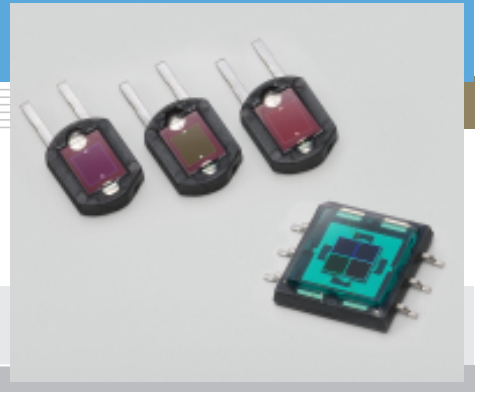


# Si photodiode S6428-01, S6429-01, S6430-01, S7505-01

## RGB color sensor



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).  
S7505-01 use a 3-channel (RGB) photodiode having blue, green and red sensitivities, and is molded into a surface-mountable 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 mountable 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

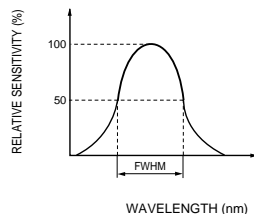
Type No.	Dimensional outline	Active area size (mm)	Effective active area (mm <sup>2</sup> )	Absolute maximum ratings		
				Reverse voltage VR Max. (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S6428-01	①	2.4 × 2.8	6.7	10	-10 to +60	-20 to +70
S6429-01						
S6430-01						
S7505-01	②	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)

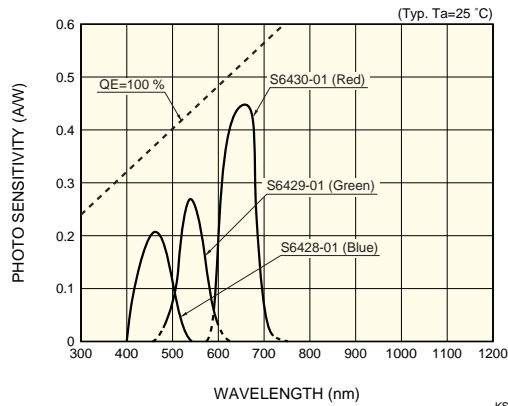
Type No.	Spectral response range $\lambda$ (nm)	Peak sensitivity wavelength $\lambda_p$ (nm)	Photo sensitivity S $\lambda=\lambda_p$ (A/W)	Dark current ID VR=1 V		Temp. coefficient of ID (times/°C)	Rise time tr VR=0 V RL=1 kΩ 10 to 90 % (μs)	Terminal capacitance Ct VR=0 V f=10 kHz		Spectral response half width FWHM *2 (nm)
				Typ. (pA)	Max. (pA)			Typ. (pF)	Max. (pF)	
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	10 *1	200 *1	1.12	0.5	150	300	90
	Green	480 to 600	540							60
	Red	590 to 720	620							70

\*1: All elements.

\*2: Defined as shown in the figure at right.

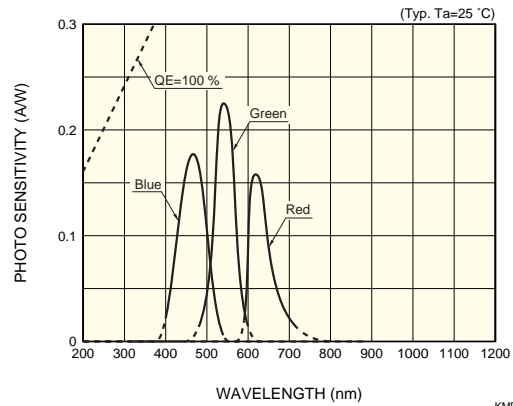


## ■ Spectral response (S6428-01, S6429-01, S6430-01)



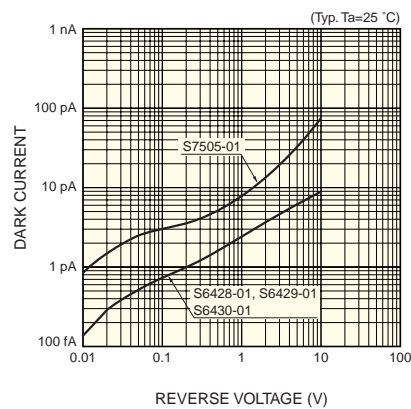
KSPDB0141EC

## ■ Spectral response (S7505-01)



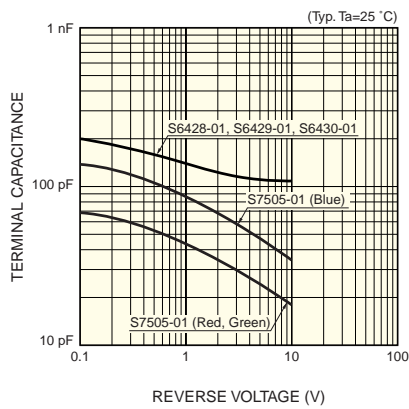
KMPDB0217EA

## ■ Dark current vs. reverse voltage



KSPDB0142EC

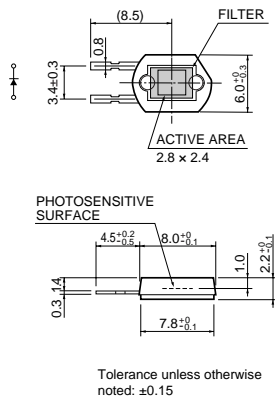
## ■ Terminal capacitance vs. reverse voltage



KSPDB0143EC

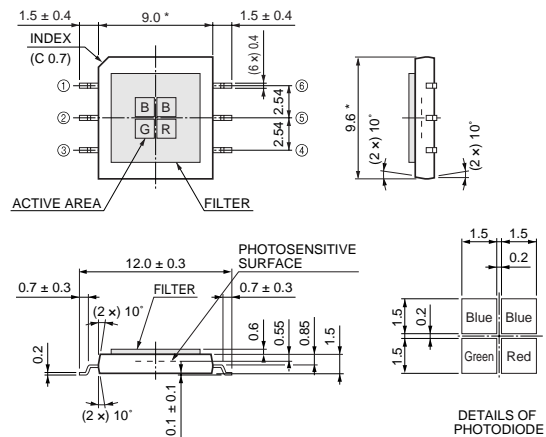
## ■ Dimensional outlines (unit: mm)

### ① S6428-01, S6429-01, S6430-01



KSPDA0056EA

### ② S7505-01



- ① ANODE (Blue)
- ② CATHODE COMMON
- ③ ANODE (Green)
- ④ ANODE (Red)
- ⑤ CATHODE COMMON
- ⑥ NC

Tolerance unless otherwise noted:  $\pm 0.1$   
Chip position accuracy with respect to the package: dimensions marked \*  
X, Y  $\leq \pm 0.2$   
 $\theta \leq \pm 2^\circ$

KMPDA0073ED