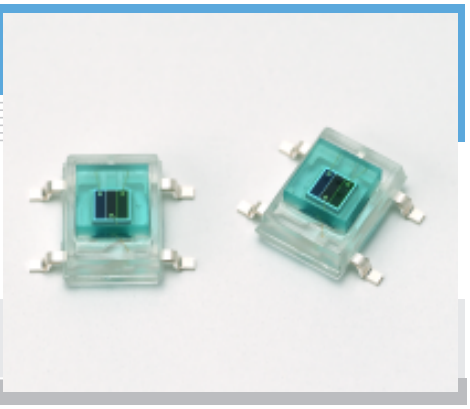
Si photodiode
S9702

RGB color sensor



S9702 is a color sensor molded into a plastic package having a 3-channel (RGB) photodiode sensitive to the blue (λp=460 nm), green (λp=540 nm) and red (λp=620 nm) regions of the spectrum. S9702 has a 3-segment (RGB) active area of □1 mm. When compared to the previous model (S9032-02), S9702 is significantly miniaturized (package size 55 % less in cubic volume, PC board mount space 43 % less in area).

Features

- 3-channel (R, G, B) Si photodiode
- Surface-mount small plastic package
- Spectral response range close to the human eye sensitivity
- No sensitivity in the near IR region
- Active area: 3-segment (RGB) active area of □1 mm

Applications

- Portable or mobile equipment
- RGB-LCD backlight monitors
- Detectors for various light sources
- Color detection

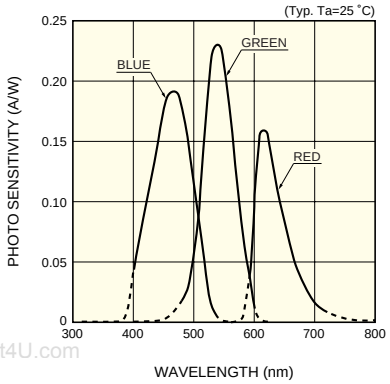
■ Absolute maximum ratings

Parameter	Symbol	Value	Unit
Reverse voltage	V_R Max	10	V
Operating temperature	Topr	-25 to +85	°C
Storage temperature	Tstg	-40 to +100	°C

■ Electrical and optical characteristics (Ta= 25 °C, per element)

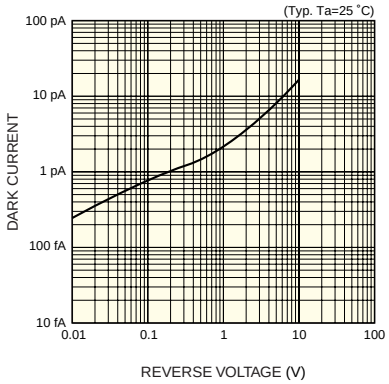
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Spectral response range	λ		Blue	-	400 to 540	-	nm
			Green	-	480 to 600	-	
			Red	-	590 to 720	-	
Peak sensitivity wavelength	λp		Blue	-	460	-	nm
			Green	-	540	-	
			Red	-	620	-	
Photo sensitivity	S	λ=λp	Blue	0.13	0.18	-	A/W
			Green	0.18	0.23	-	
			Red	0.11	0.16	-	
Dark current	I_D	V_R=1 V All elements		-	1	50	pA
Temperature coefficient of I_D	T_{CID}			-	1.12	-	times/°C
Rise time	tr	V_R=0 V, R_L=1 kΩ 10 to 90 %		-	0.1	-	μs
Terminal capacitance	Ct	V_R=0 V, f=10 kHz		-	12	25	pF

■ Spectral response



KSPDB0246EA

■ Dark current vs. reverse voltage



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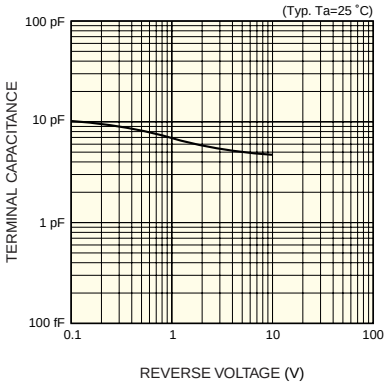
■ Terminal capacitance vs. reverse voltage



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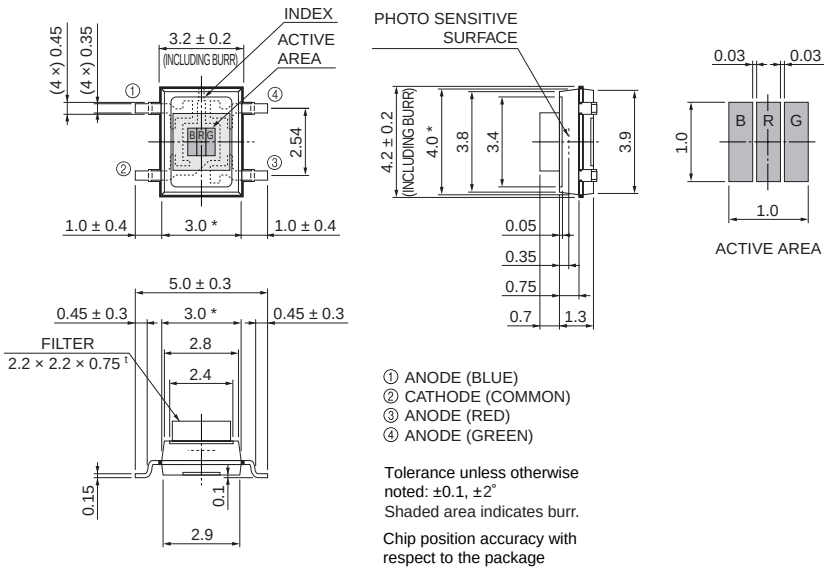
■ Dimensional outline (uint: mm)



① ANODE (BLUE)
② CATHODE (COMMON)
③ ANODE (RED)
④ ANODE (GREEN)

Tolerance unless otherwise noted: ±0.1, ±2˚
Shaded area indicates burr.

Chip position accuracy with respect to the package dimensions marked *
X, Y≤±0.2, θ≤±2˚

KSPDA0170EA

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