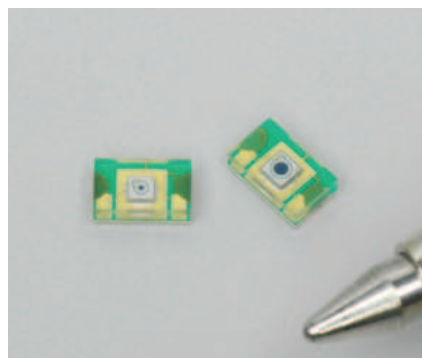




Si APD

S10341 series

**Low bias operation, for 800 nm band,
small package**

Features

- Miniature and thin package: $1.8 \times 3.1 \times 1.0^t$ mm
- Stable operation at low bias
- High-speed response
- High sensitivity
- Low noise

Applications

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

General ratings

Parameter	Symbol	S10341-02	S10341-05	Unit
Active area size*1	A	$\phi 0.2$	$\phi 0.5$	mm
Effective active area	-	0.03	0.19	mm ²
Package	-	Plastic		-

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

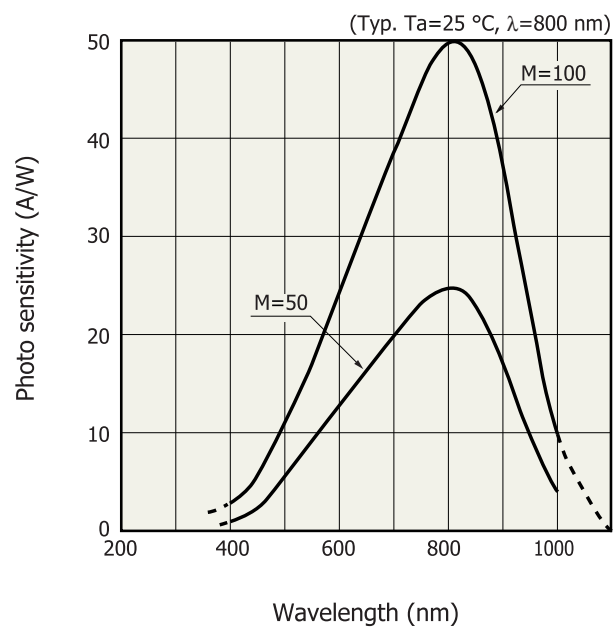
Absolute maximum ratings

Parameter	Symbol	Value	Unit
Operating temperature	Topr	-20 to +60	°C
Storage temperature	Tstg	-40 to +80	°C
Reverse current	I _{rmax}	200	μA
Forward current	I _{fmax}	10	mA

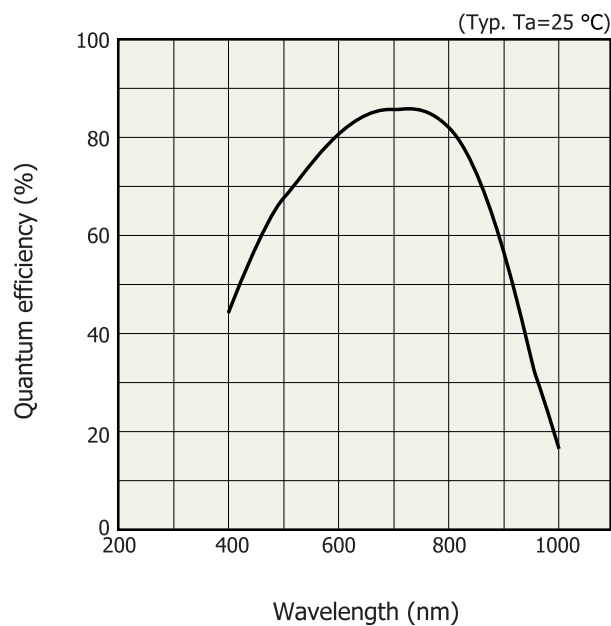
Electrical and optical characteristics (Ta= 25 °C)

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	λ_p	M=100	-	800	-	-	800	-	nm
Photo sensitivity	S	$\lambda=800$ nm, M=1	-	0.5	-	-	0.5	-	A/W
Quantum efficiency	QE	$\lambda=800$ 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	f _c	M=100, R _L =50 Ω $\lambda=800$ nm, -3 dB	-	1000	-	-	900	-	MHz
Terminal capacitance	C _t	M=100, f=1 MHz	-	1	-	-	2	-	pF
Excess noise figure	x	M=100	-	0.3	-	-	0.3	-	-
Gain	M	$\lambda=800$ nm	-	100	-	-	100	-	-

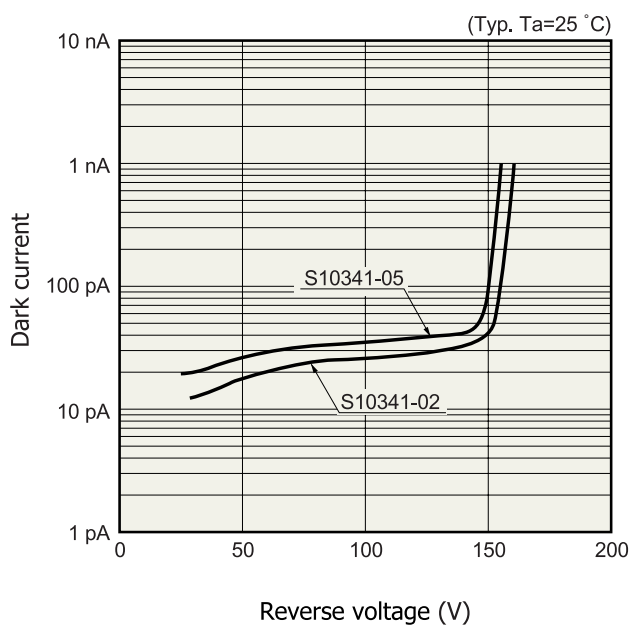
Spectral response



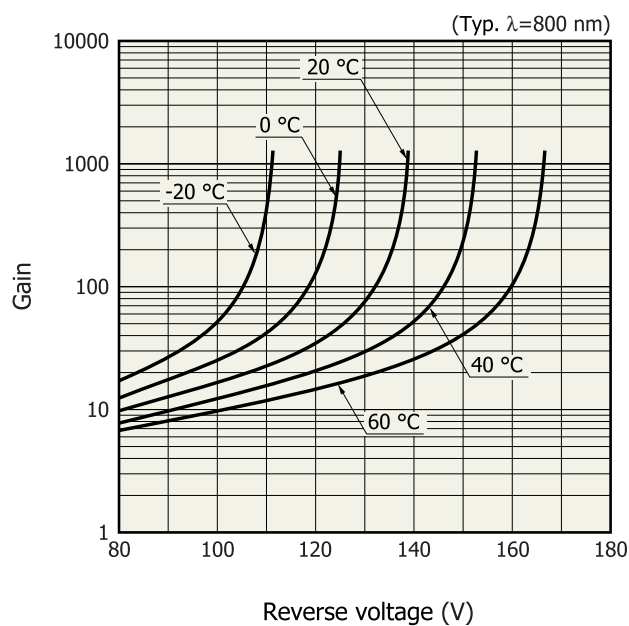
Quantum efficiency vs. wavelength



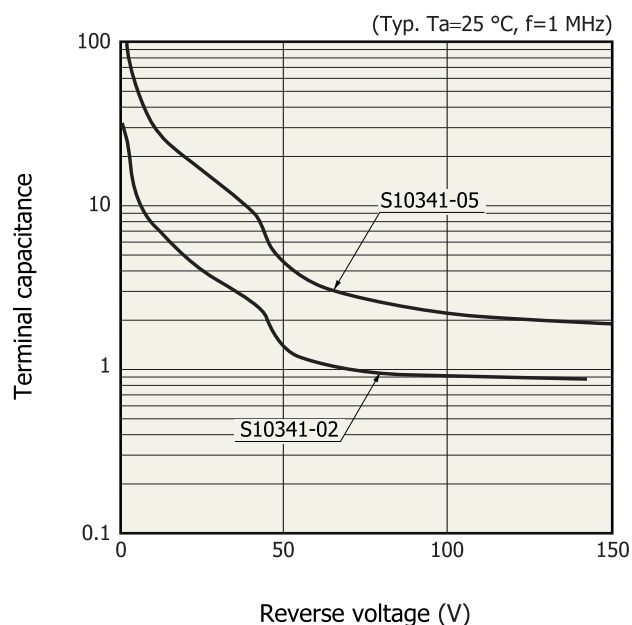
Dark current vs. reverse voltage



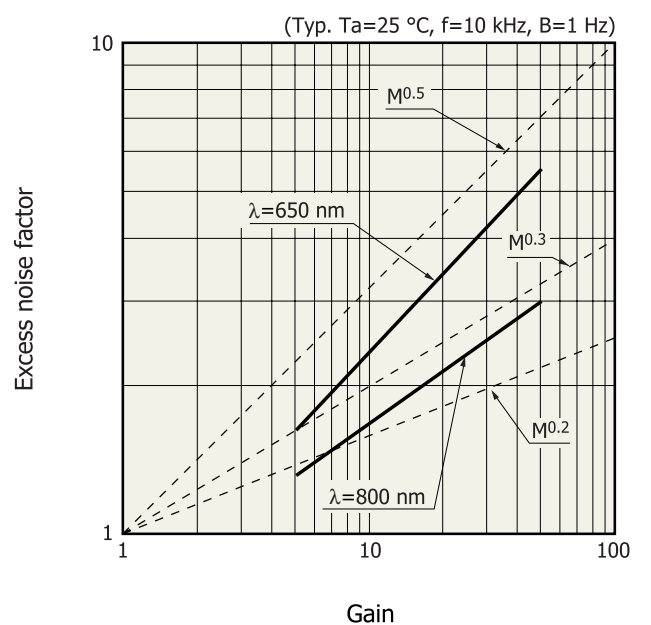
Gain vs. reverse voltage



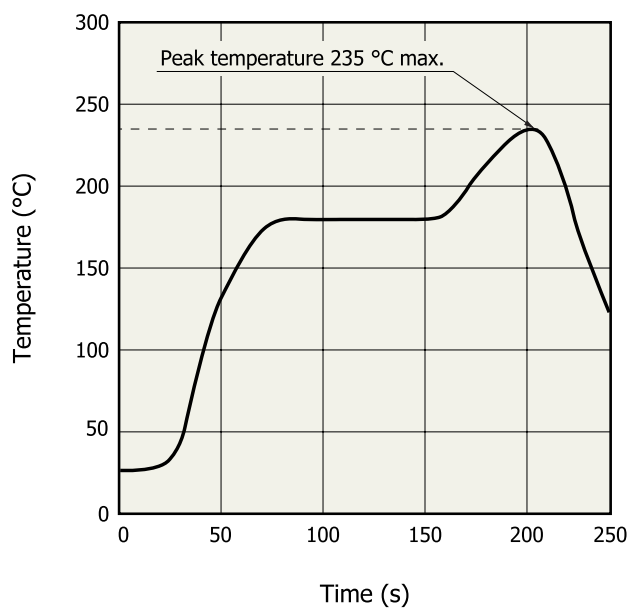
Terminal capacitance vs. reverse voltage



Excess noise factor vs. gain

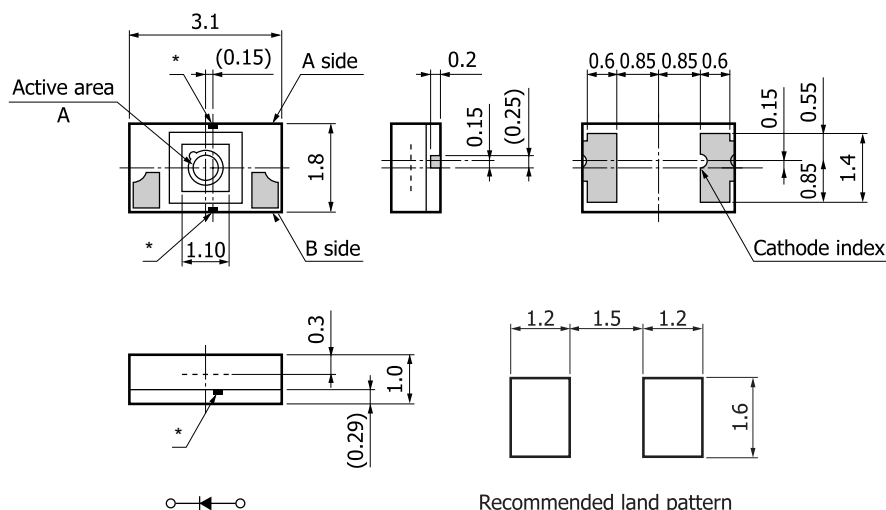


Recommended solder reflow condition



- After unpacking, store this device in an environment at a temperature of $30\text{ }^{\circ}\text{C}$ 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 mm)



Active area position accuracy: $X, Y \leq \pm 0.3$
 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	$\phi 0.2$
S10341-05	$\phi 0.5$

KAPDA0130EA

Information described in this material is current as of May, 2011. Product specifications are subject to change without prior notice due to improvements or other reasons. Before assembly into final products, please contact us for the delivery specification sheet to check the latest information.

Type numbers of products listed in the delivery specification sheets or supplied as samples may have a suffix "(X)" which means preliminary specifications or a suffix "(Z)" which means developmental specifications.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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