



**BRIGHTTEK**  
**BRIGHTTEK (EUROPE) LIMITED**

*Brighten up The World With LED!*



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

## PRODUCT DATASHEET



- ▶ Ceramic High Power
- ▶ 5252 Series
- ▶ Plant Growing Light

NOM06S44



Release Date: 28 March 2014 Version: A1.0



5252 Series

### 5252 Series



#### FEATURES (\*IR/Red/Red/Blue):

- **Package:** Ceramic SMT Package with Silicon Lens
- **Forward Current:** 350/350/350/350mA
- **Forward Voltage (typ.):** 2.0/2.2/2.2/3.3V
- **Luminous Flux (typ.):** 270mW/13/13/12lm @350mA
- **Colour:** Infrared (IR)/Red/Red/Blue
- **Wavelength:** 730/650/650/455nm
- **Viewing angle:** 130/130/130/130°
- **Materials:**
  - Die: AlGaInP/AlGaInP/AlGaInP/InGaN
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD:** 2000V (HBM)
- **Grouping parameters:**
  - Forward voltage
  - Luminous flux
  - Wavelength
- **Soldering methods:** IR Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 12mm tape with 500pcs/reel, ø180mm (7")

#### APPLICATIONS:

- Plant Growing Light



**CHARACTERISTICS:**

## Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	$I_F$	350/350/350/350*	mA
Maximum Forward Current	$I_{MAX}$	700/700/700/700	mA
Reverse Voltage	$V_R$	10	V
Reverse Current @5V	$I_R$	10	$\mu$ A
Electrostatic Discharge	ESD	2000	V
Junction Temperature	$T_j$	115	°C
Thermal Resistance	$R_{TH}$	8.5	°C/W
Operating Temperature	$T_{OPR}$	-40~+85	°C
Storage Temperature	$T_{STG}$	-40~+100	°C

1. \* In the order of IR/Red/Red/Blue.

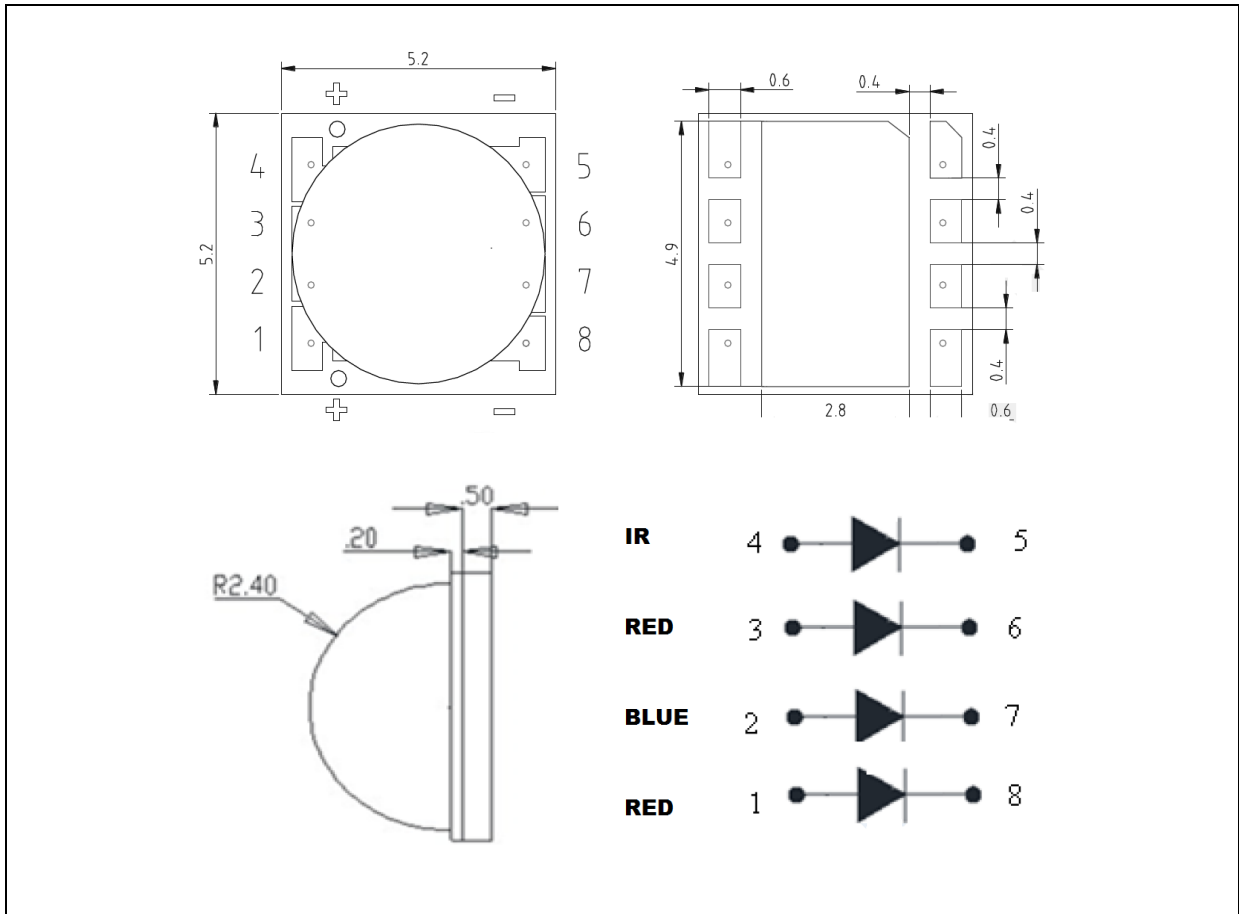
## Electrical &amp; Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
IR - Forward Voltage	$V_F$	1.5	2.0	2.6	V	$I_F=350mA$
IR - Radiant Power	$\Phi_V$	200	270	325	mW	$I_F=350mA$
IR - Wavelength	$W_p$	710	730	740	nm	$I_F=350mA$
Red - Forward Voltage	$V_F$	1.7/1.7	2.2/2.2	2.6/2.6	V	$I_F=350mA$
Red - Luminous Flux	$\Phi_V$	9/9	13/13	18/18	lm	$I_F=350mA$
Red - Wavelength	$W_p$	640	650	670	nm	$I_F=350mA$
Blue - Forward Voltage	$V_F$	2.75	3.3	3.75	V	$I_F=350mA$
Blue - Luminous Flux	$\Phi_V$	9	12	17	lm	$I_F=350mA$
Blue - Wavelength	$W_p$	450	455	460	nm	$I_F=350mA$
Viewing Angle	$2\theta_{1/2}$	---	130	---	deg	$I_F=350mA$

 1. Luminous intensity ( $I_v$ )  $\pm 5\%$ , Forward Voltage ( $V_F$ )  $\pm 0.1V$ , Viewing angle( $2\theta_{1/2}$ )  $\pm 5\%$

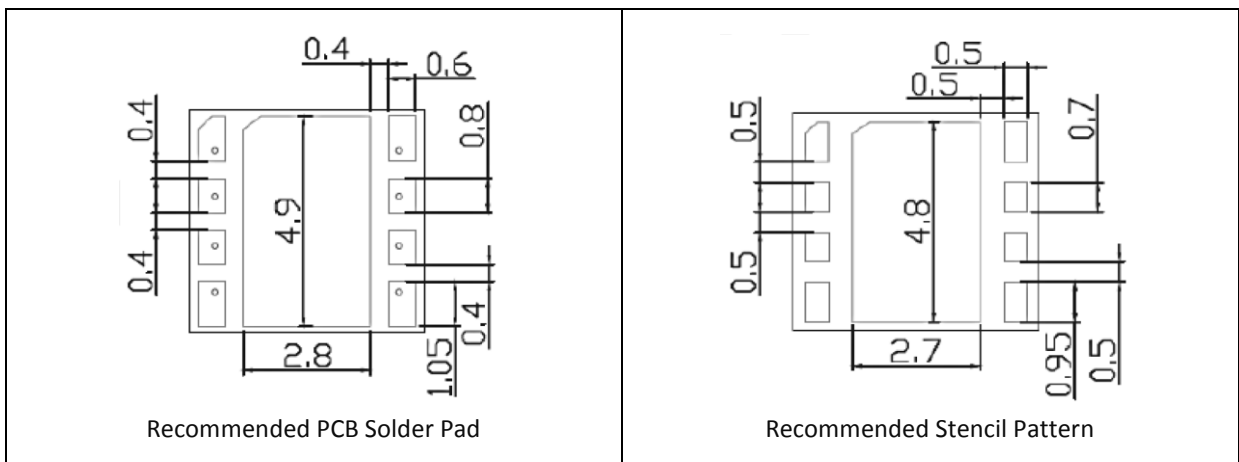
## OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1\text{mm}$ , unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1\text{mm}$  with angle tolerance  $\pm 0.5^\circ$ .

**BINNING GROUPS:**


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 Forward Voltage Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
V1 (IR and Red)	1.4	1.6	V
V2 (IR and Red)	1.6	1.8	
V3 (IR and Red)	1.8	2.0	
V4 (IR and Red)	2.0	2.2	
V5 (IR and Red)	2.2	2.4	
V6 (IR and Red)	2.4	2.6	

B1 (Blue)	2.75	3.0	V
B2 (Blue)	3.0	3.25	
B3 (Blue)	3.25	3.5	
B4 (Blue)	3.5	3.75	

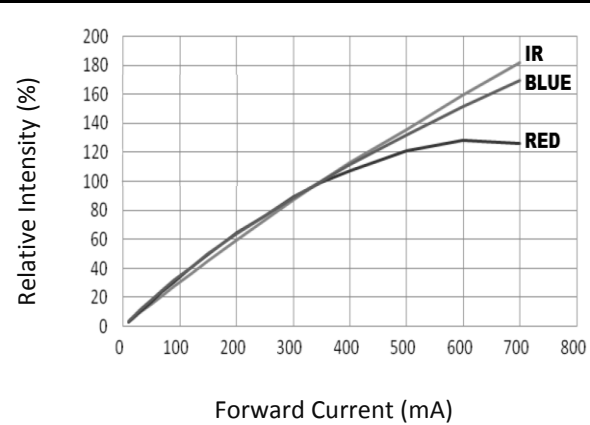
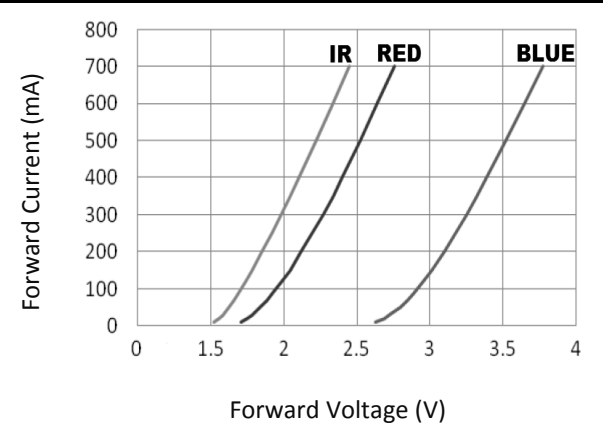
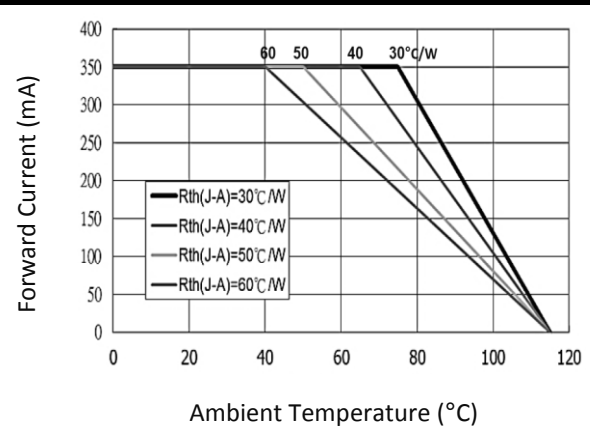
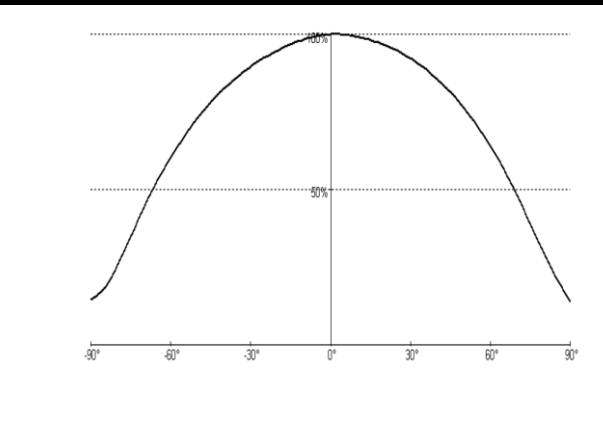
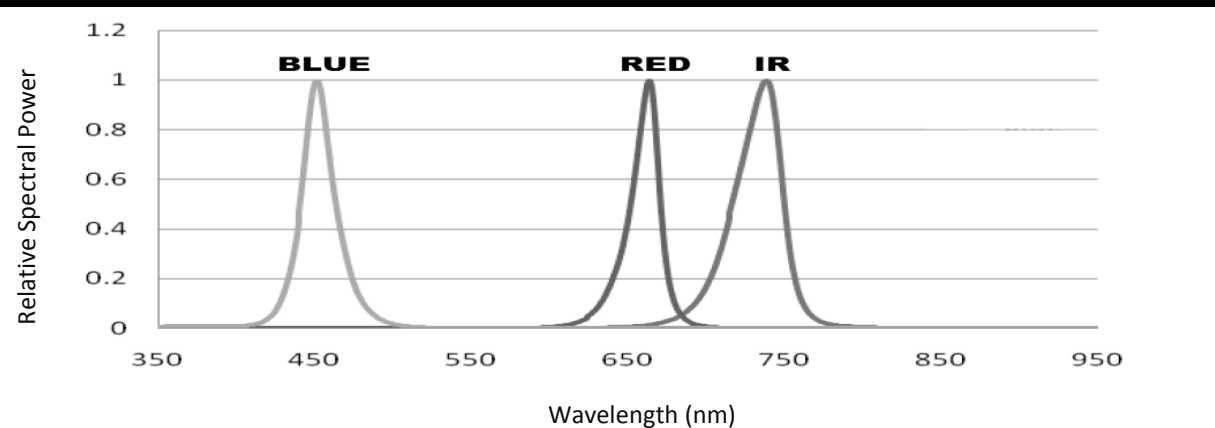
 Radiant Power / Luminous Flux Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
21 (IR)	200	225	mW
22 (IR)	225	250	
23 (IR)	250	275	
24 (IR)	275	300	
25 (IR)	300	325	

10 (Red and Blue)	9	10	lm
11 (Red and Blue)	10	12	
12 (Red and Blue)	12	14	
13 (Red and Blue)	14	16	
14 (Red and Blue)	16	18	

 Wavelength Classifications ( $I_F = 350\text{mA}$ ):

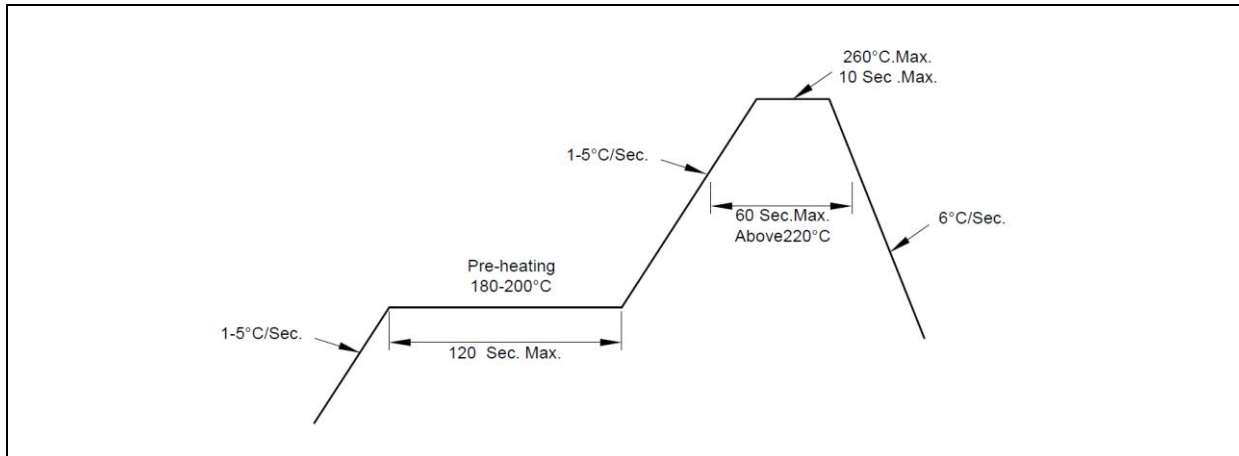
Code	Min.	Max.	Unit
IR	710	740	nm
Red	640	670	
Blue	450	460	

**ELECTRO-OPTICAL CHARACTERISTICS:**
**Relative Intensity v.s. Forward Current**

**Forward Current v.s. Forward Voltage**

**Thermal Design for De-rating**

**Directive Radiation**

**Luminous Spectrum**


## RECOMMENDED SOLDERING PROFILE:

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Lead-free Solder:

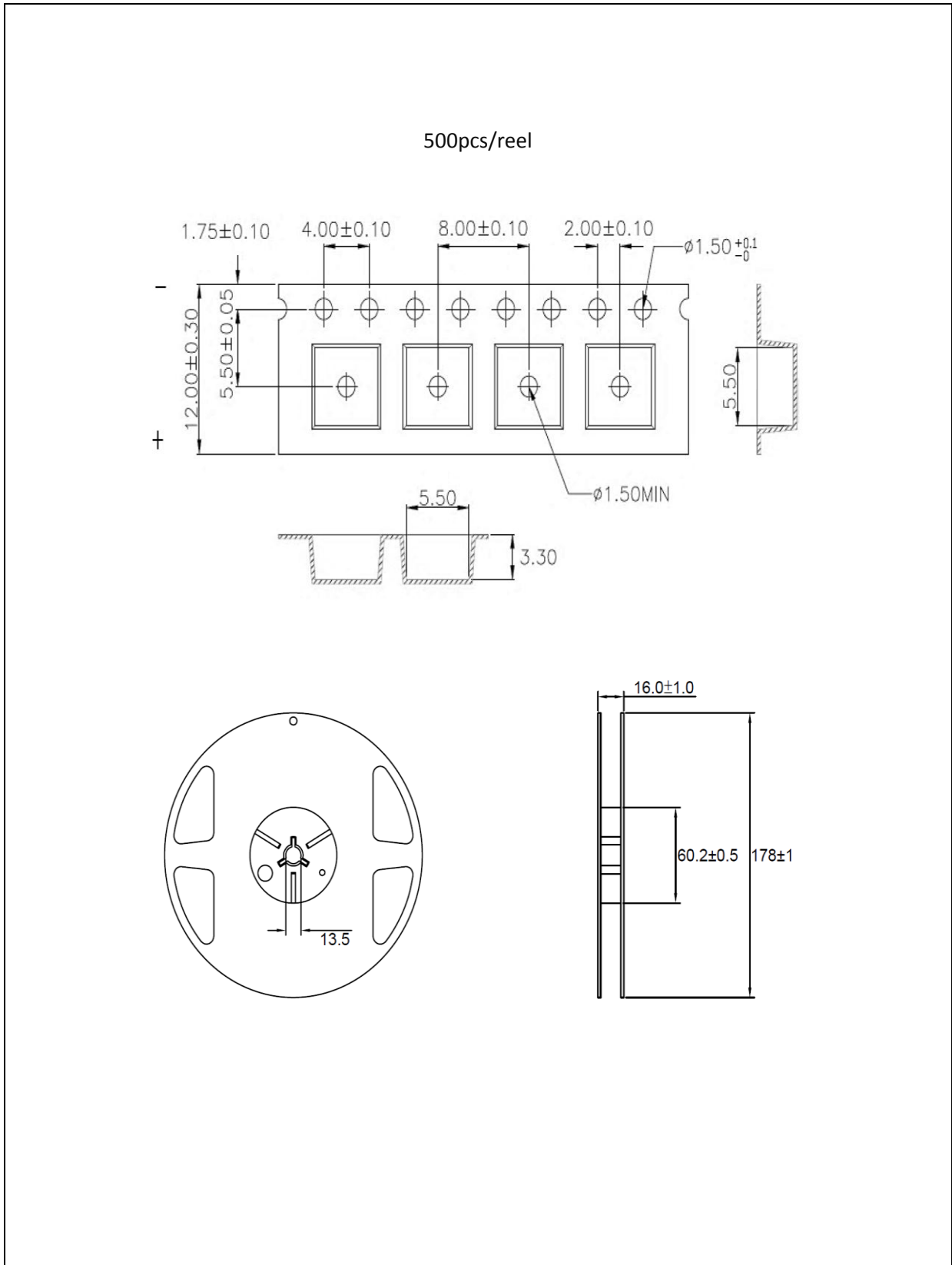


Note:

1. Maximum reflow soldering: 1 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

**PACKING SPECIFICATION:**

Reel Dimension:



## PRECAUTIONS OF USE:

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### Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccating agent and apply baking at 60°C±5°C for 15hrs before use.

### Baking:

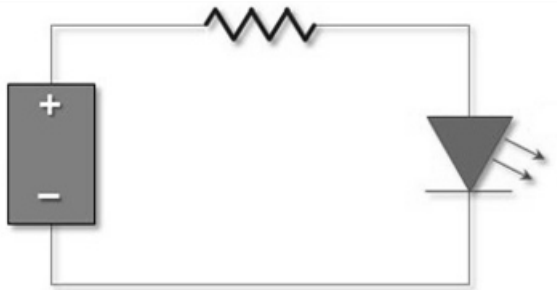
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

The suggested baking conditions are as followings:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 100±3°C x 2hrs, bulk (loose) package.
- 130±3°C x 30min, bulk (loose) package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

### Testing Circuit:



Must apply resistor(s) for protection (over current proof).

### Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

### ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.



**REVISION RECORD:**

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Version	Date	Summary of Revision
A1.0	28/03/2014	Datasheet set-up.