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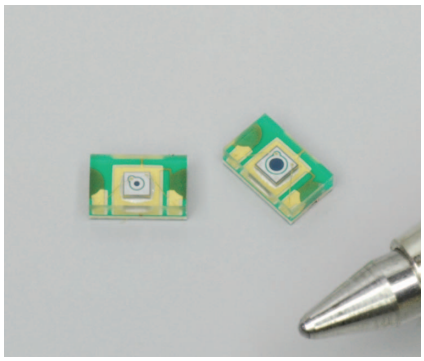
Si APD

S10341 series



Low bias operation, for 800 nm band, small package

Features

- **Miniature and thin package: 1.8 × 3.1 × 1.0^{t} mm**
- **Stable operation at low bias**
- **High-speed response**
- **High sensitivity**
- **Low noise**

Applications

- **Optical rangefinder**
- **Laser radar**
- **FSO (free space optics)**

Structure

Parameter	Symbol	S10341-02	S10341-05	Unit
Photosensitive area size*1	A	ϕ0.2	ϕ0.5	mm
Effective photosensitive area	-	0.03	0.19	mm^2
Package	-	Plastic		-

*1: Photosensitive area in which a typical gain can be obtained

Absolute maximum ratings

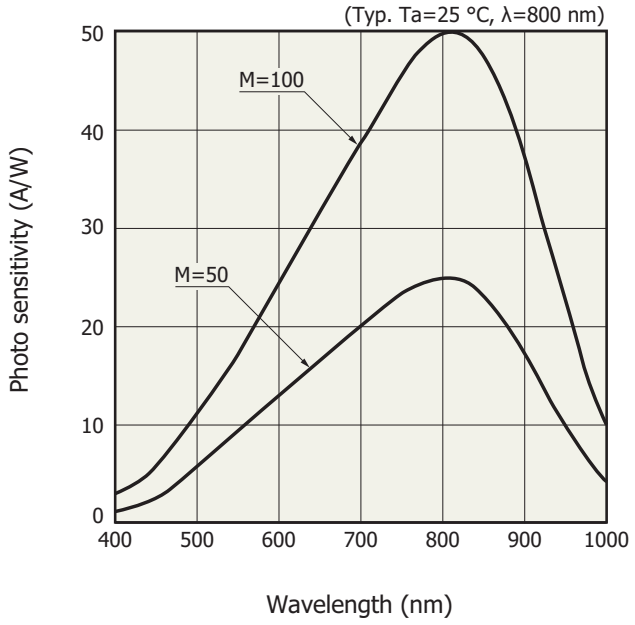
Parameter	Symbol	Value	Unit
Operating temperature*2	Topr	-20 to +60	°C
Storage temperature*2	Tstg	-40 to +80	°C
Reverse current (DC)	Irmax	200	μA
Forward current	Ifmax	10	mA
Soldering conditions*3	Tsol	Peak temperature: 235 °C , twice	-

*2: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
*3: JEDEC level 5a
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.

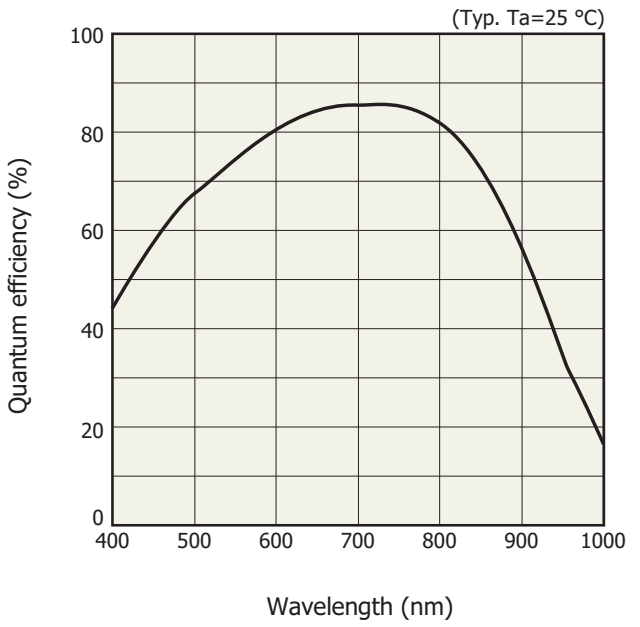
Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	S10341-02			S10341-05			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		400 to 1000			400 to 1000			nm
Peak sensitivity wavelength	λp	M=100	-	800	-	-	800	-	nm
Photo sensitivity	S	λ=800 nm, M=1	-	0.5	-	-	0.5	-	A/W
Quantum efficiency	QE	λ=800 nm, M=1	-	75	-	-	75	-	%
Breakdown voltage	V_{BR}	I_D=100 μA	-	150	200	-	150	200	V
Temperature coefficient of V_{BR}	-		-	0.65	-	-	0.65	-	V/°C
Dark current	I_D	M=100	-	50	500	-	100	1000	pA
Cut-off frequency	fc	M=100, R_L=50 Ω λ=800 nm, -3 dB	-	1000	-	-	900	-	MHz
Terminal capacitance	Ct	M=100, f=1 MHz	-	1	-	-	2	-	pF
Excess noise figure	x	M=100	-	0.3	-	-	0.3	-	-
Gain	M	λ=800 nm	-	100	-	-	100	-	-

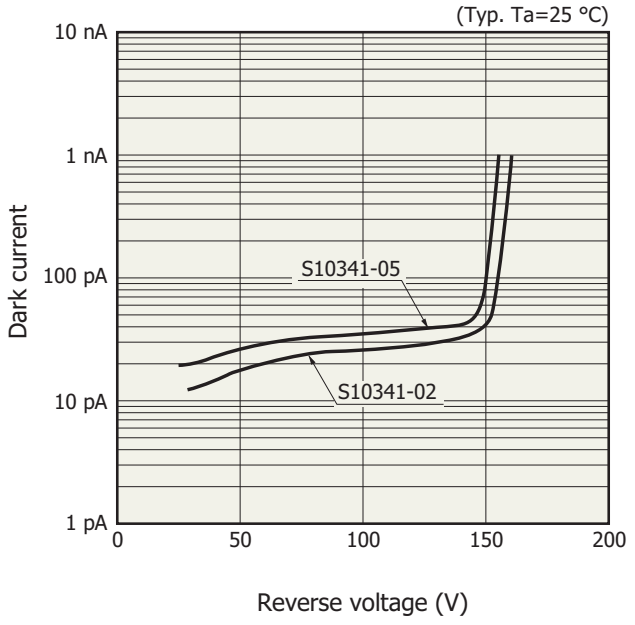
Spectral response



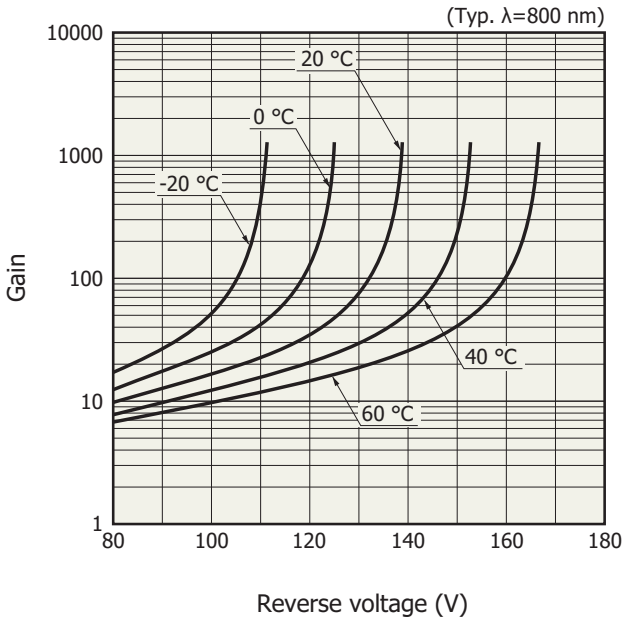
Quantum efficiency vs. wavelength



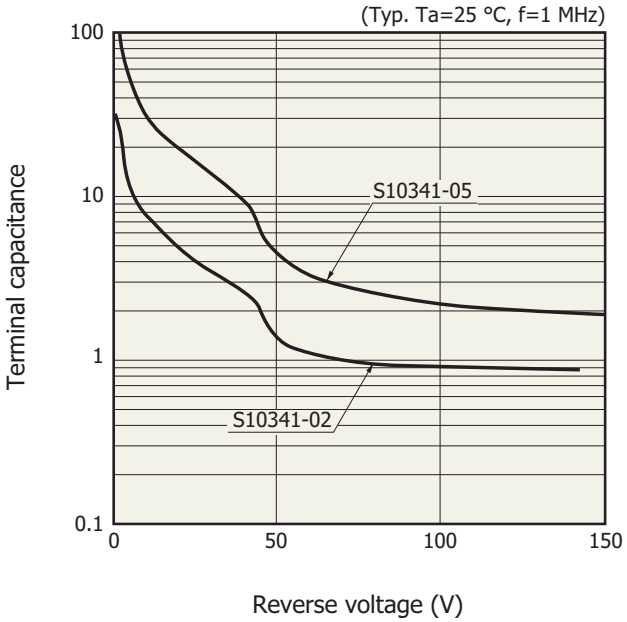
Dark current vs. reverse voltage



Gain vs. reverse voltage



Terminal capacitance vs. reverse voltage



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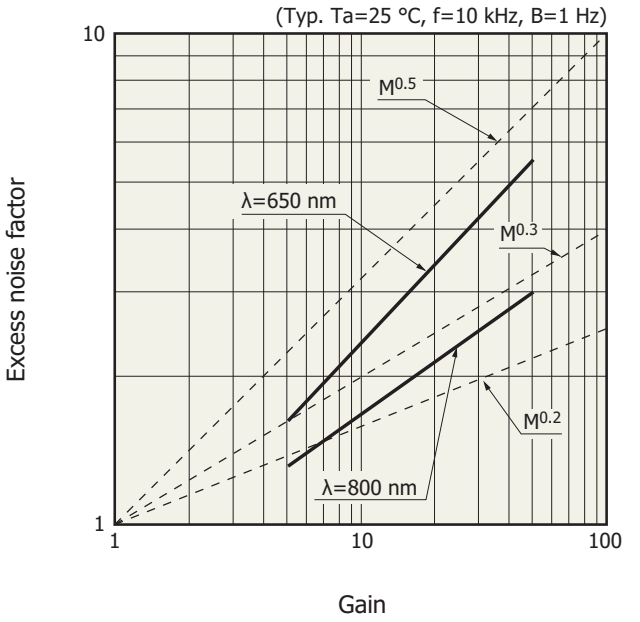
Excess noise factor vs. gain



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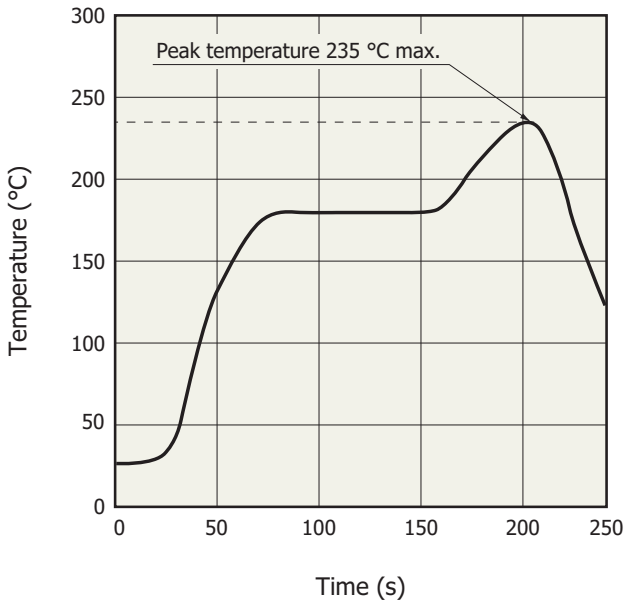
Recommended solder reflow condition



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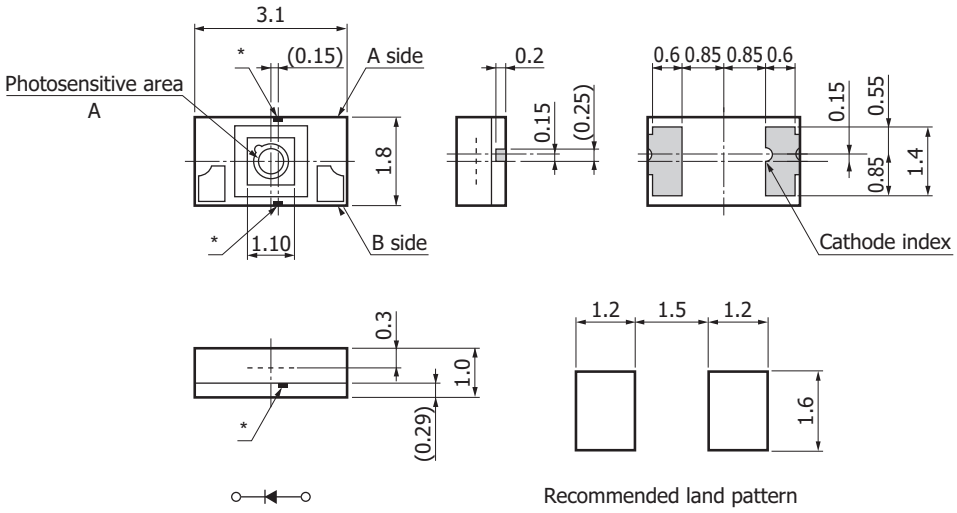
- After unpacking, store this device in an environment at a temperature of 30 °C and a humidity below 60%, and perform reflow soldering on this device within 24 hours.
- Thermal stress applied to the device during reflow soldering differs depending on the PC boards and reflow oven being used.
- When setting the reflow conditions, make sure that the reflow soldering process does not degrade device reliability.

Dimensional outline (unit: mm)



Tolerance unless otherwise noted: ±0.2
Photosensitive area position accuracy: X, Y≤±0.3
Values in parentheses indicate reference value.
* Package side
Wiring is exposed on A and B sides.
Do not allow any conductor to make contact with the package sides to avoid shorting.
Electrodes

Type no.	A
S10341-02	ϕ0.2
S10341-05	ϕ0.5

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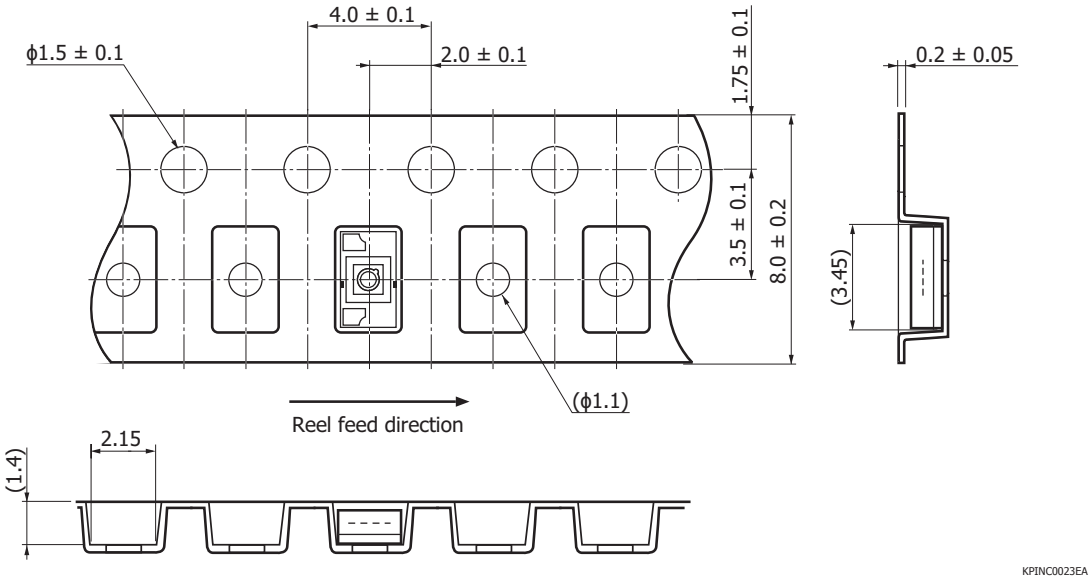
Standard packing specifications

■ Reel (conforms to JEITA ET-7200)

Dimensions	Hub diameter	Tape width	Material	Electrostatic characteristics
180 mm	60 mm	8 mm	PS	Conductive

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



■ Packing quantity
1000 pcs/reel

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

Related information

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

■ Precautions
· Disclaimer
· Surface mount type products

■ Technical information
· Si APD

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Cat. No. KAPD1030E02 Jul. 2017 DN