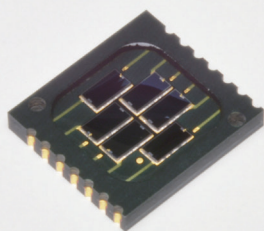


# Si PIN photodiode array

S14833



## 6-element array for encoders

The S14833 is a surface mount type 6-element Si PIN photodiode array. Each of the six elements is separated, and their arrangement is suitable for encoders.

### Features

- High sensitivity
- Surface mountable chip carrier package
- Compatible with lead-free solder reflow

### Applications

- Encoders

### Structure

Parameter	Specification	Unit
Number of elements	6	-
Element size	2.76 × 1.37	mm
Package	Glass epoxy	-
Window material	Silicone resin	-

### Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Reverse voltage	V <sub>R max</sub>	30	V
Operating temperature*1	T <sub>opr</sub>	-40 to +100	°C
Storage temperature*1	T <sub>stg</sub>	-40 to +125	°C
Soldering conditions		Peak temperature: 260 °C max., 3 times*2	-

\*1: 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.

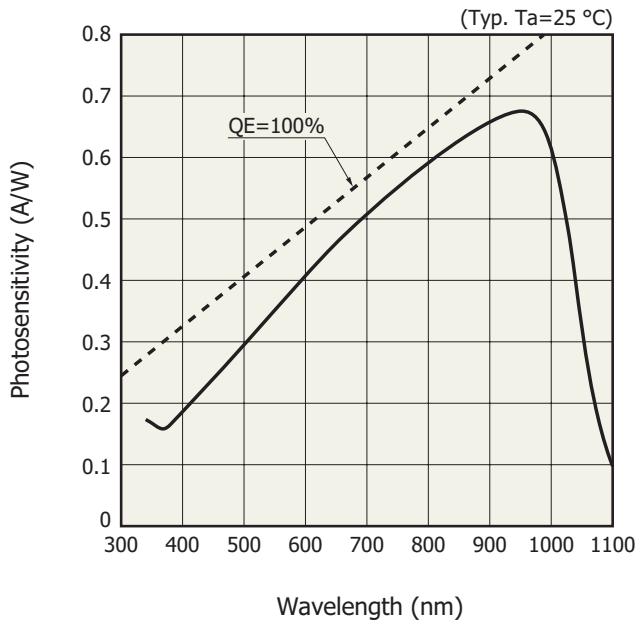
\*2: See P.5. JEDEC J-STD-020 MSL 3

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.

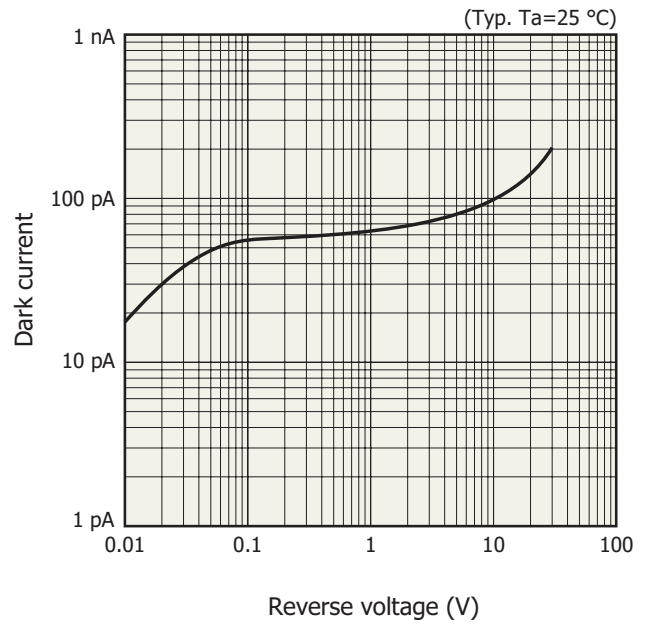
### Electrical and optical characteristics (Ta=25 °C, per element)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	$\lambda$		-	340 to 1100	-	nm
Peak sensitivity wavelength	$\lambda_p$		-	960	-	nm
Photosensitivity	S	$\lambda = \lambda_p$	0.6	0.68	-	A/W
Dark current	I <sub>D</sub>	V <sub>R</sub> =10 V	-	-	5.0	nA
Temperature coefficient of I <sub>D</sub>	$\Delta T I_D$	V <sub>R</sub> =10 V	-	1.15	-	times/°C
Cutoff frequency	f <sub>c</sub>	V <sub>R</sub> =10 V, R <sub>L</sub> =50 $\Omega$ $\lambda$ =830 nm, -3 dB	-	10	-	MHz
Terminal capacitance	C <sub>t</sub>	V <sub>R</sub> =10 V, f=10 kHz	-	9	13	pF
Noise equivalent power	NEP	V <sub>R</sub> =10 V, $\lambda = \lambda_p$	-	1.6 × 10 <sup>-14</sup>	-	W/Hz <sup>1/2</sup>

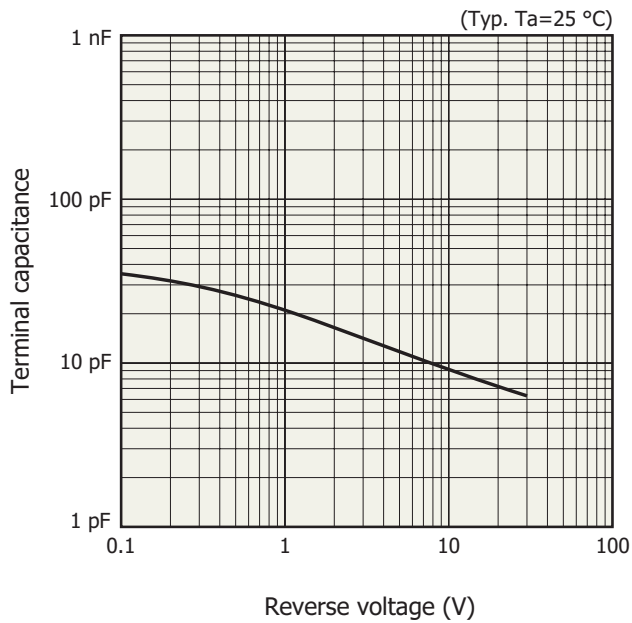
**Spectral response**



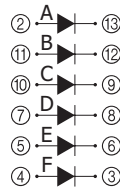
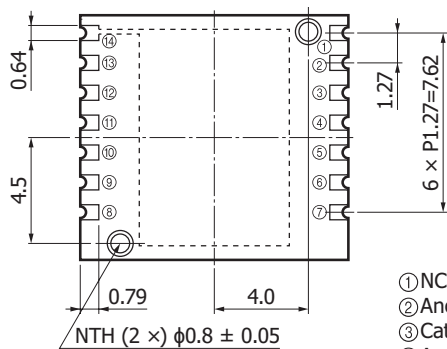
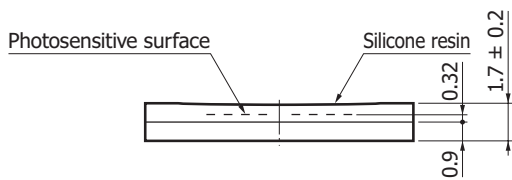
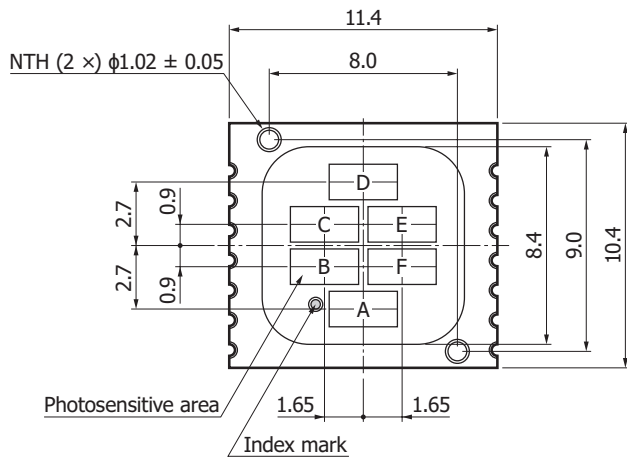
**Dark current vs. reverse voltage (per element)**



**Terminal capacitance vs. reverse voltage (per element)**



**Dimensional outline (unit: mm)**

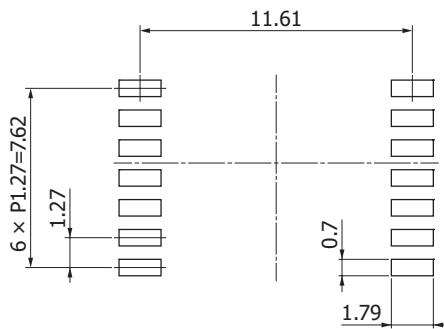


- ① NC
- ② Anode A
- ③ Cathode F
- ④ Anode F
- ⑤ Anode E
- ⑥ Cathode E
- ⑦ Anode D
- ⑧ Cathode D
- ⑨ Cathode C
- ⑩ Anode C
- ⑪ Anode B
- ⑫ Cathode B
- ⑬ Cathode A
- ⑭ Ground plane

Tolerance unless otherwise noted:  $\pm 0.15$   
 Note: NTH: for position adjustment during mounting

KMPDA0622EA

### Recommended land pattern (unit: mm)



1. Solder all terminals.
2. Do not make the land area larger than necessary.
3. It is preferable that the land sizes be about equal.

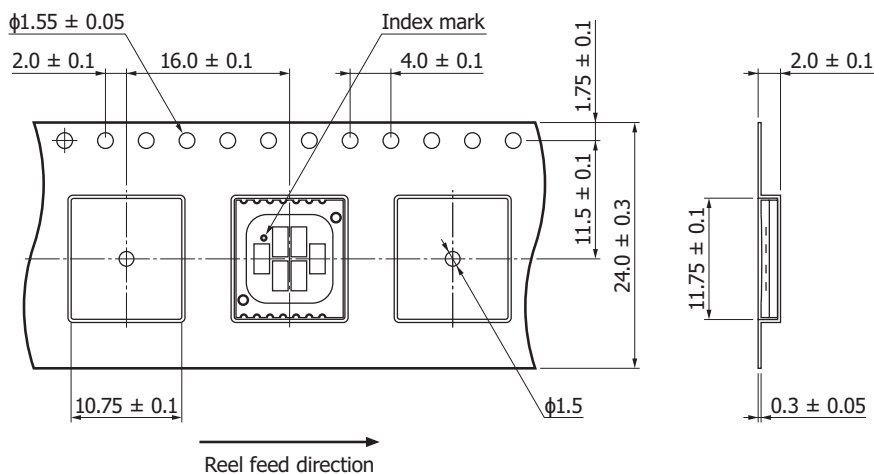
KMPDC0785EA

### Standard packing specifications

- Reel (conforms to JEITA ET-7200)

Dimensions	Hub diameter	Tape width	Material	Electrostatic characteristics
330 mm	100 mm	24 mm	PS	Conductive

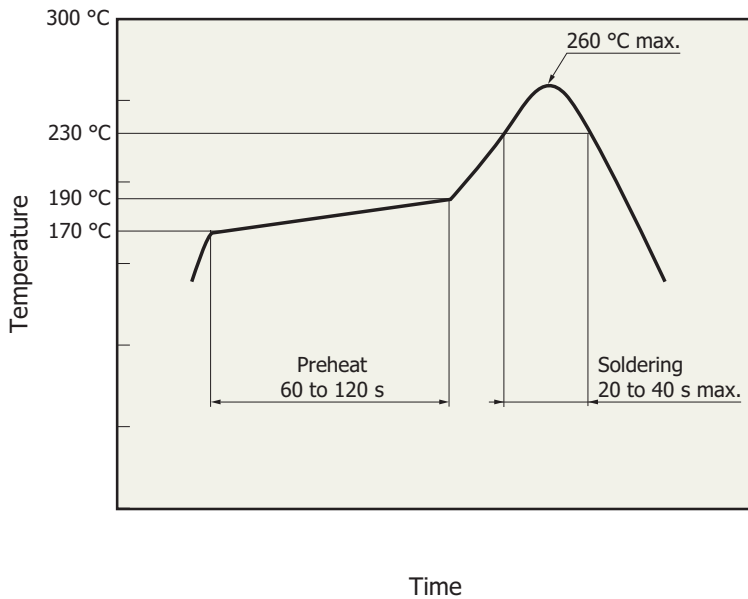
- Embossed tape (unit: mm, material: PS, conductive)



KMPDC0788EA

- Packing quantity  
1000 pcs/reel
- Packing state  
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

### Recommended reflow soldering conditions



- After unpacking, keep it in an environment at 5 to 30 °C and a humidity of 60% or less, and perform soldering within 168 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.

KPINB0385EB

### Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

#### Precautions

- Disclaimer
- Surface mount type products

#### Technical information

- Si photodiodes / Application circuit examples

Information described in this material is current as of October 2019.

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.

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