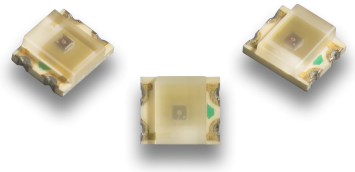
Kingbright



APS3227SP1C-P22

Ambient Light Photo Sensor

DESCRIPTION

- The APS3227SP1C-P22 is a NPN silicon phototransistor, It is a good effective solution to the power saving of display backlighting appliances and the device is sensitive to the visible spectrum

FEATURES

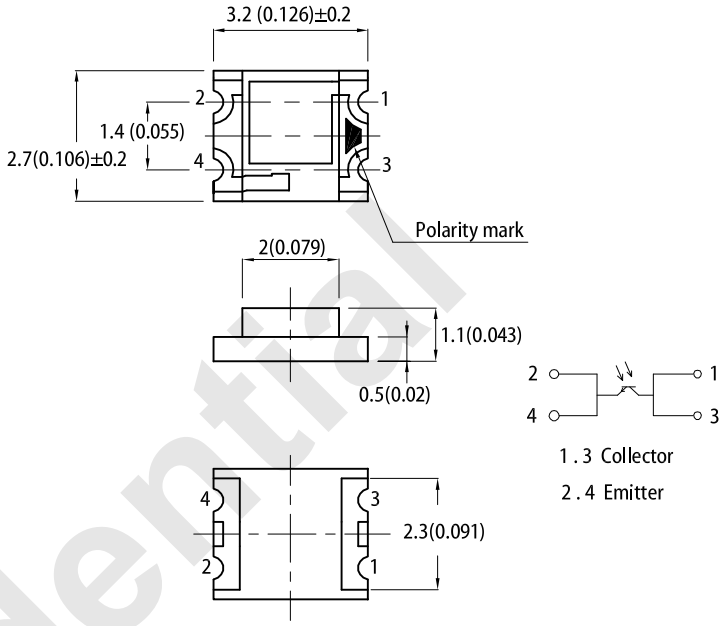
- Lead-free package
- Component in accordance with RoHS
- Adapted to human eye responsive
- Wide angle of half sensitivity
- Moisture sensitivity level: 3
- Package: 2000 pcs / reel
- Halogen-free

APPLICATIONS

Detection of ambient light to control display backlighting in:

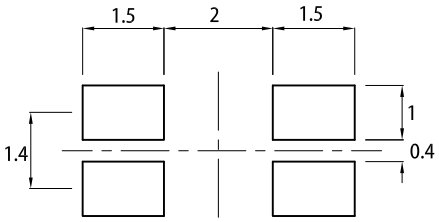
- Mobile phones
- PDAs
- Note books
- Video cameras

PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1(0.004") 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

Parameter	Symbol	Value	Unit	Notice
Collector Emitter Voltage	V_{ceo}	60	V	Iceo = 100 μ A
Emitter-Collector Voltage	V_{eco}	4	V	Ieco = 100 μ A
Operating Temperature	T_{opr}	-40 to +85	°C	-
Storage Temperature	T_{stg}	-40 to +85	°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

Parameter	Symbol	Value			Unit	Conditions
		Min.	Typ.	Max.		
Collector Emitter Breakdown Voltage	B_{Vceo}	60	-	-	V	Iceo = 100 μ A
Emitter Collector Breakdown Voltage	B_{Veco}	4	-	-	V	Ieco = 100 μ A
Collector dark current	I_D	-	10	100	nA	V_{CE} = 5V E_V = 0Lx
Light Current (1)	I_{PH1}	-	6	-	μ A	V_{CE} = 5V, Ev = 100 Lx [1]
Light Current (2)	I_{PH2}	-	130	-	μ A	V_{CE} = 5V, Ev = 1000 Lx [1]
Light Current (3)	I_{PH3}	-	950	-	μ A	V_{CE} = 5V, Ev = 1000 Lx [2]
Light Current (4)	I_{PH4}	-	420	-	μ A	V_{CE} = 5V, Ev = 1000 Lx [3]
Saturation Output Voltage	V_o	4.5	4.7	-	V	V_{CC} = 5V, E_V = 1000Lx [1], R_L = 75K Ω
Response Wavelength	λ	390	-	700	nm	>10% Response
Collector Emitter Saturation Voltage	$V_{CE\ (sat)}$	-	-	0.4	V	I_C = 10 mA
Range of spectral bandwidth	$\lambda_{0.1}$	390	-	950	nm	-
Wavelength of peak sensitivity	λ_p	-	580	-	nm	-
Angle of half sensitivity	2θ1/2	-	120	-	deg	-

Notes:
1. White Fluorescent light (Color Temperature = 6200K) is used as light source.
2. Illuminance by CIE standard illuminant-A/2856K,incandescet lamp.
3. Sunlight (Color Temperature = 4600K) is used as light source.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

Fig.1 **Illuminance vs. Output Phtocurrent**

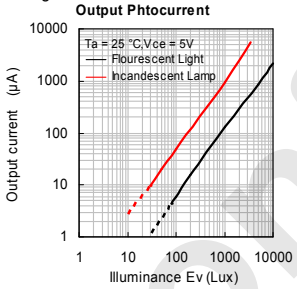
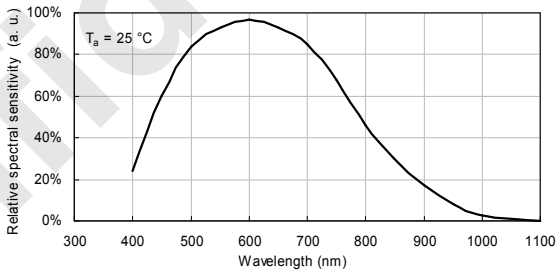
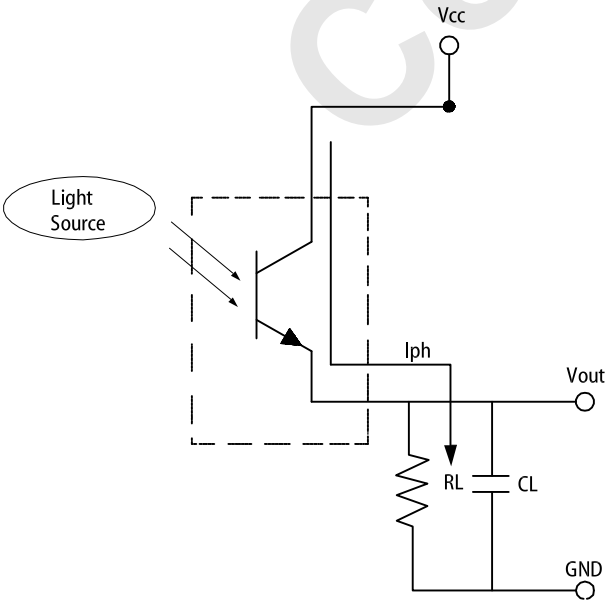


Fig.2 **Relative Spectral Responsivity vs. Wavelength**



CONVERTING PHOTOCURRENT TO VOLTAGE



Notes:
1. The output voltage (Vout) is the product of photocurrent (IPH) and loading resistor (RL)
2. A right loading resistor shall be chosen to meet the requirement of maximum ambient light, and Output saturation voltage:
Vout (max) = Iout (max.) XRL ≤ Vout (saturation) = Vcc-0.3V