Kingbright

APS5130PD7C-P22

RGB Color Sensor

DESCRIPTION

- The APS5130PD7C-P22 Color Sensor Device, consisting of 3-Channel/1Chip (R, G, B) Si photodiode is a good effective solution to color balance of display backlighting appliances

FEATURES

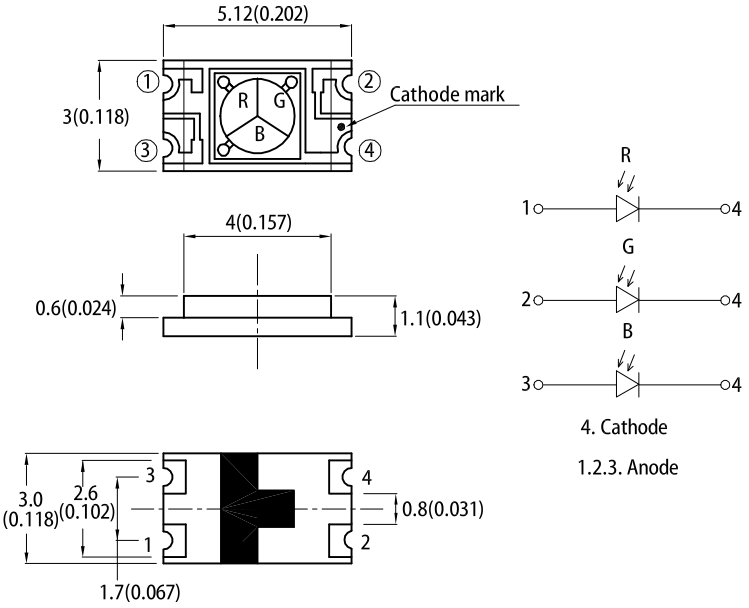
- Lead-free package
- Component in accordance with RoHS
- SMD style package on PCB technology
- Integral Color Filter in Blue, Green, or Red
- Package: 1500 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS Compliant

APPLICATIONS

The devices are suitable for :

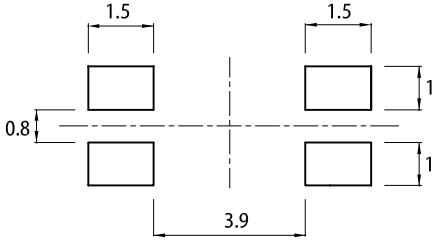
- Colorimetry
- Printing process control
- Display color correction

PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

1. *All dimensions are in millimeters (inches).*
2. *Tolerance is ±0.25(0.01") unless otherwise noted.*
3. *The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.*
4. *The device has a single mounting surface. The device must be mounted according to the specifications.*

ABSOLUTE MAXIMUM RATINGS at T_A=25°C (UNLESS OTHERWISE SPECIFIED)

Parameter	Symbol	Value	Unit
Reverse Voltage	V_R	10	V
Operating Temperature	T_{opr}	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C
Soldering Temperature	T_{sd}	260	°C

Note:

1. *Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.*

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C (UNLESS OTHERWISE SPECIFIED)

Symbol	Parameter	Condition		Value			Unit
				Min.	Typ.	Max.	
I_{L1}	Light Current (1)	100Lux [1] V_R = 5V	Red	-	0.039	-	μA
			Green	-	0.042	-	
			Blue	-	0.022	-	
I_{L2}	Light Current (2)	1000Lux [1] V_R = 5V	Red	-	0.427	-	μA
			Green	-	0.498	-	
			Blue	-	0.262	-	
D	Diameter of the irradiation sensitive area			-	2.0	-	mm
A	Irradiation sensitive area per element			-	0.85	-	mm^2
S_{Max}	Photo sensibility of the single color areas	λ_R = 620 nm λ_G = 550 nm λ_B = 470 nm		-	0.33 0.25 0.18	-	A/W
I_D	Reverse Dark Current	V_R = 5V		-	-	10	nA
$\lambda_{0.1}$	Range of spectral bandwidth	Red		570	-	670	nm
		Green		450	-	650	
		Blue		370	-	530	
λ_p	Wavelength of peak sensitivity	Red		-	620	-	nm
		Green		-	550	-	
		Blue		-	470	-	
2θ1/2	Angle of half sensitivity			-	120	-	deg

Notes:
1.White fluorescent light (Color Temperature = 6500K) is used as light source.
2. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

Fig.1 **Dark Current vs. Ambient Temperature**

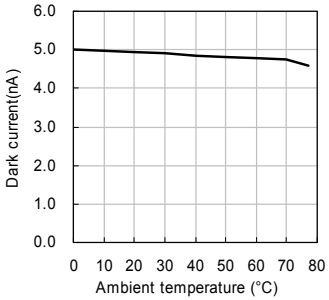


Fig.2 **Relative Spectral Responsivity vs. Wavelength**

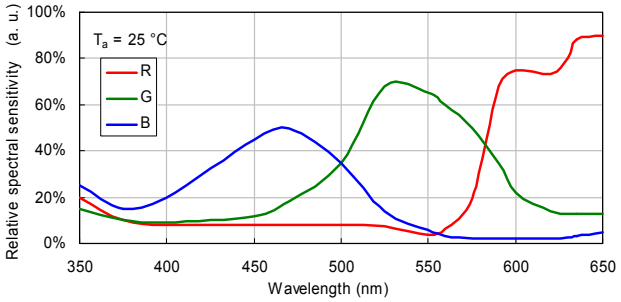
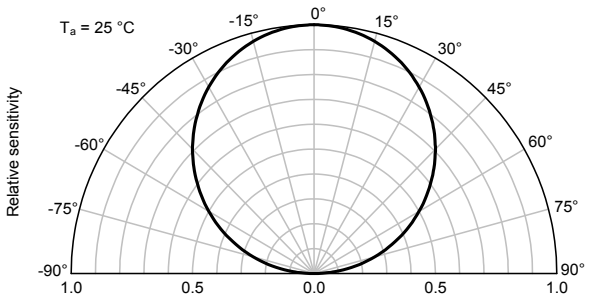


Fig.3 **Relative Radiant Sensitivity vs. Angular Displacement**



TYPICAL ELECTRO - OPTICAL CHARACTERISTICS CURVES

Fig.4 R,G,B LED Test vs. Output Photocurrent

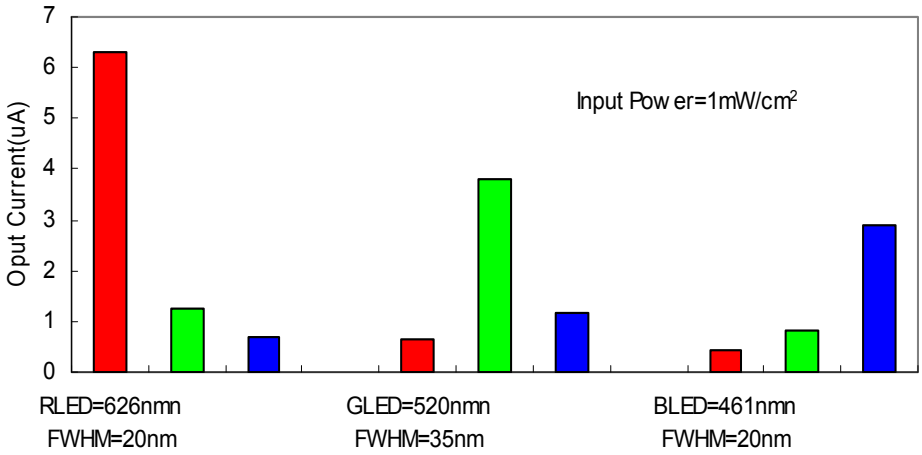


Fig.5 R,G,B LED Test vs. Output Photocurrent