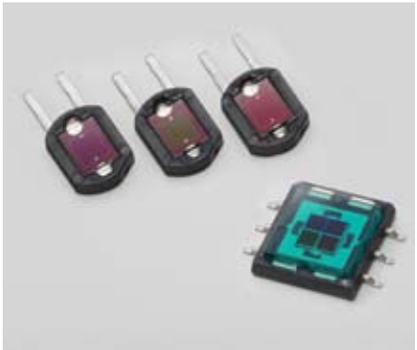
HAMAMATSU
PHOTON IS OUR BUSINESS

Si photodiodes



S6428-01 S6429-01 S6430-01 S7505-01

RGB color sensor

The S6428-01, S6429-01 and S6430-01 are color sensors designed to respectively detect monochromatic colors of blue (λp=460 nm), green (λp=540 nm) and red (λp=660 nm).
The S7505-01 uses a 3-channel (RGB) photodiode having blue, green and red sensitivities, and is molded into a surface mount type package.

Features

S6428-01, S6429-01, S6430-01

- **Plastic package (6 × 8 mm)**
- **Spectral response range**
  S6428-01: 400 to 540 nm (λp=460 nm)
  S6429-01: 480 to 600 nm (λp=540 nm)
  S6430-01: 590 to 720 nm (λp=660 nm)
- **Insensitive to near IR range**
- **High sensitivity**
  S6428-01: 0.22 A/W Typ. (λ=λp)
  S6429-01: 0.27 A/W Typ. (λ=λp)
  S6430-01: 0.45 A/W Typ. (λ=λp)
- **Low dark current**

S7505-01

- **3 ch (RGB) Si photodiode**
- **Surface mount type plastic package (9 × 9.6 mm)**
- **High sensitivity**

Applications

- **White balance adjustment**
- **Color identification**
- **Projector and TV brightness level detection**
- **Color control**
- **Light source color temperature detection**

Structure / Absolute maximum ratings

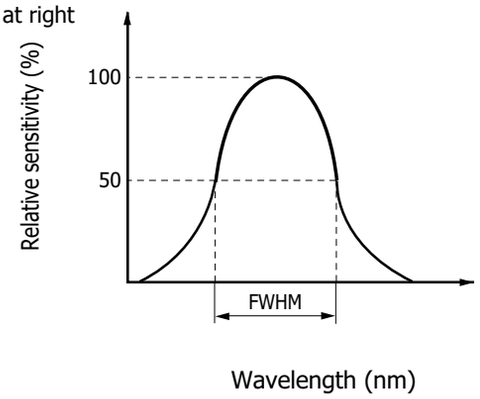
Type no.	Photosensitive area size (mm)	Effective photosensitive area (mm²)	Absolute maximum ratings		
			Reverse voltage VR max (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S6428-01	2.4 × 2.8	6.7	10	-10 to +60	-20 to +70
S6429-01					
S6430-01					
S7505-01	Green, Red: 1.5 × 1.5 Blue : 1.5 × 1.5 (2 elements)	Green, Red: 2.25 Blue : 4.5			

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 (Typ. Ta=25 °C, unless otherwise noted)

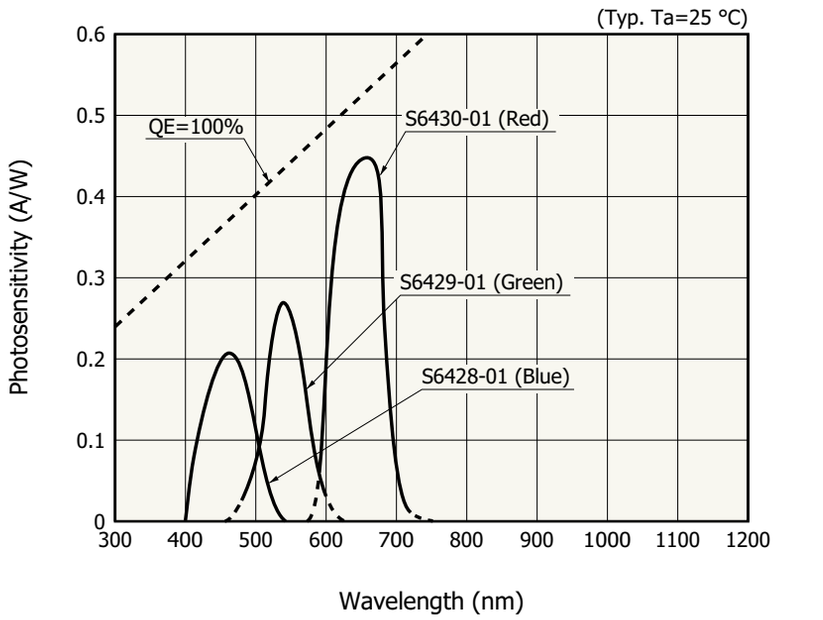
Type no.		Spectral response range λ (nm)	Peak sensitivity wavelength λp (nm)	Photo-sensitivity S λ=λp (A/W)	Dark current ID VR=1 V Typ. (pA)	Dark current ID VR=1 V Max. (pA)	Temp. coefficient of ID (times/°C)	Rise time tr VR=0 V RL=1 kΩ 10 to 90 % (μs)	Terminal capacitance Ct VR=0 V f=10 kHz Typ. (pF)	Terminal capacitance Ct VR=0 V f=10 kHz Max. (pF)	Spectral response half width FWHM *2 (nm)
S6428-01		400 to 540	460	0.22	5	20	1.12	0.5	200	400	90
S6429-01		480 to 600	540	0.27							70
S6430-01		590 to 720	660	0.45							90
S7505-01	Blue	400 to 540	460	0.18	10 *1	200 *1			150	300	90
	Green	480 to 600	540	0.23					80	150	60
	Red	590 to 720	620	0.16							70

*1: All elements
*2: Defined as shown in the figure at right



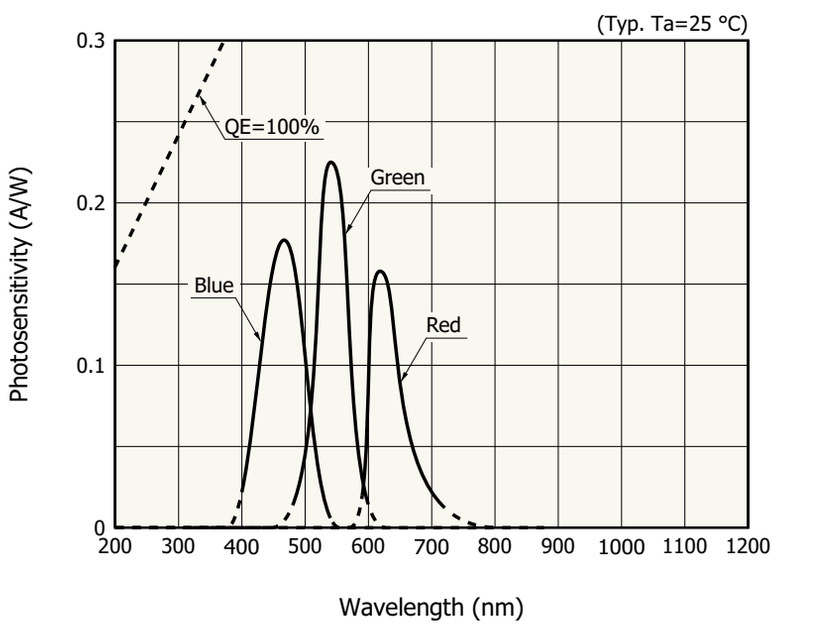
Spectral response

S6428-01, S6429-01, S6430-01



KKSPDB0141EC

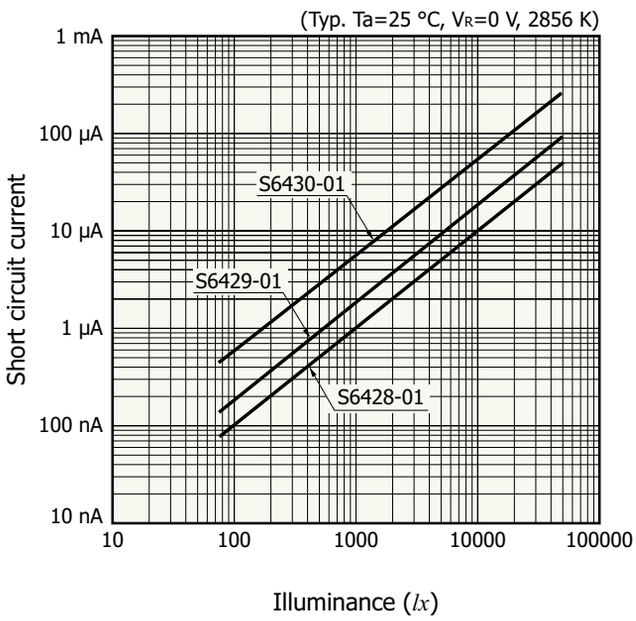
S7505-01



KMPDB0217EA

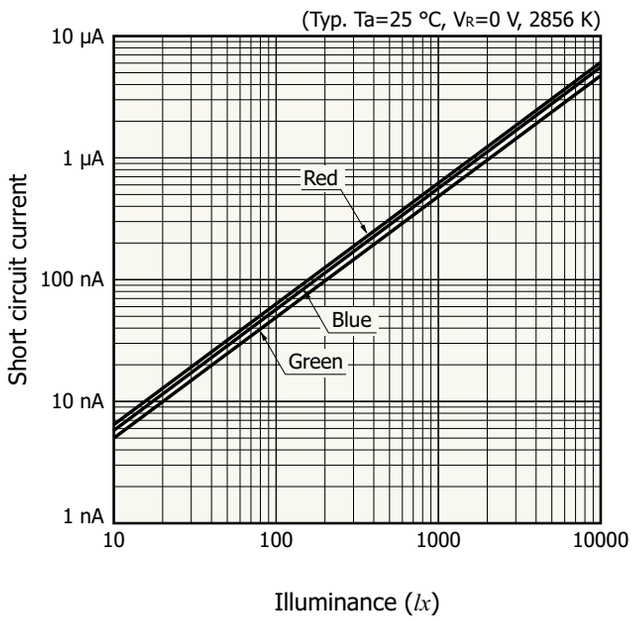
Linearity

S6428-01, S6429-01, S6430-01



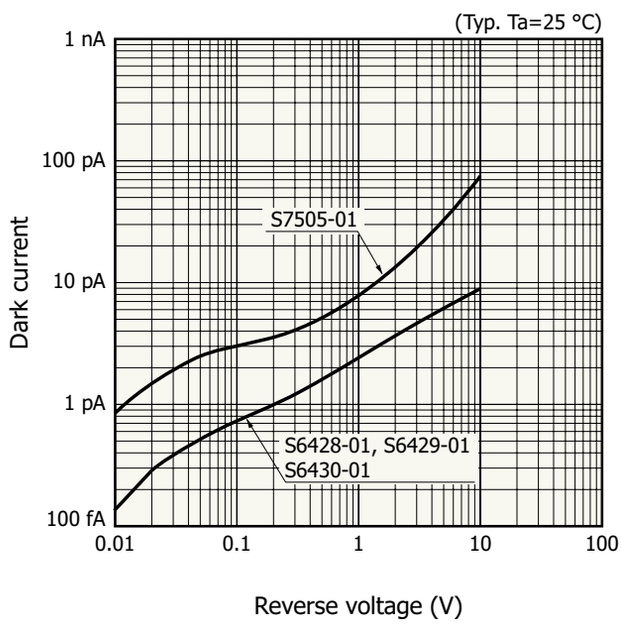
KSPDB0324EA

S7505-01



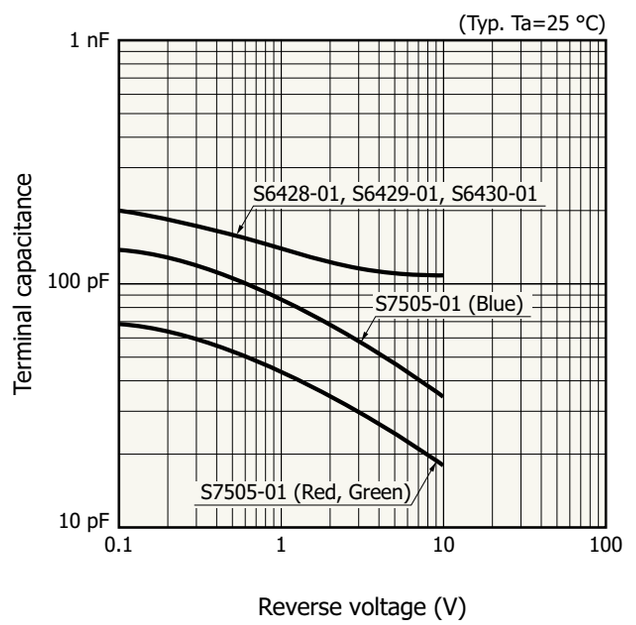
KSPDB0325EA

Dark current vs. reverse voltage



KSPDB0142EC

Terminal capacitance vs. reverse voltage



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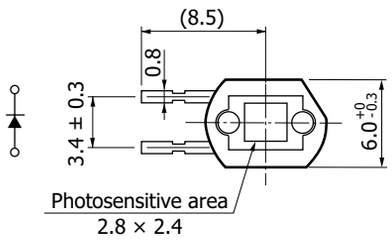
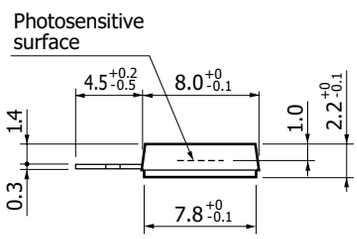
Dimensional outlines (unit: mm)

S6428-01, S6429-01, S6430-01

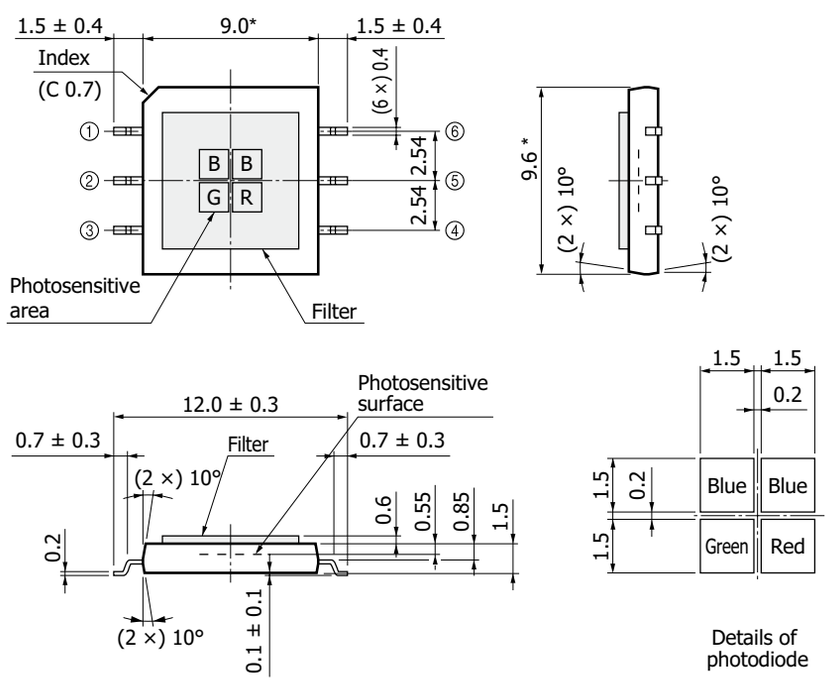




Tolerance unless otherwise noted: ±0.15
Lead surface finish: Palladium
Standard packing: tray (100 pcs/tray)

KSPDA0056EA

S7505-01



① Anode (Blue)
② Cathode common
③ Anode (Green)
④ Anode (Red)
⑤ Cathode common
⑥ NC

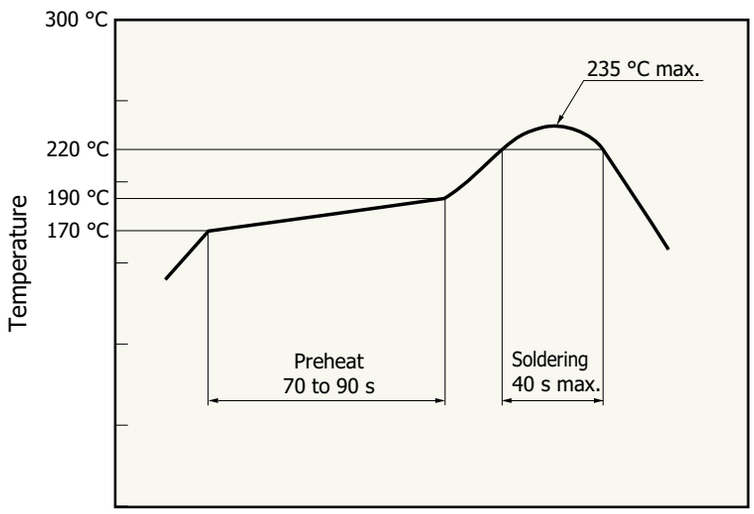
Tolerance unless otherwise noted: ±0.1
Chip position accuracy with respect to the package dimensions marked *
X, Y≤±0.2
θ≤±2°
Lead surface finish: gold plating
Standard packing: stick (50 pcs/stick)

KMPDA0073ED

Note: If excessive vibration is continuously applied to the glass filter, there is a risk that the filter may come off, so secure the glass filter with a holder.

Measured example of temperature profile with our hot-air reflow oven for product testing

The S7505-09 supports lead-free soldering. After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 24 hours.



Related information

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

Precautions

- Disclaimer
- Metal, Ceramic, Plastic products
- Surface mount type products

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