

2.0x1.25mm PHOTOTRANSISTOR

Part Number: AP2012P3C

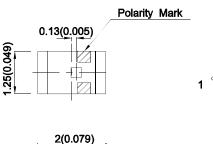
Features

- 2.0mmx1.25mm SMD LED,1.1mm thickness.
- Mechanically and spectrally matched to the infrared emitting LED lamp.
- Water clear lens.
- Package : 2000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

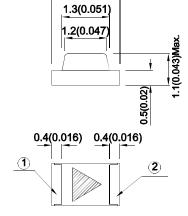
Description

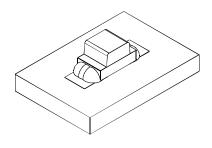
Made with NPN silicon phototransistor chips.

Package Dimensions









- 1. All dimensions are in millimeters (inches).
- 2. Tolerance is $\pm 0.1(0.004")$ unless otherwise noted.
- The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
 The device has a single mounting surface. The device must be mounted according to the specifications.

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Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Min.	Тур.	Max.	Units	Test Conditions
VBR CEO	Collector-to-Emitter Breakdown Voltage	30			V	Ic=100uA Ee=0mW/cm ²
VBR ECO	Emitter-to-Collector Breakdown Voltage	5			V	IE=100uA Ee=0mW/cm ²
VCE (SAT)	Collector-to-Emitter Saturation Voltage			0.8	V	Ic=2mA Ee=20mW/cm ²
I CEO	Collector Dark Current			100	nA	VcE=10V Ee=0mW/cm ²
Tr	Rise Time (10% to 90%)		15		us	VcE = 5V Ic=1mA RL=1000Ω
TF	Fall Time (90% to 10%)		15		us	
I (ON)	On State Collector Current	0.2	0.4		mA	$VCE = 5V$ $Ee=1mW/cm^{2}$ $\lambda=940nm$
λ0.1	Range of spectral bandwidth	420		1120	nm	
λр	Wavelength of peak sensitivity		940		nm	
201/2	Angle of half sensitivity		160		deg	

Absolute Maximum Ratings at TA=25°C

Parameter	Max.Ratings			
Collector-to-Emitter Voltage	30V			
Emitter-to-Collector Voltage	5V			
Power Dissipation at (or below) 25°C Free Air Temperature	100mW			
Operating Temperature	-40°C To +85°C			
Storage Temperature	-40°C To +85°C			

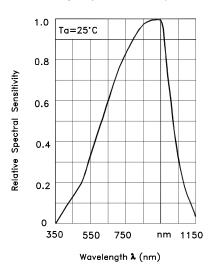
Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs.

Ambient Temperature

Power Dissipation Pd(mW) 125 25 25 25 25 0___ 0 25 50 7585 100 Ambient Temperature TA(°C)

Fig.2 Spectral Sensitivity



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^{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.

Fig.3 Relative Collector Current vs.
Ambient Temperature

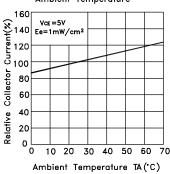


Fig.4 Collector Current lc=f(Ec),Vce=5V, Ta=25°C

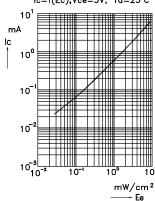


Fig.5 Collector Dark Current vs. Ambient Temperature

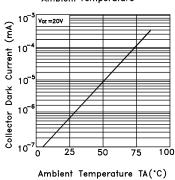


Fig.6 Collector Current vs.
Collector—Emitter Voltage

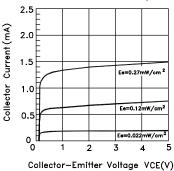
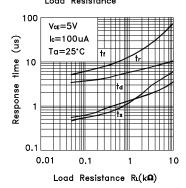
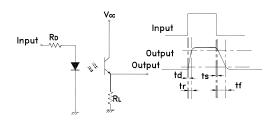


Fig.7 Response Time vs. Load Resistance



Test Circuit for Response Time



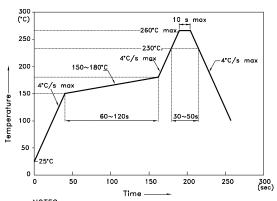
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Reflow soldering is recommended and the soldering profile is shown below. Other soldering methods are not recommended as they might cause damage to the product.

Reflow Soldering Profile For Lead-free SMT Process.



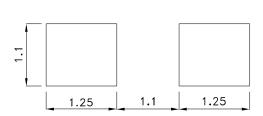
- NOTES:

 1.We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.

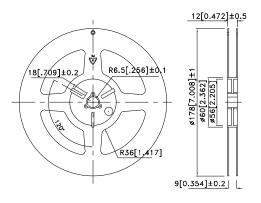
 2.Don't cause stress to the epoxy resin while it is exposed
 - to high temperature.

 3.Number of reflow process shall be 2 times or less.

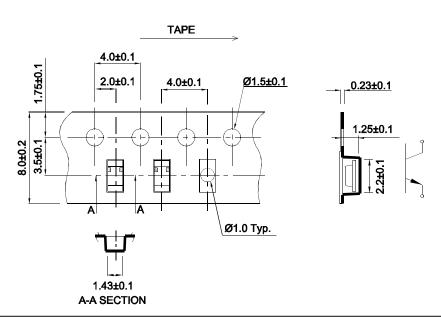
Recommended Soldering Pattern (Units: mm; Tolerance: ± 0.1)



Reel Dimension



Tape Specifications (Units: mm)



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PACKING & LABEL SPECIFICATIONS AP2012P3C User Direction of Feed Label <u>Label</u> 2,000pcs / Reel 1 Reel / Bag Outside Outside Label Kingbright Kingbright 30K / 55# Box 60K / 56# Box Kingbright P/NO: AP2012xxx QC QTY: 2,000 pcs Q.C. xxxxxx S/N: XXXX PASSED CODE: XXX

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RoHS Compliant

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