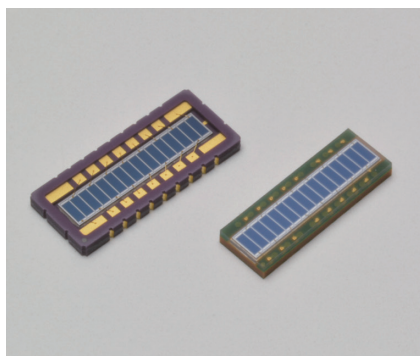


Si PIN photodiode arrays



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 distance measurement.

Features

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

Applications

- ➔ Spectrophotometers
- ➔ Distance measurement

Structure

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

Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	S8558	S15158	Unit
Reverse voltage	V _R max	30		V
Operating temperature*1	T _{opr}	-40 to +100		°C
Storage temperature*1	T _{stg}	-40 to +125	-40 to +100	°C
Soldering temperature		Peak temperature: 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.

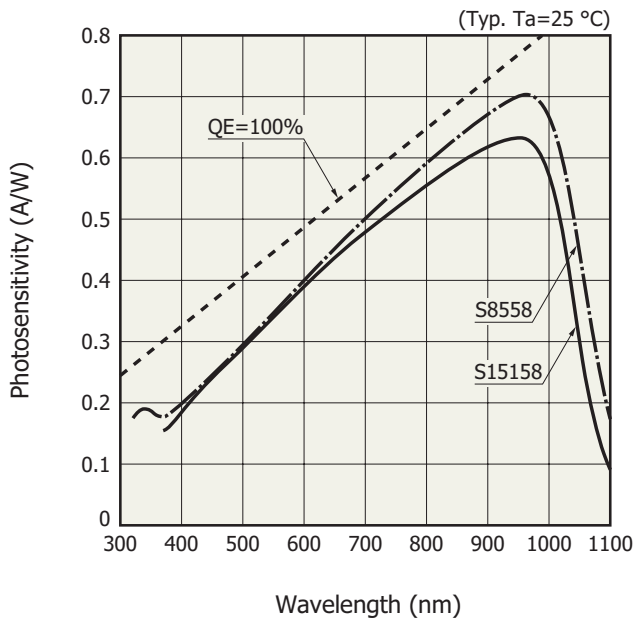
*2: See P.5. JEDEC J-STD-020 MSL 3

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.

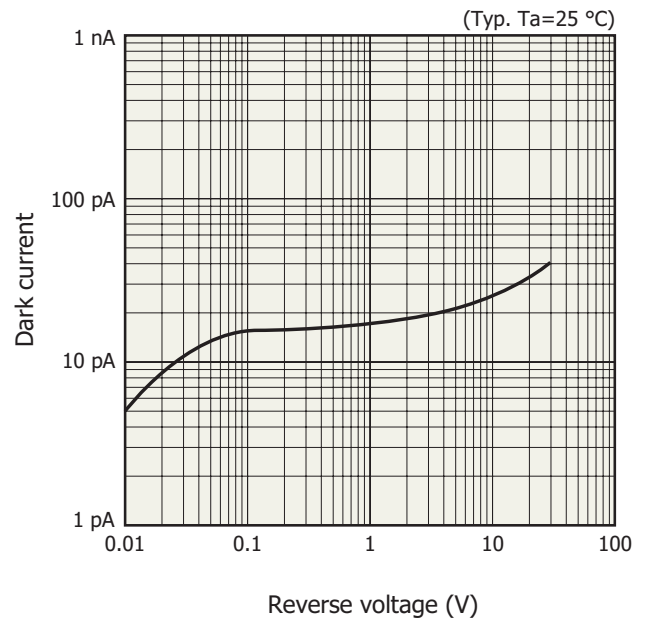
Electrical and optical characteristics (Ta=25 °C, per element, unless otherwise noted)

Parameter	Symbol	Condition	S8558			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	I _D	V _R =10 V	-	0.05	1	-	-	-	nA
		V _R =10 V, all 16 elements	-	-	-	-	0.4	10	
Temperature coefficient of I _D	$\Delta T I_D$	V _R =10 V	-	1.15	-	-	1.15	-	times/°C
Cutoff frequency	f _c	V _R =10 V, R _L =50 Ω λ =830 nm, -3 dB	-	25	-	-	25	-	MHz
Noise equivalent power	NEP	V _R =10 V, $\lambda = \lambda_p$	-	5.6×10^{-15}	-	-	1.2×10^{-14}	-	W/Hz ^{1/2}
Terminal capacitance	C _t	V _R =10 V, f=10 kHz	-	5	10	-	-	-	pF
		V _R =10 V, f=10 kHz, all 16 elements	-	-	-	-	60	90	

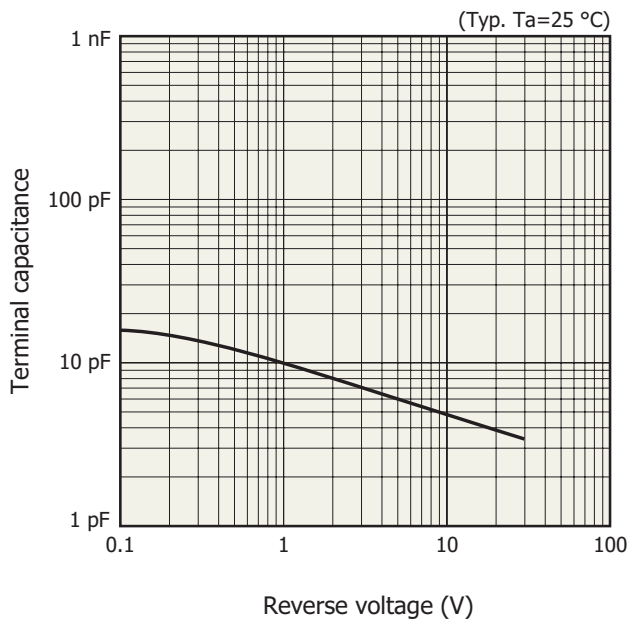
Spectral response



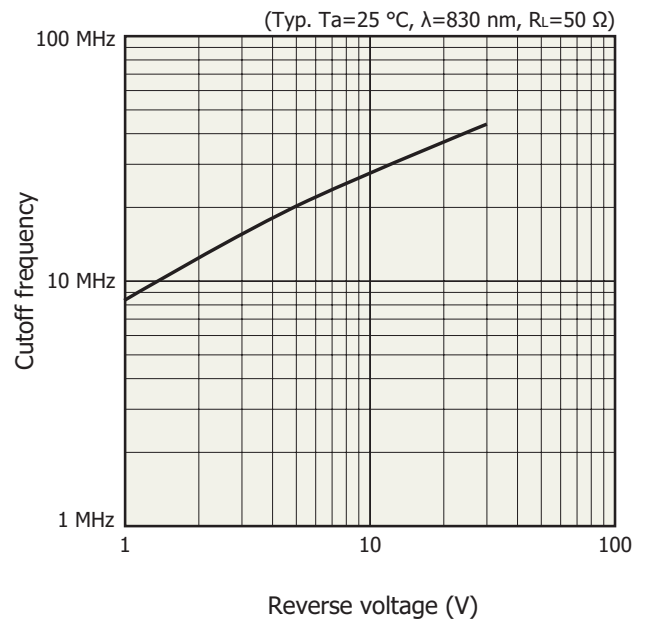
Dark current vs. reverse voltage (per element)



Terminal capacitance vs. reverse voltage (per element)

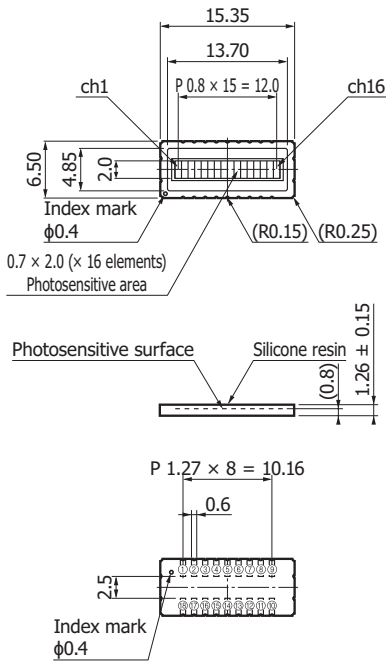


Cutoff frequency vs. reverse voltage (per element)



Dimensional outline (unit: mm)

S8558

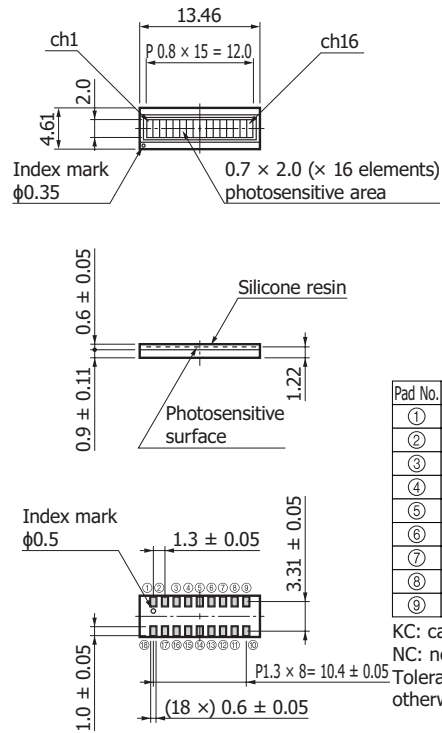


Pad No.	ch	Pad No.	ch
①	1	⑩	16
②	3	⑪	14
③	5	⑫	12
④	7	⑬	10
⑤	9	⑭	8
⑥	11	⑮	6
⑦	13	⑯	4
⑧	15	⑰	2
⑨	KC	⑱	NC

KC: cathode common
 NC: no connection
 Tolerance unless
 otherwise noted: ±0.25

KMPDA0144EE

S15158



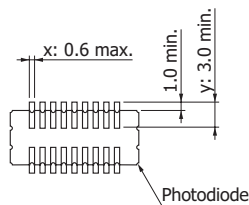
Pad No.	ch	Pad No.	ch
①	1	⑩	16
②	3	⑪	14
③	5	⑫	12
④	7	⑬	10
⑤	9	⑭	8
⑥	11	⑮	6
⑦	13	⑯	4
⑧	15	⑰	2
⑨	KC	⑱	NC

KC: cathode common
 NC: no connection
 Tolerance unless
 otherwise noted: ±0.1

KMPDA0623EC

Recommended land pattern (unit: mm)

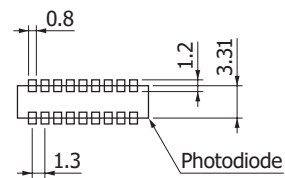
S8558



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.
4. Make land width x about the same as the terminal width.
5. Make land length y at least 1 mm longer than the terminal length, protruding outside the package.

KPINCO028ED

S15158



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.

KMPDC0787EA

Standard packing specifications

S8558

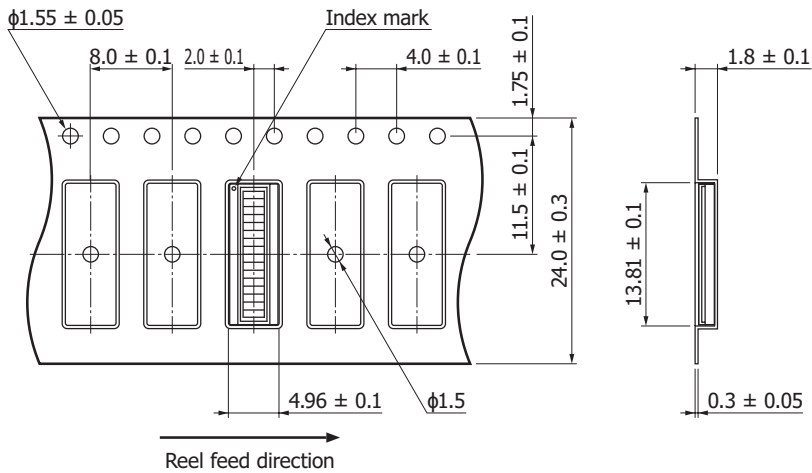
- Packing quantity
100 pcs max./tray
- Packing state
Tray and desiccant in moisture-proof packaging (vacuum-sealed)

S15158

- Reel (conforms to JEITA ET-7200)

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

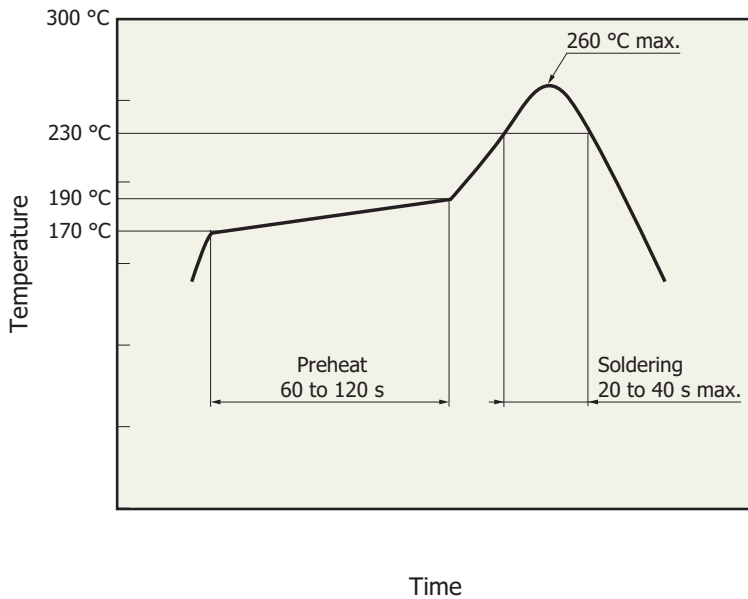
- Embossed tape (unit: mm, material: PS, conductive)



KMPDC0789EA

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

Recommended reflow soldering conditions



KPINB0385EB

- 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 note

- Si photodiodes

Information described in this material is current as of September 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. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.

HAMAMATSU

www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81)53-434-3311, Fax: (81)53-434-5184

U.S.A.: HAMAMATSU CORPORATION: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com

Germany: HAMAMATSU PHOTONICS DEUTSCHLAND GMBH.: Arzbergerstr. 10, 82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de

France: HAMAMATSU PHOTONICS FRANCE S.A.R.L.: 19 Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr

United Kingdom: HAMAMATSU PHOTONICS UK LIMITED: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire, AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: HAMAMATSU PHOTONICS NORDEN AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: info@hamamatsu.se

Italy: HAMAMATSU PHOTONICS ITALIA S.R.L.: Strada della Moia, 1 int. 6, 20044 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it

China: HAMAMATSU PHOTONICS (CHINA) CO., LTD.: 1201 Tower B, Jianning Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

Taiwan: HAMAMATSU PHOTONICS TAIWAN CO., LTD.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw