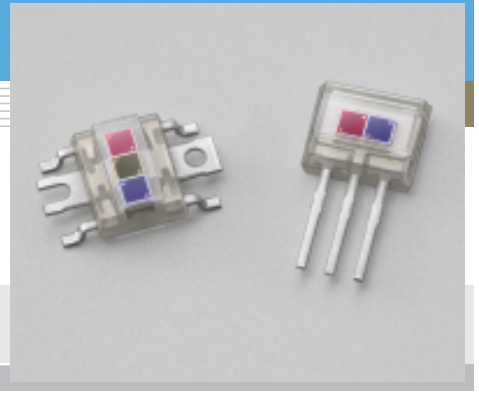


Si photodiode

S8751, S8752

RGB color sensor



S8751 is a color sensor that incorporates a 3-channel photodiode into a package. The 3-channel photodiode is sensitive in the blue ($\lambda_p=460$ nm), green ($\lambda_p=540$ nm) and red ($\lambda_p=660$ nm) regions of the spectrum. S8752 is a 2-channel color sensor sensitive in the blue ($\lambda_p=460$ nm) and red ($\lambda_p=660$ nm) regions and molded into a package. The active area size is 1×1 mm per channel. Both S8751 and S8752 use a filter for color separation.

Features

S8751

- 3-channel (R, G, B) Si photodiode
- Surface-mountable small plastic package
- Accurate chip mount position (X, Y: ± 0.1)
- High sensitivity
- Active area: 1×1 mm (RGB)

S8752

- 2-channel (R, B) Si photodiode
- 3-pin SIP lead type (lead length: 4.9 mm)
- High sensitivity
- Active area: 1×1 mm (RB)

Applications

- White balance adjustment
- Color identification
- Brightness level detection for projectors and TV, etc.
- Color management
- Color temperature detection of light sources

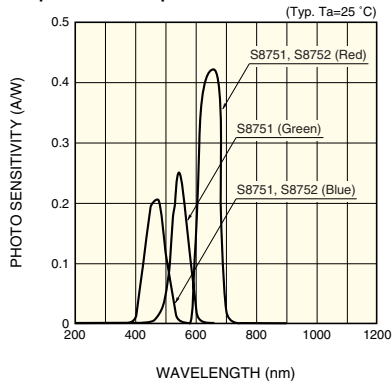
Absolute maximum ratings

| Parameter | Symbol | Value | Unit |
|-----------------------|------------|-------------|--------------------|
| Reverse voltage | V_R Max. | 10 | V |
| Operating temperature | T_{opr} | -25 to +85 | $^{\circ}\text{C}$ |
| Storage temperature | T_{stg} | -40 to +100 | $^{\circ}\text{C}$ |

Electrical and optical characteristics ($T_a=25^{\circ}\text{C}$, per element)

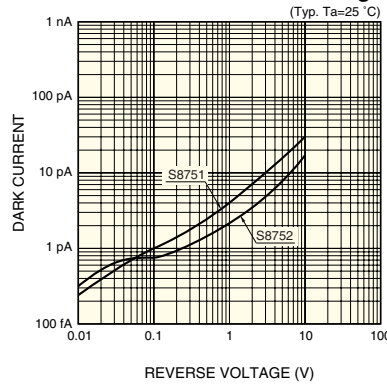
| Parameter | Symbol | Condition | S8751 | | | S8752 | | | Unit | |
|----------------------------------|-------------|---|-------|------|------------|-------|------|------------|---------------------------|----|
| | | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| Spectral response range | λ | | Blue | - | 400 to 540 | - | - | 400 to 540 | - | nm |
| | | | Green | - | 480 to 600 | - | - | - | - | |
| | | | Red | - | 590 to 720 | - | - | 590 to 720 | - | |
| Peak sensitivity wavelength | λ_p | | Blue | - | 460 | - | - | 460 | - | nm |
| | | | Green | - | 540 | - | - | - | - | |
| | | | Red | - | 660 | - | - | 660 | - | |
| Photo sensitivity | S | $\lambda=\lambda_p$ | Blue | 0.16 | 0.21 | - | 0.16 | 0.21 | - | AW |
| | | | Green | 0.20 | 0.25 | - | - | - | - | |
| | | | Red | 0.37 | 0.42 | - | 0.37 | 0.42 | - | |
| Dark current | I_D | $V_R=1$ V, all elements | - | 5 | 100 | - | 5 | 100 | pA | |
| Temperature coefficient of I_D | T_{CID} | | - | 1.12 | - | - | 1.12 | - | times/ $^{\circ}\text{C}$ | |
| Rise time | t_r | $V_R=0$ V, $R_L=1$ k Ω 10 to 90 % | - | 0.2 | - | - | 0.2 | - | μs | |
| Terminal capacitance | C_t | $V_R=0$ V, $f=10$ kHz | - | 35 | 70 | - | 35 | 70 | pF | |

■ Spectral response



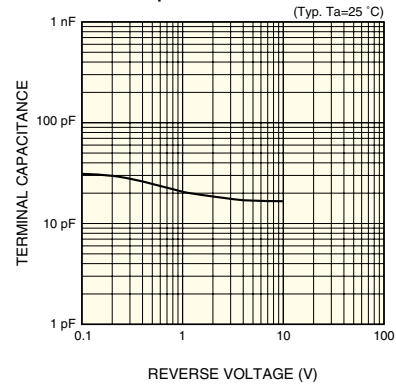
KSPDB0214EA

■ Dark current vs. reverse voltage



KSPDB0215EA

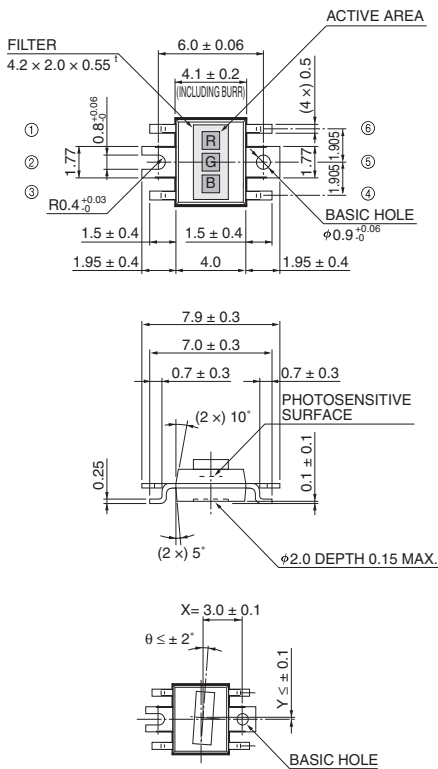
■ Terminal capacitance vs. reverse voltage



KSPDB0216EA

■ Dimensional outline (unit: mm)

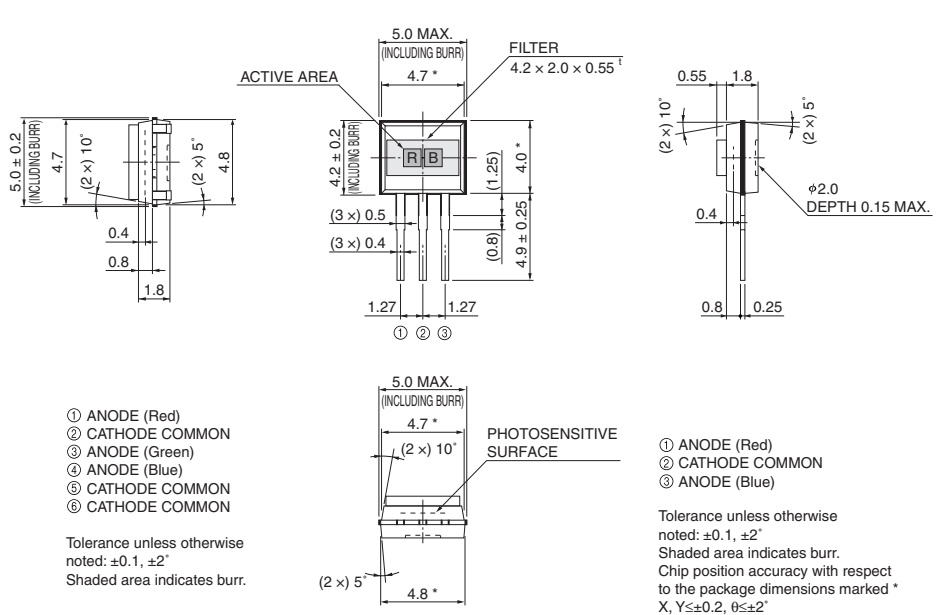
S8751



Chip position accuracy faces
center of basic hole

KSPDA0152EA

S8752



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

KSPDA0153EA