BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

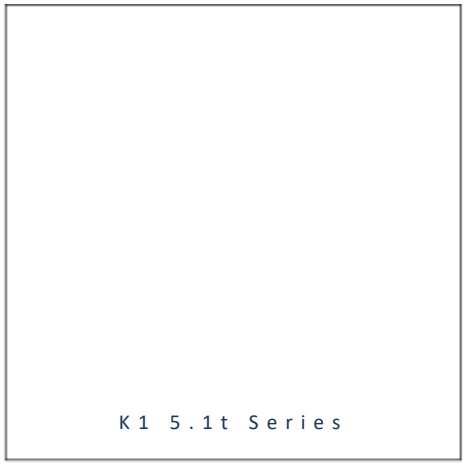
Brighten Up The World With LED!

PRODUCT DATASHEET

- ► PLCC2
- ► K1 5.1t Series
- ► Royal Blue (450-460nm)

Release Date: 10 January 2019 Version: A1.0

N0B48S07 (Tube)
N0B48S07RL (Reel)



K1 5.1t Series

RoHS Compliant

FEATURES:

- **Package:** PLCC Top View SMT Package
- **Forward Current:** 350mA
- **Forward Voltage (typ.):** 3.3V
- **Radiant Power (typ.):** 500mW@350mA
- **Colour:** Royal Blue
- **Wavelength:** 450-460nm
- **Viewing angle:** 150°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -30~+100°C
- **Storage Temperature:** -40~+120°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous flux
  - Dominant Wavelength
- **Soldering methods:** Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 2000pcs/carton (40 tubes); 50pcs/tube
  24mm tape with Max.1000pcs/reel, ø330mm (13'')

APPLICATIONS:

- Commercial Lighting
- Architectural Lighting
- Flash Lighting
- Decorative Lighting

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	120	°C
Temperature Coefficient of VF	$\Delta V_F/\Delta T_j$	-2	mV/°C
Thermal Resistance Junction to Lead	$T_{juction-lead}$	10	°C/W

1. Not suitable to be driven in reverse bias.

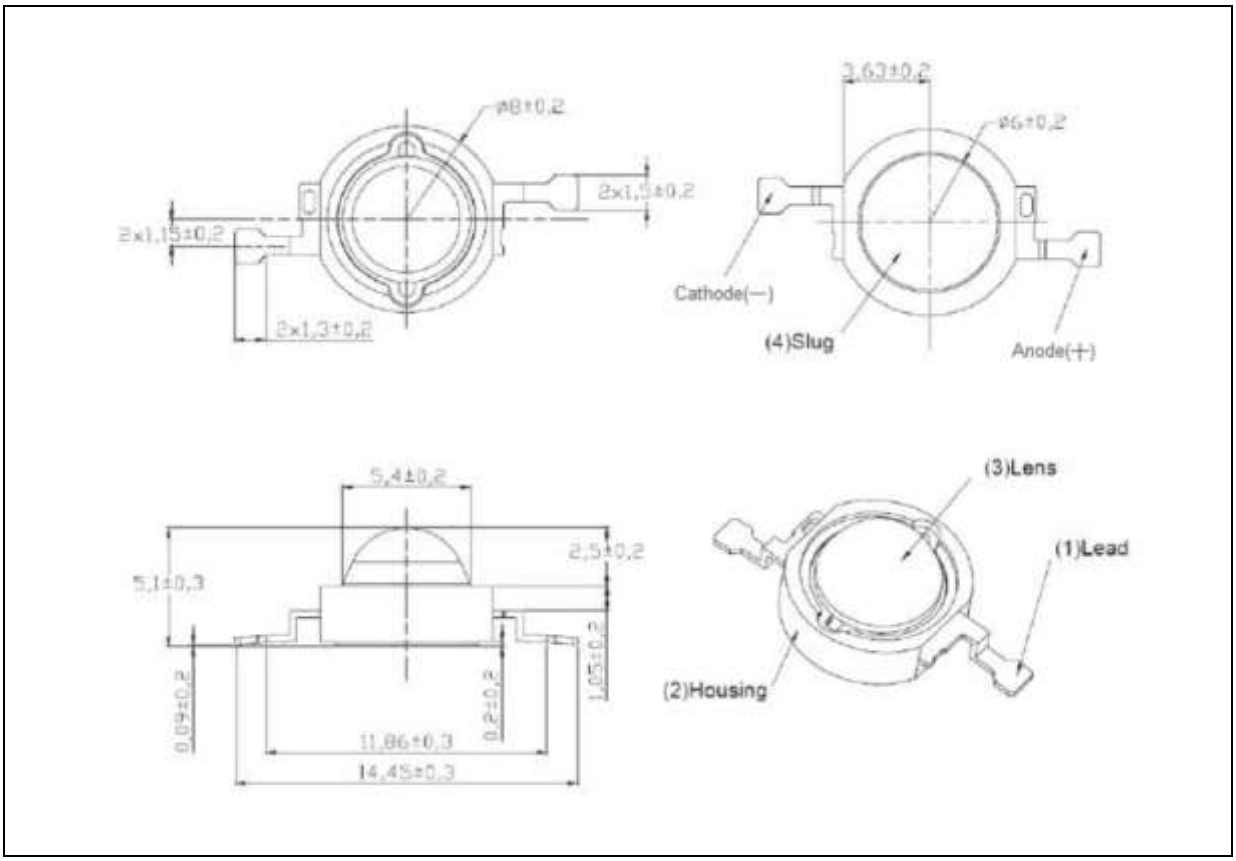
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.9	3.3	3.6	V	I_F=350mA
Radiant Power	Po	400	500	---	mW	I_F=350mA
Dominant Wavelength	λ_d	450	---	460	nm	I_F=350mA
Viewing Angle	$2\theta_{1/2}$	---	150	---	deg	I_F=350mA

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

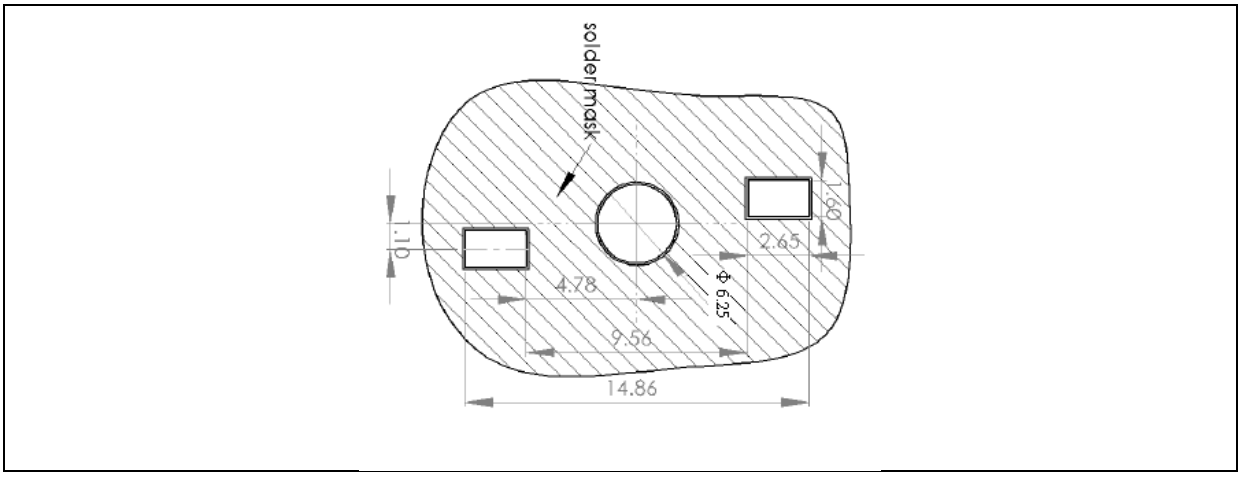
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

BINNING GROUPS:

Forward Voltage Classifications (I_F = 350mA):

Code	Min.	Max.	Unit
V	2.9	3.6	V

Radiant Power Classifications (I_F = 350mA):

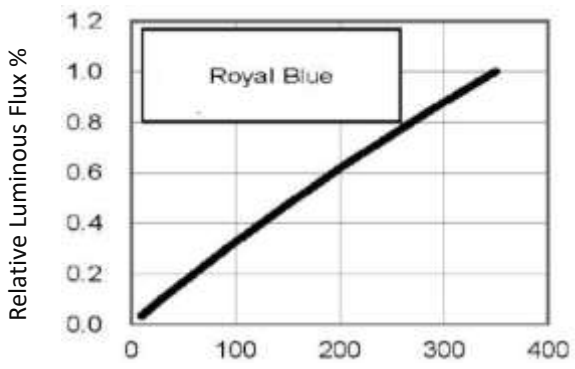
Code	Min.	Max.	Unit
PO	400	750	mW

Dominant Wavelength Classifications (I_F = 350mA):

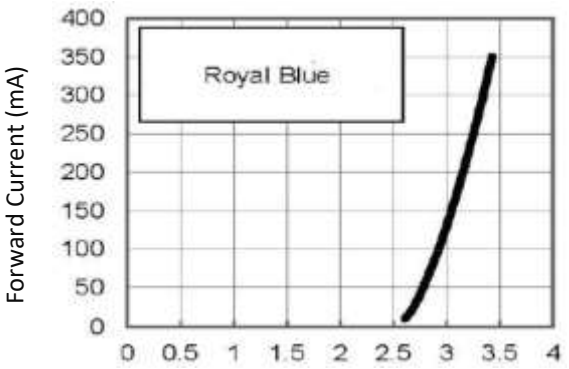
Code	Min.	Max.	Unit
WL	450	460	nm

ELECTRO-OPTICAL CHARACTERISTICS:

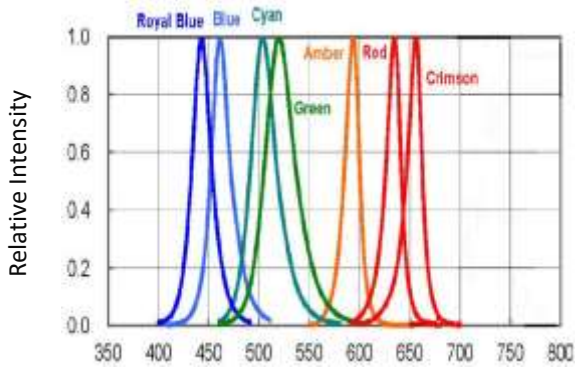
Relative Luminous Flux v.s. Forward Current



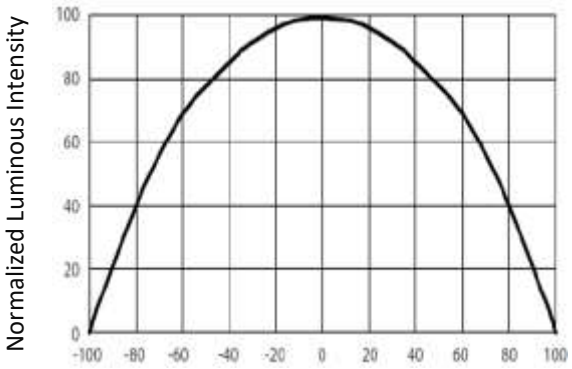
Forward Current v.s. Forward Voltage



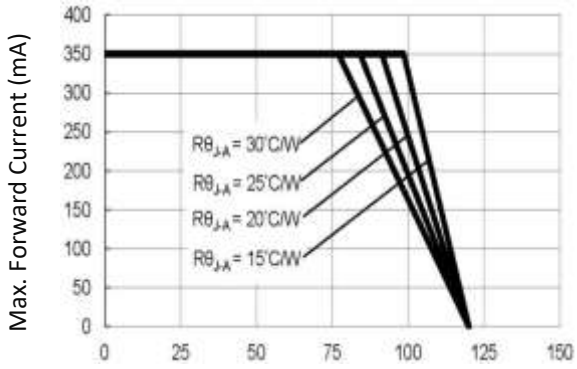
Relative Intensity v.s. Wavelength



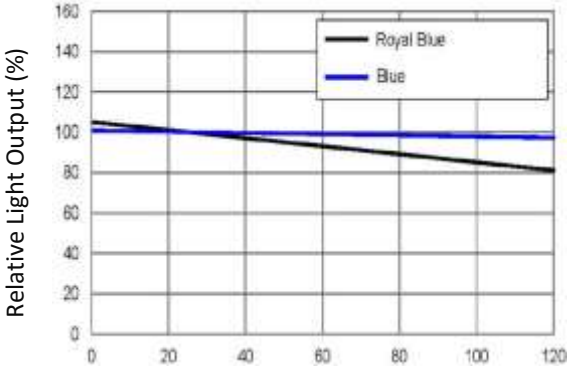
Directive Radiation



Ambient Temperature v.s. Max. Forward Current

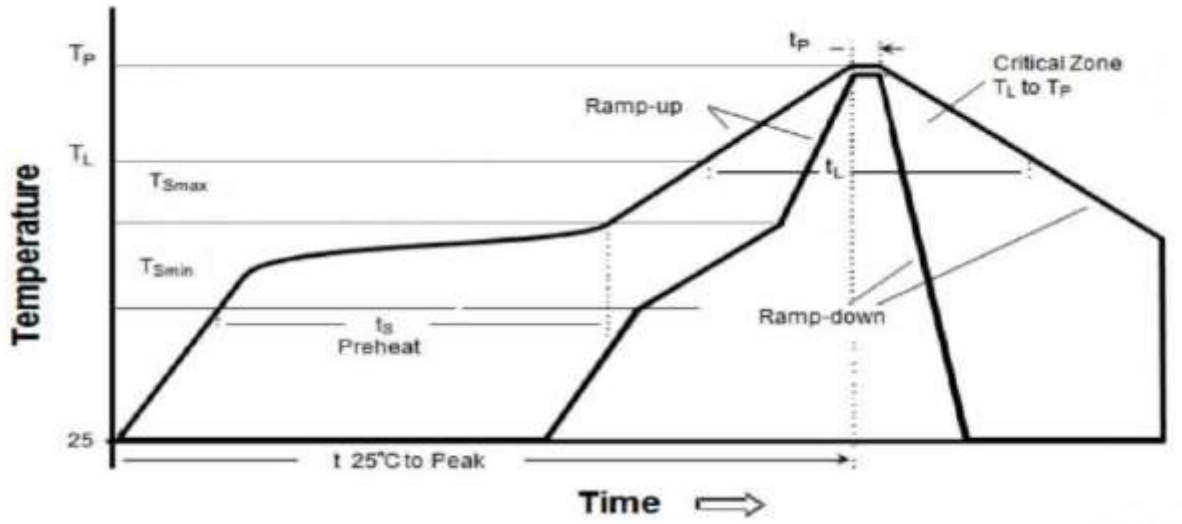


Directive Radiation



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



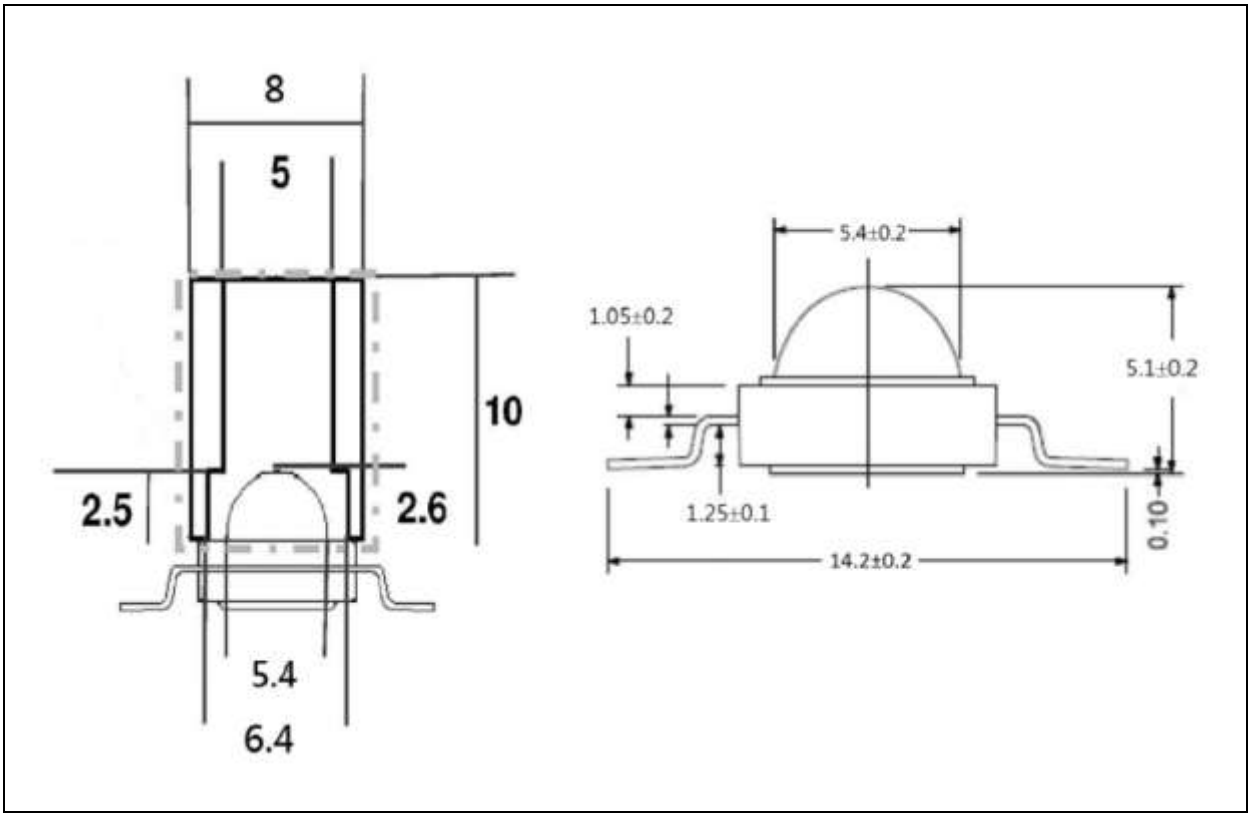
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate (T_{Smax} to T_P)	3℃ / second max.	3℃ / second max.
Preheat – Temperature Min (T_{Smin}) – Temperature Max (T_{Smax}) – Time (t_{Smin} to t_{Smax})	 100℃ 150℃ 60-120 seconds	 150℃ 200℃ 60-180 seconds
Time maintained above: – Temperature (T_L) – Time (t_L)	 183℃ 60-150 seconds	 190℃ 60-150 seconds
Peak/Classification Temperature (T_P)	230℃	250℃
Time Within 5℃ of Actual Peak Temperature (t_P)	5 seconds	5 seconds
Ramp-Down Rate	6℃/second max.	6℃/second max.
Time 25℃ to Peak Temperature	6 minutes max.	8 minutes max.

Note:

1. Maximum reflow soldering: 3 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

RECOMMENDED NOZZLE FOR SMT:

Recommended Pick & Place Nozzle:



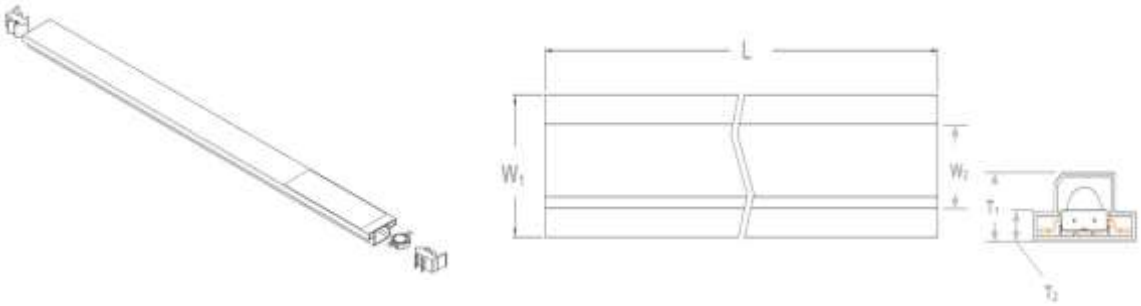
1. All dimensions are in millimetre (mm).
2. Tolerance ±0.1mm, unless otherwise noted.

PACKING SPECIFICATION:

Tube Dimension:

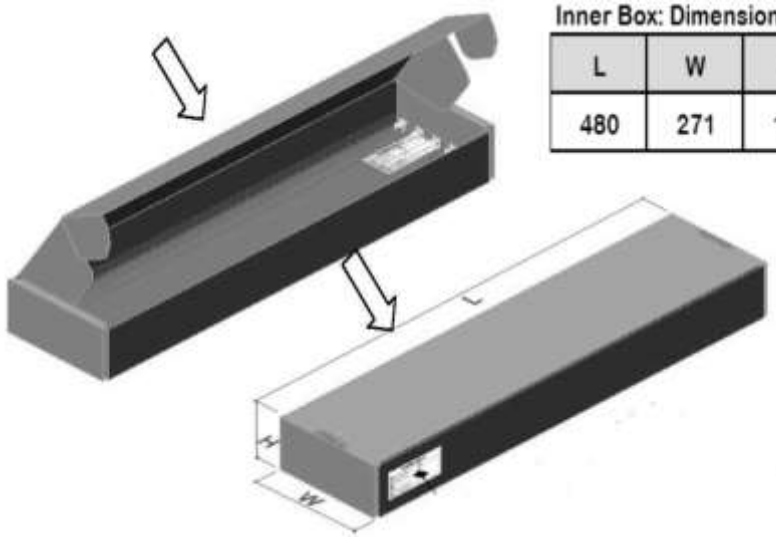
N0B48S07

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



Unit(mm)

W_1	W_2	T_1	T_2	L
16.5	9.7	7.9	3.3	420



Inner Box: Dimension(mm)

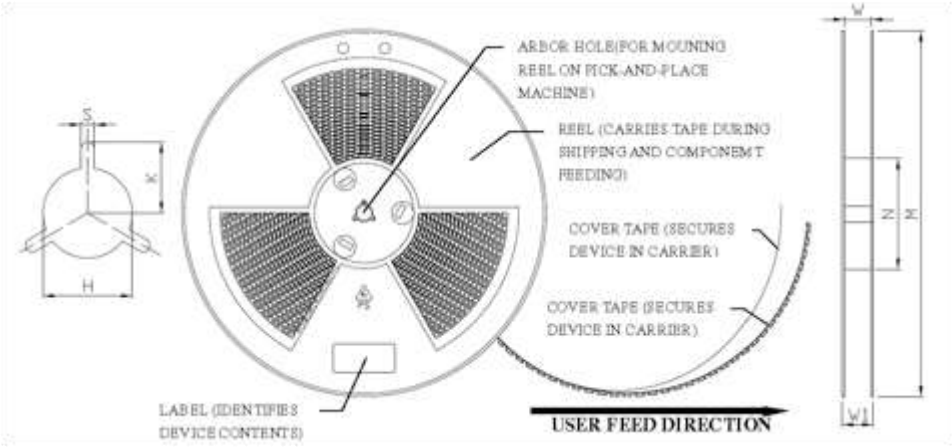
L	W	H
480	271	172

PACKING SPECIFICATION:

Reel Dimension:

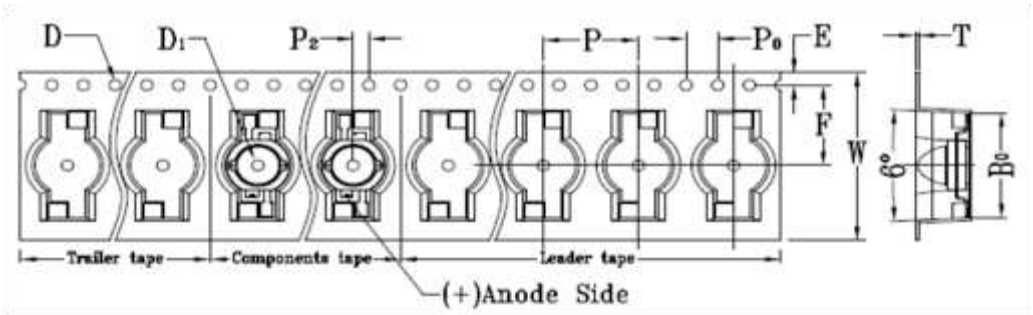
N0B48S07RL

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_2	D	D_1	P_0	A_0	B_0	K_0	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:

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 months 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 descanting agent and apply baking at 60°C±5°C for 15hrs before use.

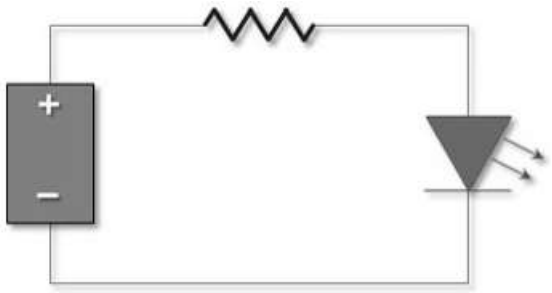
Baking:

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:

- 60±3°C x 12hrs 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 handing 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:

Version	Date	Summary of Revision
A1.0	10/01/2019	Datasheet set-up.