BRIGHTEK

BRIGHTEK (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
- ▶ Blue (460-470nm)

Release Date: 27 May 2019 Version: A1.2

N0B06S20 (Tube)
N0B06S20RL (Reel)

K1 Series

K1 Series

RoHS Compliant

FEATURES:

- **Package:** PLCC White SMT Package
- **Forward Current:** 350mA
- **Forward Voltage (typ.):** 3.2V
- **Luminous Flux (typ.):** 40lm@350mA
- **Colour:** Blue
- **Wavelength:** 460-470nm
- **Viewing angle:** 155°
- **Materials:**
  - Die: InGaN
  - 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	$T_{juction\text{-}lead}$	12	°C/W

1. Not suitable to be driven in reverse bias.

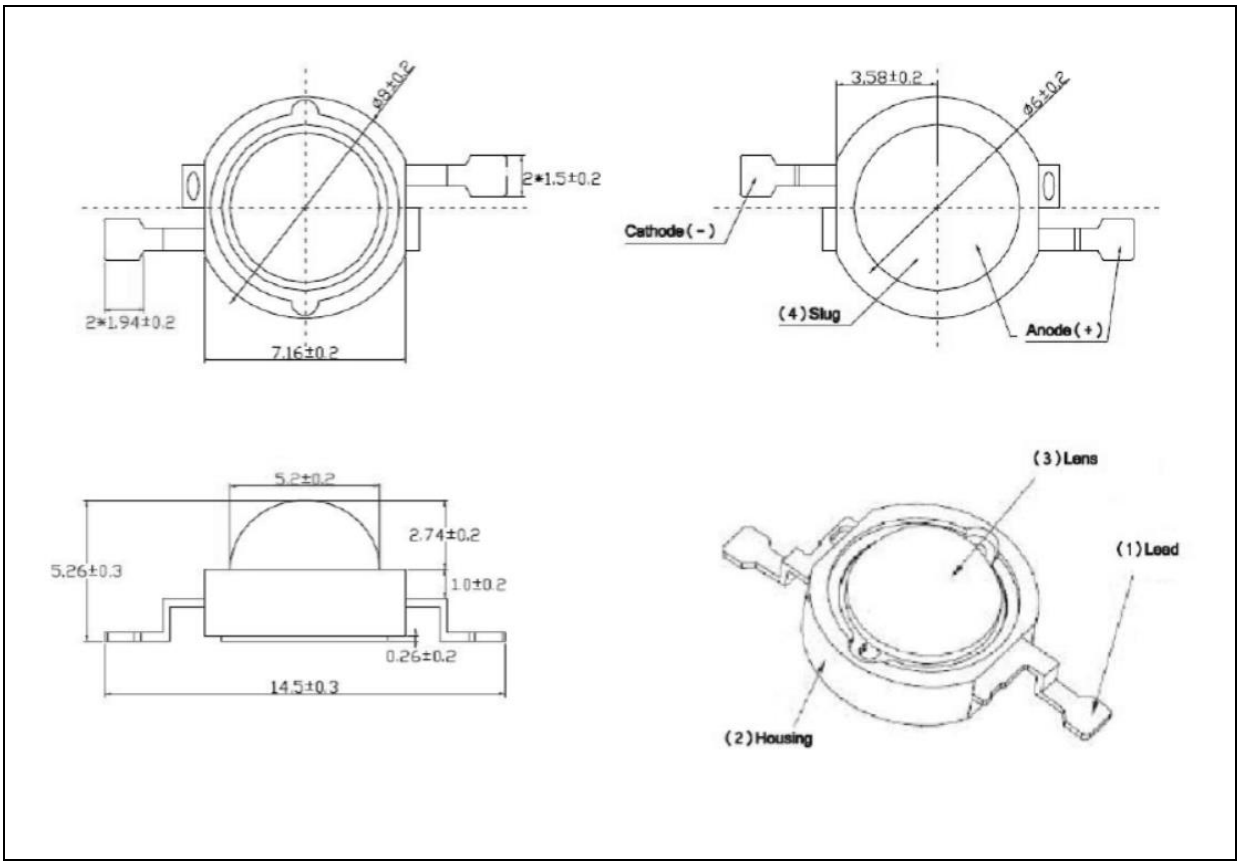
Electrical & Optical Characteristics (Ta=25°C)

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	Φ_V	18	40	---	lm	I_F=350mA
Dominant Wavelength	λ_d	460	---	470	nm	I_F=350mA
Viewing Angle	$2\theta_{1/2}$	---	155	---	deg	I_F=350mA

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

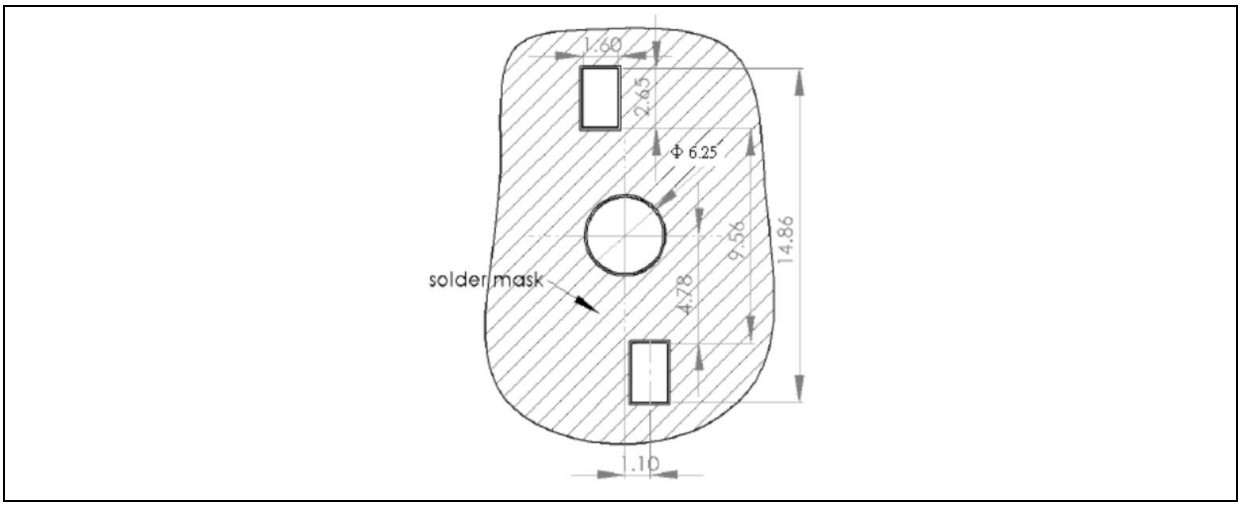
OUTLINE DIMENSION:

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
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 = 350mA):

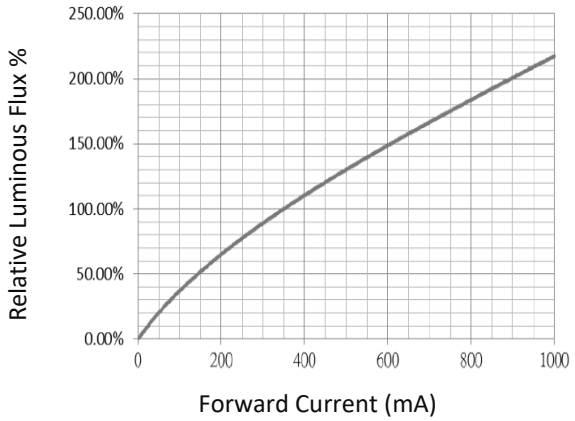
Code	Min.	Max.	Unit
12	15	20	lm
13	20	25	
14	25	30	
15	30	35	
16	35	40	
17	40	45	
18	45	50	
19	50	55	

Wavelength Classifications (I_F = 350mA):

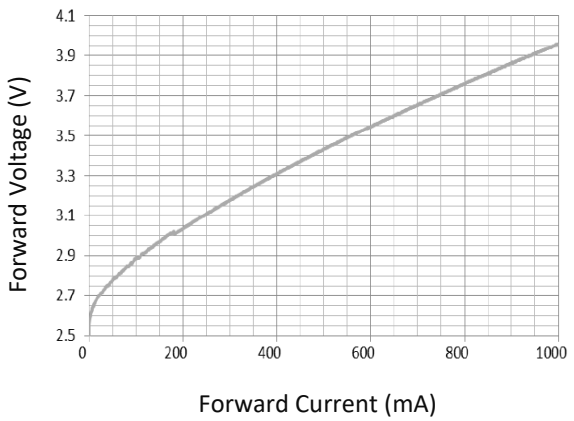
Code	Min.	Max.	Unit
B1	460	465	nm
B2	465	470	

ELECTRO-OPTICAL CHARACTERISTICS:

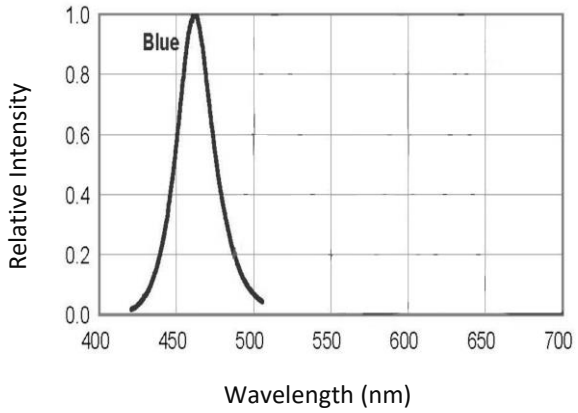
Relative Luminous Flux v.s. Forward Current



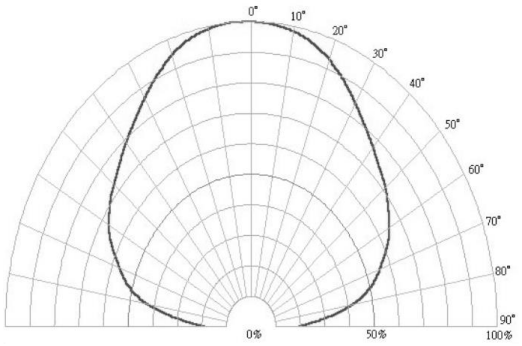
Forward Current v.s. Forward Voltage



Relative Intensity v.s. Wavelength

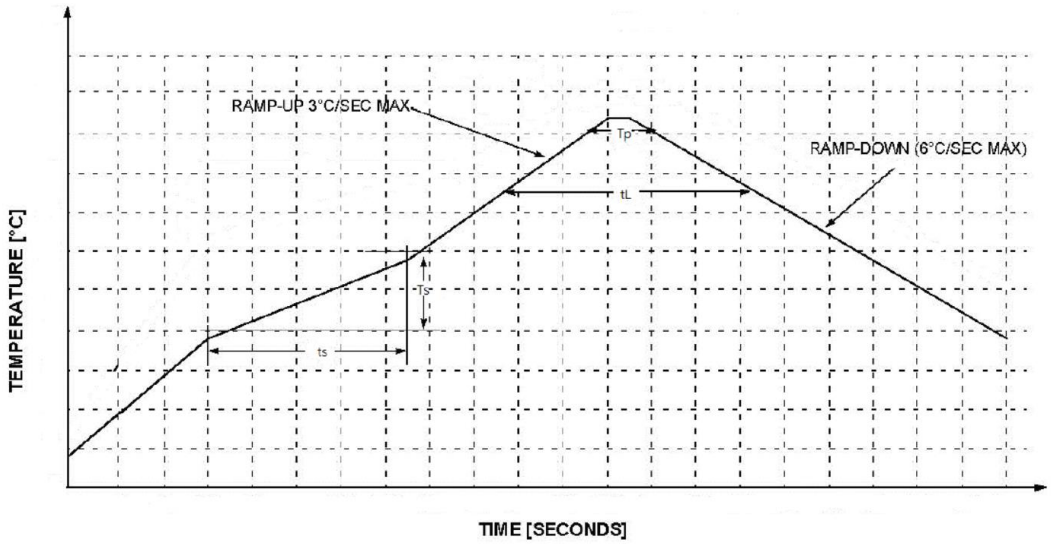


Directive Radiation



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



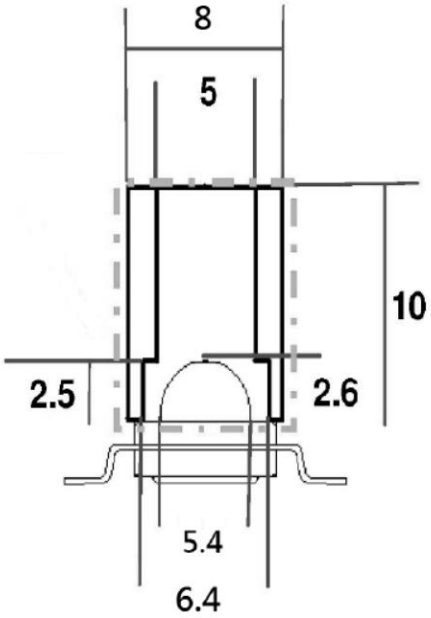
Symbol	Min.	Max.	Units
Ts	100	150	°C
ts	60	120	Sec
tl	60	150	Sec
Tp	225	250	°C

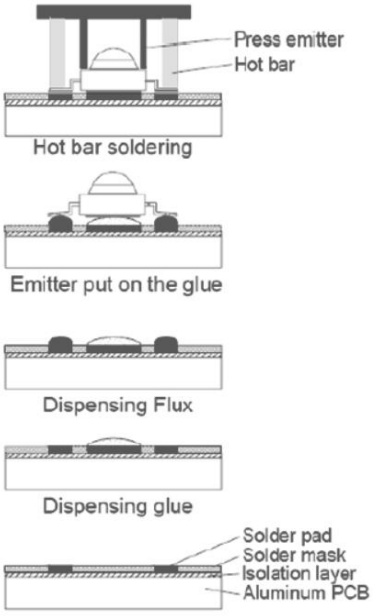
Note:

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

RECOMMENDED NOZZLE SETTING:

Nozzle Size:





Notes:

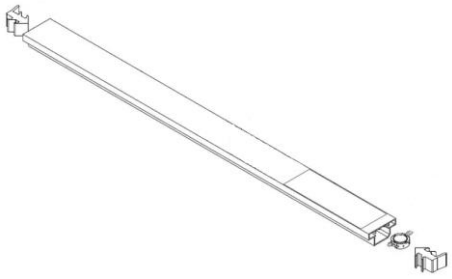
1. Aluminum PCB material with a thermal conductivity greater than 2.0 W/mK.
2. Solder pad can't be connected to slug.
3. The thermal glue should be as thin as possible for better heat conductivity.
4. During any assembly process touching lens is avoided. This will cause pollution or scratch on the surface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

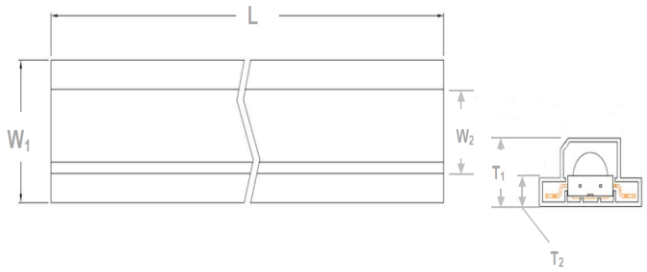
PACKING SPECIFICATION:

Tube Dimension:

N0B06S20

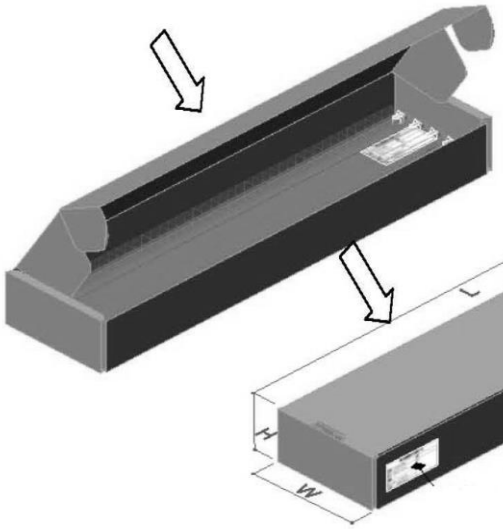
2000pcs/carton (40 tubes); 50pcs/tube





Unit(mm)

W_1	W_2	T_1	T_2	L
16.5	9.7	7.9	3.3	420



Inner Box: Dimension(mm)

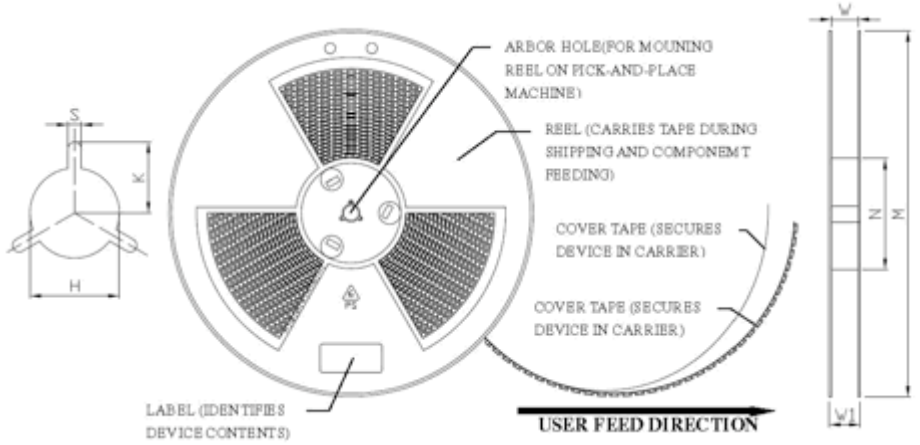
L	W	H
480	271	172

PACKING SPECIFICATION:

Reel Dimension:

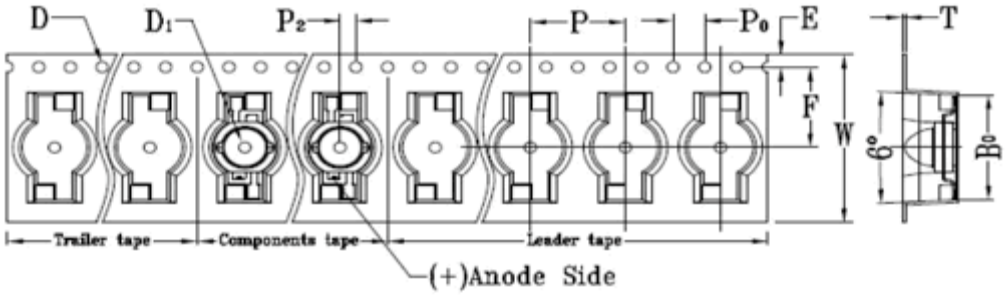
N0B06S20RL

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.

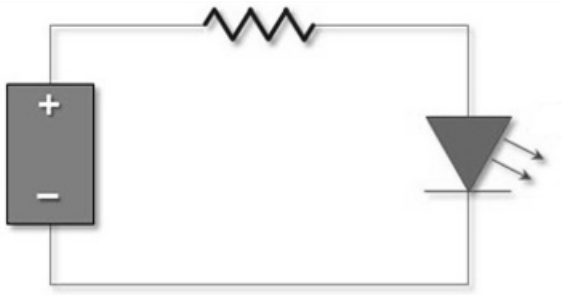
Baking:

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	14/04/2014	Datasheet set-up.
A1.1	27/05/2014	Add reel packing information.
A1.2	27/05/2019	Revise bin table.