

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 ($\lambda_p=460$ nm), green ($\lambda_p=540$ nm) and red ($\lambda_p=660$ 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 ($\lambda_p=460$ nm)
 - S6429-01: 480 to 600 nm ($\lambda_p=540$ nm)
 - S6430-01: 590 to 720 nm ($\lambda_p=660$ nm)
- Insensitive to near IR range
- High sensitivity
 - S6428-01: 0.22 A/W Typ. ($\lambda=\lambda_p$)
 - S6429-01: 0.27 A/W Typ. ($\lambda=\lambda_p$)
 - S6430-01: 0.45 A/W Typ. ($\lambda=\lambda_p$)
- 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

General ratings/ Absolute maximum ratings

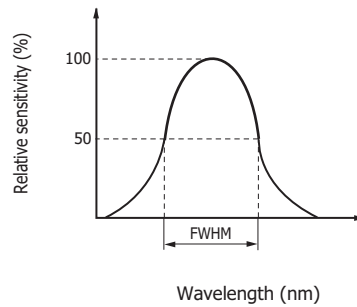
Type No.	Active area size (mm)	Effective active area (mm ²)	Absolute maximum ratings		
			Reverse voltage V _R Max. (V)	Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)
S6428-01	2.4 × 2.8	6.7	10	-10 to +60	-20 to +70
S6429-01					
S6430-01					
S7505-01	Green, Red: 1.5 × 1.5 Blue : 1.5 × 1.5 (2 elements)	Green, Red: 2.25 Blue : 4.5			

Electrical and optical characteristics (Typ. Ta= 25 °C, unless otherwise noted)

Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photo sensitivity S $\lambda=\lambda_p$ (A/W)	Dark current I_D $V_R=1\text{ V}$		Temp. coefficient of I_D (times/°C)	Rise time t_r $V_R=0\text{ V}$ $R_L=1\text{ k}\Omega$ 10 to 90 % (μs)	Terminal capacitance C_t $V_R=0\text{ V}$ $f=10\text{ kHz}$		Spectral response half width FWHM *2 (nm)
				Typ. (pA)	Max. (pA)			Typ. (pA)	Max. (pA)	
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	0.18	10 *1	200 *1			150	300	90
	Green	480 to 600	0.23							60
	Red	590 to 720	0.16							70

*1: All elements

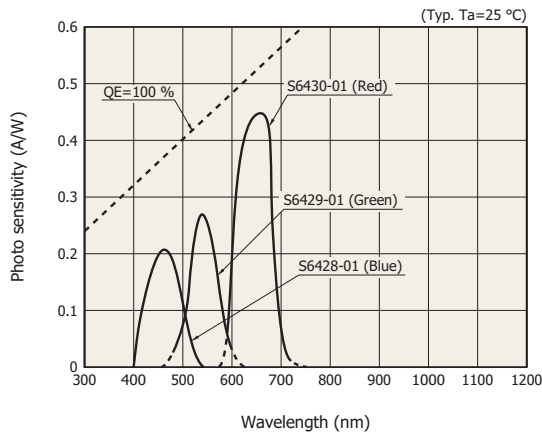
*2: Defined as shown in the figure at right



KSPDC0031EA

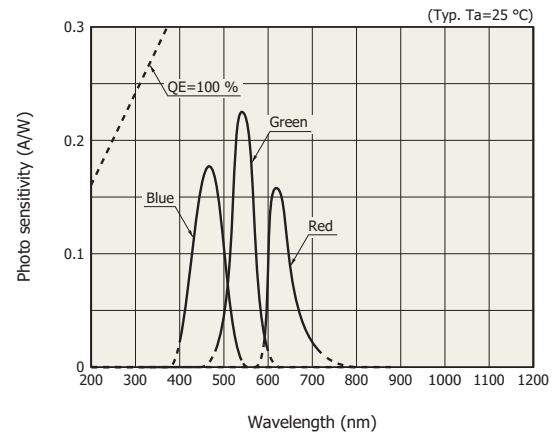
Spectral response

S6428-01, S6429-01, S6430-01



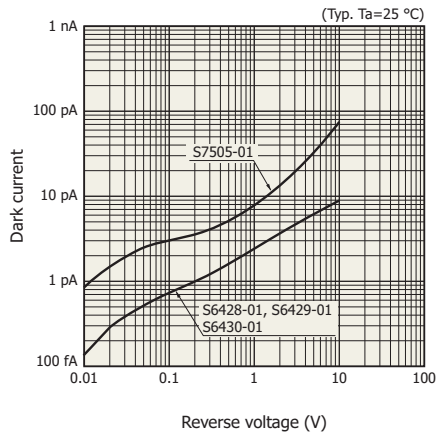
KSPD80141EC

S7505-01



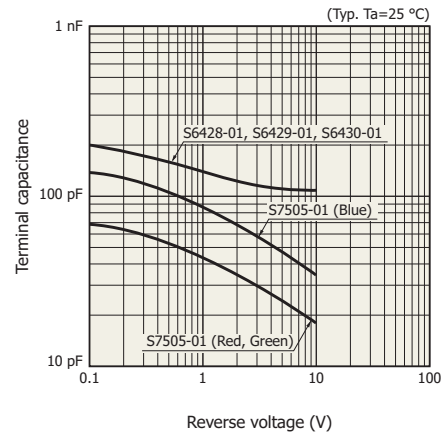
KMPD80217EA

Dark current vs. reverse voltage



KSPDB0142EC

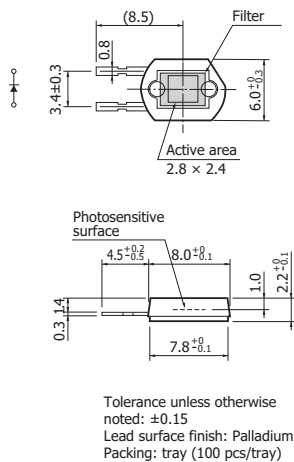
Terminal capacitance vs. reverse voltage



KSPDB0143EC

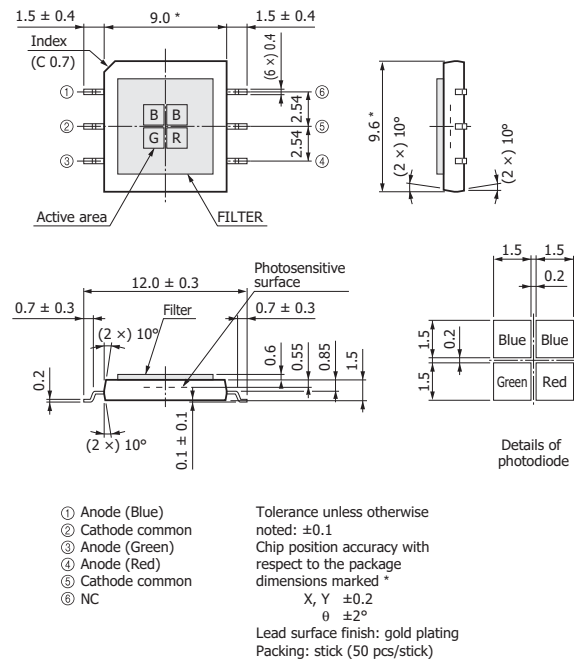
Dimensional outlines (unit: mm)

S6428-01, S6429-01, S6430-01



KSPDA0056EA

S7505-01



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.

Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. ©2008 Hamamatsu Photonics K.K.

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, P.O.Box 6910, Bridgewater, N.J. 08807-0910, 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) 08152-3750, Fax: (49) 08152-2658

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: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741

Cat. No. KSPD1013E05 Oct. 2008 DN