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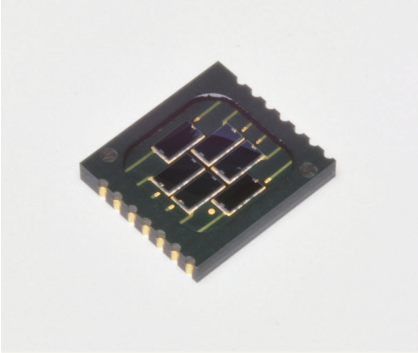
Si PIN photodiode array



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)

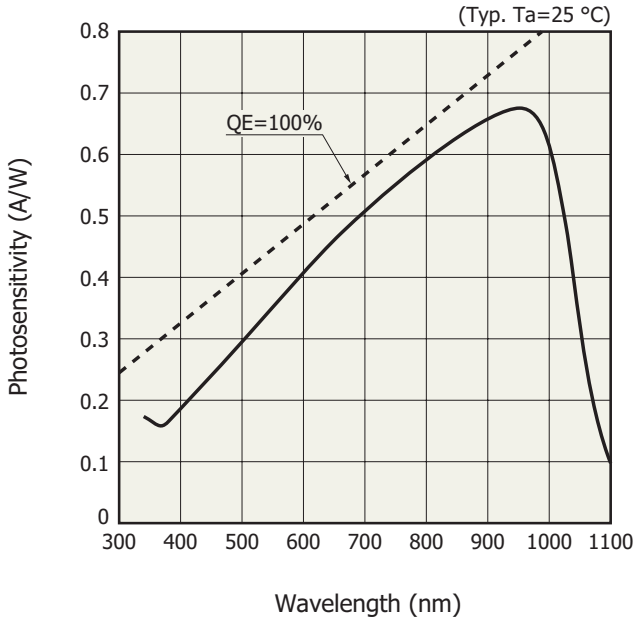
Parameter	Symbol	Value	Unit
Reverse voltage	V_R max	30	V
Operating temperature*1	Topr	-40 to +100	°C
Storage temperature*1	Tstg	-40 to +125	°C
Soldering temperature	Tsol	260 (3 times)*2	°C

*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 3, 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.

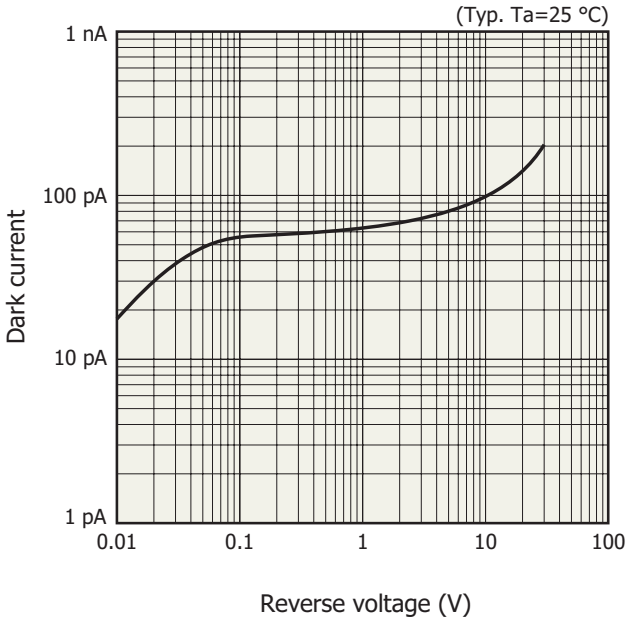
Electrical and optical characteristics (Ta=25 °C, per element)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	340 to 1100	-	nm
Peak sensitivity wavelength	λp		-	960	-	nm
Photosensitivity	S	λ=λp	0.6	0.68	-	A/W
Dark current	I_D	V_R=10 V	-	-	5.0	nA
Temperature coefficient of I_D	ΔT_{ID}	V_R=10 V	-	1.15	-	times/°C
Cutoff frequency	fc	V_R=10 V, R_L=50 Ω λ=830 nm, -3 dB	-	10	-	MHz
Terminal capacitance	Ct	V_R=10 V, f=10 kHz	-	9	13	pF
Noise equivalent power	NEP	V_R=10 V, λ=λp	-	1.6×10^{-14}	-	$W/Hz^{1/2}$

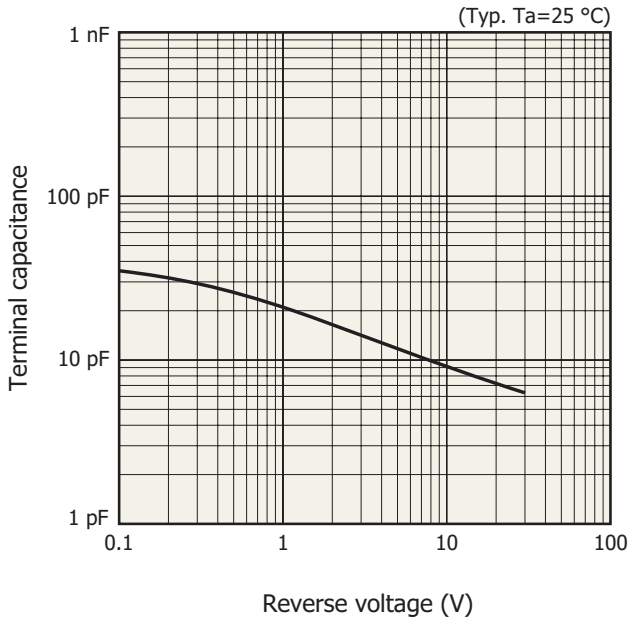
Spectral response



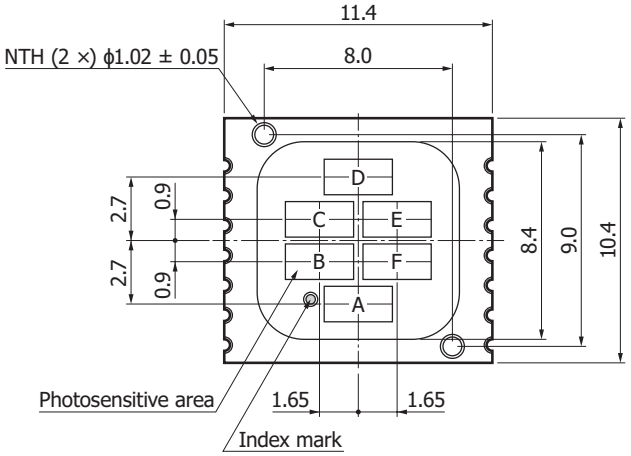
Dark current vs. reverse voltage (per element)

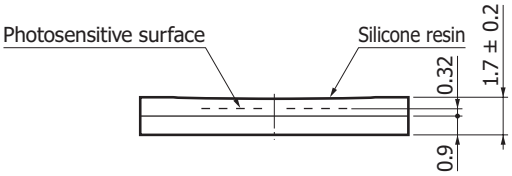


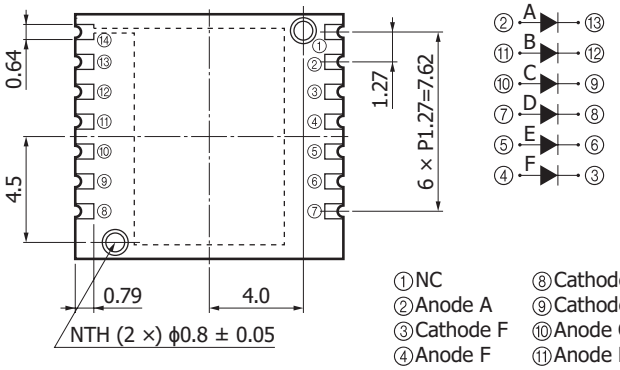
Terminal capacitance vs. reverse voltage (per element)



Dimensional outline (unit: mm)





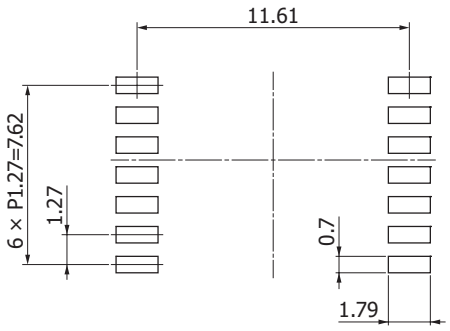


①NC
②Anode A
③Cathode F
④Anode F
⑤Anode E
⑥Cathode E
⑦Anode D
⑧Cathode D
⑨Cathode C
⑩Anode C
⑪Anode B
⑫Cathode B
⑬Cathode A
⑭Ground plane

Tolerance unless otherwise noted: ±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.

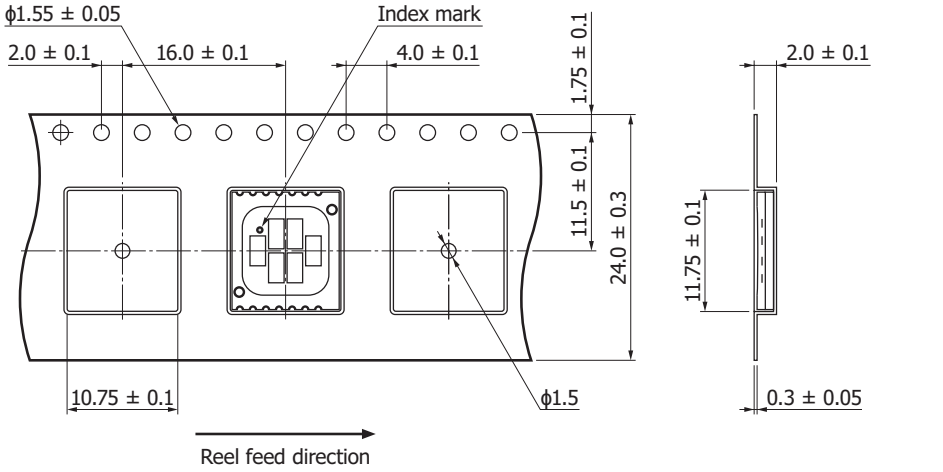
KMPDC0785EA

Standard packing specifications

■ Reel (conforms to JEITA ET-7200)

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

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

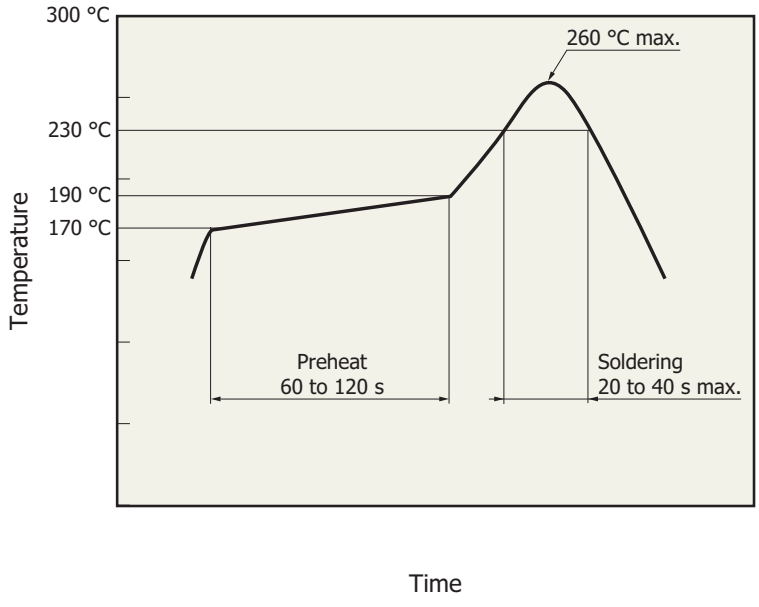


KMPDC0788EA

■ 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.

Related information

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

■ Precautions
- Disclaimer
- Surface mount type products

■ Technical information
- Si photodiodes / Application circuit examples

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