



**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

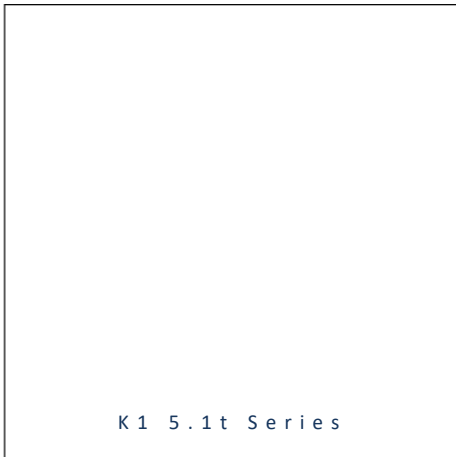


- ▶ PLCC2 Top View LED
- ▶ K1 5.1t Series
- ▶ Cool White  
(5000-10000K)

NOW06S19 (Tube)  
 NOW06S19RL (Reel)



Release Date: 19 December 2017 Version: A1.2



K1 5.1t Series

### K1 5.1t Series



#### FEATURES:

- **Package:** PLCC2 Top View White SMT Package
- **Forward Current:** 350mA
- **Forward Voltage (typ.):** 3.2V
- **Luminous Flux (typ.):** 125lm@350mA
- **Colour:** Cool White
- **CCT:** 5000-10000K
- **Viewing angle:** 120°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -30~+100°C
- **Storage Temperature:** -40~+120°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous flux
  - CIE Chromaticity
- **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.

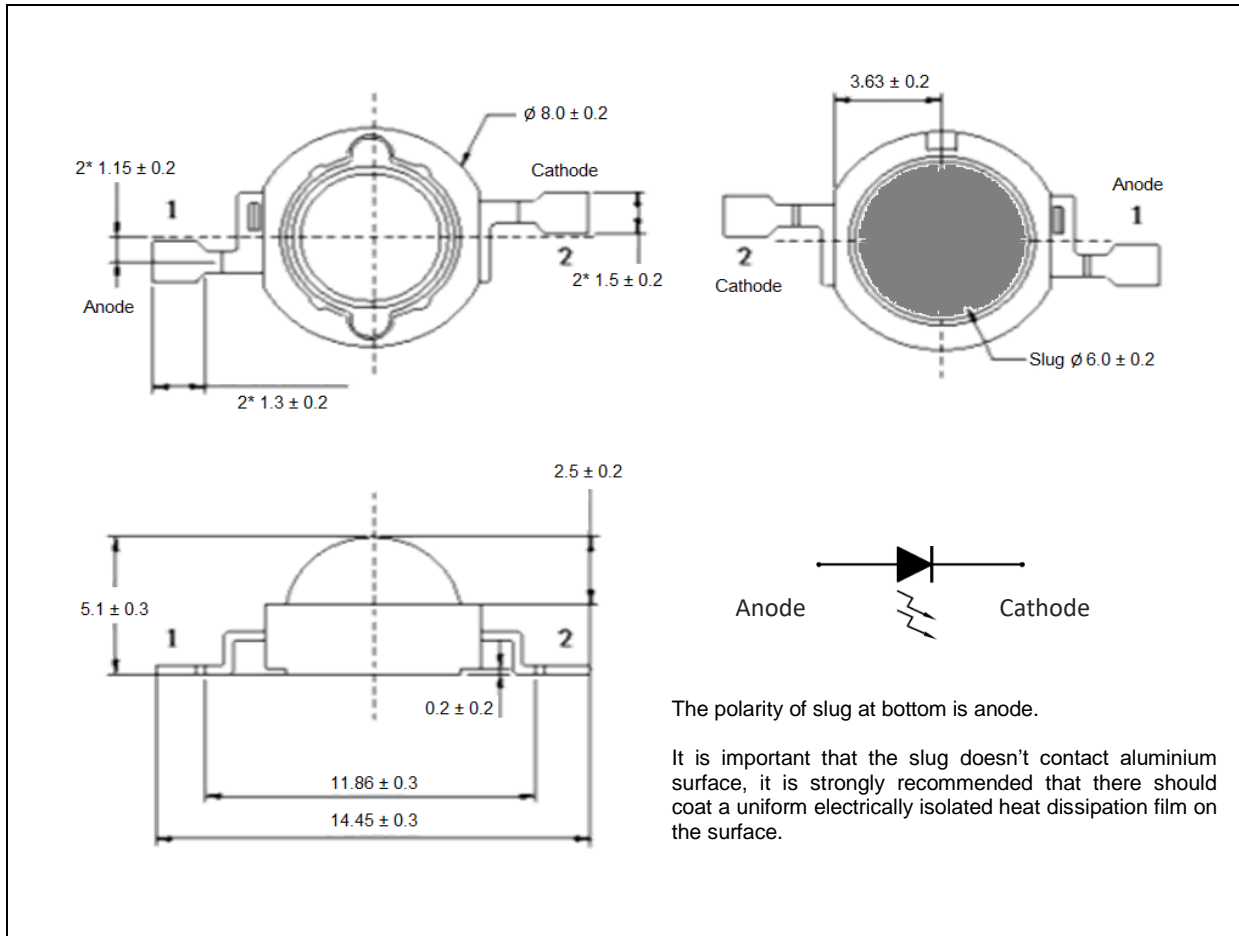
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	$V_F$	2.8	3.2	3.6	V	$I_F=350mA$
Luminous Flux	$\Phi_v$	80	125	---	lm	$I_F=350mA$
Chromaticity Coordinates	X	0.2740	---	0.3480	---	$I_F=350mA$
	Y	0.2700	---	0.3850		
Colour Temperature	CCT	5000	6300	10000	K	$I_F=350mA$
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F=350mA$

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

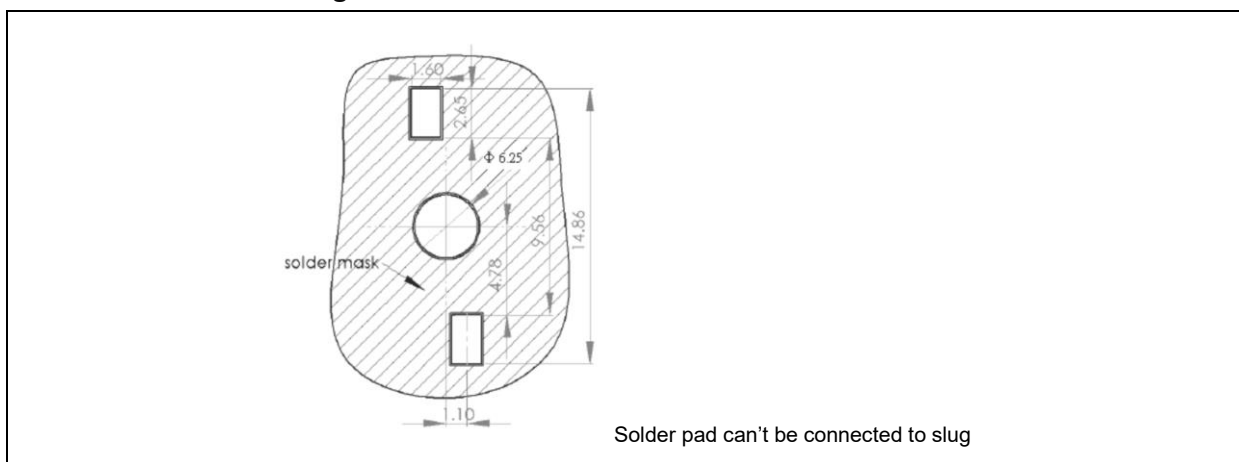
## OUTLINE DIMENSION:

### Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1$ 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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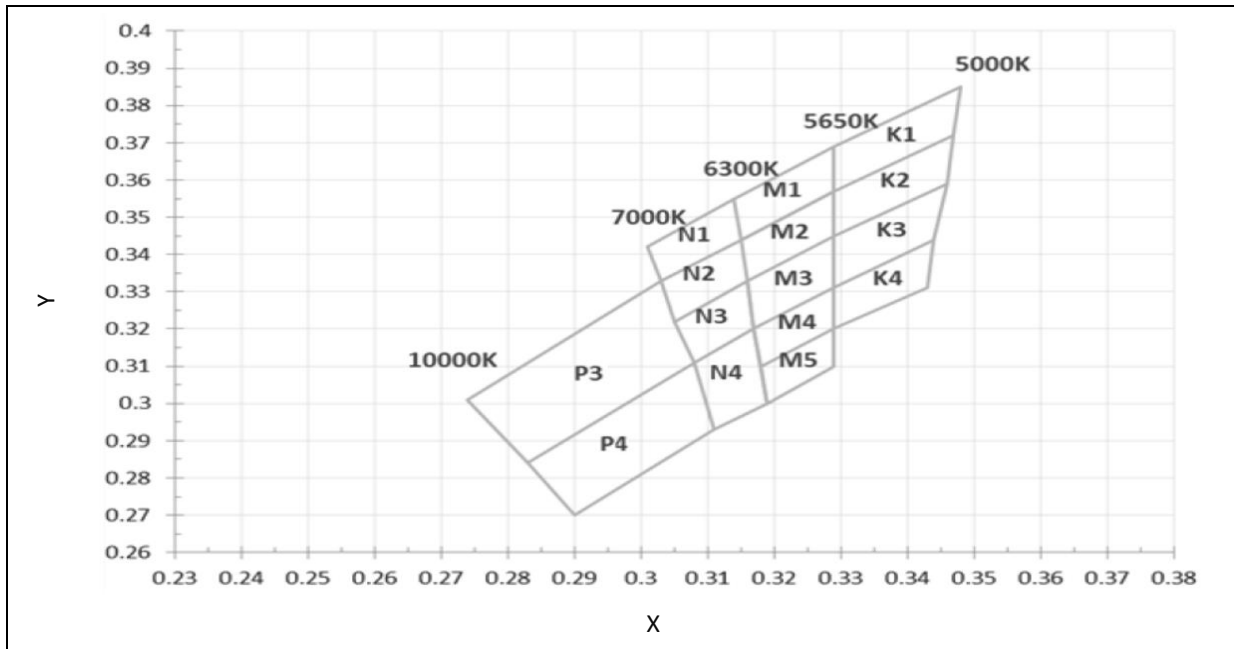
 Forward Voltage Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
1	2.8	2.9	V
2	2.9	3.0	
3	3.0	3.1	
4	3.1	3.2	
5	3.2	3.3	
6	3.3	3.4	
7	3.4	3.5	
8	3.5	3.6	

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

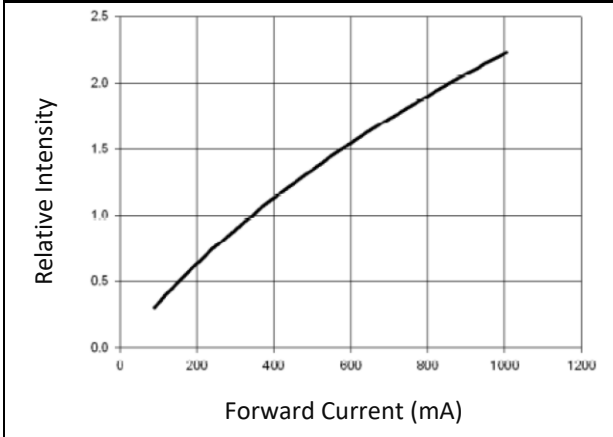
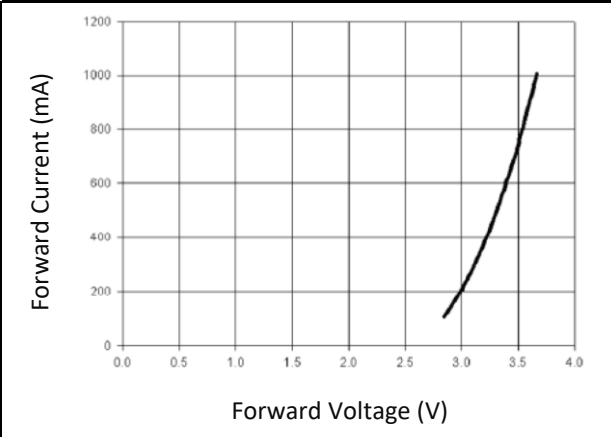
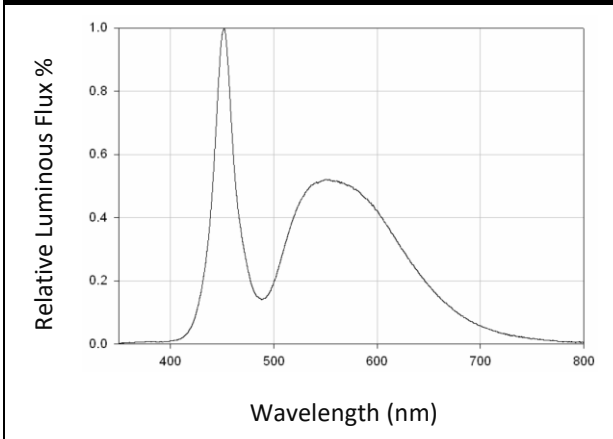
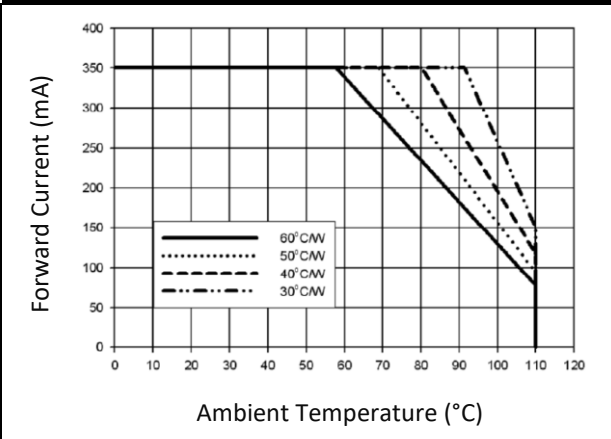
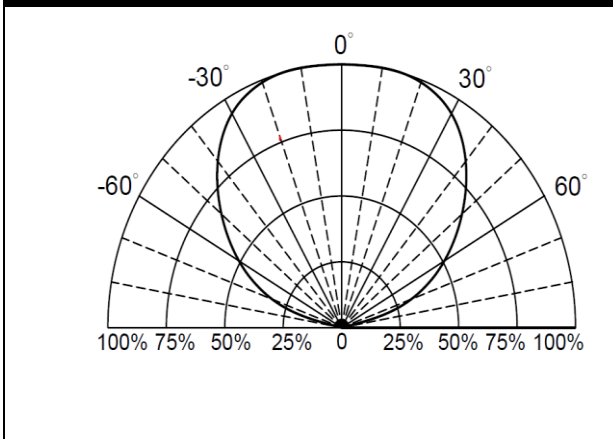
Code	Min.	Max.	Unit
31	80	90	lm
32	90	100	
33	100	110	
34	110	120	
35	120	130	
36	130	140	

## CIE CHROMATICITY DIAGRAM:



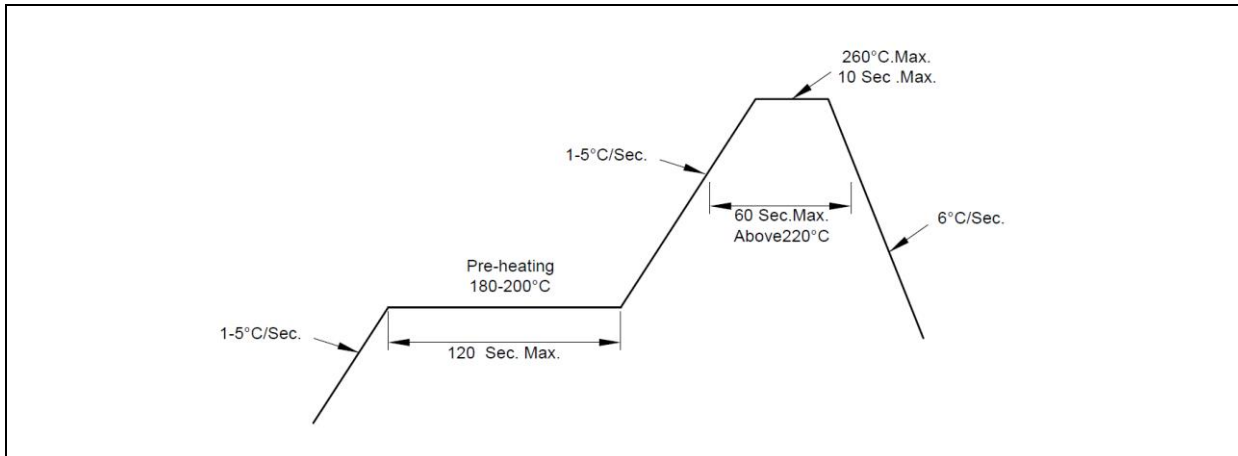
### Chromaticity Coordinates Classifications ( $I_F = 350\text{mA}$ ):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
P3	0.3080	0.3110	0.2830	0.2840	0.2740	0.3010	0.3030	0.3330
P4	0.3080	0.3110	0.3110	0.2930	0.2900	0.2700	0.2830	0.2840
N1	0.3030	0.3330	0.3010	0.3420	0.3140	0.3550	0.3150	0.3440
N2	0.3050	0.3220	0.3030	0.3330	0.3150	0.3440	0.3160	0.3330
N3	0.3080	0.3110	0.3050	0.3220	0.3160	0.3330	0.3170	0.3200
N4	0.3080	0.3110	0.3170	0.3200	0.3190	0.3000	0.3110	0.2930
M1	0.3140	0.3550	0.3290	0.3690	0.3290	0.3570	0.3150	0.3440
M2	0.3150	0.3440	0.3290	0.3570	0.3290	0.3450	0.3160	0.3330
M3	0.3290	0.3450	0.3290	0.3310	0.3170	0.3200	0.3160	0.3330
M4	0.3290	0.3310	0.3290	0.3200	0.3180	0.3100	0.3170	0.3200
M5	0.3290	0.3200	0.3290	0.3100	0.3190	0.3000	0.3180	0.3100
K1	0.3290	0.3570	0.3290	0.3690	0.3480	0.3850	0.3470	0.3720
K2	0.3290	0.3450	0.3290	0.3570	0.3470	0.3720	0.3460	0.3590
K3	0.3290	0.3310	0.3290	0.3450	0.3460	0.3590	0.3440	0.3440
K4	0.3290	0.3310	0.3440	0.3440	0.3430	0.3310	0.3290	0.3200

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

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

**Luminous Spectrum**

**Current Derating Curves**

**Directive Radiation**


## RECOMMENDED SOLDERING PROFILE:

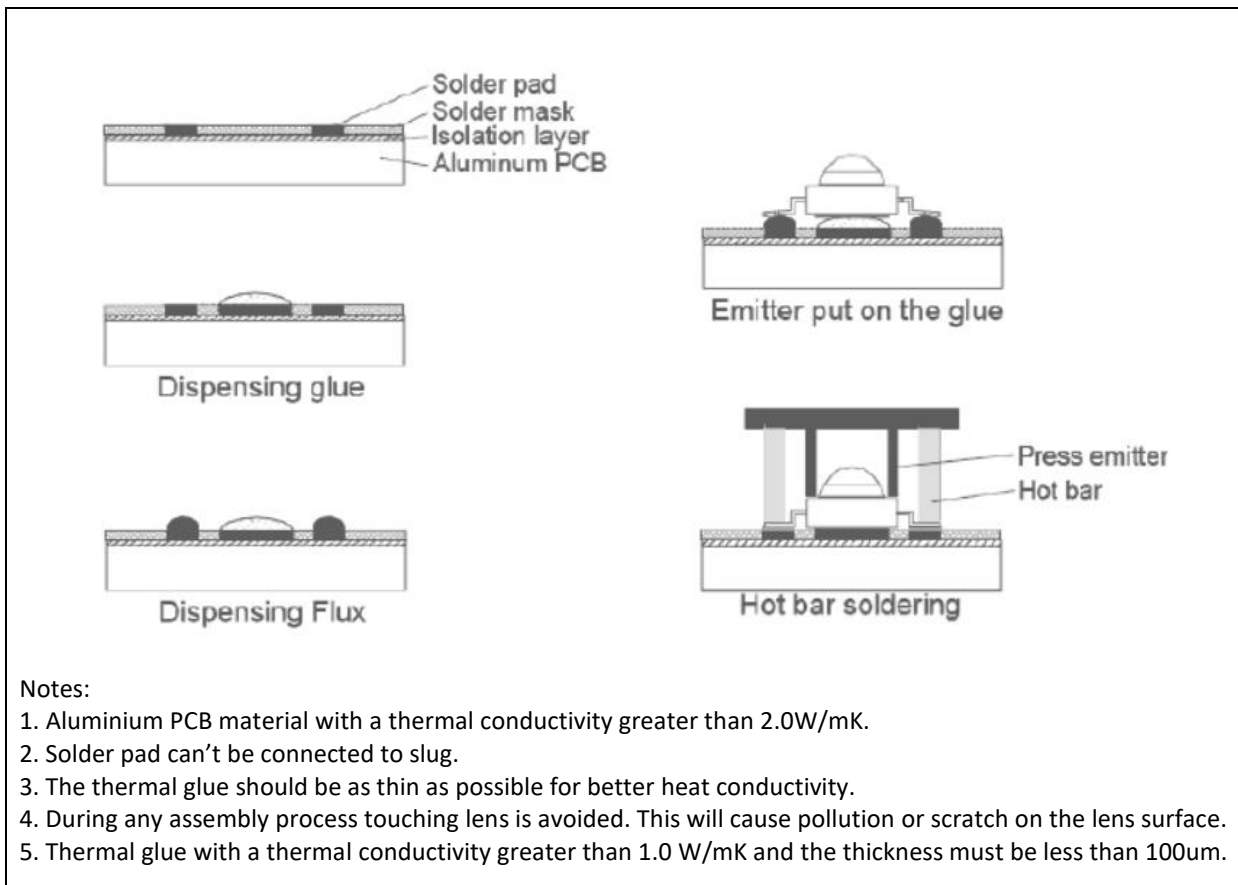
Lead-free Solder:



Note:

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

Lead-free Solder:



Notes:

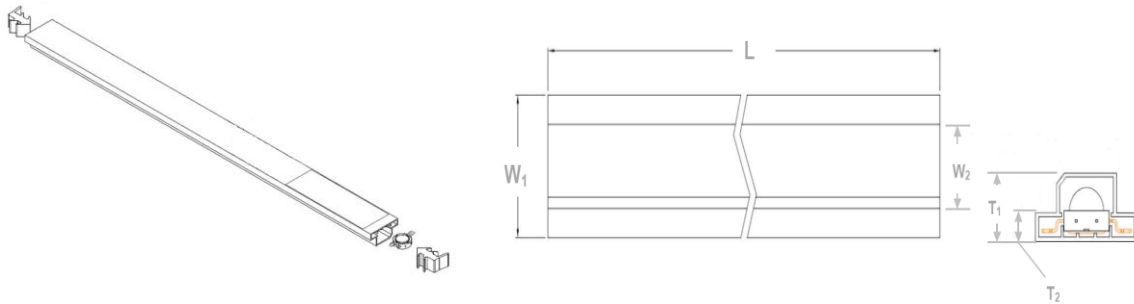
1. Aluminium PCB material with a thermal conductivity greater than 2.0W/mK.
2. Solder pad can't be connected to slug.
3. The thermal glue should be as thin as possible for better heat conductivity.
4. During any assembly process touching lens is avoided. This will cause pollution or scratch on the lens surface.
5. Thermal glue with a thermal conductivity greater than 1.0 W/mK and the thickness must be less than 100um.

**PACKING SPECIFICATION:**

Tube Dimension:

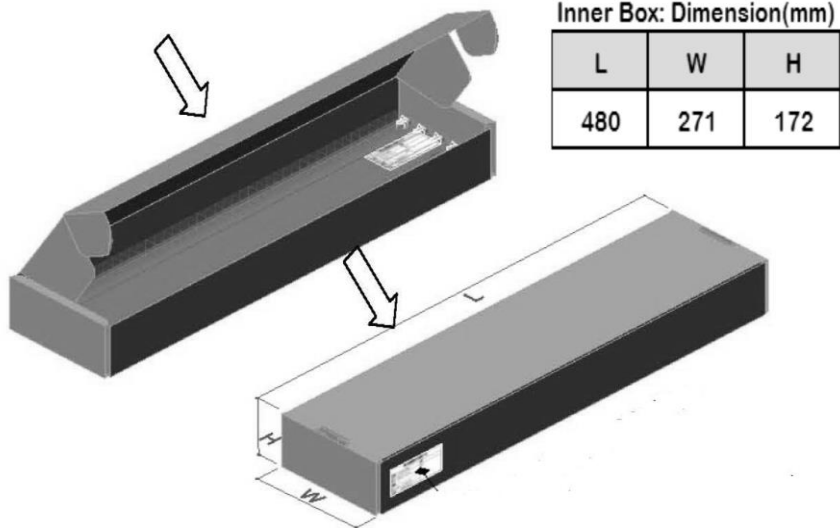
**N0W06S19**

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

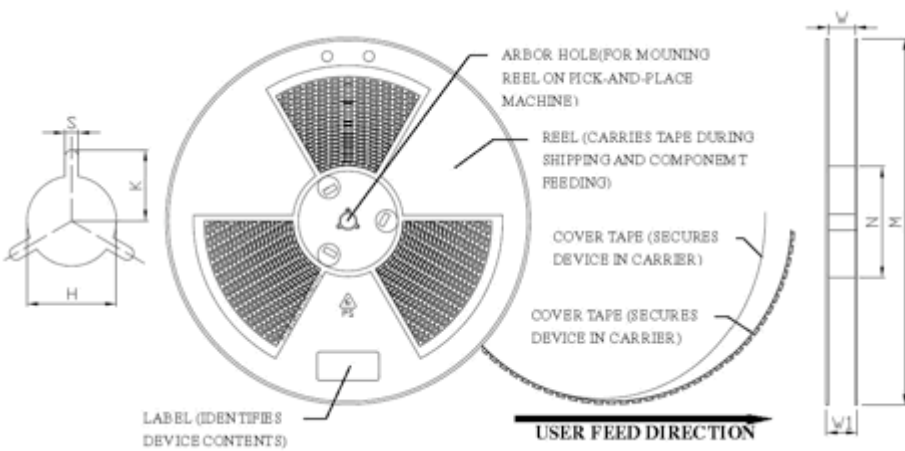


**PACKING SPECIFICATION:**

Reel Dimension:

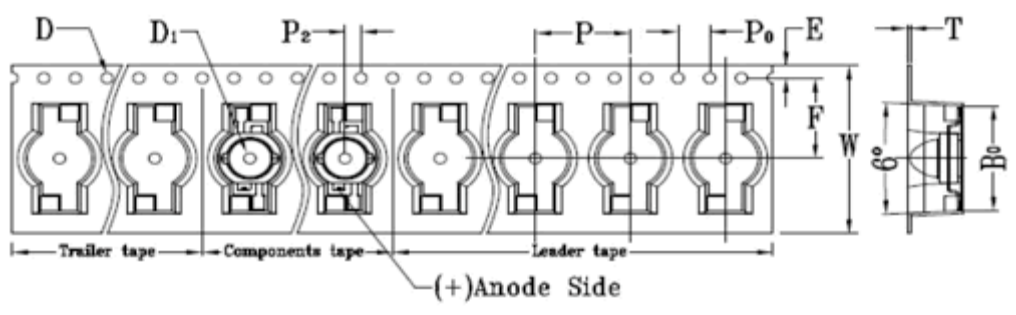
**N0W06S19RL**

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.

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-electrosatic 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	10/04/2014	Datasheet set-up.
A1.1	27/05/2014	Add reel packing information.
A1.2	19/12/2017	Revise bin range name.