

S10917-35GT

RGB color sensor integrated in small and thin package

The S10917-35GT is a compact color sensor with a 3-channel photodiode mounted in one package, and sensitive to red ($\lambda=590$ to 680 nm), green ($\lambda=470$ to 600 nm) and blue ($\lambda=390$ to 530 nm) light. An infrared-cut filter is formed on the photosensitive area. This color sensor achieves superior cost performance and is suitable for monitoring brightness of RGB-LED backlight LCD in hand-held devices such as cell phones.

Features

- Infrared-cut filter formed on photosensitive area
- Superior cost performance
- Small, thin package: 3.0 × 1.6 × 1.0 mm
- 3-channel (RGB) Si photodiode
- Photosensitive area: 1 × 1 mm/3-segment (RGB)
- RoHS-compatible
- Surface mount type

Applications

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

Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R max		10	V
Operating temperature	T_{opr}	No dew condensation*1	-25 to +85	°C
Storage temperature	T_{stg}	No dew condensation*1	-40 to +85	°C
Soldering temperature	T_{sol}		245 (once)*2	°C

*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

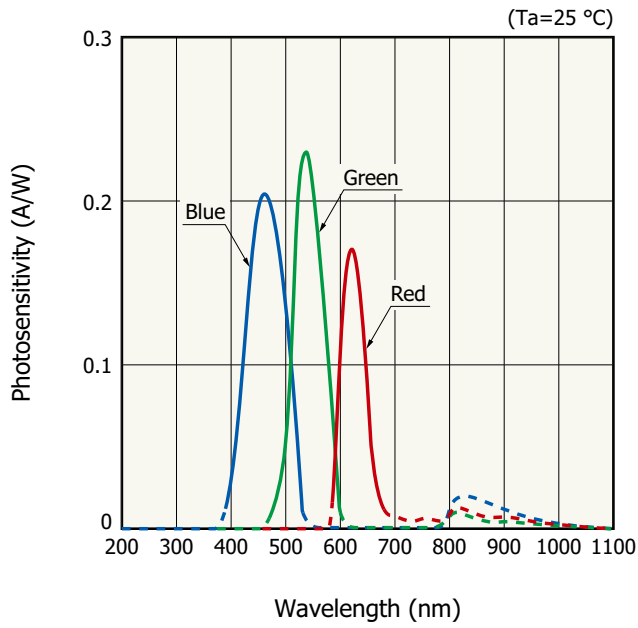
*2: Reflow soldering, IPC/JEDEC J-STD-020 MSL 5a, see P.5

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

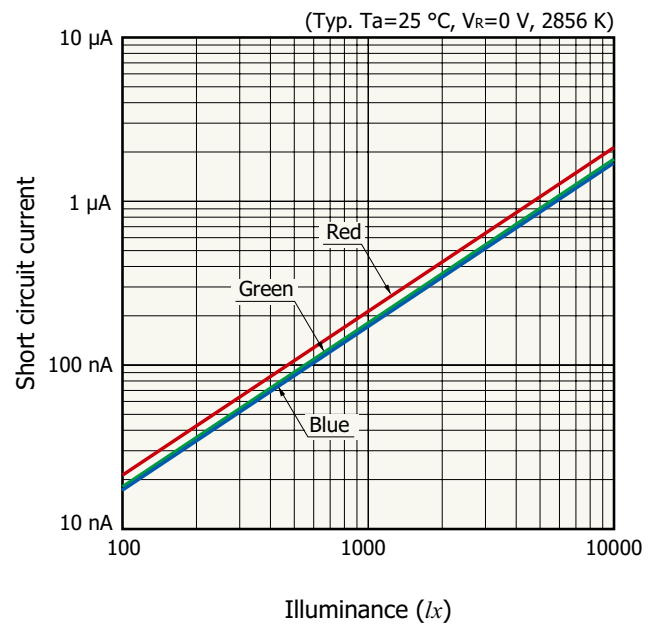
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ	Blue	-	390 to 530	-	nm
		Green	-	470 to 600	-	
		Red	-	590 to 680	-	
Peak sensitivity wavelength	λ_p	Blue	-	460	-	nm
		Green	-	540	-	
		Red	-	620	-	
Photosensitivity	S	Blue ($\lambda=\lambda_p$)	0.15	0.2	0.25	A/W
		Green ($\lambda=\lambda_p$)	0.18	0.23	0.28	
		Red ($\lambda=\lambda_p$)	0.12	0.17	0.22	
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, $R_L=1$ k Ω , 10 to 90%	-	0.1	0.5	μ s
Terminal capacitance	Ct	$V_R=0$ V, f=10 kHz	5	12	25	pF

Spectral response (typical example)



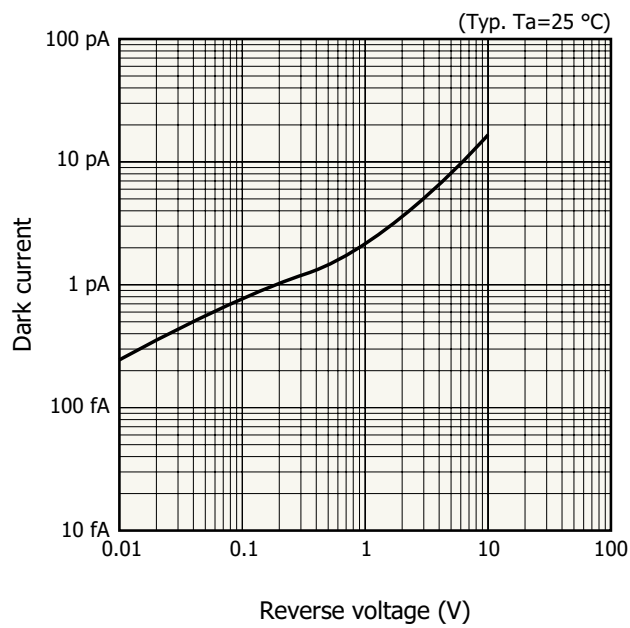
KSPDB0295EA

Linearity



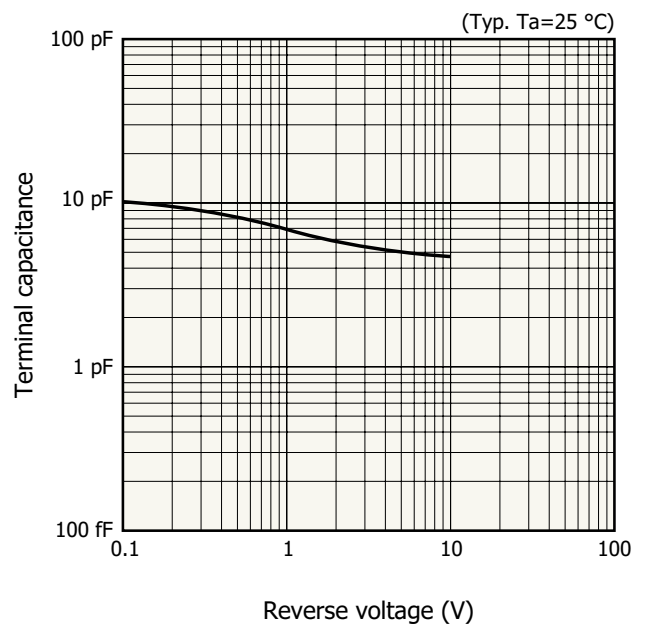
KSPDB0328EA

Dark current vs. reverse voltage



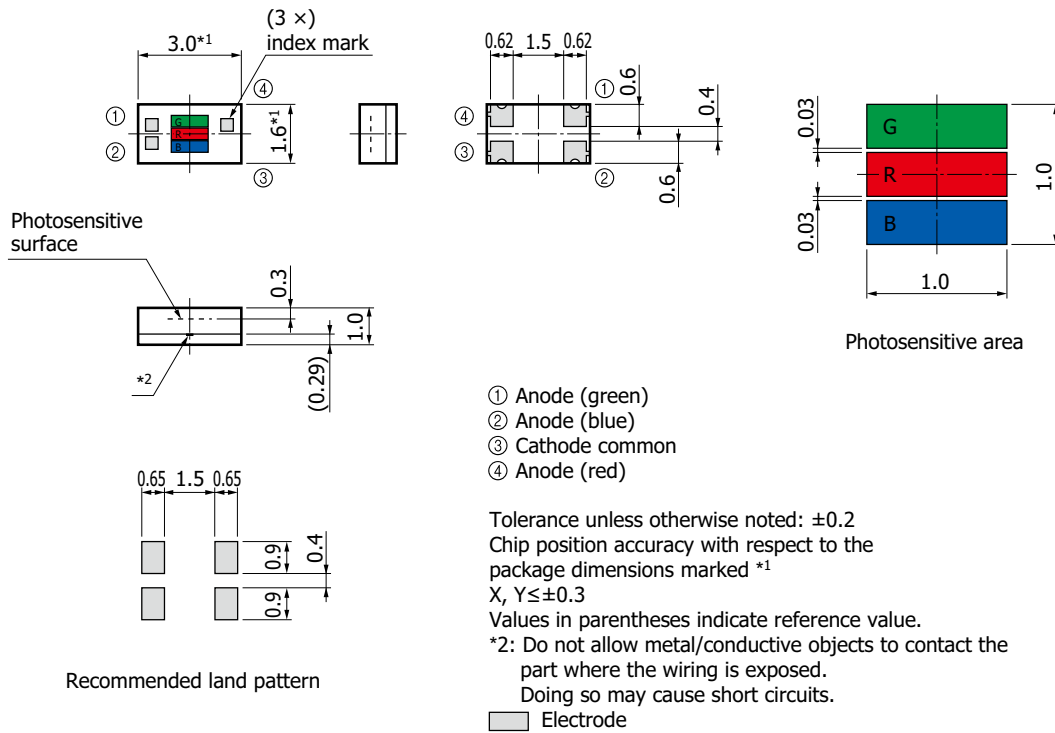
KSPDB0252EA

Terminal capacitance vs. reverse voltage



KSPDB0253EA

Dimensional outline (unit: mm)



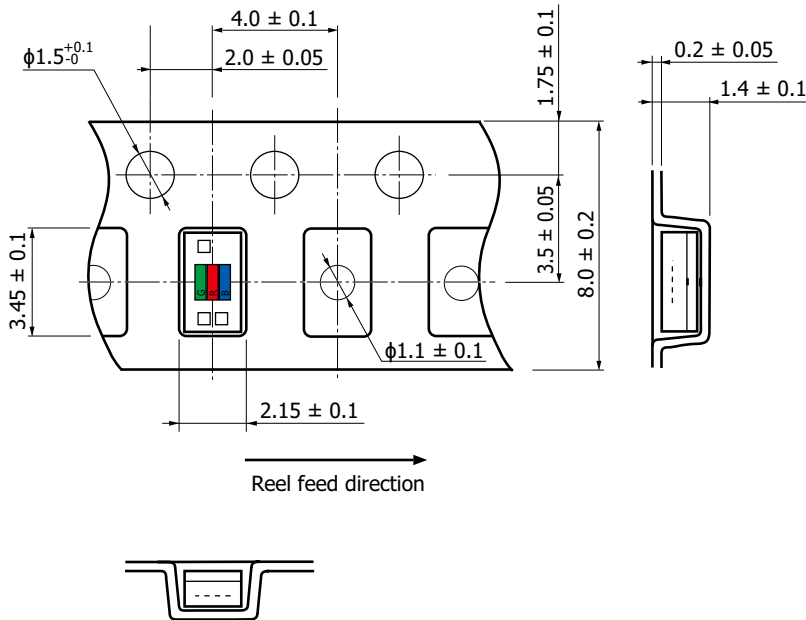
KSPDA0174EE

Reel packing specifications

- Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
φ180 mm	φ60 mm	8 mm	PS	Antistatic treatment

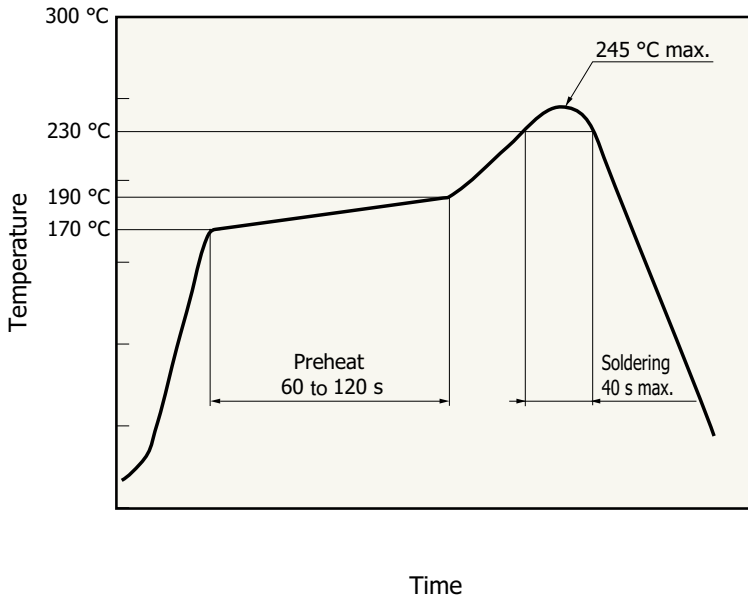
- Embossed tape (unit: mm, material: PS, electrically conductive)



KSPDC0107EA

- Packing quantity
3000 pcs/reel
- Packing type
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

Recommended soldering conditions



KSPD80139EA

- This product supports lead-free soldering. After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 24 hours.
- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. Before actual reflow soldering, check for any problems by testing out the reflow soldering methods in advance.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

Precautions

- Disclaimer
- Metal, ceramic, Plastic Package products
- Surface mount type products

Information described in this material is current as of December 2022.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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