Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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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

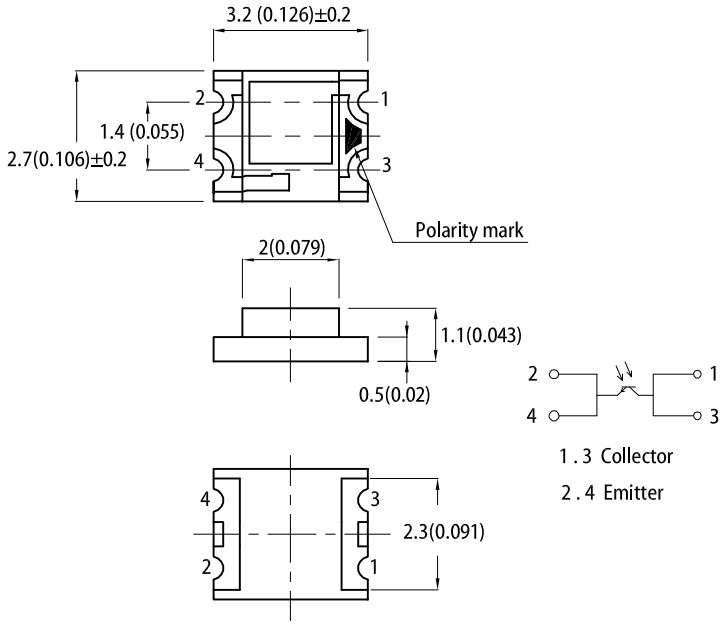
- Lead-free package
- Component in accordance with RoHS
- Adapted to human eye responsive
- Wide angle of half sensitivity
- Moisture sensitivity level: 3
- Package: 2000 pcs / reel

APPLICATIONS

Detection of ambient light to control display backlighting in:

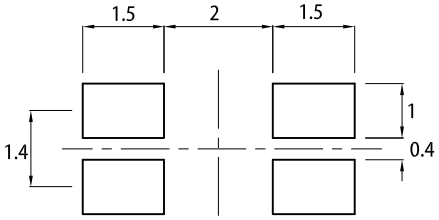
- Mobile phones
- PDAs
- Note books
- Video cameras

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. Luminance 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**

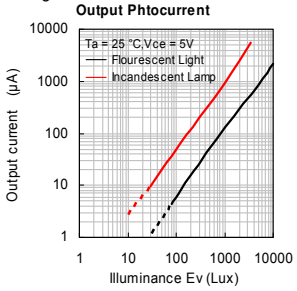
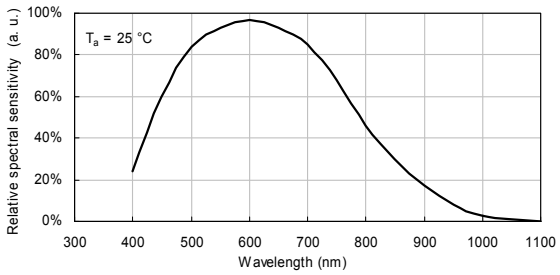
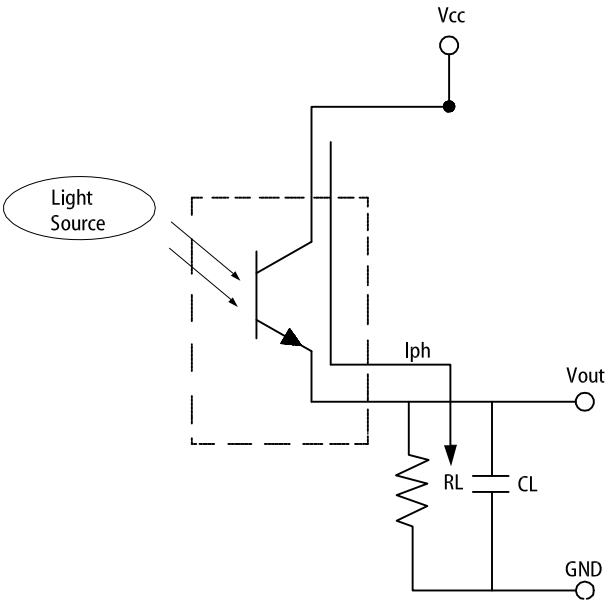


Fig.2 **Relative Spectral Responsivity vs. Wavelength**

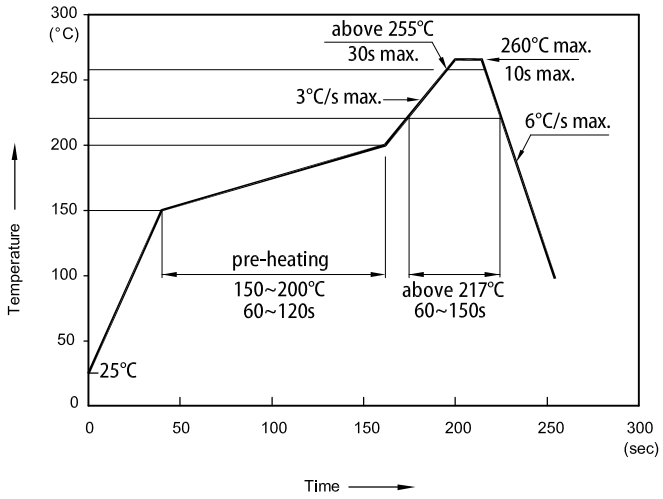


CONVERTING PHOTOCURRENT TO VOLTAGE

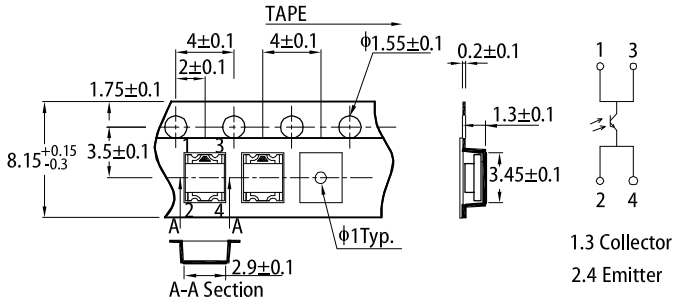


Notes:
1. The output voltage (Vout) is the product of photocurrent (IPH) and loading resistor (RL)
2. A right loading resistor shall be chosen to meet the requirement of maximum ambient light, and Output saturation voltage:
Vout (max) = Iout (max.) XRL ≤ Vout (saturation) = Vcc-0.3V

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

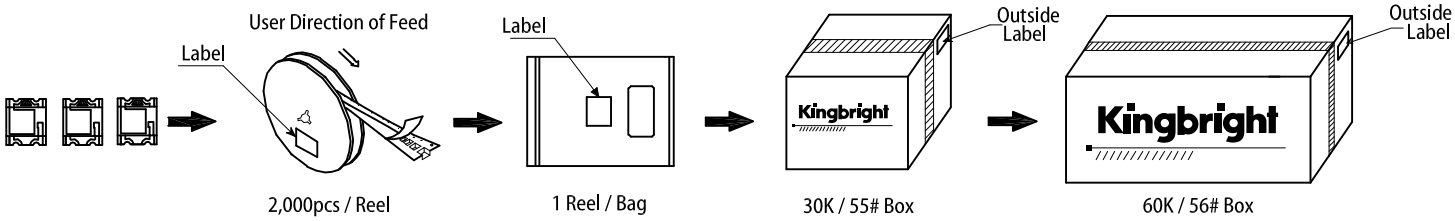


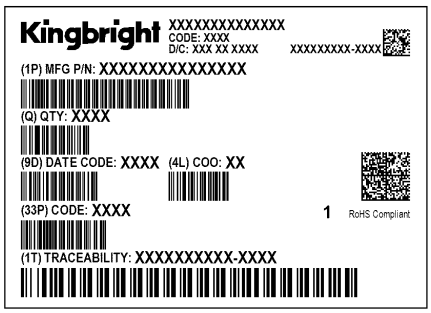
TAPE SPECIFICATIONS (units : mm)



Notes:
1. *Don't cause stress to the LEDs while it is exposed to high temperature.*
2. *The maximum number of reflow soldering passes is 2 times.*
3. *Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.*

PACKING & LABEL SPECIFICATIONS





PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
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