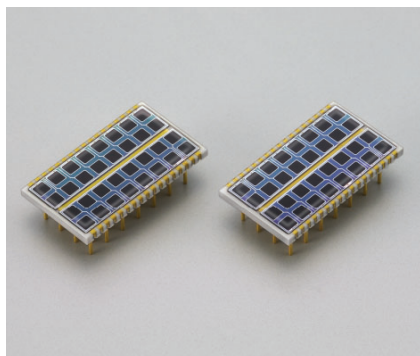


Si APD array



S8550-02

4 × 8 element APD array with low noise and enhanced short-wavelength sensitivity

The S8550-02 is an APD (avalanche photodiode) array designed for short wavelength detection, featuring low noise and low terminal capacitance. The S8550-02 also offers uniform gain and small crosstalk between each element.

Features

- High sensitivity and low noise in short wavelength region
- Low terminal capacitance
- Optimized for blue light detection
- Uniform gain and low crosstalk variation between each element
- Nonmagnetic

Applications

- Low-light-level photometry in the visible range
- Detector systems combined with scintillator

Structure

Parameter	Specification	Unit
Photosensitive area (per 1 element)	1.6 × 1.6	mm
Element pitch	2.3	mm
Number of elements	32	-
Package	Ceramic, nonmagnetic	-
Window material	Epoxy resin	-

Absolute maximum ratings

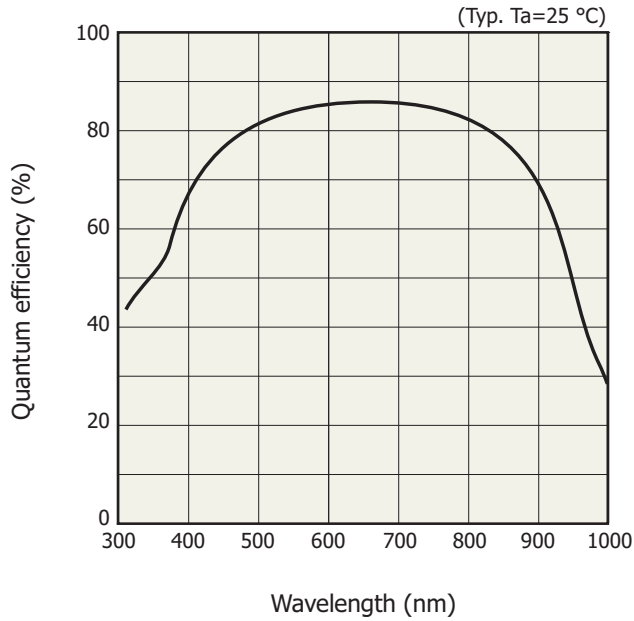
Parameter	Symbol	Value	Unit
Operating temperature	T _{opr}	-20 to +60	°C
Storage temperature	T _{stg}	-20 to +80	°C
Reverse current	I _{rmax}	200	μA
Forward current	I _{fmax}	10	mA

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 (T_a=25 °C)

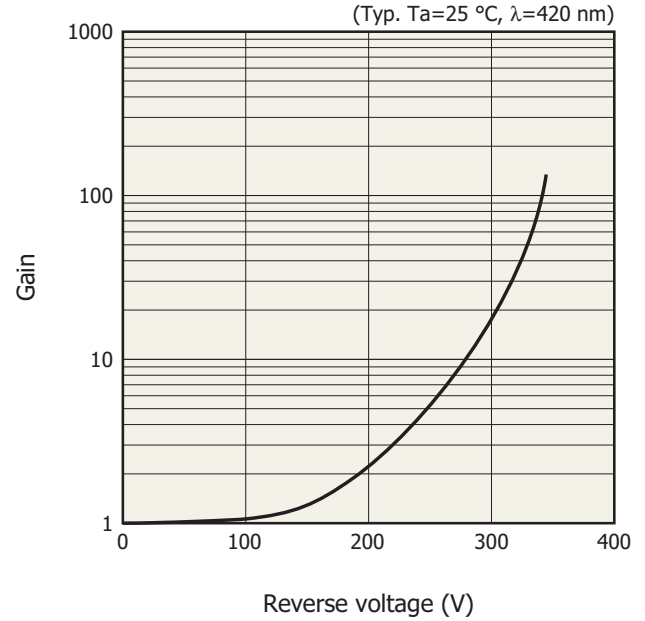
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	320 to 1000	-	nm
Peak sensitivity wavelength	λ _p	M=50	-	600	-	nm
Quantum efficiency	QE	λ=420 nm	60	70	-	%
Breakdown voltage	V _{BR}		-	400	500	V
Dark current	I _D	Per 1 element, M=50	-	1	10	nA
Terminal capacitance	C _t	Per 1 element, M=50, f=10 kHz	-	9	-	pF
Gain	M		-	50	-	-
Gain variation	-	M=50	-	-	±15	%
Temperature coefficient of I _D	T _{CI_D}	M=50	-	1.1	-	times/°C
Rise time	tr		-	1.5	-	ns
Temperature coefficient of V _{BR}	-		-	0.78	-	V/°C
Excess noise figure	x	λ=420 nm	-	0.2	-	-

Quantum efficiency vs. wavelength



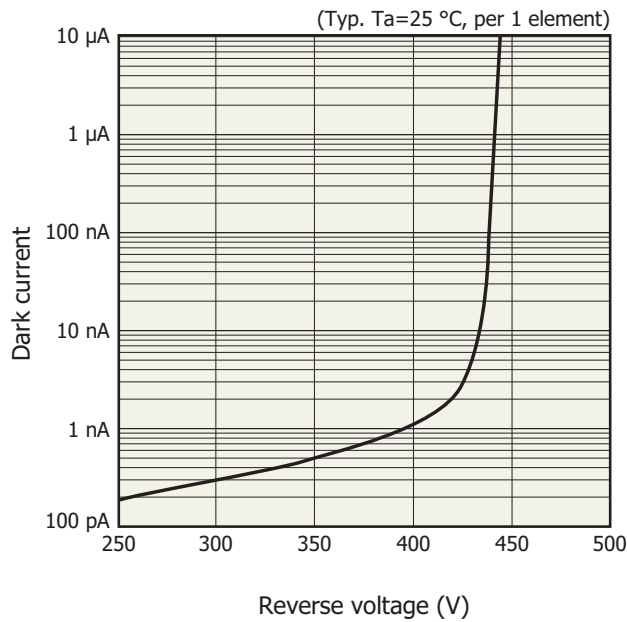
KAPDB0059EB

Gain vs. reverse voltage



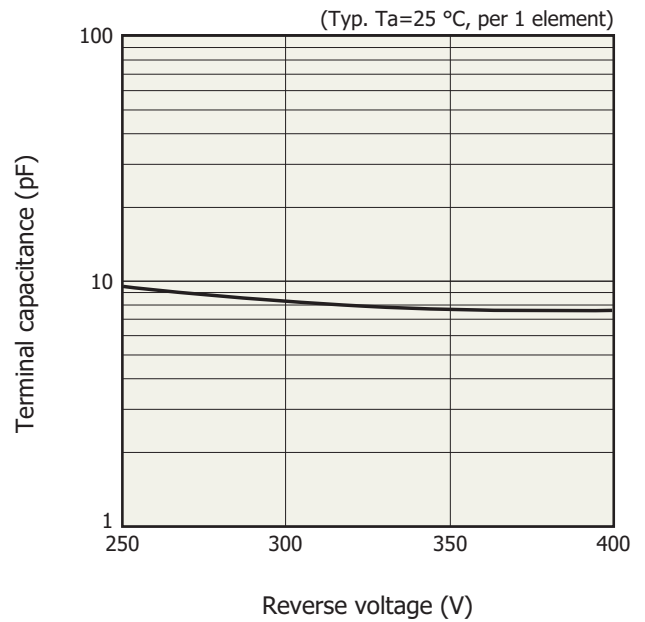
KAPDB0063EA

Dark current vs. reverse voltage



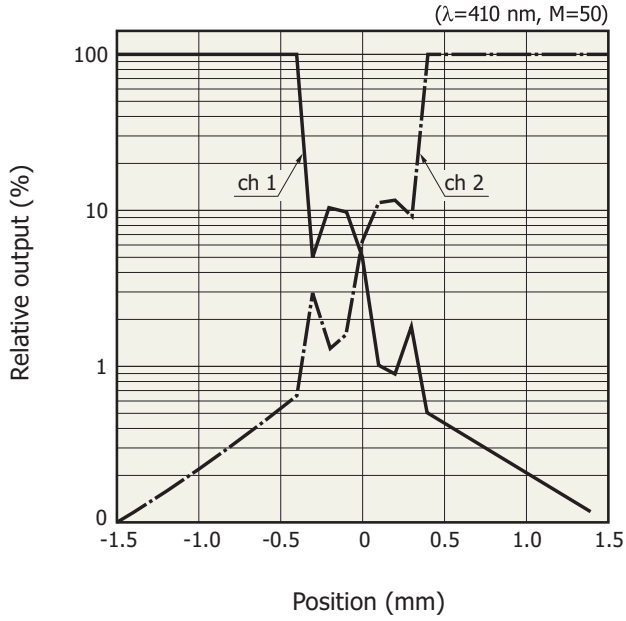
KAPDB0200EA

Terminal capacitance vs. reverse voltage



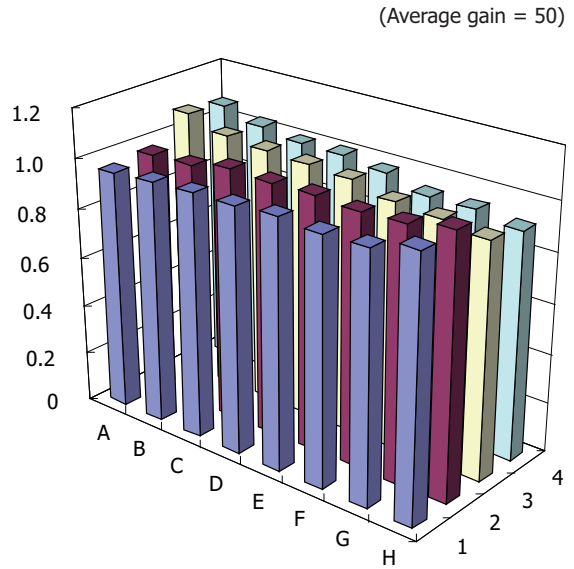
KAPDB0201EA

Crosstalk
(S8550-02, element gap: 0.7 mm, typical example)



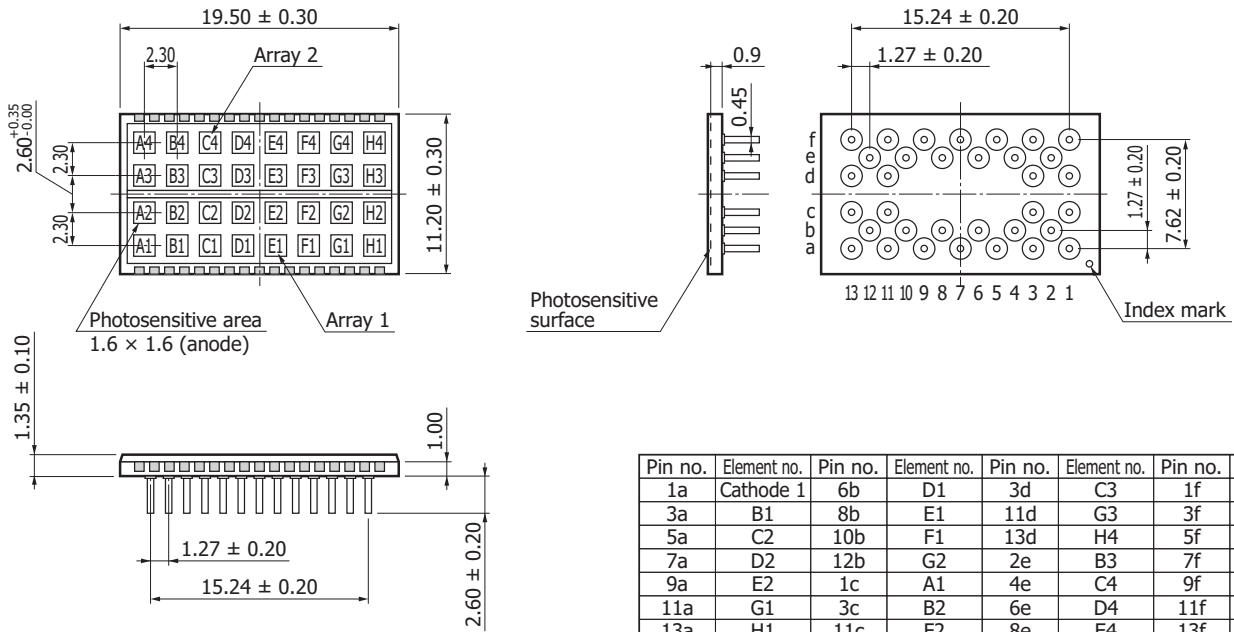
KAPDC0039EA

Uniformity of gain



KAPDB00202EA

Dimensional outline (unit: mm)



Pin no.	Element no.	Pin no.	Element no.	Pin no.	Element no.	Pin no.	Element no.
1a	Cathode 1	6b	D1	3d	C3	1f	A4
3a	B1	8b	E1	11d	G3	3f	B4
5a	C2	10b	F1	13d	H4	5f	D3
7a	D2	12b	G2	2e	B3	7f	E3
9a	E2	1c	A1	4e	C4	9f	F3
11a	G1	3c	B2	6e	D4	11f	G4
13a	H1	11c	F2	8e	E4	13f	Cathode 2
2b	A2	13c	H2	10e	F4		
4b	C1	1d	A3	12e	H3		

Cathode 1: cathode of array 1
Cathode 2: cathode of array 2

KAPDA0131EA

Information described in this material is current as of October, 2012.

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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