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
- 3020 Series
- Yellow (590nm)

Release Date: 28 February 2014 Version: A1.0

N0Y07S03

3020 Series

3020 Series

RoHS Compliant

FEATURES:

- **Package:** PLCC White SMT Package
- **Forward Current:** 60mA
- **Forward Voltage (typ.):** 2.2V
- **Luminous Flux (typ.):** 1600mcd @60mA
- **Colour:** Yellow
- **Wavelength:** 590nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: AlGaInP
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD:** 2000V
- **Grouping parameters:**
  - Forward voltage
  - Luminous flux
  - Wavelength
- **Soldering methods:** IR Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with 2000/reel, ø180mm (7'')

APPLICATIONS:

- Backlighting
- Indicator
- Switch Lighting
- Decoration Lighting
- Light Bar

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CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	60	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	120	mA
Reverse Current @5V	I_R	10	μA
Power Dissipation	PD	156	mW
Electrostatic Discharge	ESD	2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.6	---	2.6	V	I_F=60mA
Luminous Intensity	I_V	1000	1600	2550	mcd	I_F=60mA
Dominant Wavelength	λ_D	587	590	598	nm	I_F=60mA
Spectral Line Half Bandwidth	$\Delta\lambda$	---	20	---	nm	I_F=60mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=60mA

1. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±5%, CRI ±3
2. IS standard testing

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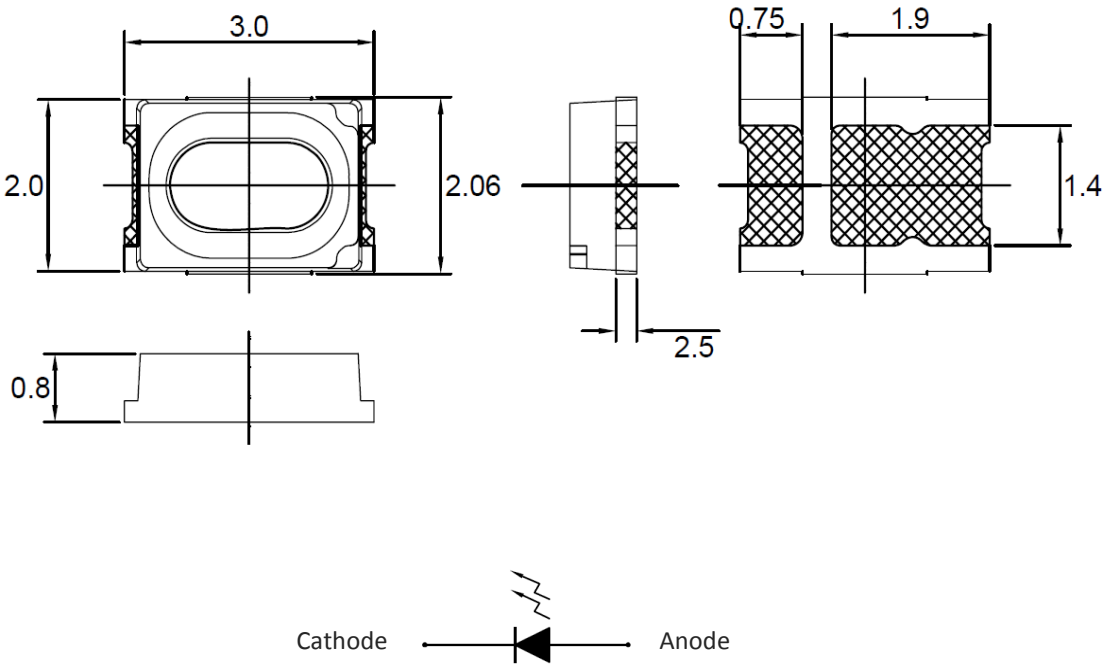
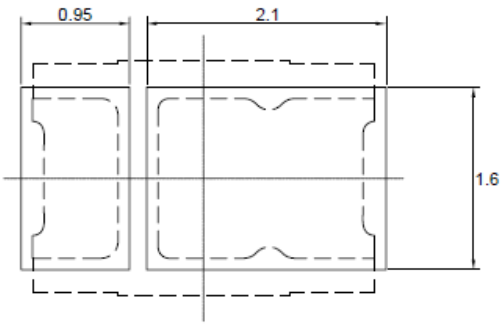
OUTLINE DIMENSION:

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°.

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BINNING GROUPS:

Forward Voltage Classifications (I_F = 60mA):

Code	Min.	Max.	Unit
1	1.6	1.7	V
2	1.7	1.8	
3	1.8	1.9	
4	1.9	2.0	
5	2.0	2.1	
6	2.1	2.2	
7	2.2	2.3	
8	2.3	2.4	
9	2.4	2.5	
10	2.5	2.6	

Luminous Flux Classifications (I_F = 60mA):

Code	Min.	Max.	Unit
AV2	1000	1250	mcd
AW1	1250	1600	
AW2	1600	2000	
AX1	2000	2250	

Dominant Wavelength Classifications (I_F = 60mA):

Code	Min.	Max.	Unit
15	585	587	nm
16	587	589	
17.1	589	590	
17.2	590	591	
17.3	591	592	
18	592	595	
19	595	598	

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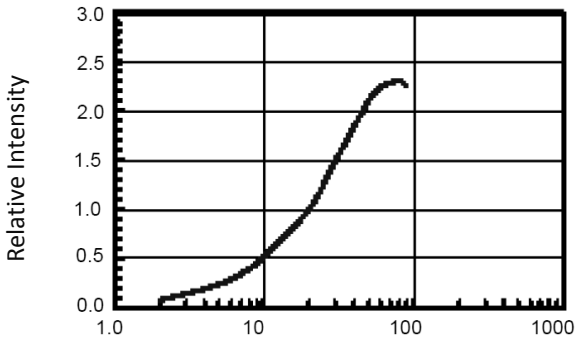
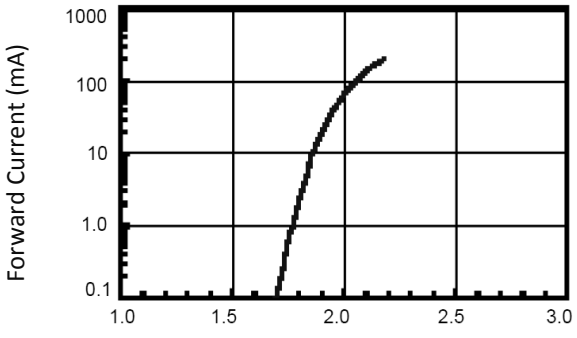
ELECTRO-OPTICAL CHARACTERISTICS:

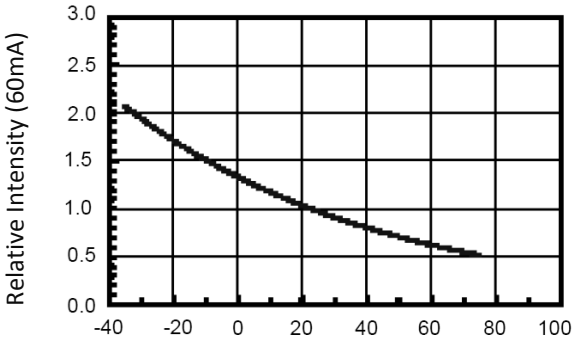
Relative Intensity v.s. Forward Current



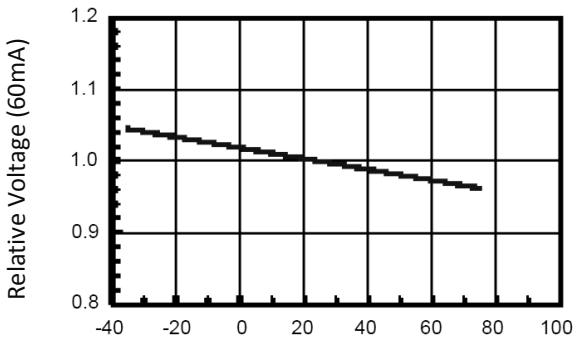
Forward Current v.s. Forward Voltage



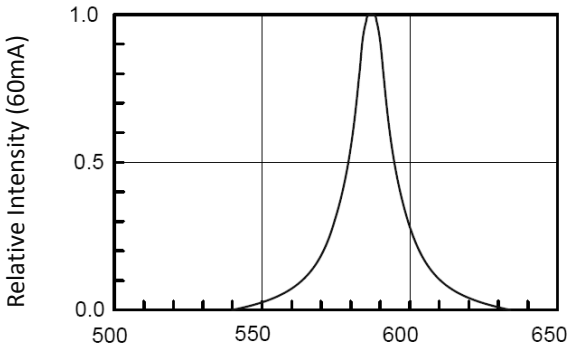
Relative Intensity v.s. Temperature



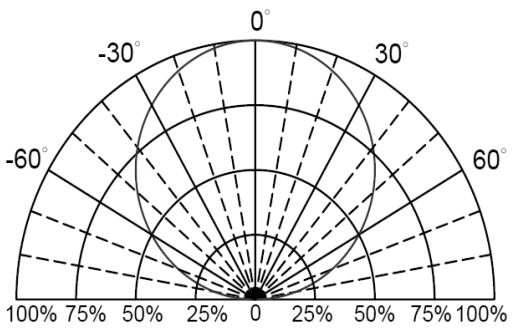
Relative Forward Voltage v.s. Temperature



Relative Intensity v.s. Wavelength



Directive Radiation



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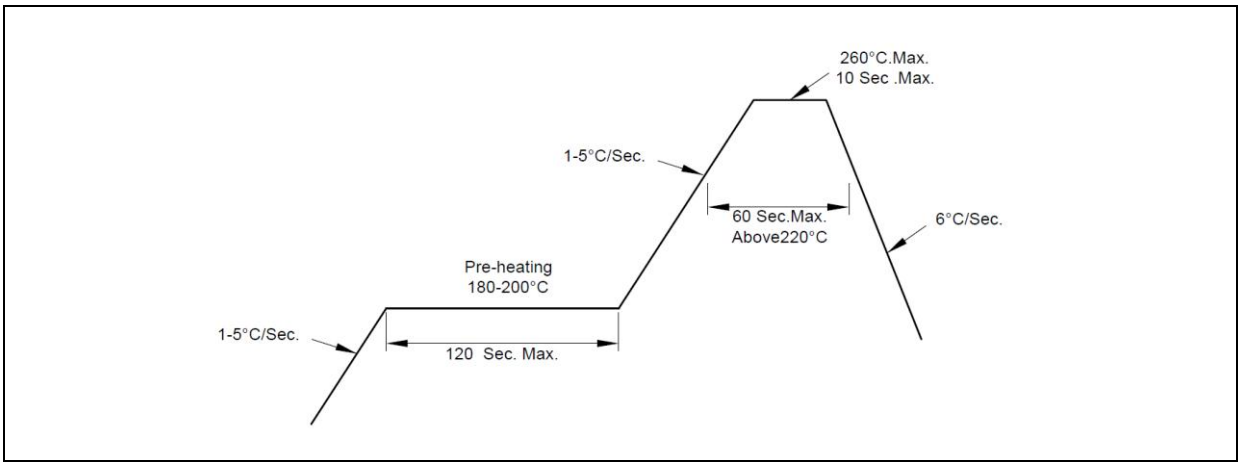
RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



Note:

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

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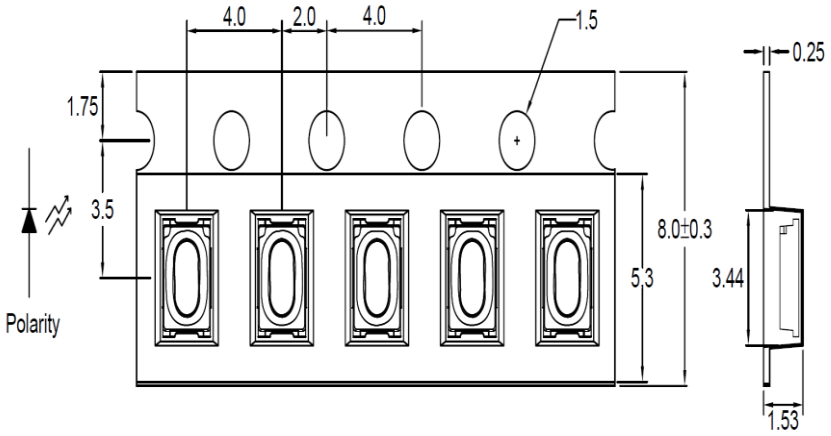
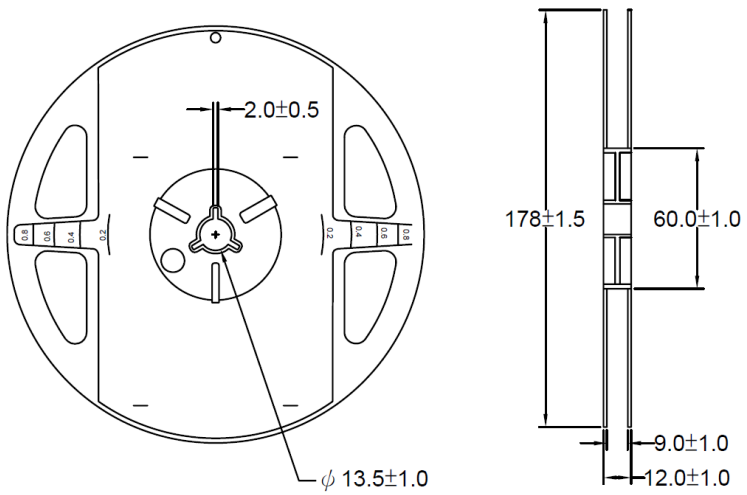
PACKING SPECIFICATION:

Reel Dimension:

2000pcs/reel





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

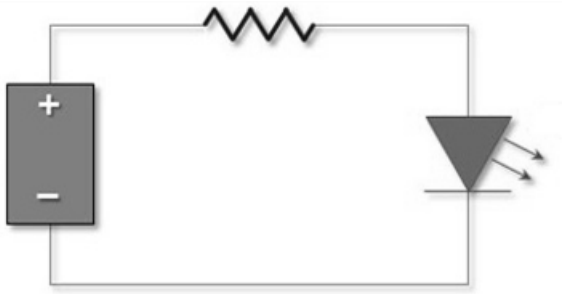
Baking:

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:

- 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-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.

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REVISION RECORD:

Version	Date	Summary of Revision
A1.0	28/02/2014	Datasheet set-up.

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