



**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



- ▶ PCB Side View
- ▶ 1204 Series
- ▶ Red (630nm) / Blue (470nm)

# NOD02S80SV



Release Date: 13 November 2015 Version: A1.2



### Side View 1204

**RoHS Compliant**



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

- **Package:** Side View PCB SMT Package
- **Forward Current:** 20/20mA\*
- **Forward Voltage (typ.):** 2.1/3.5V
- **Luminous Intensity (typ.):** 70/50mcd @20mA
- **Colour:** Red/Blue
- **Wavelength:** 630/470nm
- **Viewing angle:** 120/120°
- **Materials:**
  - Die: AlGaInP/InGaN
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+90°C
- **ESD:** 2000/150V
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with 3000/reel, ø180mm (7")

#### APPLICATIONS:

- Backlighting
- Indication Light
- Side view light strip
- Switch light
- Dashboard
- Keyboard

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
Forward Current	$I_F$	30/30*	mA
Peak Forward Current Duty 1/10@10KHz	$I_{FP}$	90/100	mA
Reverse Current @5V	$I_R$	10/50	$\mu$ A
Power Dissipation	PD	72/80	mW
Electrostatic Discharge	ESD	2000/150	V
Operating Temperature	$T_{OPR}$	-40~+85	°C
Storage Temperature	$T_{STG}$	-40~+90	°C

- \* In the order of Red/Blue.

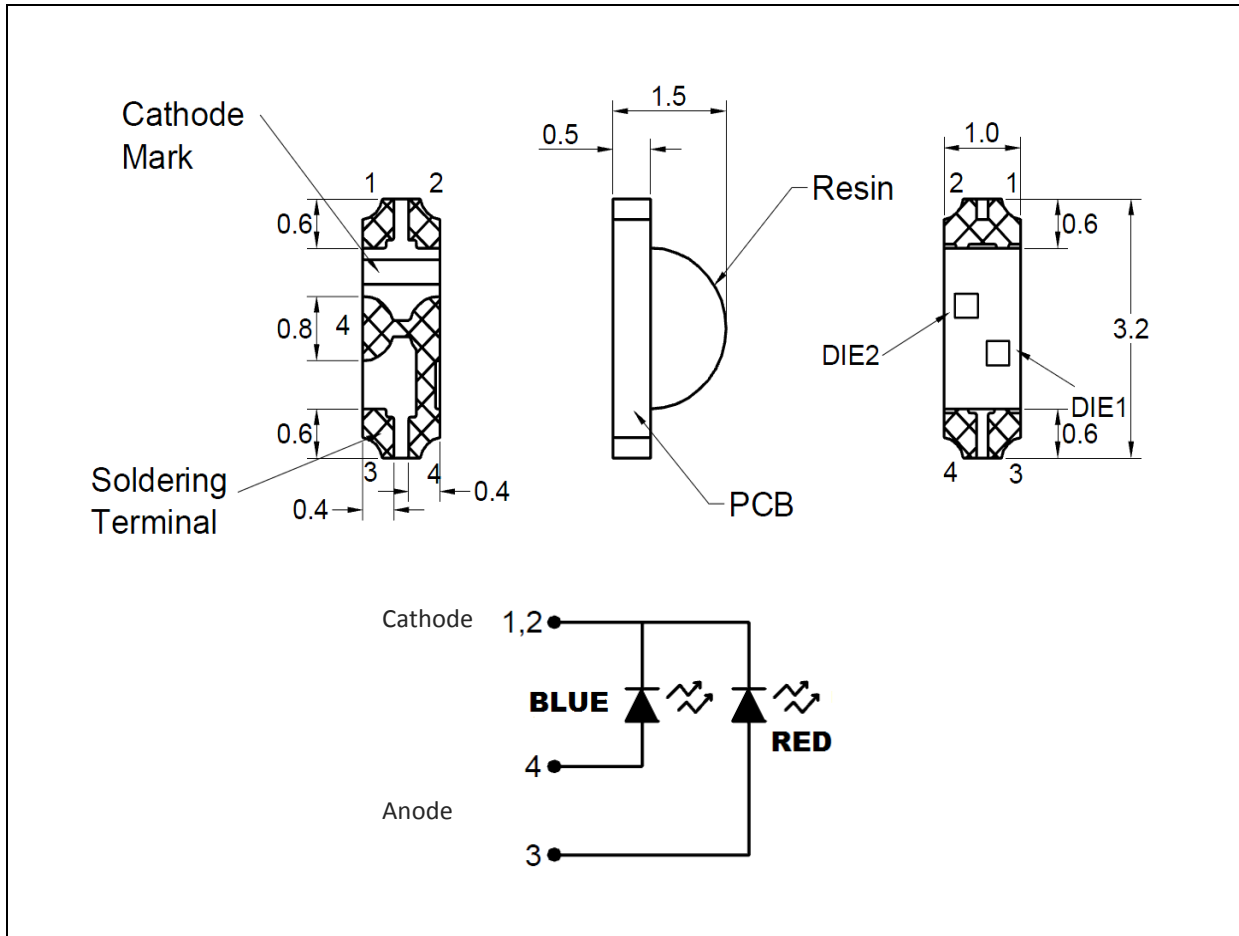
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	$V_F$	1.4/3.0	---	2.4/4.0	V	$I_F=20mA$
Luminous Intensity	$I_V$	32/20	70/50	---	mcd	$I_F=20mA$
Dominant Wavelength	$\lambda_D$	---	630/470	---	nm	$I_F=20mA$
Peak Wavelength	$\lambda_P$	---	642/465	---	nm	$I_F=20mA$
Spectral Line Half Bandwidth	$\Delta \lambda$	---	20/30	---	nm	$I_F=20mA$
Viewing Angle	$2\theta_{1/2}$	---	120/120	---	deg	$I_F=20mA$

- Luminous intensity ( $I_V$ )  $\pm 15\%$ , Forward Voltage ( $V_F$ )  $\pm 0.1V$

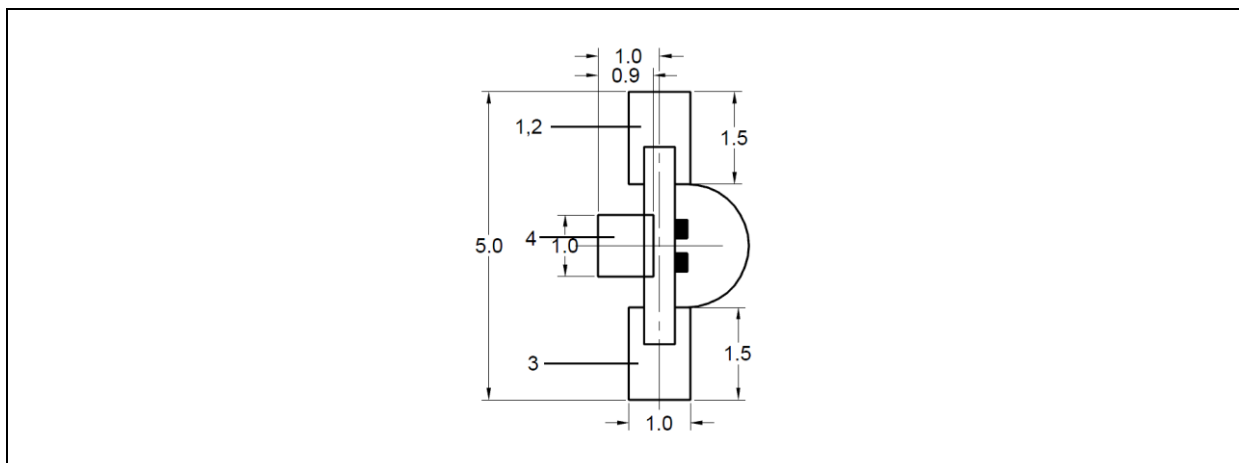
## OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2\text{mm}$ , 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 ( $I_F = 20\text{mA}$ ):

Code	Min.	Max.	Unit
1 (Red)	1.4	1.6	V
2 (Red)	1.6	1.8	
3 (Red)	1.8	2.0	
4 (Red)	2.0	2.2	
5 (Red)	2.2	2.4	

9 (Blue)	3.0	3.2	V
10 (Blue)	3.2	3.4	
11 (Blue)	3.4	3.6	
12 (Blue)	3.6	3.8	
13 (Blue)	3.8	4.0	

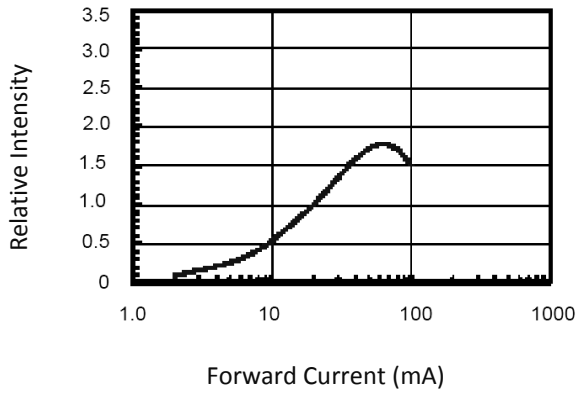
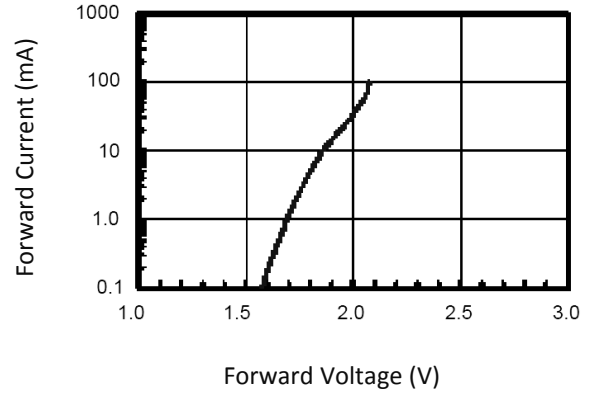
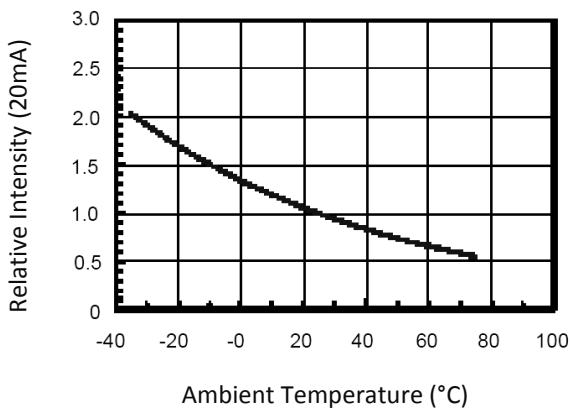
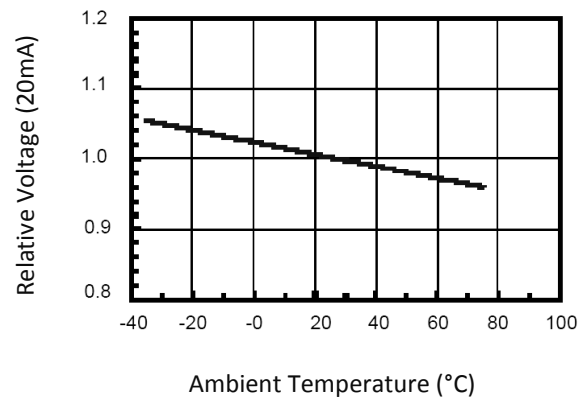
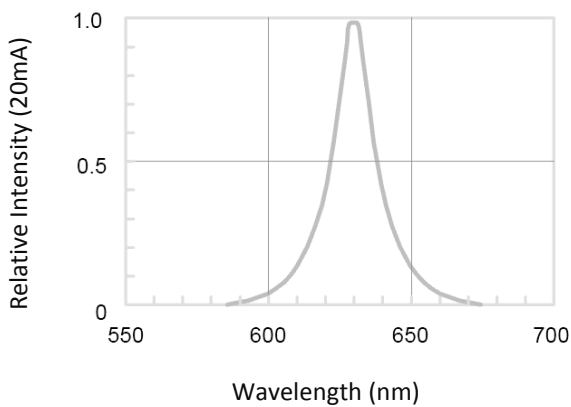
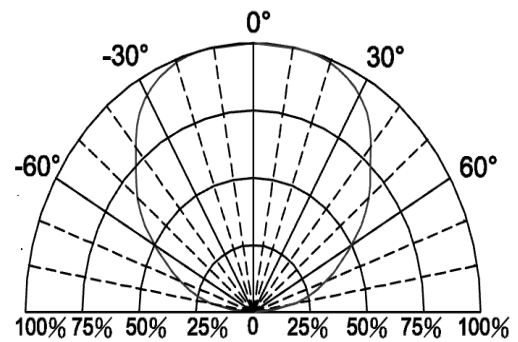
 Luminous Intensity Classifications ( $I_F = 20\text{mA}$ ):

Code	Min.	Max.	Unit
NB (Blue)	20	32	mcd
TR/TB (Red and Blue)	32	50	
PR/RB (Red and Blue)	50	80	
HR (Red)	80	150	

 Dominant Wavelength Classifications ( $I_F = 20\text{mA}$ ):

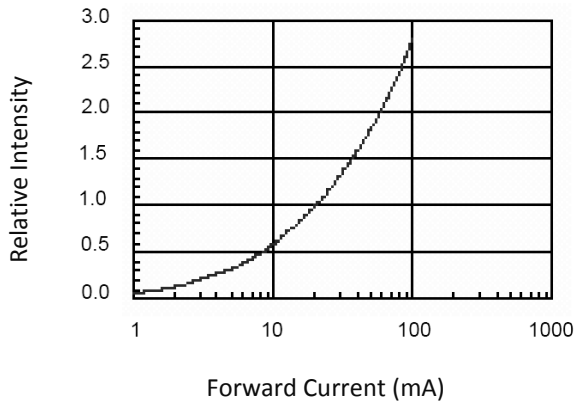
Code	Min.	Max.	Unit
29R (Red)	624	627	nm
30R (Red)	627	630	
31R (Red)	630	633	
32R (Red)	633	636	

2B (Blue)	462	466	nm
3B (Blue)	466	470	
4B (Blue)	470	474	
5B (Blue)	474	478	

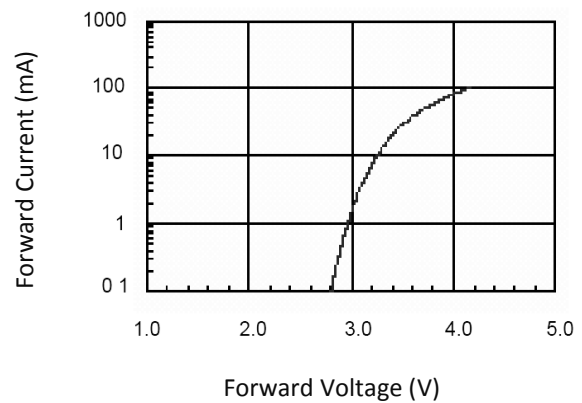
**ELECTRO-OPTICAL CHARACTERISTICS (RED):**
**Relative Intensity v.s. Forward Current**

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

**Relative Intensity v.s. Temperature**

**Relative Forward Voltage v.s. Temperature**

**Relative Intensity v.s. Wavelength**

**Directive Radiation**


## ELECTRO-OPTICAL CHARACTERISTICS (BLUE):

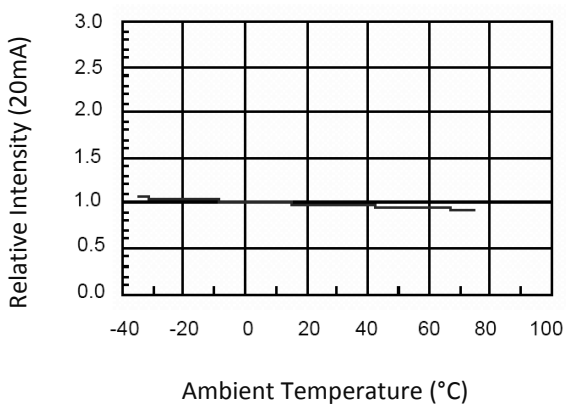
Relative Intensity v.s. Forward Current



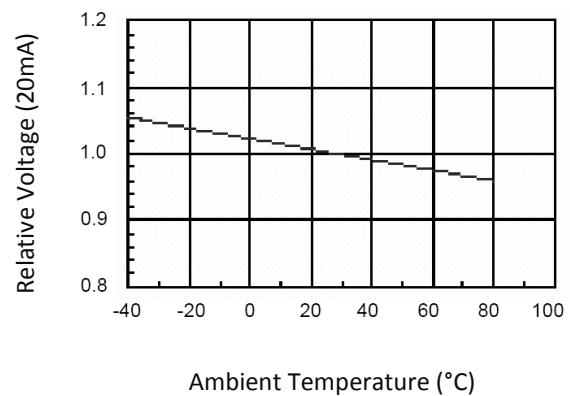
Forward Current v.s. Forward Voltage



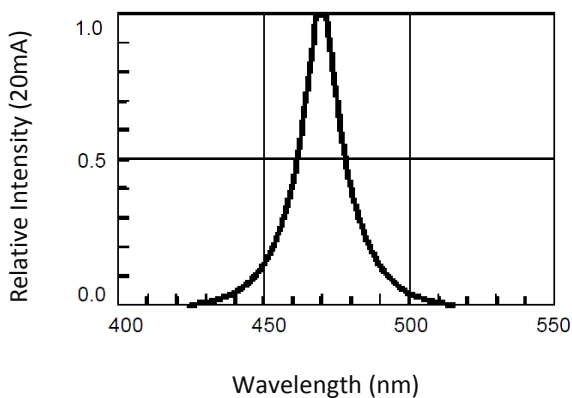
Relative Intensity v.s. Temperature



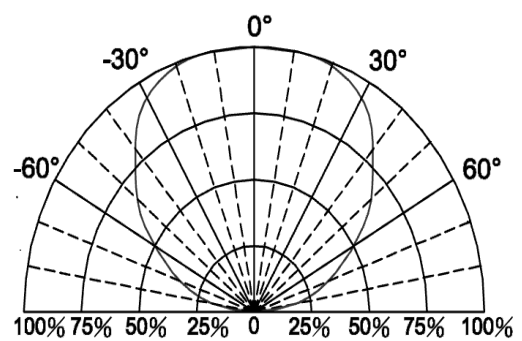
Relative Forward Voltage v.s. Temperature



Relative Intensity v.s. Wavelength

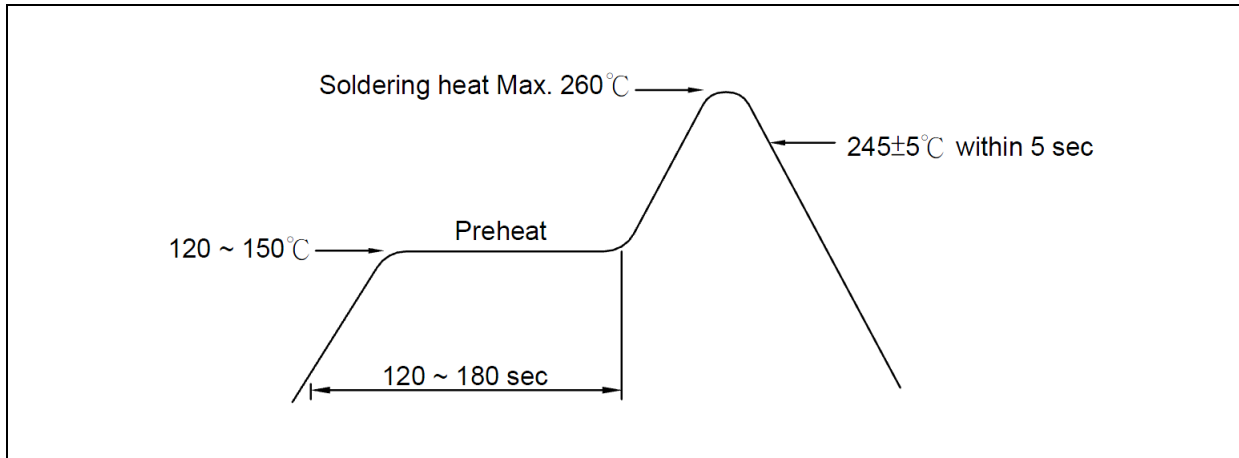


Directive Radiation

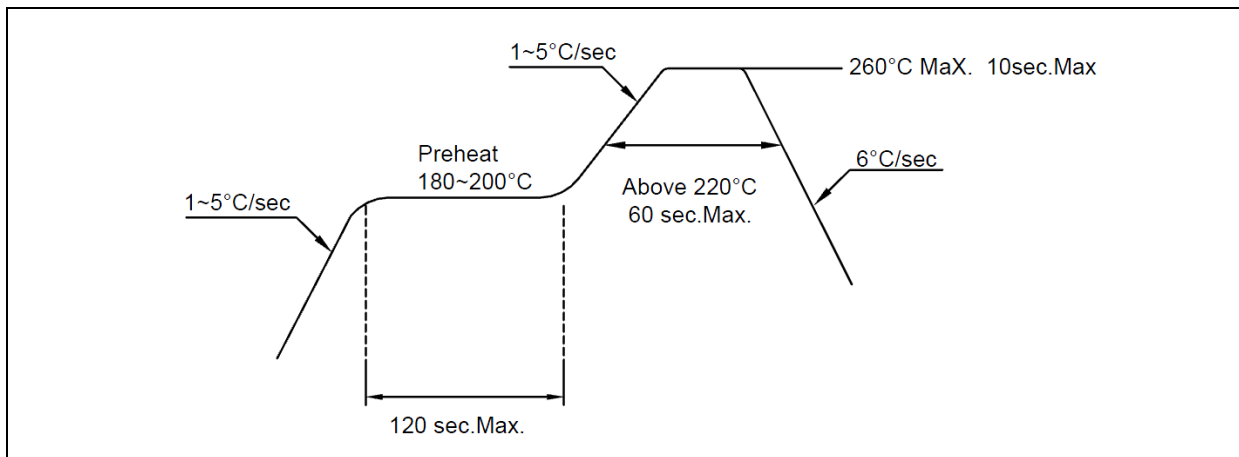


## RECOMMENDED SOLDERING PROFILE:

### Wave Solder:



### Lead-free Solder:

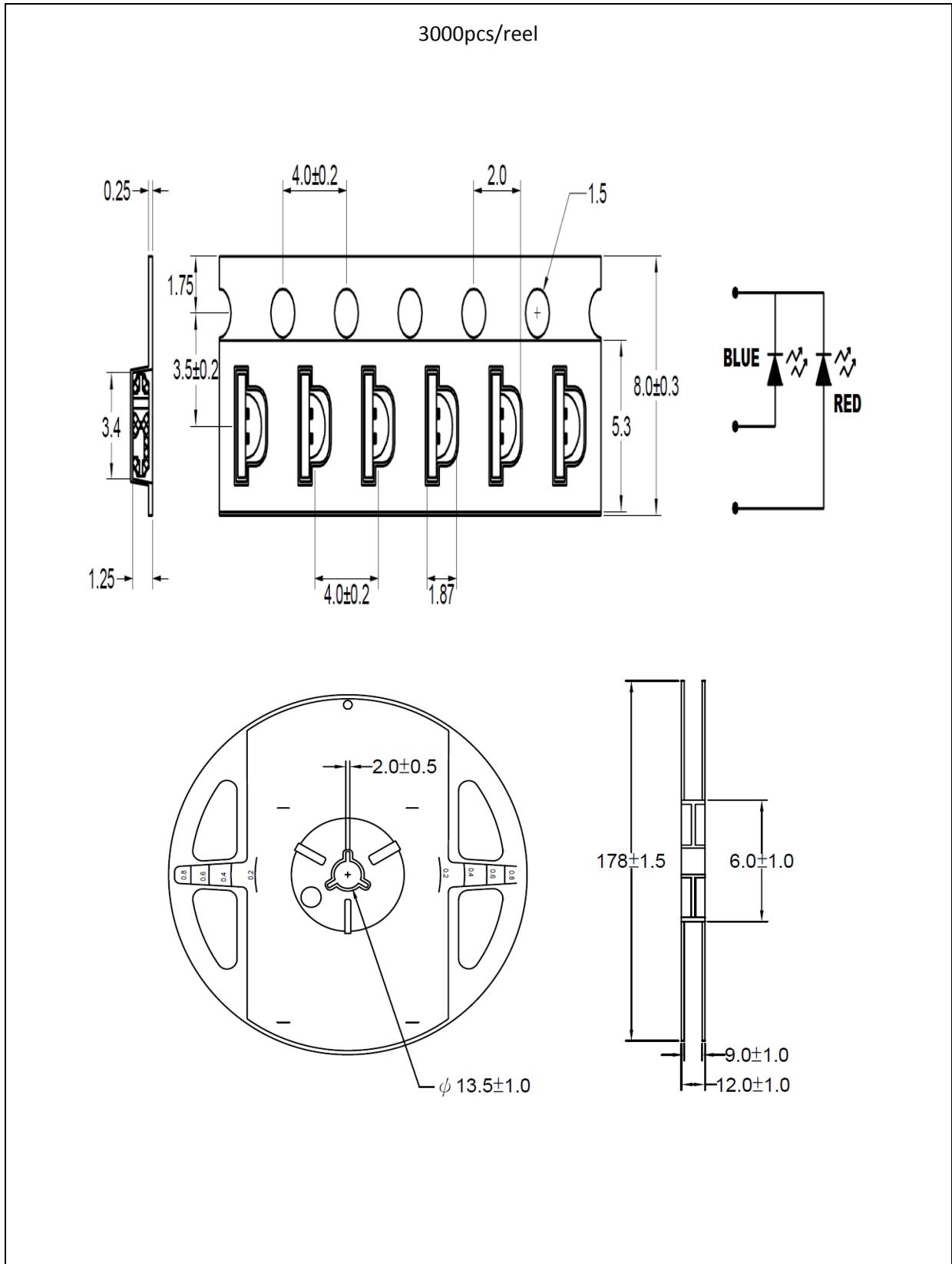


### Note:

1. Maximum reflow soldering: 2 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:

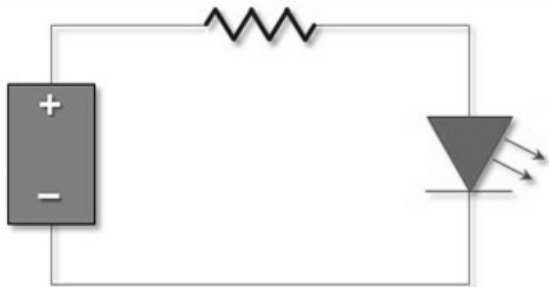
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

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	20/12/2013	Datasheet set-up.
A1.1	17/10/2014	Update series name.
A1.2	13/11/2015	Part number adds -SV for side view.