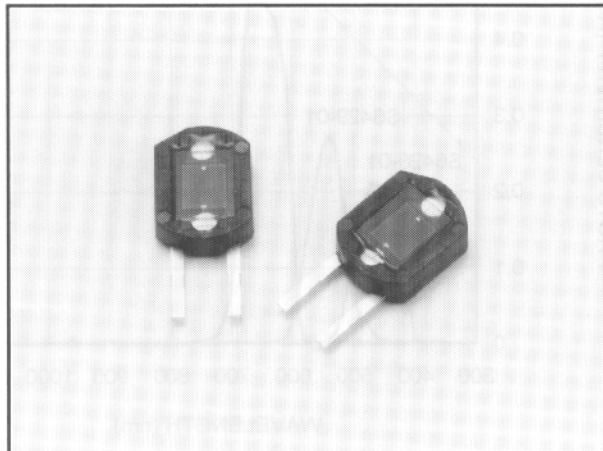


#### Single color sensors

#### FEATURES

- 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)
- Non-sensitivity in infrared region
- 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. ( $\lambda=\lambda_p$ )
- High-speed response: 0.5  $\mu$ s Typ. ( $V_R=0$  V,  $R_L=1$  k $\Omega$ )
- Low terminal capacitance: 200 pF Typ. ( $V_R=0$  V,  $f=10$  kHz)
- Low dark current



#### APPLICATIONS

- Color recognition
- Color copier
- Optical switch
- Bar-cord reader
- Sensor for red LD/LED

They are monochromatic color sensors: S6428-01: Blue ( $\lambda_p=460$  nm), S6429-01: Green ( $\lambda_p=540$  nm), S6430-01: Red ( $\lambda_p=660$  nm).

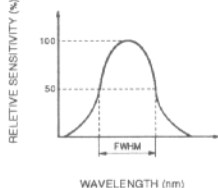
#### ■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25$ °C)

| Parameter             | Symbol     | Value      | Unit |
|-----------------------|------------|------------|------|
| Reverse Voltage       | $V_R$ Max. | 10         | V    |
| Operating Temperature | $T_{opr}$  | -10 to +60 | °C   |
| Storage Temperature   | $T_{stg}$  | -20 to +70 | °C   |

#### ■ ELECTRICAL AND OPTICAL CHARACTERISTICS ( $T_a=25$ °C)

| Parameter                               | Symbol      | Condition                                   | S6428-01   |      | S6429-01   |      | S6430-01   |      | Unit     |
|-----------------------------------------|-------------|---------------------------------------------|------------|------|------------|------|------------|------|----------|
|                                         |             |                                             | Typ.       | Max. | Typ.       | Max. | Typ.       | Max. |          |
| Spectral Response Range                 | $\lambda$   |                                             | 400 to 540 |      | 480 to 600 |      | 590 to 720 |      | nm       |
| Peak Sensitivity Wavelength             | $\lambda_p$ |                                             | 460        | -    | 540        | -    | 660        | -    | nm       |
| Photo Sensitivity                       | S           | $\lambda=\lambda_p$                         | 0.22       | -    | 0.27       | -    | 0.45       | -    | A/W      |
| Dark Current                            | $I_D$       | $V_R=1$ V                                   | 5          | 20   | 5          | 20   | 5          | 20   | pA       |
| Temperature Coefficient of Dark Current | -           |                                             | 1.12       | -    | 1.12       | -    | 1.12       | -    | times/°C |
| Rise Time                               | $t_r$       | $V_R=0$ V, $R_L=1$ k $\Omega$<br>10 to 90 % | 0.5        | -    | 0.5        | -    | 0.5        | -    | $\mu$ s  |
| Terminal Capacitance                    | $C_t$       | $V_R=0$ V, $f=10$ kHz                       | 200        | 400  | 200        | 400  | 200        | 400  | pF       |
| Half Width of Spectral Response         | FWHM        | *1                                          | 90         | -    | 70         | -    | 90         | -    | nm       |

\*1: Defined as right figure.



WAVELENGTH (nm)

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# Si PHOTODIODES S6428-01, S6429-01, S6430-01

Figure 1: Spectral Response

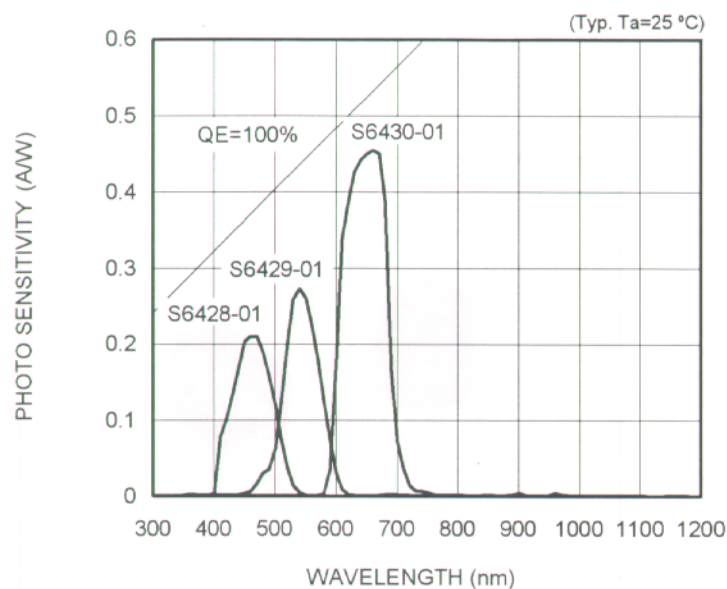


Figure 2: Dark Current vs. Reverse Voltage

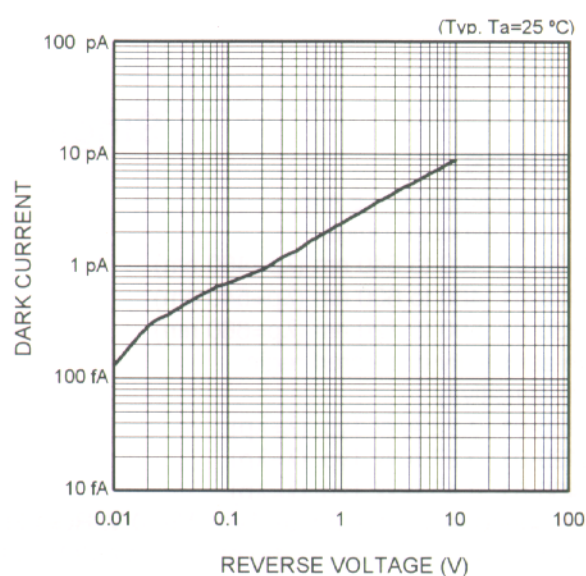


Figure 3: Terminal Capacitance vs. Reverse Voltage

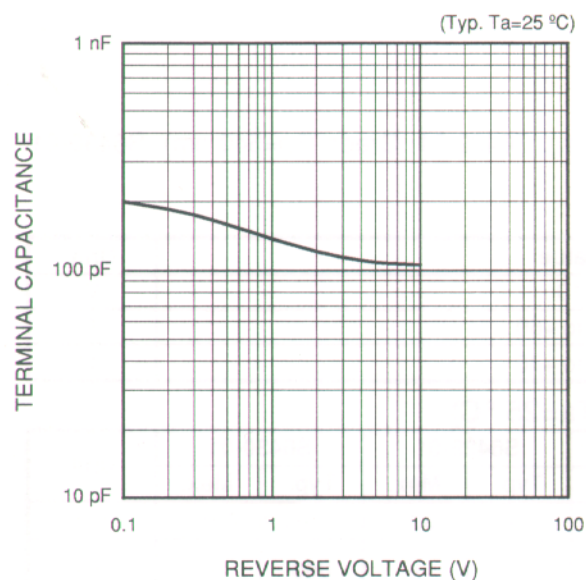
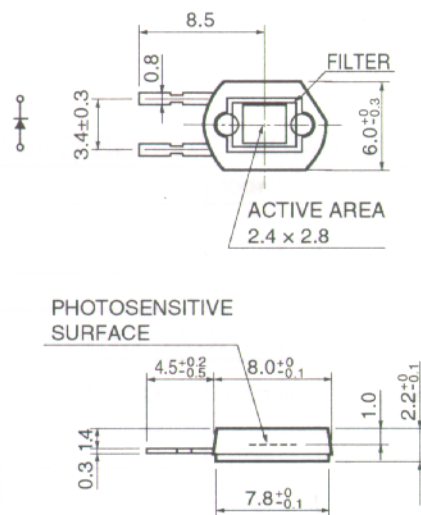


Figure 4: Dimensional Outline (Unit: mm)



KSPDA0056EA

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