

Si photodiode

S9032

RGB color sensor



S9032 is a color sensor molded into a plastic package having a 3-channel (RGB) photodiode sensitive to the blue ($\lambda_p=460$ nm), green ($\lambda_p=540$ nm) and red ($\lambda_p=660$ nm) regions of the spectrum. S9032 has a 3-segment (RGB) circular active area of $\phi 2$ mm.

Features

- 3-channel (R, G, B) Si photodiode
- Surface-mount small plastic package
- High sensitivity
- Active area: 3-segment (RGB) circular active area of $\phi 2$ mm

Applications

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

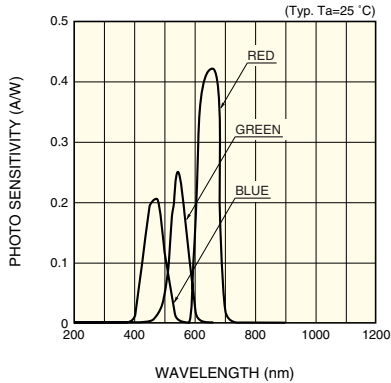
■ Absolute maximum ratings

Parameter	Symbol	Value	Unit
Reverse voltage	V_R Max	10	V
Operating temperature	T_{opr}	-25 to +85	°C
Storage temperature	T_{stg}	-40 to +100	°C

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

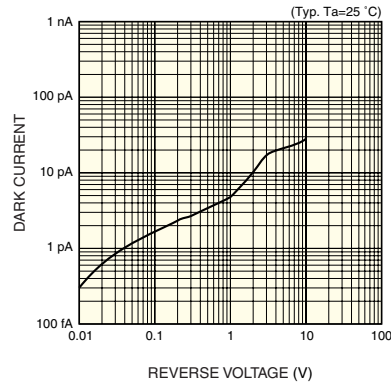
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ	Blue	-	400 to 540	-	nm
		Green	-	480 to 600	-	
		Red	-	590 to 720	-	
Peak sensitivity wavelength	λ_p	Blue	-	460	-	nm
		Green	-	540	-	
		Red	-	660	-	
Photo sensitivity	S	$\lambda = \lambda_p$ Blue	0.16	0.21	-	A/W
		Green	0.20	0.25	-	
		Red	0.37	0.42	-	
Dark current	I_D	$V_R = 1$ V All elements	-	5	100	pA
Temperature coefficient of I_D	T_{CID}		-	1.12	-	times/°C
Rise time	t_r	$V_R = 0$ V, $R_L = 1$ k Ω 10 to 90 %	-	0.2	-	μ s
Terminal capacitance	C_t	$V_R = 0$ V $f = 10$ kHz	-	40	80	pF

■ Spectral response



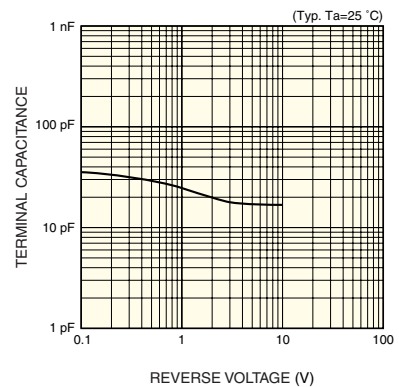
KSPDB0217EA

■ Dark current vs. reverse voltage



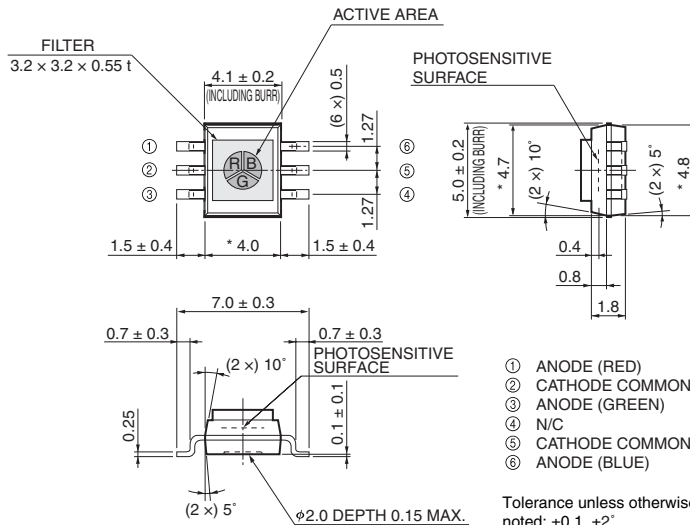
KSPDB0218EA

■ Terminal capacitance vs. reverse voltage



KSPDB0219EA

■ Dimensional outline (unit: mm)



Tolerance unless otherwise noted: ± 0.1 , $\pm 2^\circ$
Shaded area indicates burr.

Chip position accuracy with respect to the package dimensions marked *
X, Y $\leq \pm 0.2$, $\theta \leq \pm 2^\circ$

KSPDA0154EA

HAMAMATSU

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Cat. No. KSPD1059E01
Aug. 2002 DN