BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

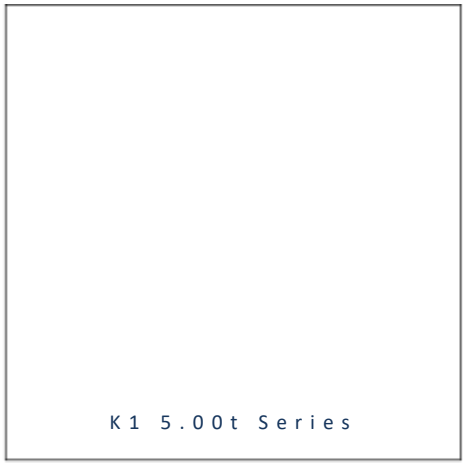
Brighten Up The World With LED!

PRODUCT DATASHEET

- ► PLCC2 Top View
- ► K1 5.00t Series
- ► Deep Red (650-670nm)

Release Date: 11 July 2025 Version: A1.0

N0R70S96 (Tube)
N0R70S96RL (Reel)



K1 5.00t Series

RoHS Compliant

FEATURES:

- **Package:** PLCC SMT Top View Package
- **Forward Current:** 700mA
- **Forward Voltage (typ.):** 2.5V
- **Radiant Power (typ.):** 700mW@700mA
- **Colour:** Deep Red
- **Peak Wavelength:** 650-670nm
- **Viewing Angle:** 130°
- **Materials:**
  - Die: AlGaInP
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -30~+100°C
- **Storage Temperature:** -40~+120°C
- **Grouping Parameters:**
  - Forward voltage
  - Radiant power
  - Peak wavelength
- **Soldering Methods:** Reflow soldering
- **MSL Level:** 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 (T_a=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	700	mA
Peak Forward Current	I_{FP}	900	mA
Operating Temperature	T_{OPR}	-30~+100	°C
Storage Temperature	T_{STG}	-40~+120	°C
Junction Temperature	T_j	120	°C
Soldering Temperature	T_{sol}	Max.250 for 5sec	°C
Temperature Coefficient of VF	$\Delta V_F/\Delta T_j$	-2	mV/°C
Thermal Resistance Junction to Lead	$T_{juction\text{-}lead}$	10	°C/W

1. Not suitable to be driven in reverse bias.

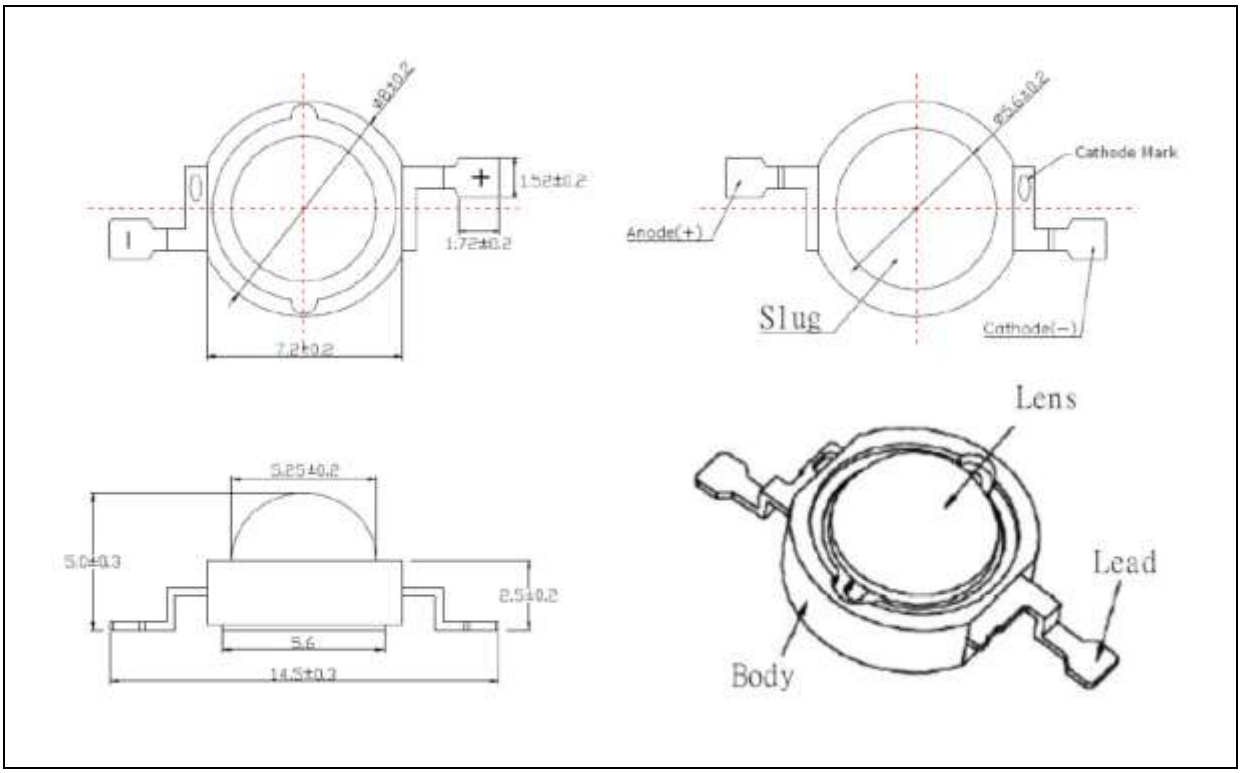
Electrical & Optical Characteristics (T_a=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.0	2.2	2.8	V	I_F=700mA
Radiant Power	P_o	550	700	---	mW	I_F=700mA
Peak Wavelength	λ_P	650	---	670	nm	I_F=700mA
Viewing Angle	$2\theta_{1/2}$	---	130	---	deg	I_F=700mA

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

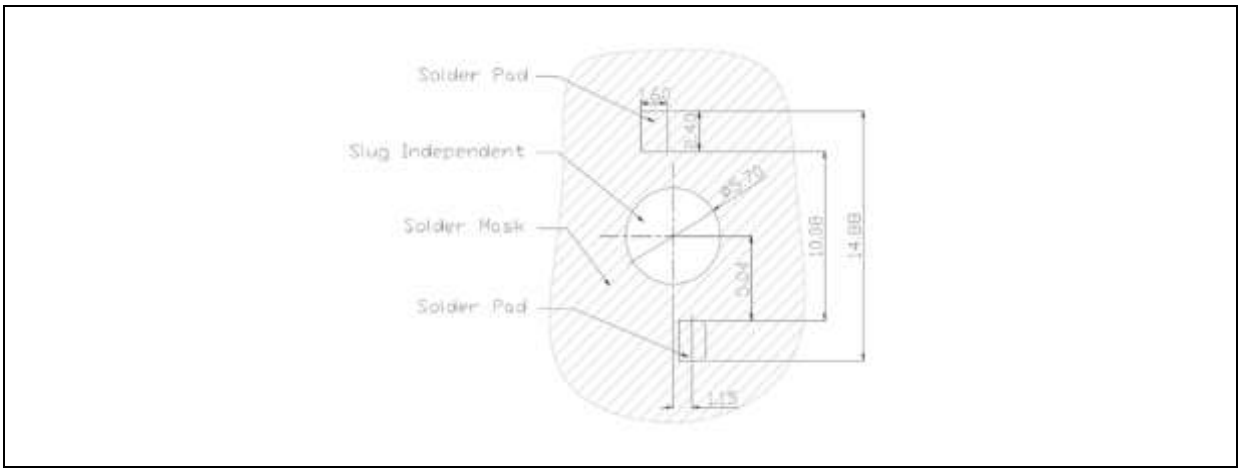
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.
3. It is important that the slug does not contact the aluminium surface, it is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the surface.
4. It is strongly recommended that the temperature of lead be not higher than 70°C.

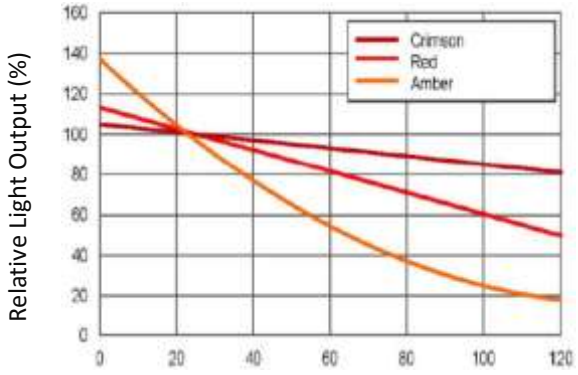
Recommended Soldering Pad Dimension:



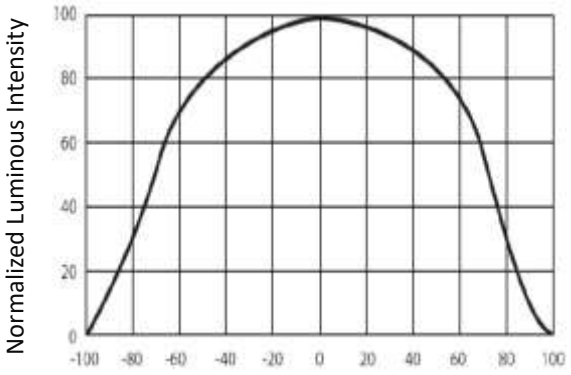
1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

ELECTRO-OPTICAL CHARACTERISTICS:

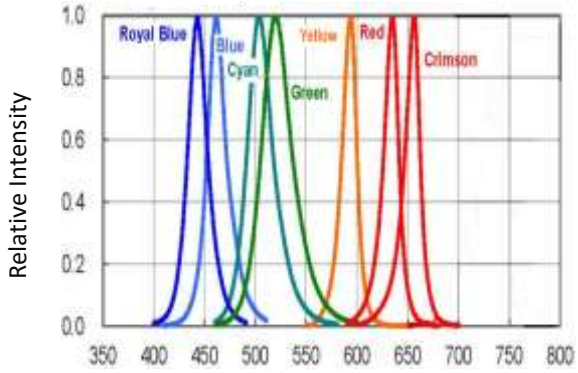
Relative Intensity v.s. Junction Temperature



Directive Radiation

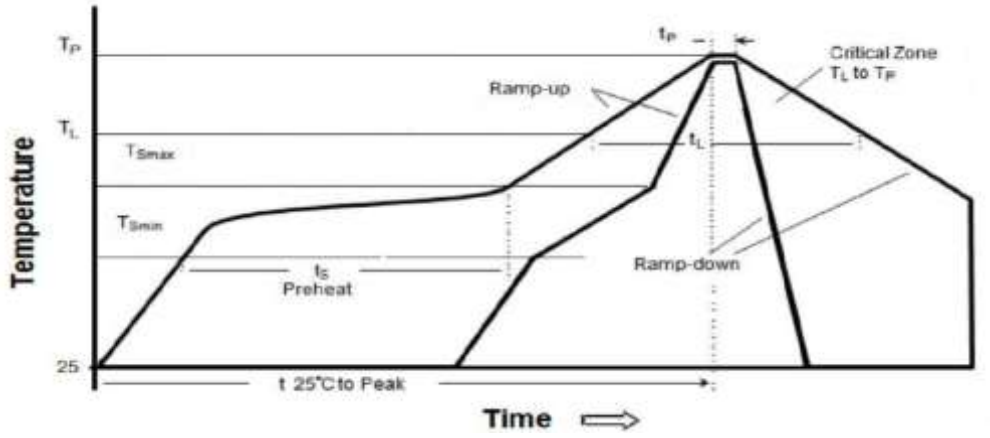


Relative Intensity v.s. Wavelength



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



Profile Feature	Typical parameters
Average Ramp-Up Rate (T_{Smax} to T_P)	3℃ / second max.
Preheat – Temperature Min (T_{Smin}) – Temperature Max (T_{Smax}) – Time (t_{Smin} to t_{Smax})	 100℃ 150℃ 60-120 seconds
Time maintained above: – Temperature (T_L) – Time (t_L)	 183℃ 60-150 seconds
Peak/Classification Temperature (T_P)	220℃
Time Within 5℃ of Actual Peak Temperature (t_P)	5 seconds
Ramp-Down Rate	3℃/second max.
Time 25℃ to Peak Temperature	6 minutes max.

Note:

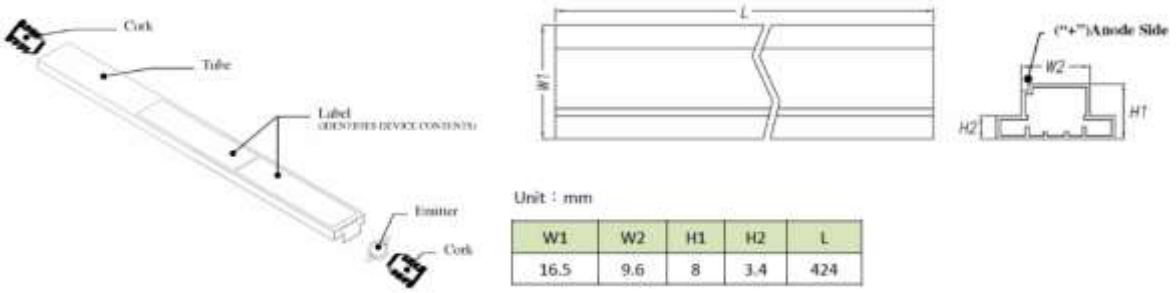
1. Maximum reflow soldering: 3 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.
3. All temperatures refer to the top side of the package, measured on the package surface.
4. Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
5. After soldering, do not wipe the circuit board.

PACKING SPECIFICATION:

Tube Dimension:

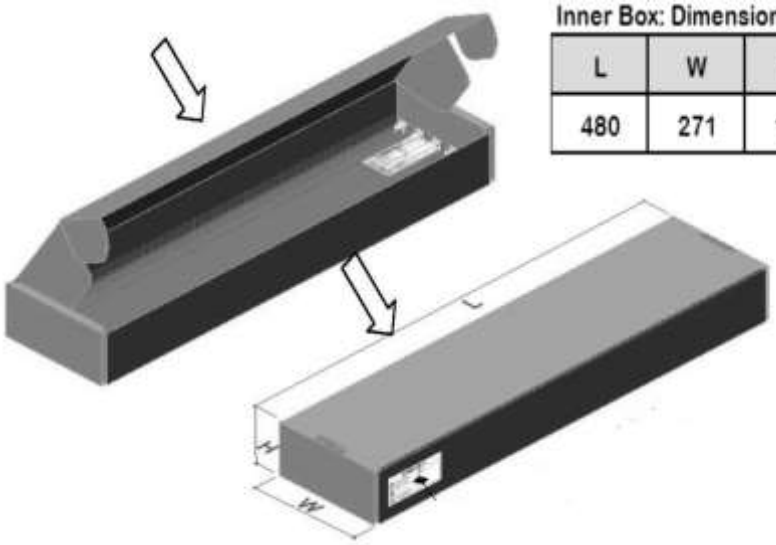
N0R70S96

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



Unit：mm

W1	W2	H1	H2	L
16.5	9.6	8	3.4	424



Inner Box: Dimension(mm)

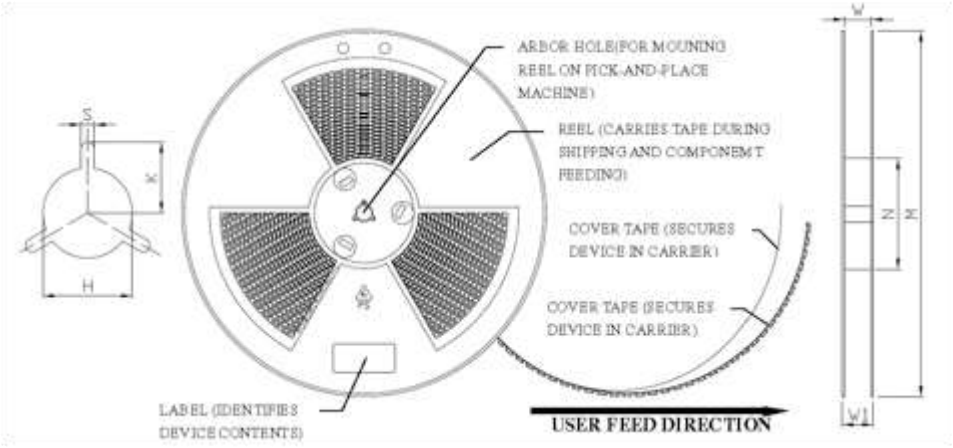
L	W	H
480	271	172

PACKING SPECIFICATION:

Reel Dimension:

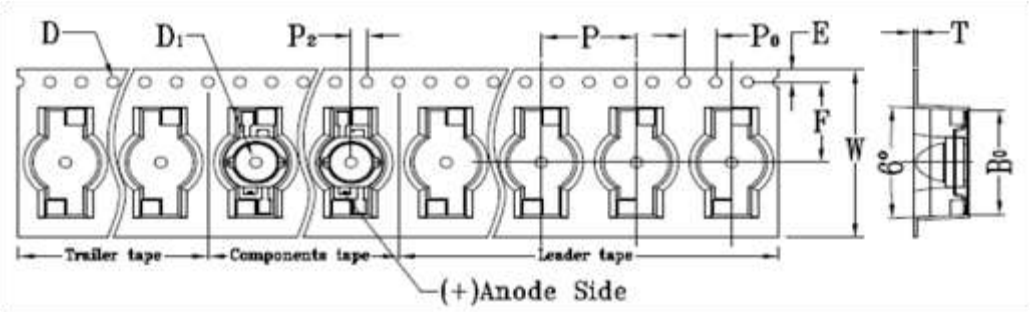
N0R70S96RL

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 <10% R.H. and apply baking before use.

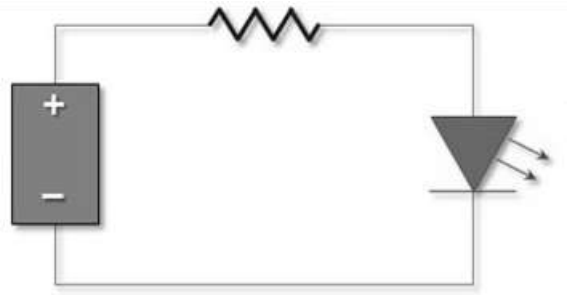
Baking:

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±5°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):

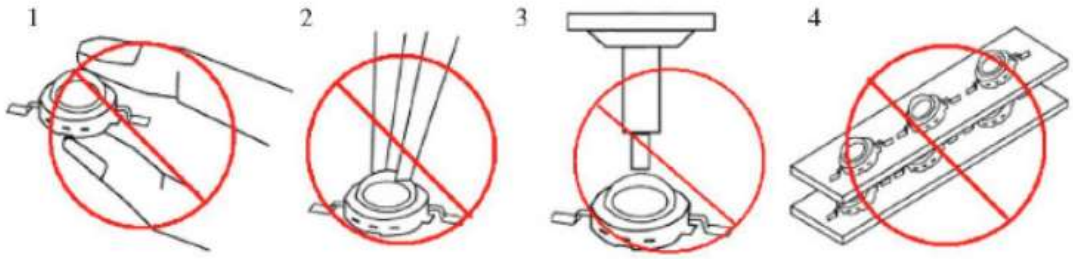
Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

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

PRECAUTIONS OF USE:

Handling:

1. Avoid directly touching the colloid surface and squeeze.
2. Use tweezers to pick up the external sides of the housing part carefully. Do not grab, puncture or push the emitting region. Over stress on the lens may cause the damage of the component and raise the risk to break the wire inside the package.
3. In order to avoid absorption of moisture, it is recommended that the products are stored in the dry box (or desiccators) with desiccants. Alternatively, the following environment is recommended:
   Storage temperature: 5°C~30°C
   Humidity: 60% HR max.
4. If the storage conditions are of high humidity the product should be dried before use.
   Recommended Drying conditions: 12 hours at 60°C±5°C
5. Any mechanical force or any excess vibration should be avoided during the cooling process after soldering.
6. Reflow rapidly cooling should be avoided.
7. Components should not be mounted on distorted printed circuit boards.
8. Devices should not contact with any types of fluid, such as water, oil, organic solvents…. etc.
9. The maximum ambient temperature should be taken into consideration when determining the operating current.



REVISION RECORD:

Version	Date	Summary of Revision
A1.0	11/07/2025	Datasheet set-up.