

S2829

## Subminiature package phototransistor

The S2829 is a high sensitivity phototransistor molded into a visible-cut plastic package.

### Features

- ➔ Subminiature plastic package with lens
- ➔ Visible-cut package
- ➔ High sensitivity: 1.8 mA (1000 lx)

### Application

- ➔ Rotary encoders
- ➔ Touch screen

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

Parameter	Symbol	Condition	Value	Unit
Collector-emitter voltage	V <sub>CEO</sub>		35	V
Emitter-collector voltage	V <sub>ECO</sub>		4	V
Collector current	I <sub>c</sub>		20	mA
Collector dissipation	P <sub>c</sub>		80	mW
Operating temperature	T <sub>opr</sub>	No dew condition*1	-25 to +85	°C
Storage temperature	T <sub>stg</sub>	No dew condition*1	-40 to +100	°C
Soldering	-		260 °C, 3 s, at least 2.5 mm away from package surface	-

\*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.

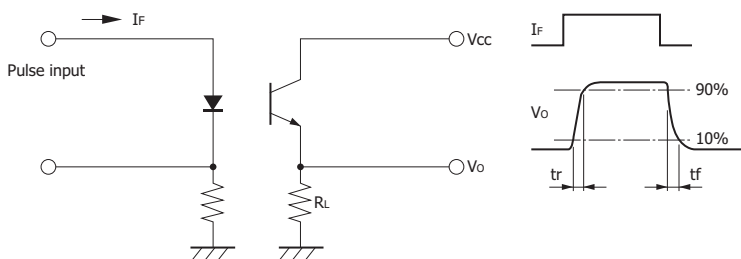
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photocurrent*2	I <sub>c</sub>	V <sub>CE</sub> =5 V, 1000 lx	0.3	1.8	-	mA
Dark current	I <sub>CEO</sub>	V <sub>CE</sub> =20 V, 0 lx	-	-	100	nA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> =0.3 mA, 1000 lx	-	-	0.4	V
Peak sensitivity wavelength	λ <sub>p</sub>		-	800	-	nm
Rise time	t <sub>r</sub>	V <sub>cc</sub> =5 V, I <sub>c</sub> =1 mA	-	2	-	μs
Fall time	t <sub>f</sub>	R <sub>L</sub> =100 Ω	-	3	-	μs

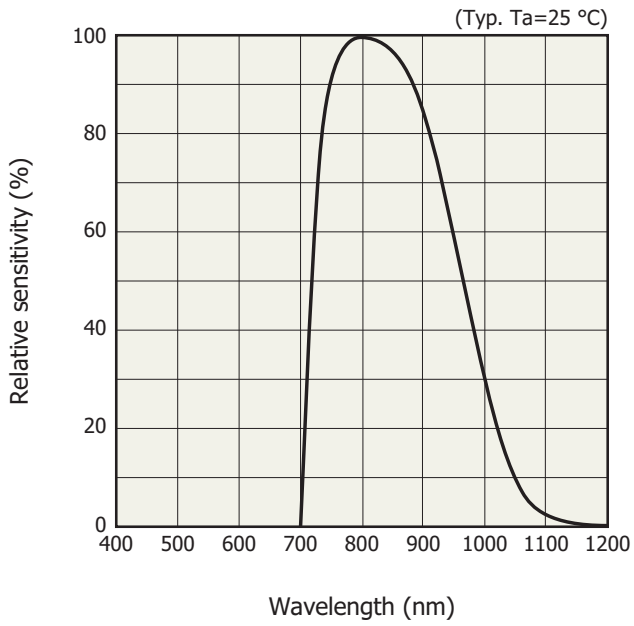
\*2: Measured with a CIE standard "A" light source at 2856 K

### Response time measurement circuit

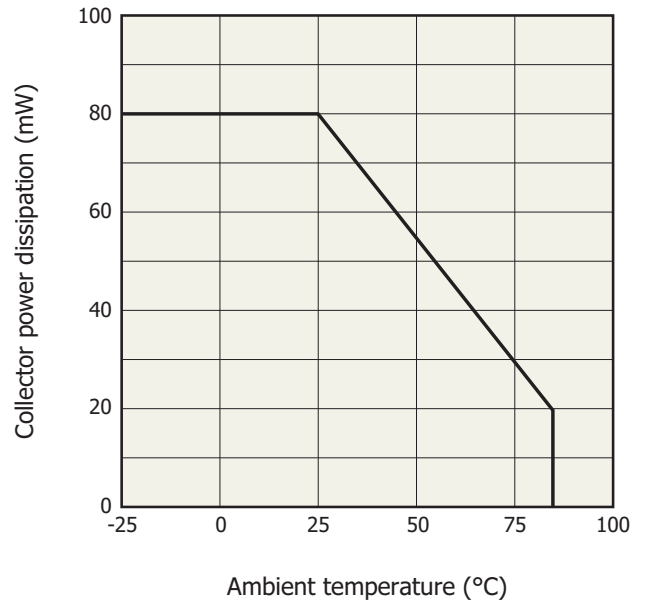


KPTRC0001EA

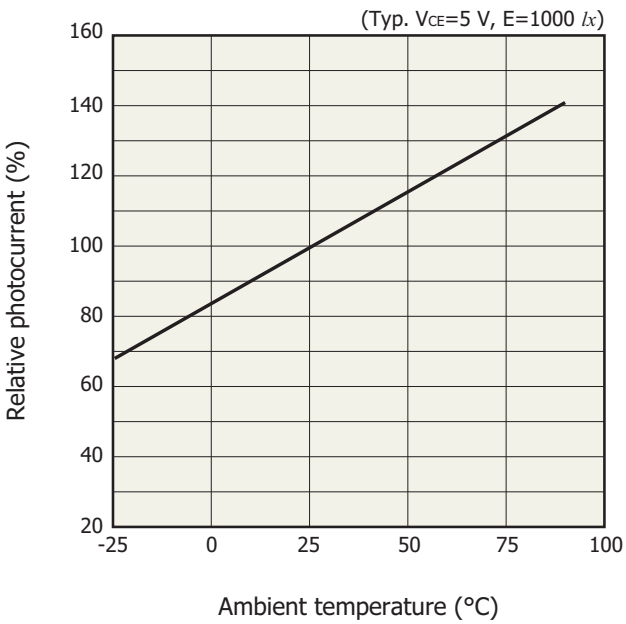
**Spectral response**



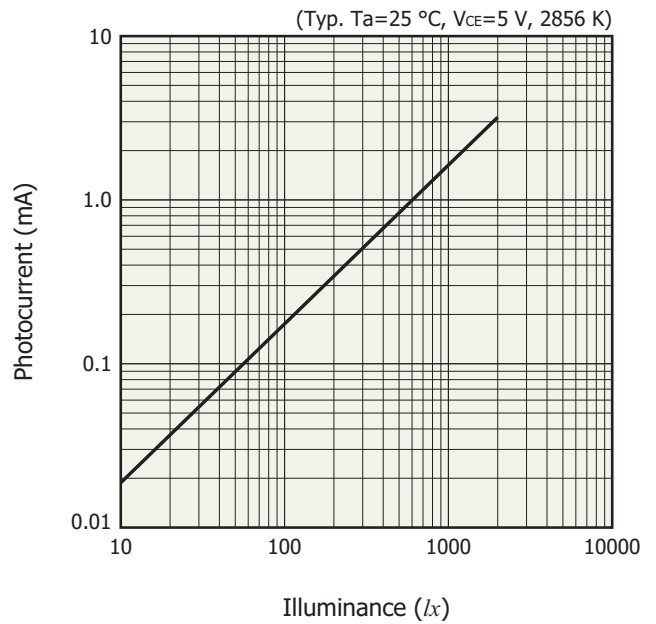
**Collector power dissipation vs. ambient temperature**



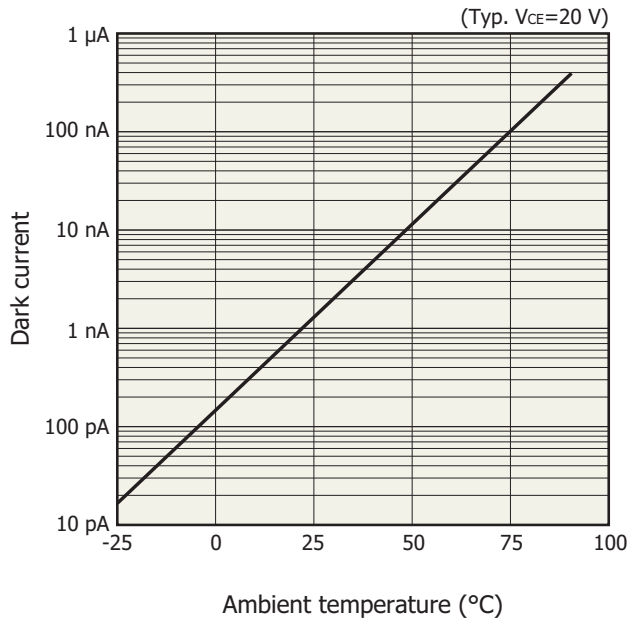
**Photocurrent vs. ambient temperature**



**Photocurrent vs. illuminance**

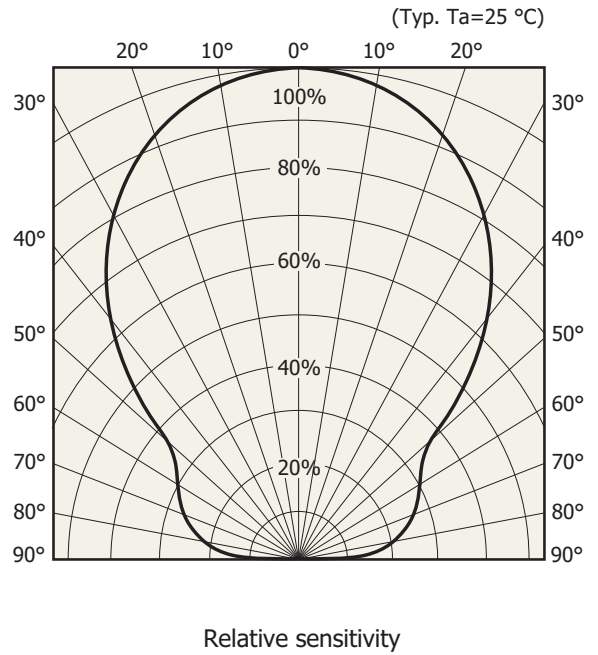


**Dark current vs. ambient temperature**



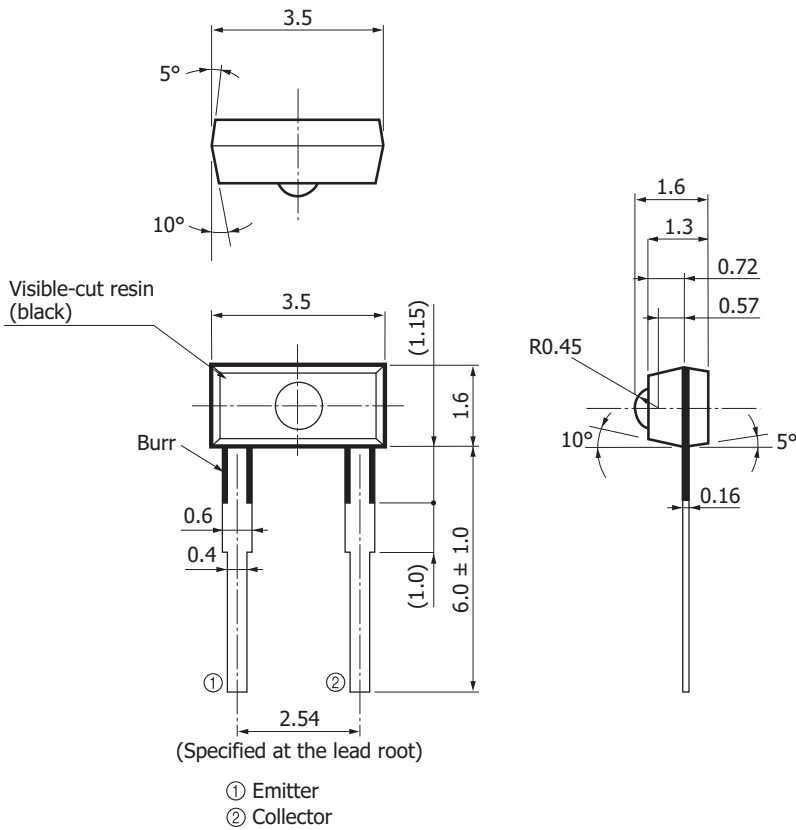
KPTRB0003EA

**Directivity**



KPTR0014EA

**Dimensional outline (unit: mm)**



Tolerance unless otherwise noted:  $\pm 0.2, \pm 2^\circ$   
 Shaded area indicates burr.  
 Values in parentheses are not guaranteed, but for reference.

KPTRA0001EA

## Related information

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

### ■ Precautions

- Disclaimer
- Metal, ceramic, plastic products

Information described in this material is current as of June, 2015.

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](http://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, N.J. 08807, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8

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

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39) 02-93581733, Fax: (39) 02-93581741

China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866