

## APT2012PD1C

2.0 x 1.25 mm Photodiode

### DESCRIPTION

- Made with NPN silicon photodiode chips

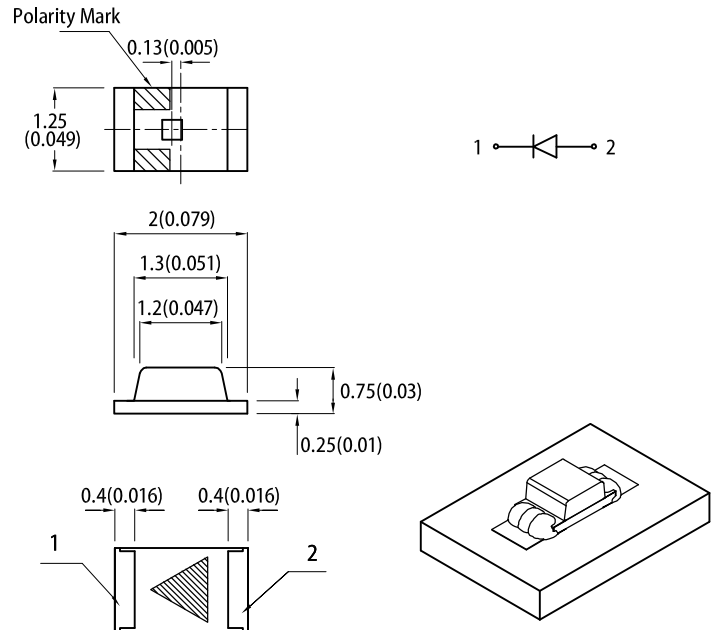
### FEATURES

- 2.0 mm x 1.25 mm SMD LED, 0.75 mm thickness
- Mechanically and spectrally matched to infrared emitting LED lamp
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

### APPLICATIONS

- Infrared applied systems
- Optoelectronic switches
- Photodetector control circuits
- Sensor technology

### PACKAGE DIMENSIONS



### RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance :  $\pm 0.1$ )



#### Notes:

- All dimensions are in millimeters (inches).
- 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.

### ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ\text{C}$

Parameter	Maximum Ratings	Units
Power Dissipation	150	mW
Operating Temperature	-40 to +85	$^\circ\text{C}$
Storage Temperature	-40 to +85	$^\circ\text{C}$

#### Note:

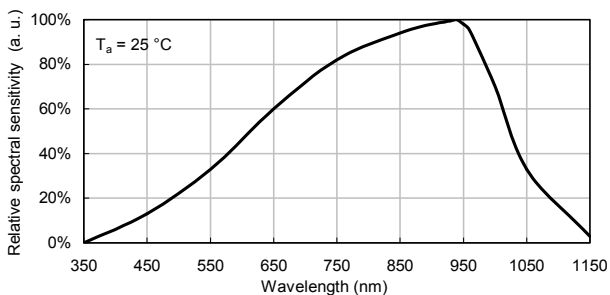
- Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

### ELECTRICAL / OPTICAL CHARACTERISTICS at $T_a=25^\circ\text{C}$

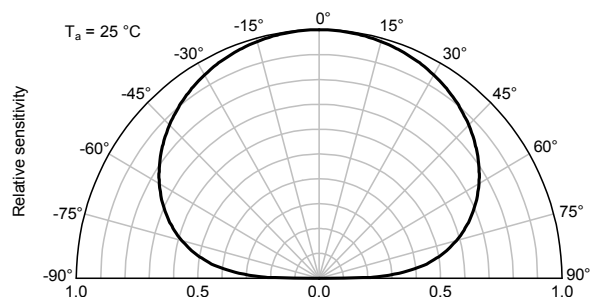
Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Reverse Break down Voltage	$V_{(BR)R}$	33	170	-	V	$I_R = 100\mu\text{A}$ $H = 0\text{mW/cm}^2$
Reverse Dark Current	$I_{D(R)}$	-	-	10	nA	$V_R = 10\text{V}$ $H = 0\text{mW/cm}^2$
Open Circuit Voltage	$V_{OC}$	-	390	-	mV	$\lambda = 940\text{nm}$ $H = 5\text{mW/cm}^2$
Rise Time	$T_R$	-	6	-	nS	$V_R = 10\text{V}$ $\lambda = 940\text{nm}$ $R_L = 1000\Omega$
Fall Time	$T_F$	-	6	-	nS	
Light current	$I_S$	4	8	-	$\mu\text{A}$	$V_R = 5\text{V}$ $E_e = 0.08\text{mW/cm}^2$ $\lambda = 940\text{nm}$
Total Capacitance	$C_T$	-	5	-	pF	$V_R = 10\text{V}$ $F = 1\text{MHz}$ $H = 0\text{mW/cm}^2$
Range of spectral bandwidth	$\lambda_{0.1}$	420	-	1120	nm	-
Wavelength of peak sensitivity	$\lambda_p$	-	940	-	nm	-
Angle of half sensitivity	$2\theta_{1/2}$	-	160	-	deg	-

### TECHNICAL DATA

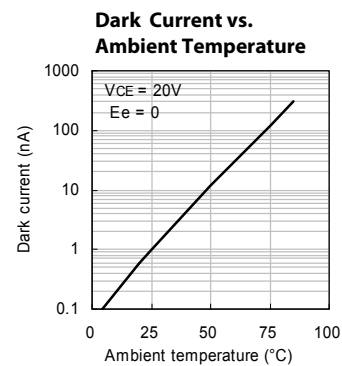
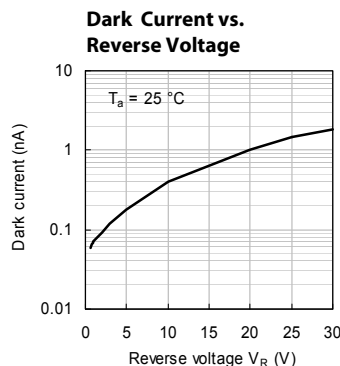
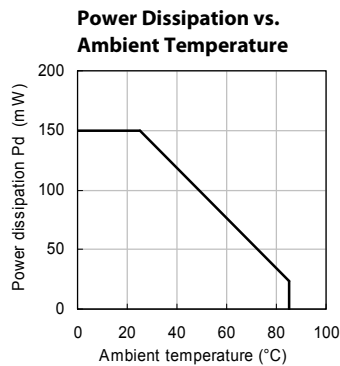
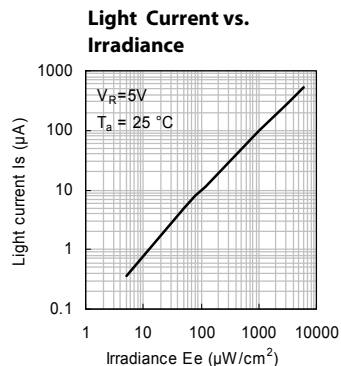
#### RELATIVE SPECTRAL SENSITIVITY vs. WAVELENGTH



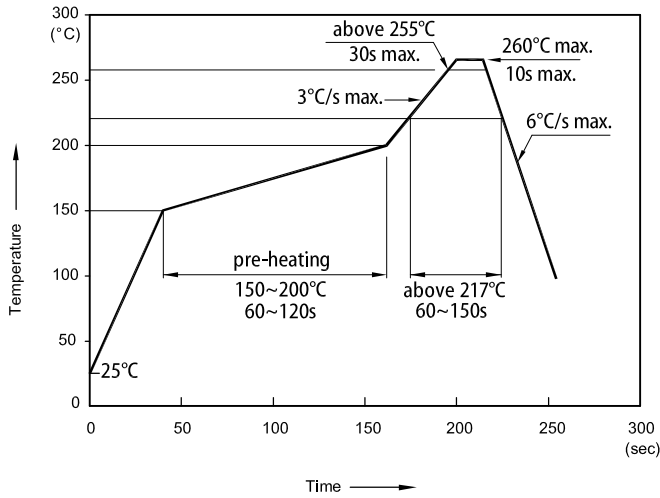
#### RELATIVE RADIANT SENSITIVITY vs. ANGULAR DISPLACEMENT



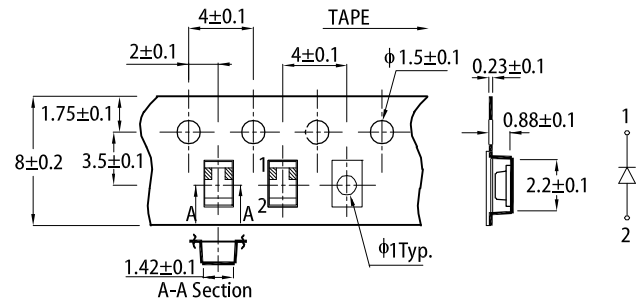
### PHOTODIODE



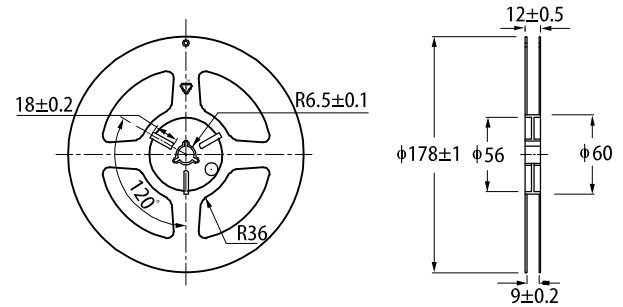
### REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS



### TAPE SPECIFICATIONS (units : mm)



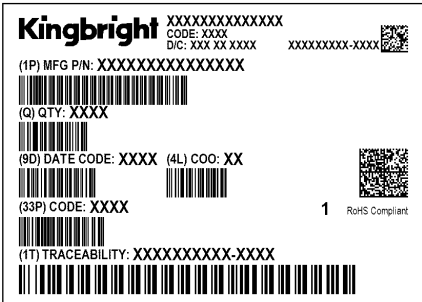
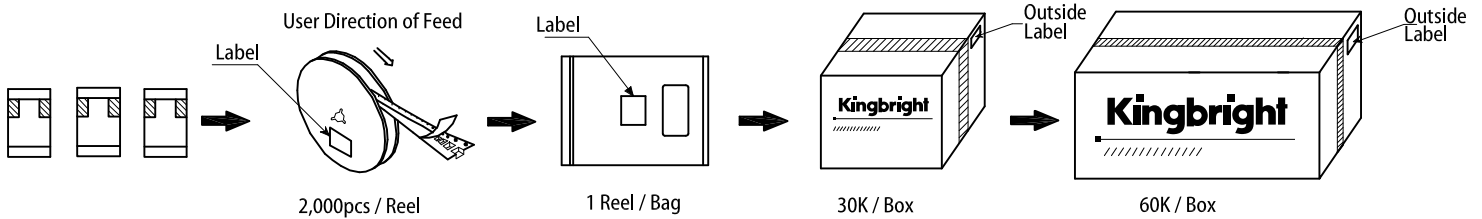
### REEL DIMENSION (units : mm)



**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.
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