



**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



- ▶ PLCC2
- ▶ K1 Series
- ▶ Red (625-630nm)

NOR06S18 (Tube)  
 NOR06S18RL (Reel)



Release Date: 27 May 2014 Version: A1.1



### K1 Series



#### FEATURES:

- **Package:** PLCC White SMT Package
- **Forward Current:** 350mA
- **Forward Voltage (typ.):** 2.2V
- **Luminous Flux (typ.):** 50lm @350mA
- **Colour:** Red
- **Wavelength:** 625-630nm
- **Viewing angle:** 135°
- **Materials:**
  - Die: AlGaInP
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -30~+100°C
- **Storage Temperature:** -40~+120°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous flux
  - Wavelength
- **Soldering methods:** Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 2000pcs/carton (40 tubes); 50pcs/tube  
 24mm tape with 1000pcs/reel, ø330mm (13")

#### APPLICATIONS:

- General Lighting
- Commercial Lighting
- Residential Lighting
- Architectural Lighting
- Flash Lighting
- Reading Lights

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
Forward Current	$I_F$	350	mA
Peak Forward Current Duty 1/10@10KHz	$I_{FP}$	500	mA
Operating Temperature	$T_{OPR}$	-30~+100	°C
Storage Temperature	$T_{STG}$	-40~+120	°C
Junction Temperature	$T_j$	110	°C
Temperature Coefficient of VF	$\Delta V_F/\Delta T_j$	-2	mV/°C
Thermal Resistance Junction to Lead	$T_{junction-lead}$	12	°C/W

1. Not suitable to be driven in reverse bias.

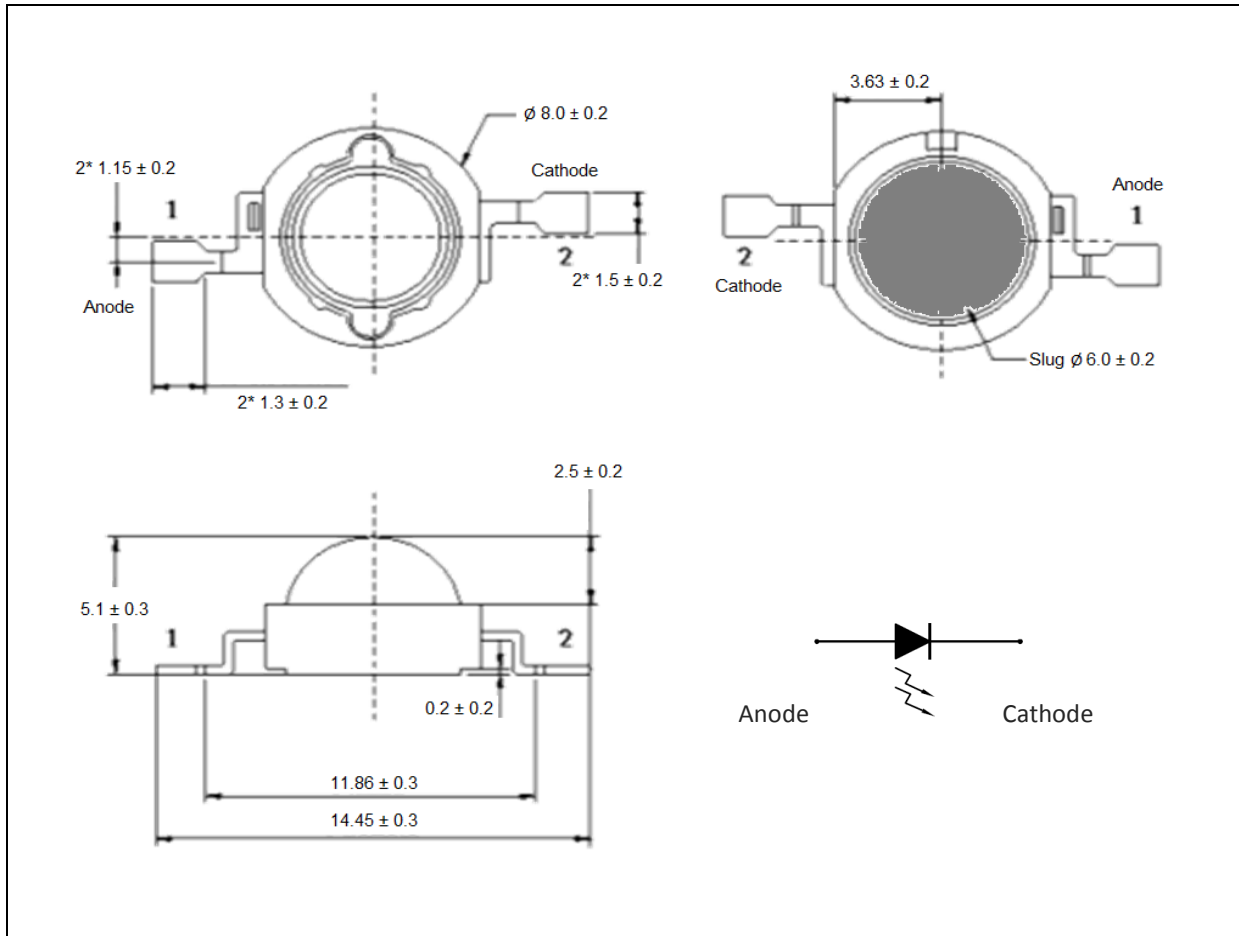
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	$V_F$	1.8	2.2	2.6	V	$I_F=350mA$
Luminous Flux	$\Phi_V$	40	50	---	lm	$I_F=350mA$
Dominant Wavelength	$\lambda_d$	625	---	630	nm	$I_F=350mA$
Viewing Angle	$2\theta_{1/2}$	---	135	---	deg	$I_F=350mA$

2. Luminous intensity ( $I_v$ )  $\pm 15\%$ , Forward Voltage ( $V_f$ )  $\pm 0.1V$ , Viewing angle( $2\theta_{1/2}$ )  $\pm 5\%$
3. IS standard testing

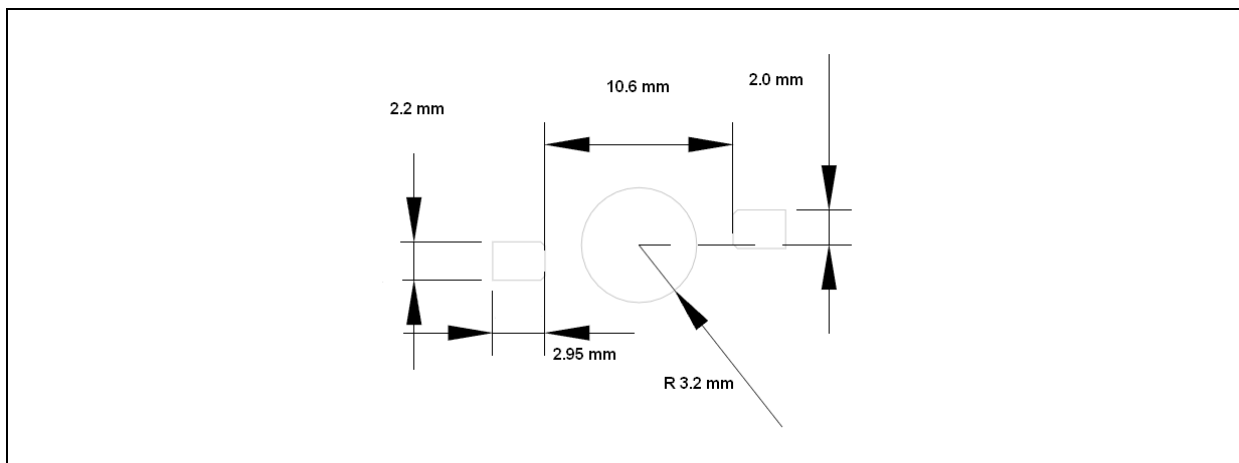
## OUTLINE DIMENSION:

### Package Dimension:



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

### Recommended Soldering Pad Dimension:



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

**BINNING GROUPS:**


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

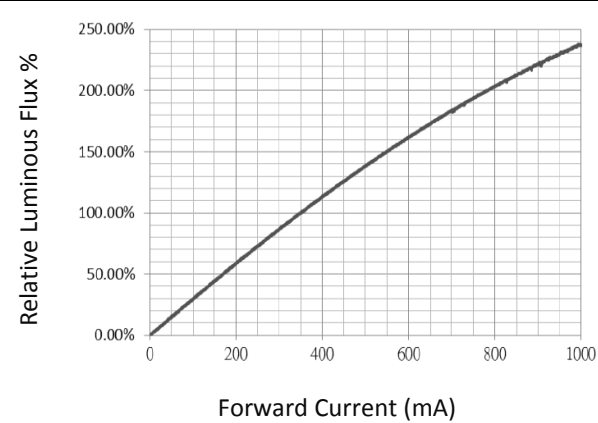
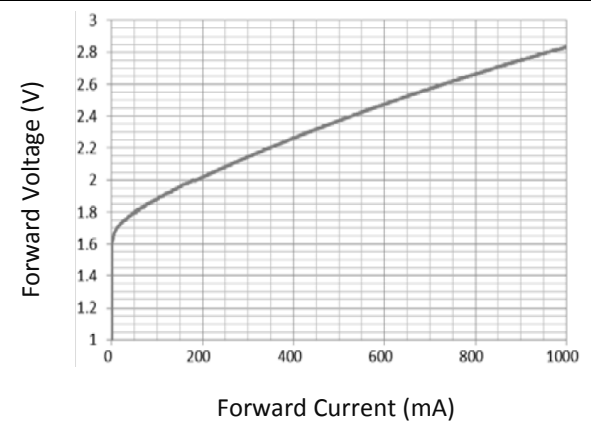
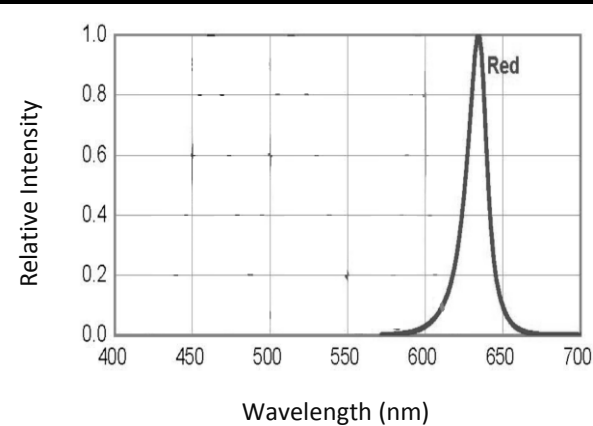
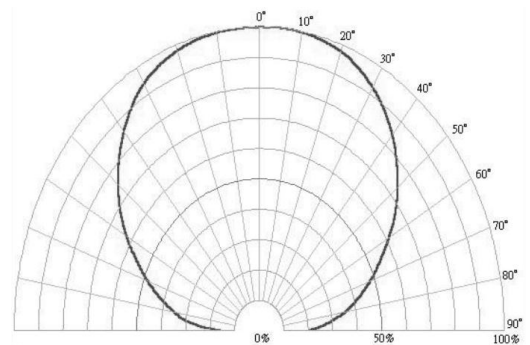
Code	Min.	Max.	Unit
1	1.8	1.9	V
2	1.9	2.0	
3	2.0	2.1	
4	2.1	2.2	
5	2.2	2.3	
6	2.3	2.4	
7	2.4	2.5	
8	2.5	2.6	

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

Code	Min.	Max.	Unit
20	40	50	lm
21	50	60	

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

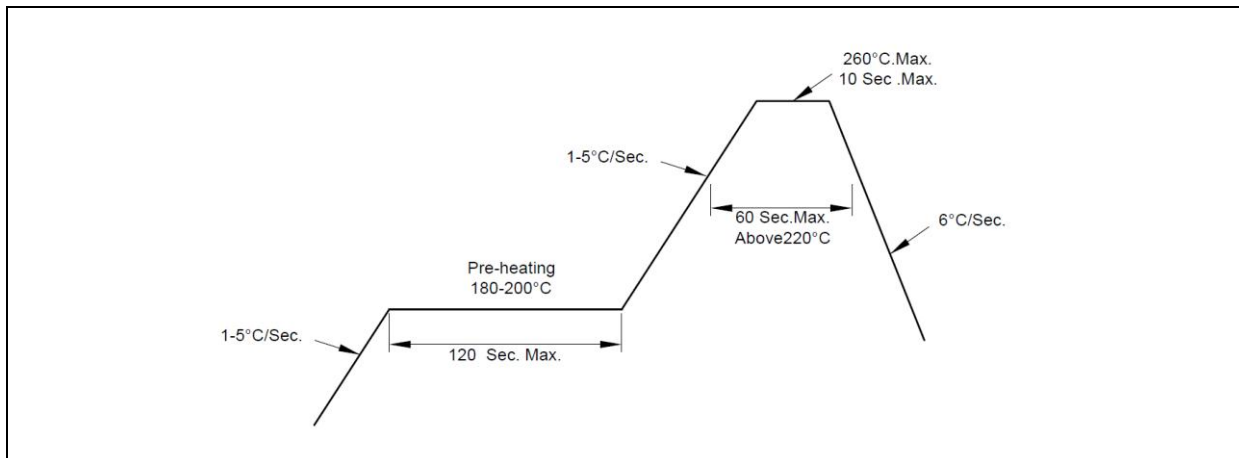
Code	Min.	Max.	Unit
R1	625	630	nm

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

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

**Relative Intensity v.s. Wavelength**

**Directive Radiation**


## RECOMMENDED SOLDERING PROFILE:

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Lead-free Solder:



Note:

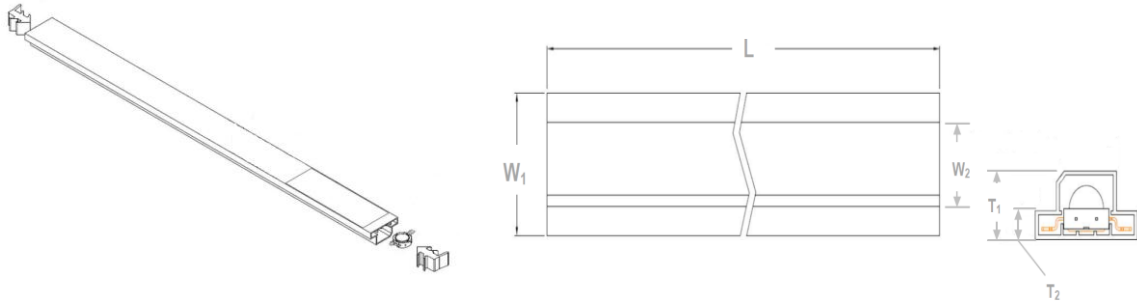
1. Maximum reflow soldering: 1 time.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

**PACKING SPECIFICATION:**

Tube Dimension:

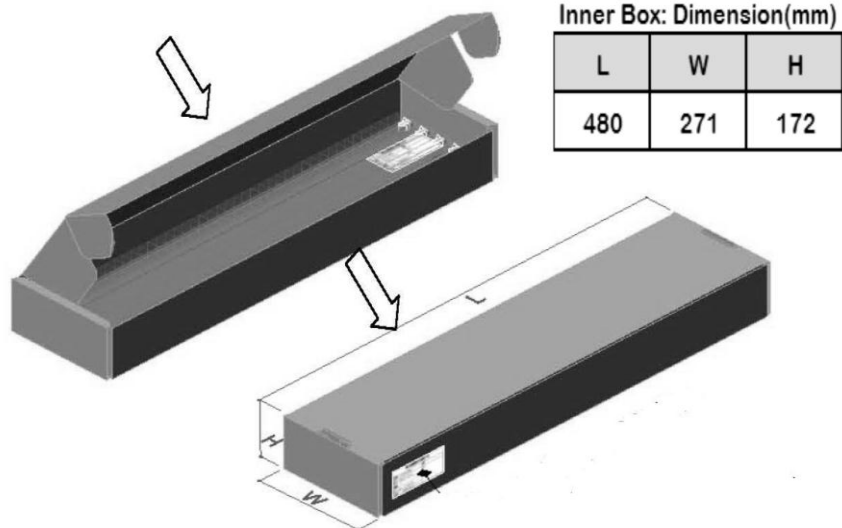
**NOR06S18**

2000pcs/carton (40 tubes); 50pcs/tube



Unit(mm)

W <sub>1</sub>	W <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	L
16.5	9.7	7.9	3.3	420



Inner Box: Dimension(mm)

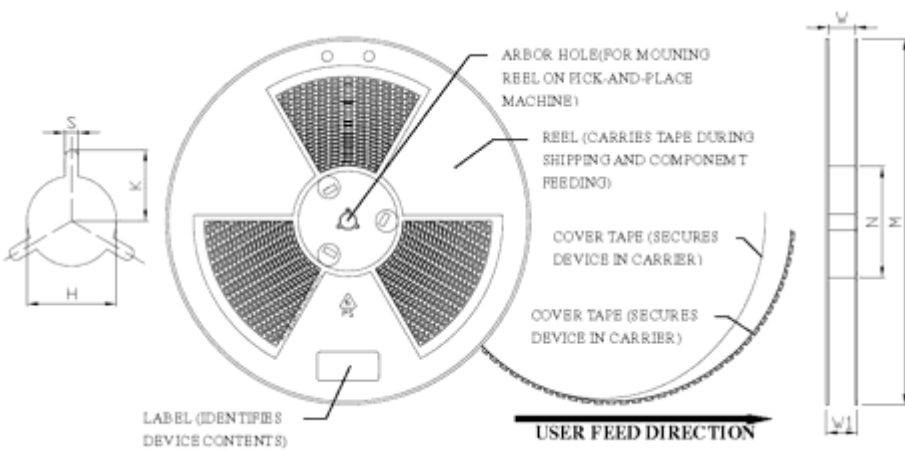
L	W	H
480	271	172

**PACKING SPECIFICATION:**

Reel Dimension:

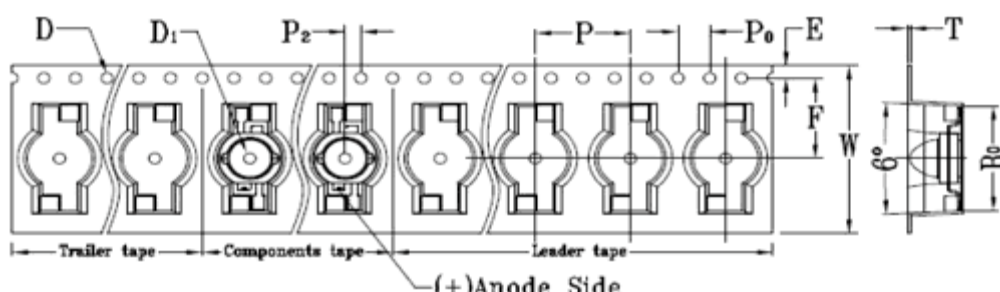
**NOR06S18RL**

1000pcs/reel



Unit: mm

M	N	W	W1	H	K	S
Φ330.0	Φ99.5	24.4	29	Φ13.5	10.75	2.5
±1.0	±1.0	±1.0	±1.0	±0.5	±0.5	±0.5

Unit: mm

W	P	E	F	P <sub>2</sub>	D	D <sub>1</sub>	P <sub>0</sub>	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	T
24.0	12.0	1.75	11.5	2.0	1.5	1.5	4.0	8.2	15.0	6.7	0.4
±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.25	±0.1	±0.1	±0.1	±0.1	±0.05



## 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:

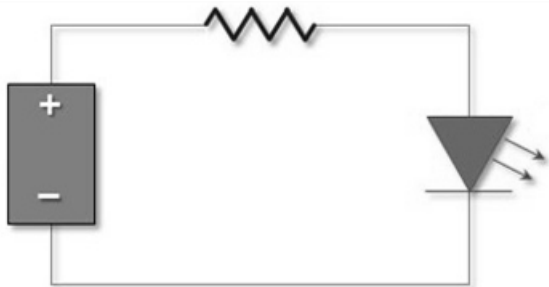
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

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	14/04/2014	Datasheet set-up.
A1.1	27/05/2014	Add reel packing information.