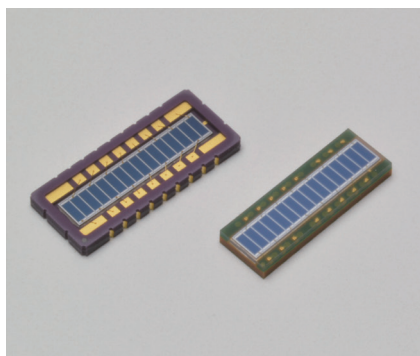


Si PIN photodiode arrays



S8558

S15158

Surface mountable 16-element arrays

The S8558 and S15158 are 16-element Si PIN photodiode arrays in surface mountable chip carrier packages. They can be mounted using solder reflow and used in a wide variety of applications such as spectrophotometers and position detection.

Features

- ➔ Photosensitive area: 0.7 × 2.0 mm (× 16 elements)
- ➔ Surface mountable chip carrier package
- ➔ Compatible with lead-free solder reflow
- ➔ High sensitivity

Applications

- ➔ Spectrophotometers
- ➔ Position measurement

Structure

Parameter	S8558	NEW S15158	Unit
Number of elements	16		-
Element pitch	0.8		mm
Element size	0.7 × 2.0		mm
Package	Ceramic	Glass epoxy	-
Window material	Silicone resin		-

Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	S8558	NEW S15158	Unit
Reverse voltage	VR max	30		V
Operating temperature*1	Topr	-40 to +100		°C
Storage temperature*1	Tstg	-40 to +125	-40 to +100	°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.

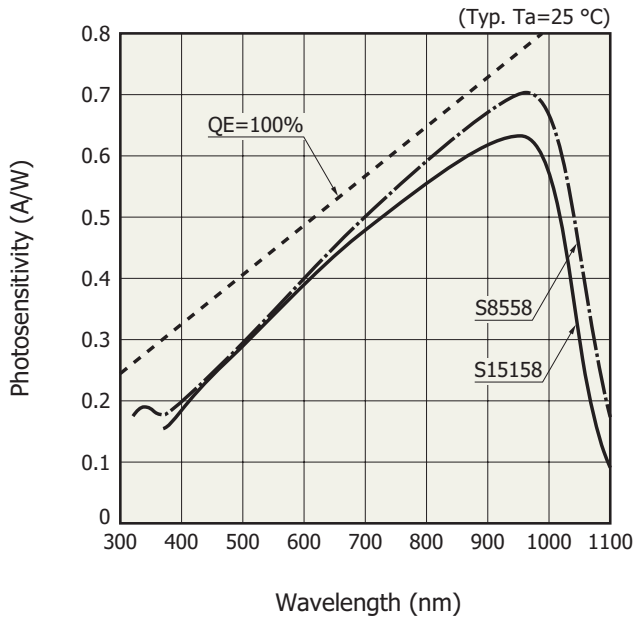
*2: See P.5. JEDEC J-STD-020 MSL 3

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.

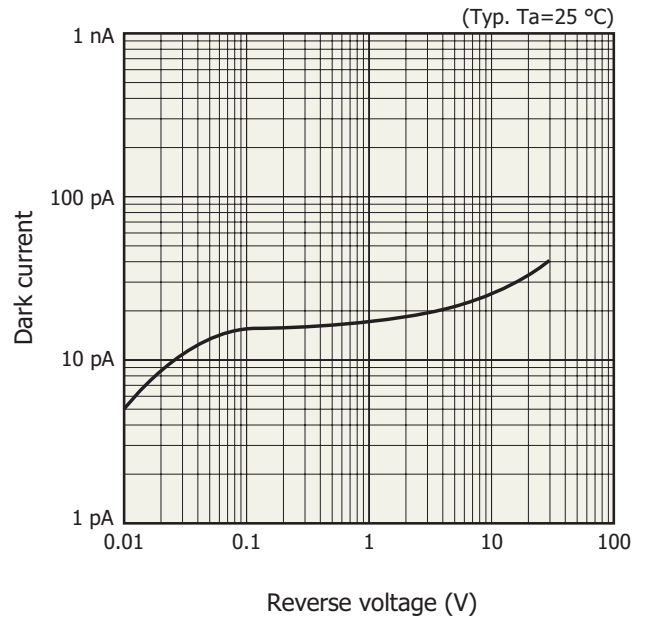
Electrical and optical characteristics (Ta=25 °C, per element, unless otherwise noted)

Parameter	Symbol	Condition	S8558			NEW S15158			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	320 to 1100	-	-	380 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	-	960	-	nm
Photosensitivity	S	$\lambda = \lambda_p$	-	0.72	-	-	0.63	-	A/W
Dark current	ID	VR=10 V	-	0.05	1	-	-	-	nA
		VR=10 V, all 16 elements	-	-	-	-	0.4	10	
Temperature coefficient of ID	ΔT_{ID}	VR=10 V	-	1.15	-	-	1.15	-	times/°C
Cutoff frequency	fc	VR=10 V, RL=50 Ω $\lambda=830$ nm, -3 dB	-	25	-	-	25	-	MHz
Noise equivalent power	NEP	VR=10 V, $\lambda = \lambda_p$	-	5.6×10^{-15}	-	-	1.2×10^{-14}	-	W/Hz ^{1/2}
Terminal capacitance	Ct	VR=10 V, f=10 kHz	-	5	10	-	-	-	pF
		VR=10 V, f=10 kHz, all 16 elements	-	-	-	-	60	90	

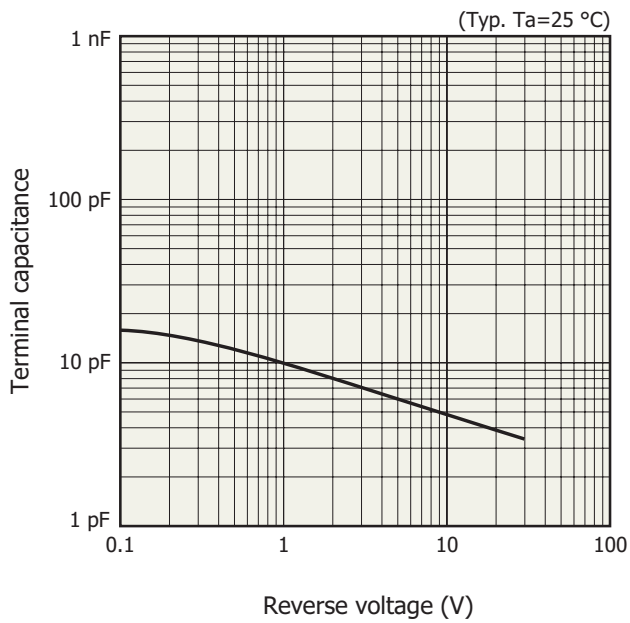
Spectral response



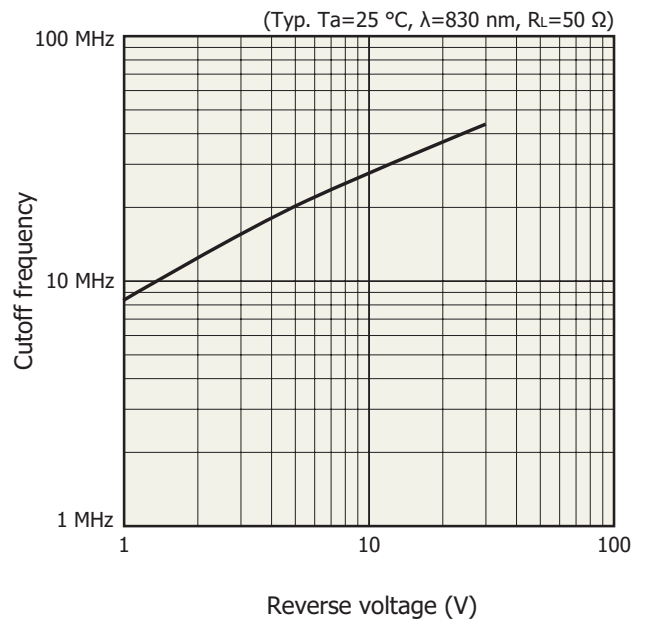
Dark current vs. reverse voltage (per element)



Terminal capacitance vs. reverse voltage (per element)

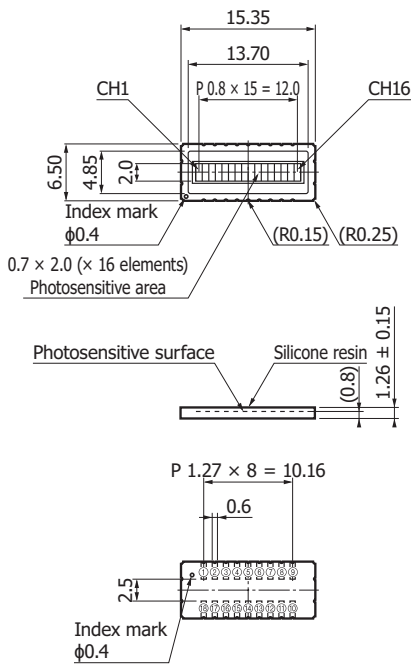


Cutoff frequency vs. reverse voltage (per element)



Dimensional outline (unit: mm)

S8558

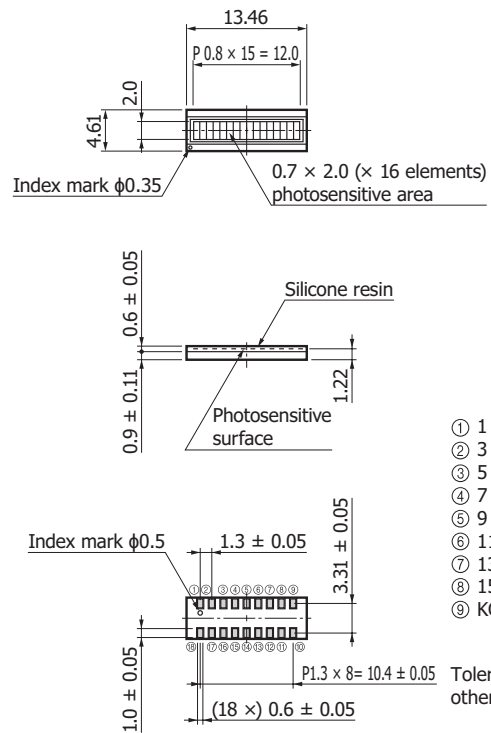


- | | |
|------|------|
| ① 1 | ⑩ 16 |
| ② 3 | ⑪ 14 |
| ③ 5 | ⑫ 12 |
| ④ 7 | ⑬ 10 |
| ⑤ 9 | ⑭ 8 |
| ⑥ 11 | ⑮ 6 |
| ⑦ 13 | ⑯ 4 |
| ⑧ 15 | ⑰ 2 |
| ⑨ KC | ⑱ NC |

Tolerance unless otherwise noted: ± 0.25

KMPDA0144EC

S15158



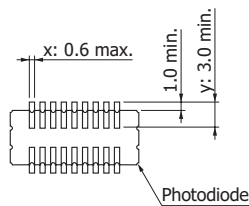
- | | |
|------|------|
| ① 1 | ⑩ 16 |
| ② 3 | ⑪ 14 |
| ③ 5 | ⑫ 12 |
| ④ 7 | ⑬ 10 |
| ⑤ 9 | ⑭ 8 |
| ⑥ 11 | ⑮ 6 |
| ⑦ 13 | ⑯ 4 |
| ⑧ 15 | ⑰ 2 |
| ⑨ KC | ⑱ NC |

Tolerance unless otherwise noted: ± 0.1

KMPDA0623EA

Recommended land pattern (unit: mm)

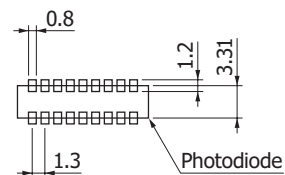
S8558



- Solder all terminals.
- Do not make the land area larger than necessary.
- It is preferable that the land sizes be about equal.
- Make land width x about the same as the terminal width.
- Make land length y at least 1 mm longer than the terminal length, protruding outside the package.

KPIN0028ED

S15158



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

KMPDC0787EA

Standard packing specifications

S8558

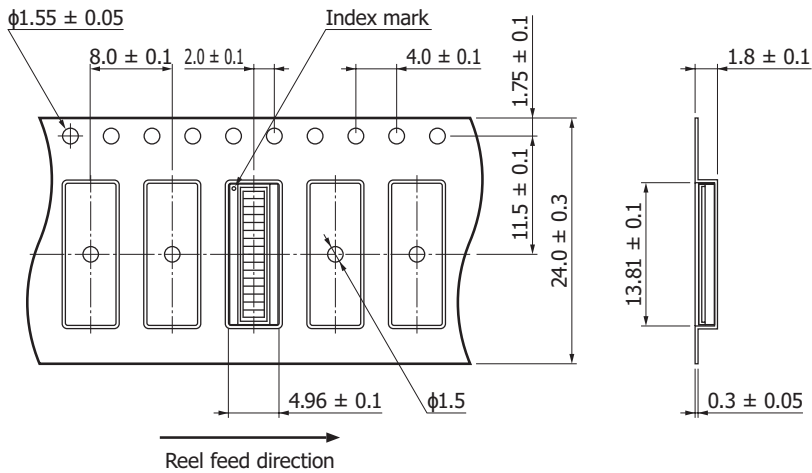
- Packing quantity
100 pcs max./tray
- Packing state
Tray and desiccant in moisture-proof packaging (vacuum-sealed)

S15158

- Reel (conforms to JEITA ET-7200)

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

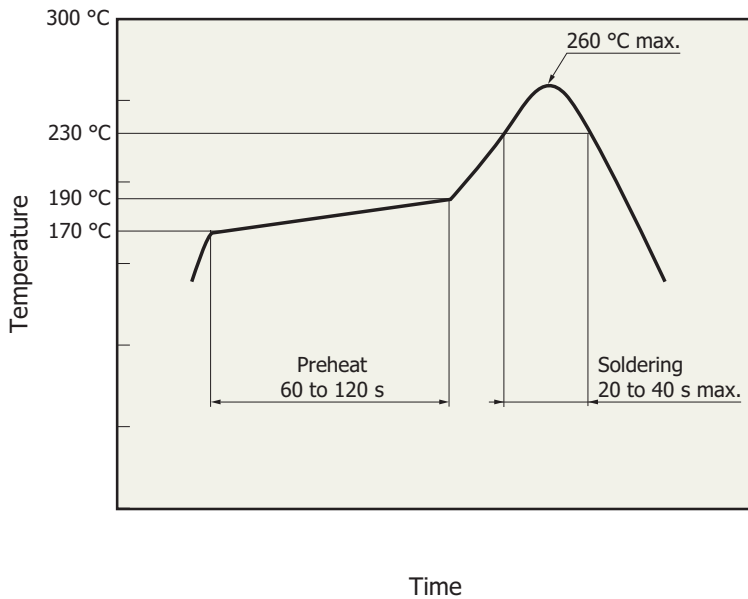
- Embossed tape (unit: mm, material: PS, conductive)



KMPDC0789EA

- 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

■ Precautions

- Disclaimer
- Surface mount type products

■ Technical information

- Si photodiodes / Application circuit examples

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

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