I_D	$V_R=2.5$ V	-	0.01	1.0	-	0.01	1.0	-	0.01	1.0	nA
Temperature coefficient of I_D	TCID		-	1.15	-	-	1.15	-	-	1.15	-	times/°C
Cutoff frequency	f_c	$V_R=2.5$ V	150	300	-	150	300	-	150	300	-	MHz
		$R_L=50$ Ω										
Terminal capacitance	C_t	$V_R=2.5$ V, $f=1$ MHz	-	4.5	9	-	4.5	9	-	4.5	9	pF
Noise equivalent power	NEP	$V_R=2.5$ V	-	3.5×10^{-15}	-	-	3.5×10^{-15}	-	-	3.5×10^{-15}	-	W/Hz ^{1/2}

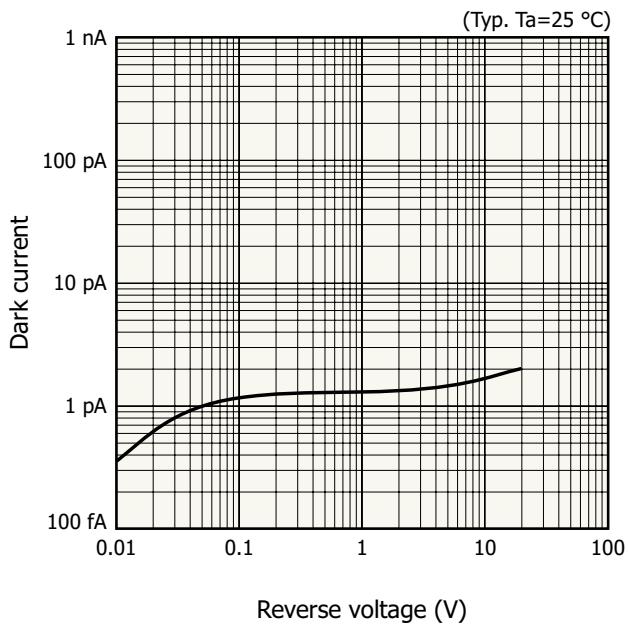
Spectral response



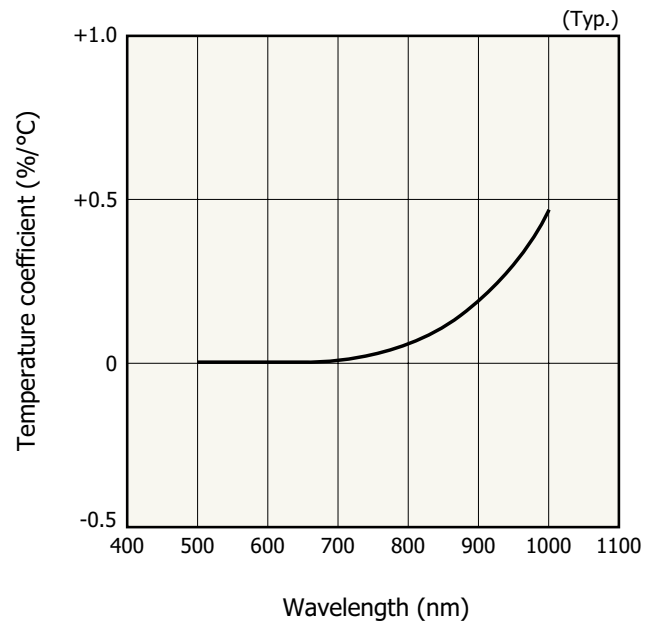
Linearity



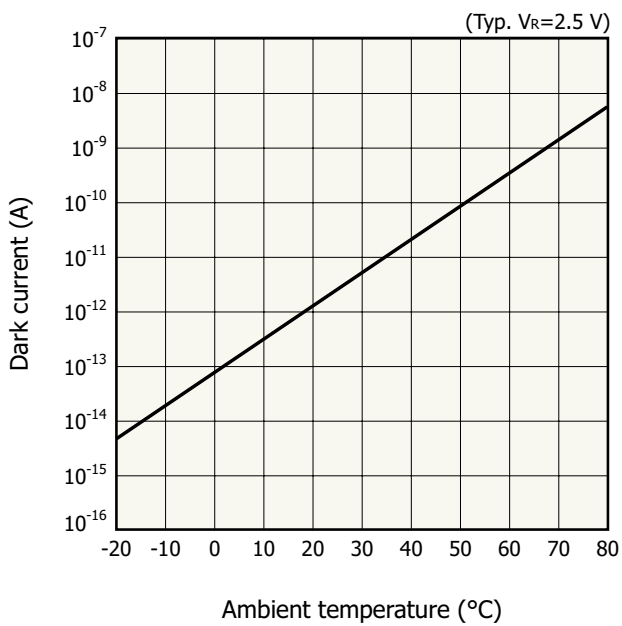
Dark current vs. reverse voltage



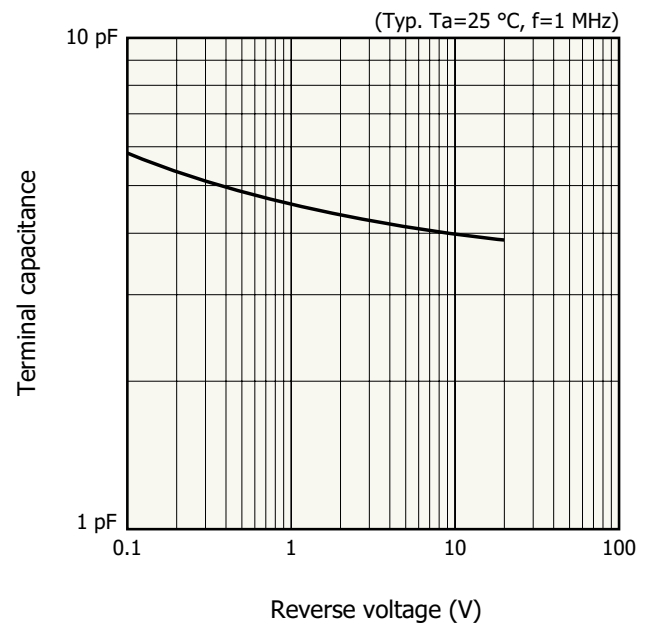
Photosensitivity temperature characteristics



Dark current vs. ambient temperature



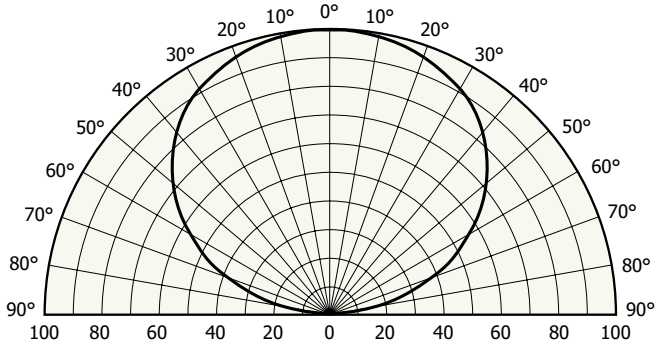
Terminal capacitance vs. reverse voltage



Directivity

S10783

(Typ. $T_a=25\text{ }^\circ\text{C}$, light source: tungsten lamp)

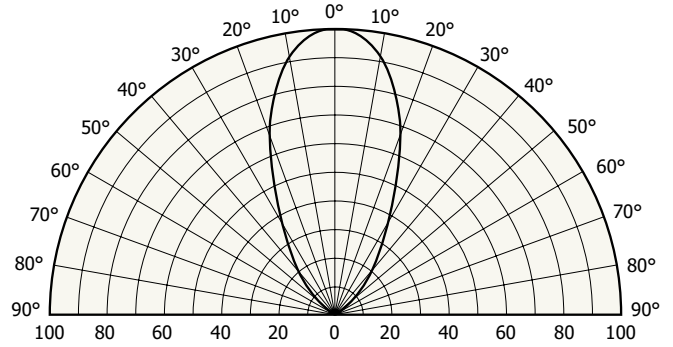


Relative sensitivity

KPINB0362EB

S10784

(Typ. $T_a=25\text{ }^\circ\text{C}$, light source: tungsten lamp)

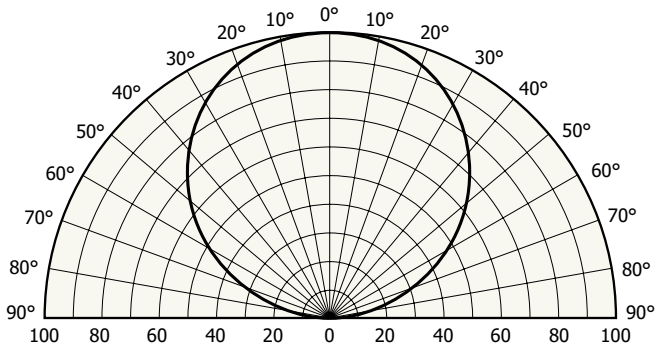


Relative sensitivity

KPINB0359EB

S11062-35GT

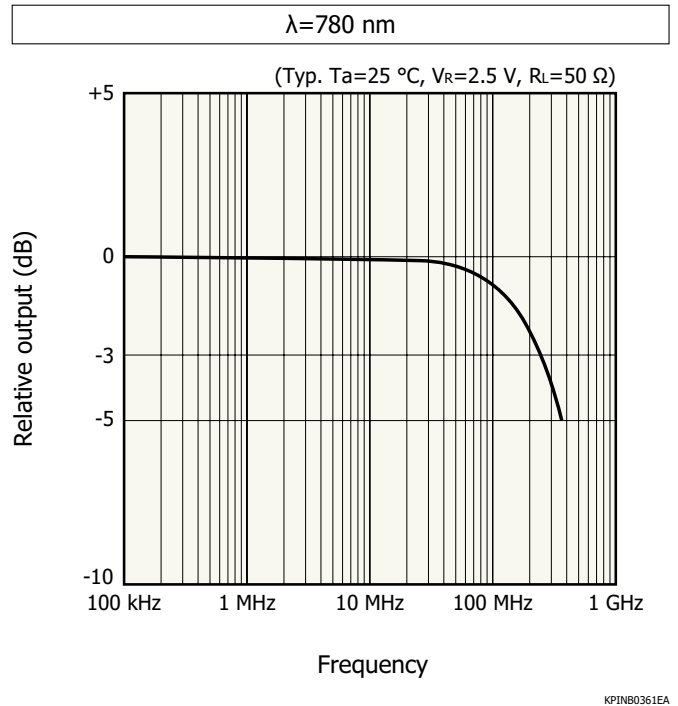
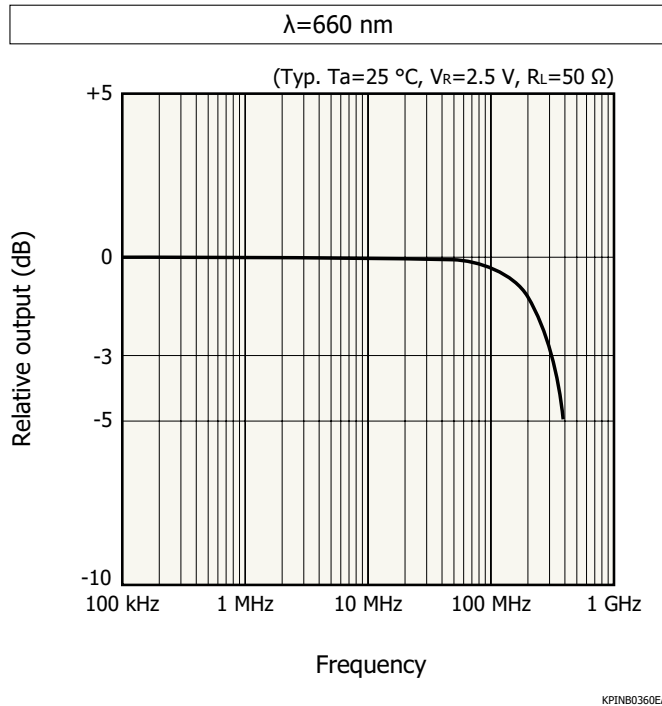
(Typ. $T_a=25\text{ }^\circ\text{C}$, light source: tungsten lamp)



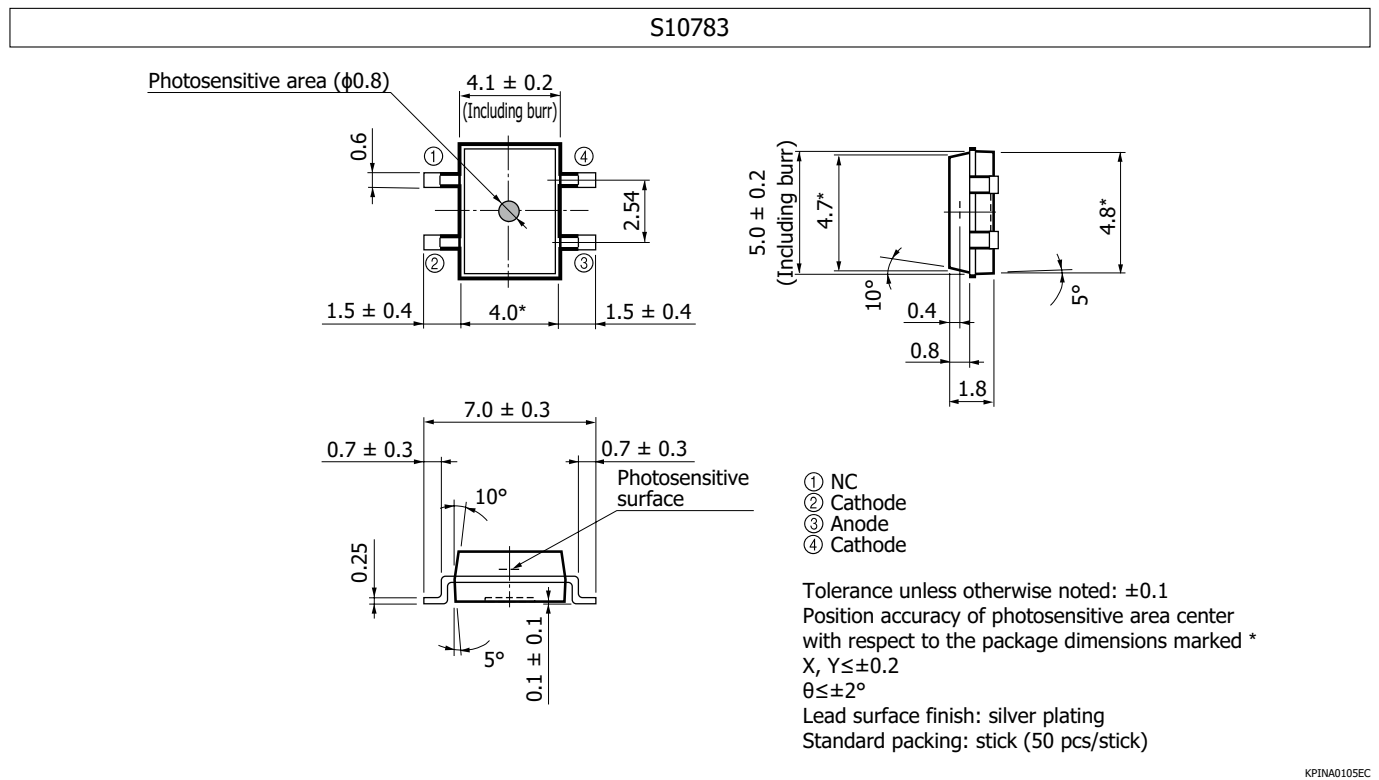
Relative sensitivity (%)

KPINB0469EA

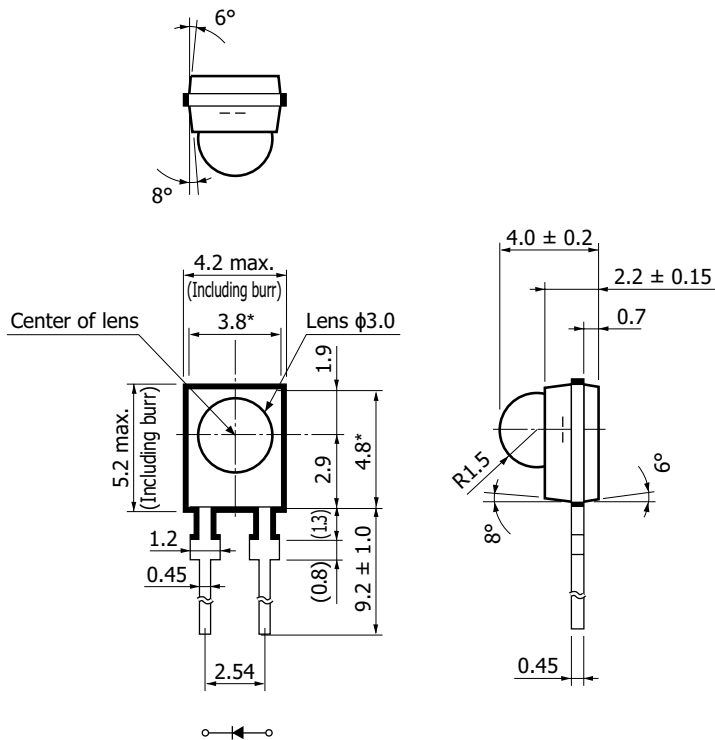
Frequency characteristics



Dimensional outlines (unit: mm)



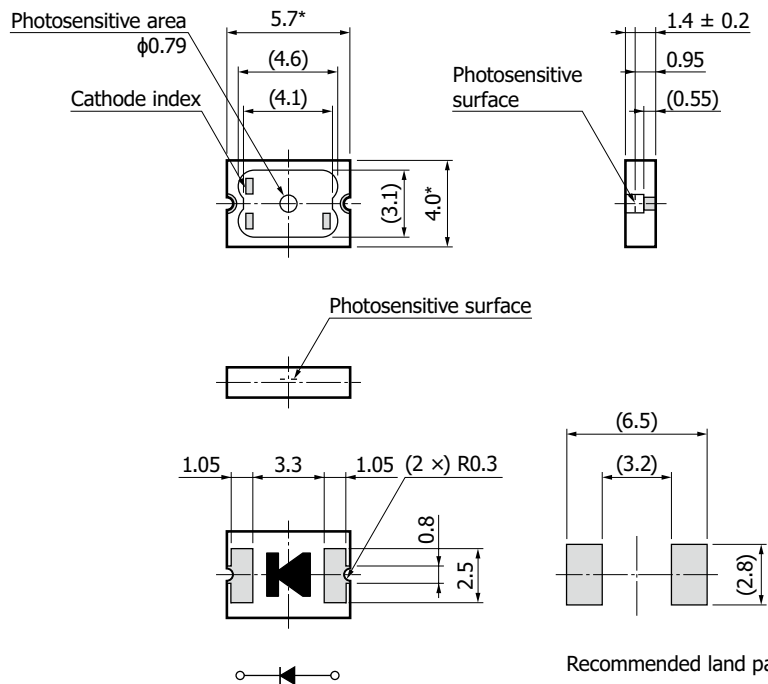
S10784



Tolerance unless otherwise noted: ± 0.1
 Position accuracy of photosensitive area center with respect to the package dimensions marked *
 $X, Y \leq \pm 0.2$
 $\theta \leq \pm 2^\circ$
 Lead surface finish: silver plating
 Standard packing: polyethylene pack [anti-static type] (500 pcs/pack)

KPINA0032EC

S11062-35GT



Recommended land pattern

Tolerance unless otherwise noted:
 $\pm 0.15, \pm 2^\circ$
 Chip position accuracy with respect to package dimensions marked*:
 $X, Y \leq \pm 0.2, \theta \leq \pm 2^\circ$

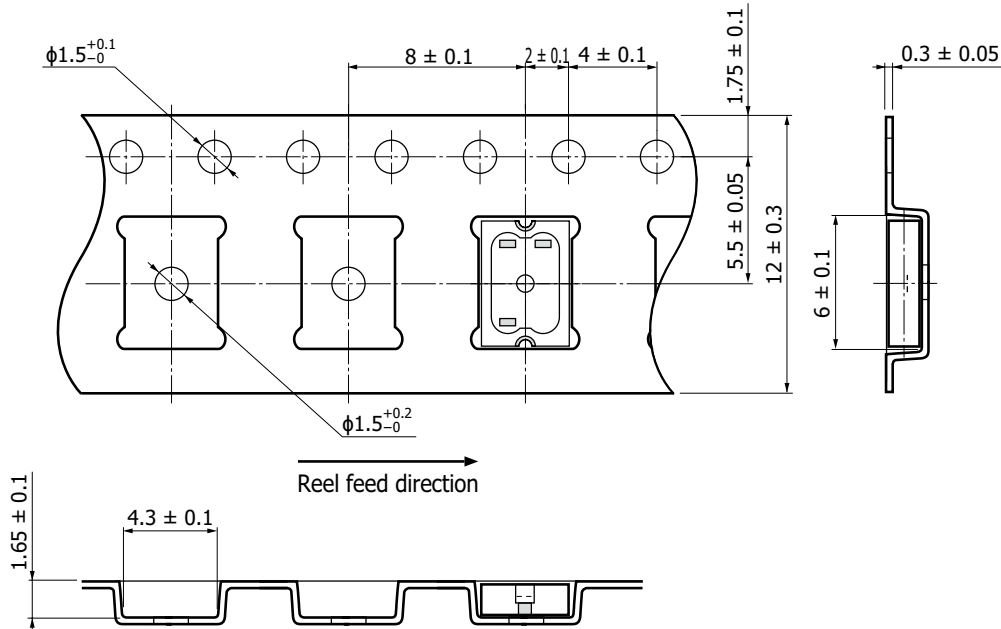
KPINA0130EA

Reel packing specifications (S11062-35GT)

- Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
254 mm	100 mm	12 mm	PS	Conductive

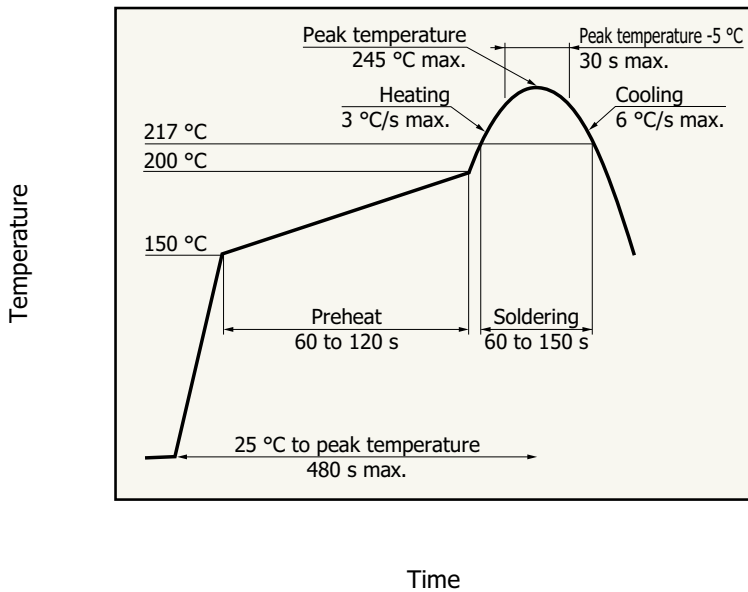
- Embossed tape (unit: mm, material: PS, conductive)



KPINC0045EA

- Packing quantity
2000 pcs/reel
- Packing state
Reel and desiccant in moisture-proof packing (vacuum-sealed)

Recommended soldering conditions (S11062-35GT)



KPINB0470EA

Note:

- This product supports lead-free soldering. After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 24 hours.
- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. When you set reflow 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
 - Metal, ceramic, plastic package products
 - Surface mount type products
- Technical information
 - Si photodiode

Information described in this material is current as of July 2024.

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.

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