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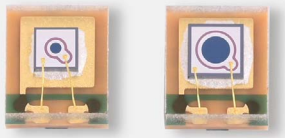
NEW

Si APD



S17268 series

Short wavelength type APD, surface mount type package

These are surface mount type short wavelength APDs with enhanced sensitivity in the UV to visible region. They offer high gain, high sensitivity, and low noise in the short wavelength region.

Features

- **Compact, surface mount type package: 1.8 mm × 2.0 mm × 0.9^{t} mm**
- **High short-wavelength sensitivity: QE=82 % (λ=450 nm)**
- **Low bias operation: Breakdown voltage=160 V typ.**
- **Low noise**
- **High-speed response: Cutoff frequency=2 GHz typ. (S17268-02, λ=450 nm, M=50)**

Applications

- **Optical rangefinders**
- **Flow cytometry**
- **Particle counters**

Structure

Parameter	S17268-02	S17268-05	Unit
Photosensitive area	ϕ0.2	ϕ0.5	mm
Package	Glass epoxy		-
Seal material	Silicone resin		-

Absolute maximum ratings

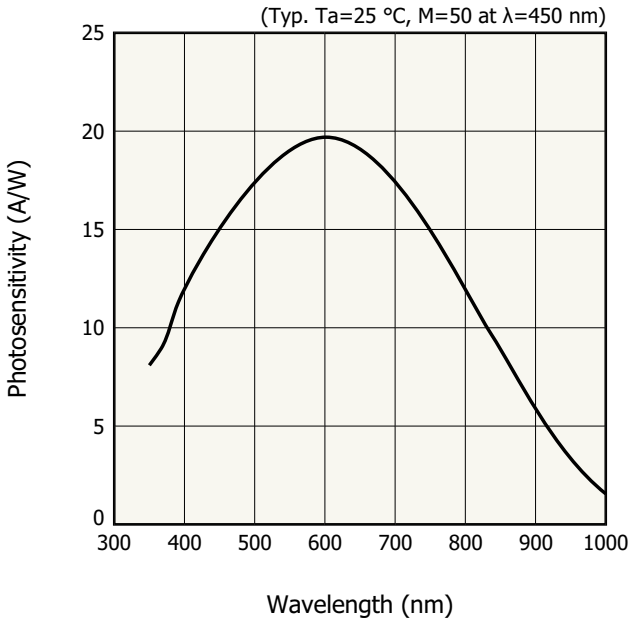
Parameter	Symbol	Specification	Unit
Forward current	I_F max	10	mA
Reverse current (DC)	I_R max	200	μA
Operating temperature*1	Topr	-30 to +100	°C
Storage temperature*1	Tstg	-40 to +100	°C
Soldering temperature	Tsol	260 (3 times)*2	°C

*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 2a, see P.5
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.

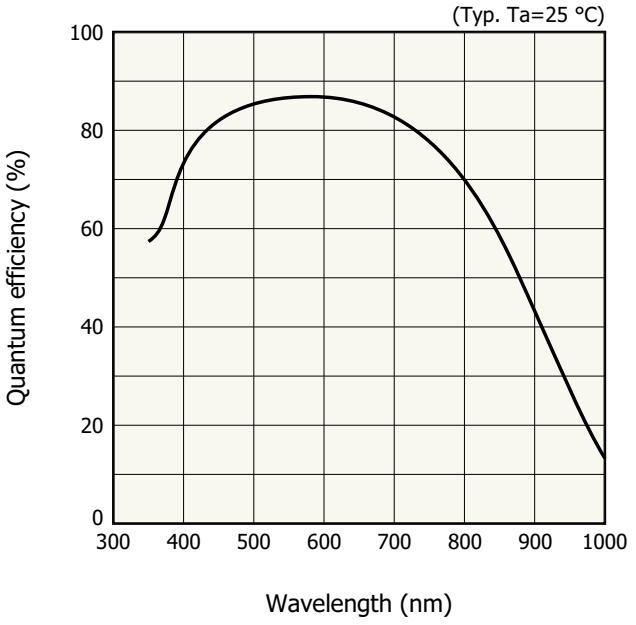
Electrical and optical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	S17268-02			S17268-05			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ	M=1	350 to 1000						nm
Peak sensitivity wavelength	λp	M=50	-	600	-	-	600	-	nm
Photosensitivity	S	λ=450 nm, M=1	-	0.3	-	-	0.3	-	A/W
Quantum efficiency	QE	λ=450 nm, M=1	-	82	-	-	82	-	%
Breakdown voltage	V_{BR}	I_D=100 μA	140	160	180	140	160	180	V
Temperature coefficient of breakdown voltage	ΔTV_{BR}		-	0.15	-	-	0.15	-	V/°C
Dark current	I_D	M=50	-	0.1	1	-	0.2	2	nA
Cutoff frequency	fc	M=50, R_L=50 Ω λ=450 nm, -3 dB	-	2	-	-	0.8	-	GHz
Terminal capacitance	Ct	M=50, f=1 MHz	-	1.0	-	-	3.6	-	pF
Excess noise factor	F	M=50, λ=450 nm	-	1.6	-	-	1.6	-	-
Excess noise figure	x	M=50, λ=450 nm	-	0.12	-	-	0.12	-	-
Gain	M	M=50, λ=450 nm	-	50	-	-	50	-	-

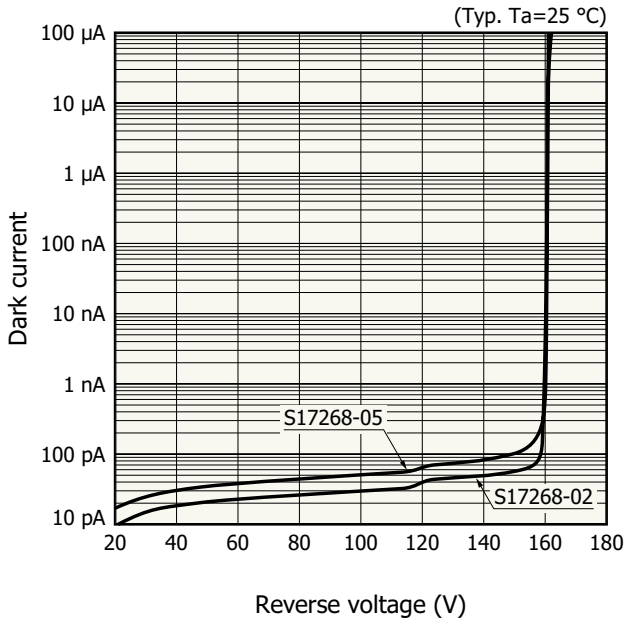
Spectral response



Quantum efficiency vs. wavelength



Dark current vs. reverse voltage



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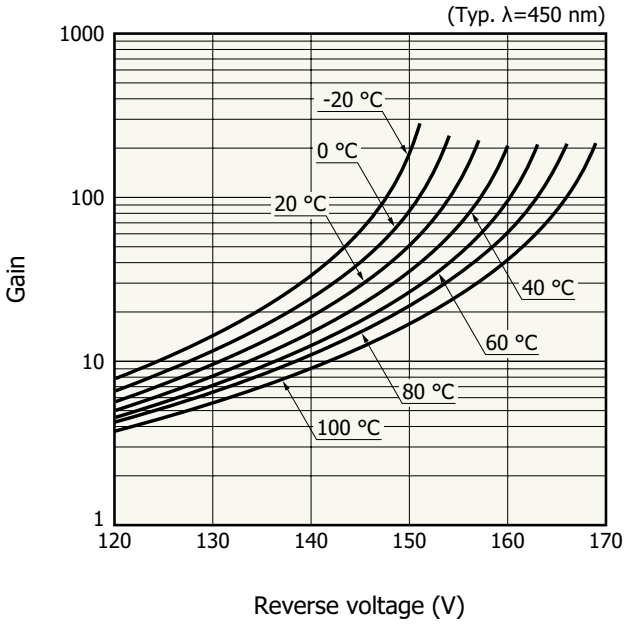
Gain vs. reverse voltage



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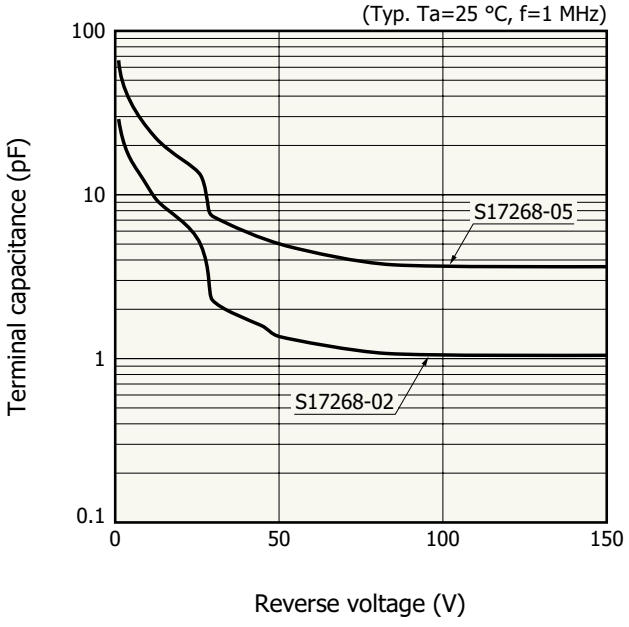
Terminal capacitance vs. reverse voltage



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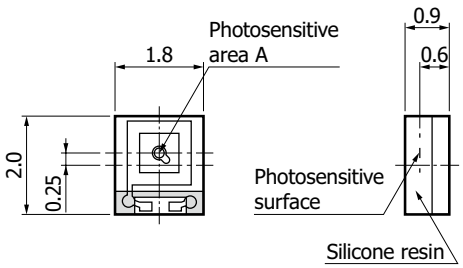
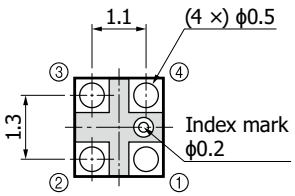
Dimensional outline (unit: mm)





Tolerance unless otherwise noted: ±0.1
Chip position accuracy with respect to backside electrode pads: X, Y ≤ ±0.15

① Cathode
② Anode
③ NC
④ NC

Type no.	A
S17268-02	ϕ0.2
S17268-05	ϕ0.5

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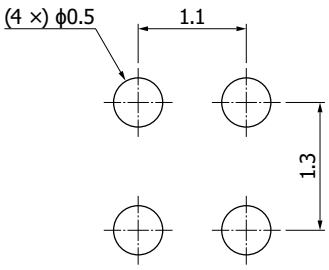
Recommended land pattern (unit: mm)



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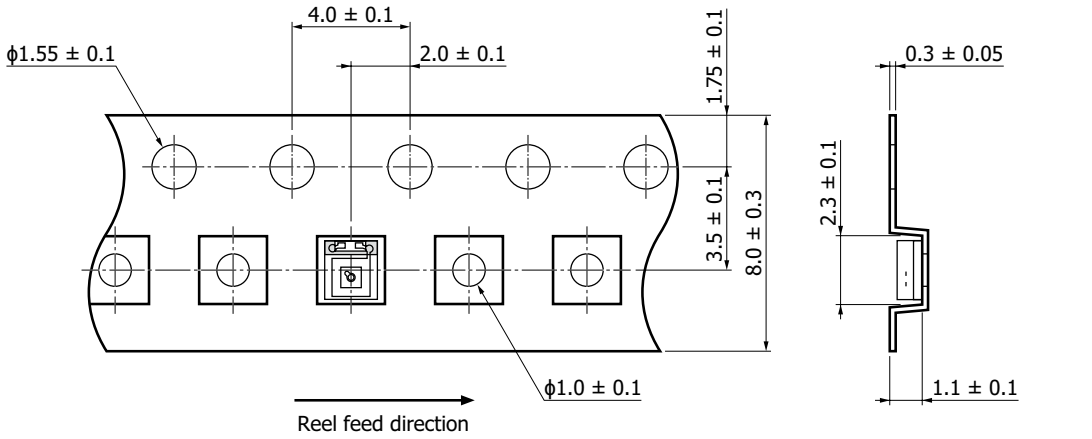
Standard packing specifications

■ Reel (conforms to JEITA ET-7200)

Appearance	Hub diameter	Tape width	Material	Electrostatic characteristics
ϕ180 mm	ϕ60 mm	8 mm	PS	Conductive

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



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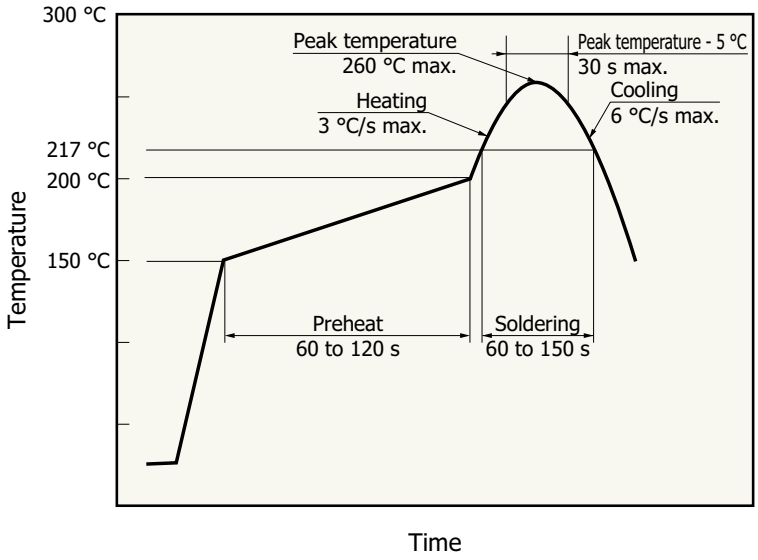
■ Packing quantity
1000 pcs/reel

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

Recommended reflow soldering conditions



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- After unpacking, store in an environment at a temperature of 30 °C or less and a humidity of 60 % or less, and perform reflow soldering within 4 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.

Baking

If 12 months have passed in an unpacked state or the storage period described above has passed after opening, perform baking before reflow soldering to dehumidify. For the baking method, see the related information "Precautions / Surface mount type products."

■ Recommended baking conditions
- Temperature: 150 °C, 3 hours, up to twice

Note: When you set baking 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
- Precautions / Surface mount type products

■ Catalog
- Technical note / Si APD

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