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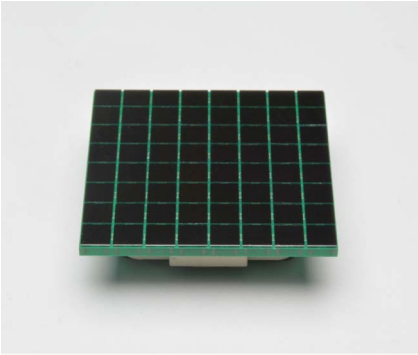
64-element Si photodiode array



S13620-02

Back-illuminated photodiode array for non-destructive X-ray inspection, suitable structure for tiling

The S13620-02 is an 8 × 8 element Si photodiode array with a back-illuminated type structure for X-ray non-destructive inspection. The back-illuminated photodiode array is easy to handle because there are no bonding wires or photosensitive area on the incident surface side. You can mount a scintillator without being concerned about damaging wires. In addition, it is designed with minimal dead space around the product. This makes it possible to arrange multiple products side by side. There is no crosstalk between channels.

Features

- **2D (8 × 8 element) array**
- **Spectral response range: 400 to 1100 nm**
- **Package size: 24 (W) × 24 (H) mm**
- **Element pitch: 3.0 mm × 64 elements**
- **Easy coupling with a scintillator**
  Because there are no wires in the photosensitive area and the optical coupling efficiency with an scintillator can be maximized, it suitable for X-ray non-destructive inspection equipment.

Applications

- **General industrial measurement**
- **X-ray non-destructive inspection and the like**

Structure

Parameter	Specification	Unit
Package size	24 × 24	mm
Element size	2.8 × 2.8	mm
Photosensitive area	2.5 × 2.5/element	mm
Number of elements	64 (8 × 8)	element
Package	Glass epoxy	-

Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R max	Ta=25 °C	10	V
Operating temperature	Topr	No dew condensation*1	-20 to +60	°C
Storage temperature	Tstg	No dew condensation*1	-20 to +80	°C

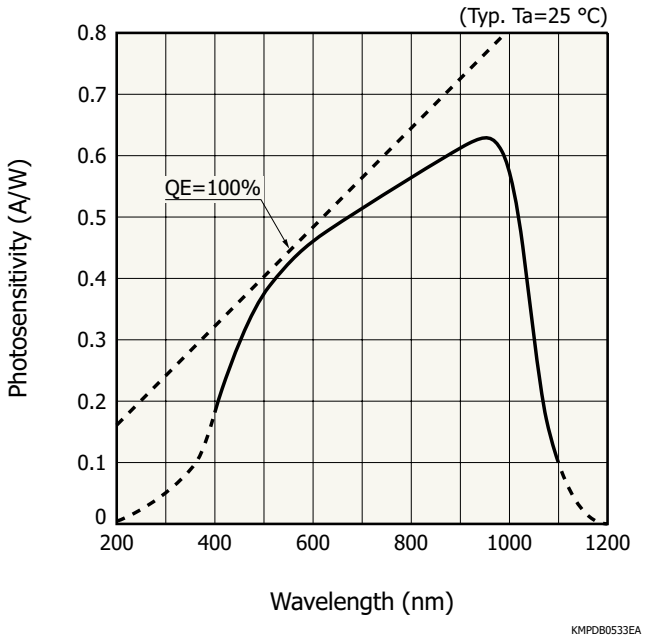
*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

These products are also available as scintillator-mounted products (custom order products) such as CsI (Tl), phosphor sheet, GOS, and CWO. Consult with your nearest Hamamatsu sales office.

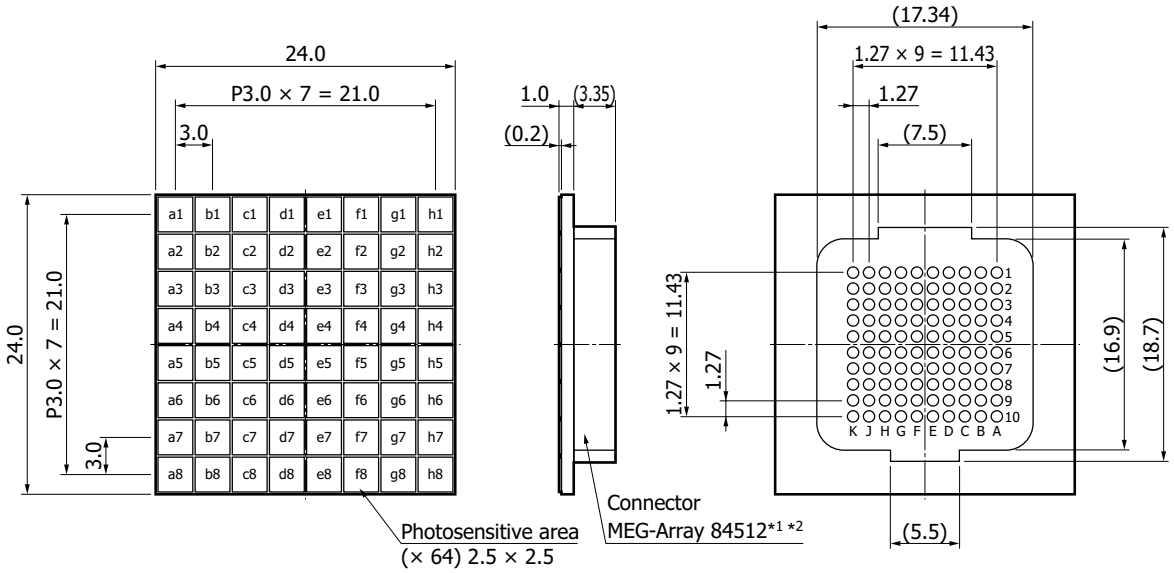
Electrical and optical characteristics [Ta=25 °C, per element]

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	400 to 1100	-	nm
Peak sensitivity wavelength	λp		-	960	-	nm
Photosensitivity	S	λ=540 nm	380	420	-	mA/W
		λ=920 nm	550	610	-	
Short circuit current	Isc	100 *lx*, 2856 k	4.5	5.5	-	μA
Dark current	ID	VR=10 mV	-	10	300	pA
Rise time	tr	VR=0 V, RL=1 kΩ 10 to 90%, λ=658 nm	-	15	-	μs
Terminal capacitance	Ct	VR=0 V, f=10 kHz	40	60	90	pF

Spectral response



Dimensional outline (unit: mm)



Tolerance unless otherwise noted: ±0.1
( ) Reference value
*1: Made by Amphenol
*2: The MEG-Array 84513 (female connector) is not included. Please prepare by user.

KMPDA0603EC

Pin connections

Pin no.	Element no. (Connection)*2	Pin no.	Element no. (Connection)*2	Pin no.	Element no. (Connection)*2	Pin no.	Element no. (Connection)*2	Pin no.	Element no. (Connection)*2
A1	a1	C1	b1	E1	(KC)	G1	e2	J1	g2
A2	a2	C2	c1	E2	d1	G2	e3	J2	f3
A3	a3	C3	c2	E3	(NC)	G3	(NC)	J3	g3
A4	b4	C4	(NC)	E4	(NC)	G4	e4	J4	f4
A5	(KC)	C5	(NC)	E5	(NC)	G5	(NC)	J5	h4
A6	(KC)	C6	(NC)	E6	(NC)	G6	(NC)	J6	h5
A7	b5	C7	(NC)	E7	(NC)	G7	e5	J7	f5
A8	a6	C8	c7	E8	(NC)	G8	(NC)	J8	g6
A9	a7	C9	c8	E9	d8	G9	e6	J9	f6
A10	a8	C10	b8	E10	(KC)	G10	e7	J10	g7
B1	b2	D1	d2	F1	(KC)	H1	g1	K1	h1
B2	c3	D2	d3	F2	e1	H2	f1	K2	h2
B3	b3	D3	(NC)	F3	(NC)	H3	f2	K3	h3
B4	c4	D4	d4	F4	(NC)	H4	(NC)	K4	g4
B5	a4	D5	(NC)	F5	(NC)	H5	(NC)	K5	(KC)
B6	a5	D6	(NC)	F6	(NC)	H6	(NC)	K6	(KC)
B7	c5	D7	d5	F7	(NC)	H7	(NC)	K7	g5
B8	b6	D8	(NC)	F8	(NC)	H8	f7	K8	h6
B9	c6	D9	d6	F9	e8	H9	f8	K9	h7
B10	b7	D10	d7	F10	(KC)	H10	g8	K10	h8

*2: KC [Cathode (common)], NC [No connection]

Related information

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

■ Precautions
· Disclaimer
· Surface mount type products

Information described in this material is current as of April 2022.
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.
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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