



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
- ▶ 3020 Series
- ▶ Red (625nm)

NOR07S02



Release Date: 28 February 2014 Version: A1.0



3020 Series



FEATURES:

- **Package:** PLCC White SMT Package
- **Forward Current:** 60mA
- **Forward Voltage (typ.):** 2.2V
- **Luminous Flux (typ.):** 1250mcd @60mA
- **Colour:** Red
- **Wavelength:** 625nm
- **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

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}	90	mA
Reverse Current @5V	I_R	10	μ A
Power Dissipation	PD	156	mW
Electrostatic Discharge	ESD	2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

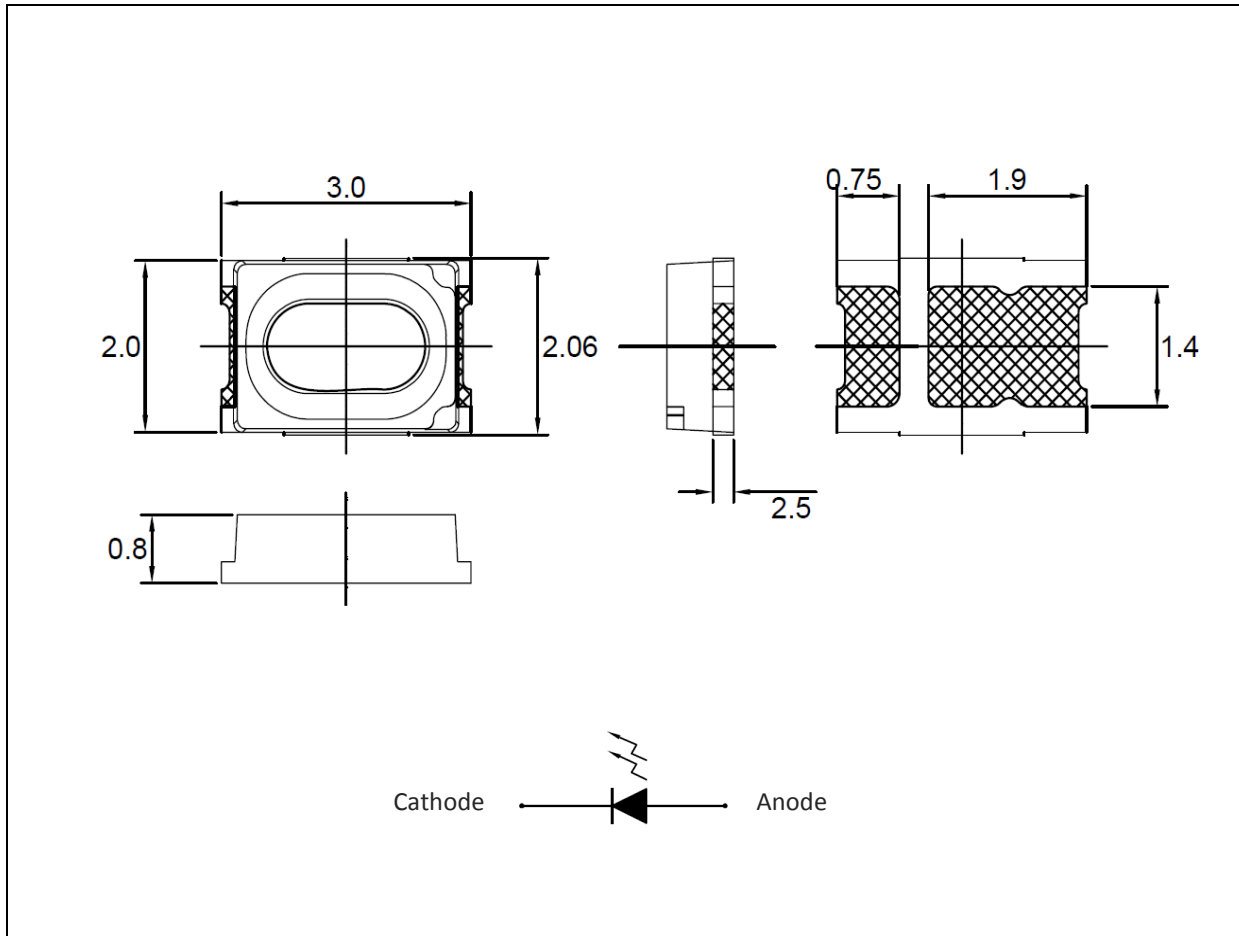
Electrical & Optical Characteristics (Ta=25°C)

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	800	1250	2000	mcd	$I_F=60mA$
Dominant Wavelength	λ_D	---	625	---	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) $\pm 15\%$, Forward Voltage (V_F) $\pm 0.1V$, Viewing angle($2\theta_{1/2}$) $\pm 5\%$, CRI ± 3
2. IS standard testing

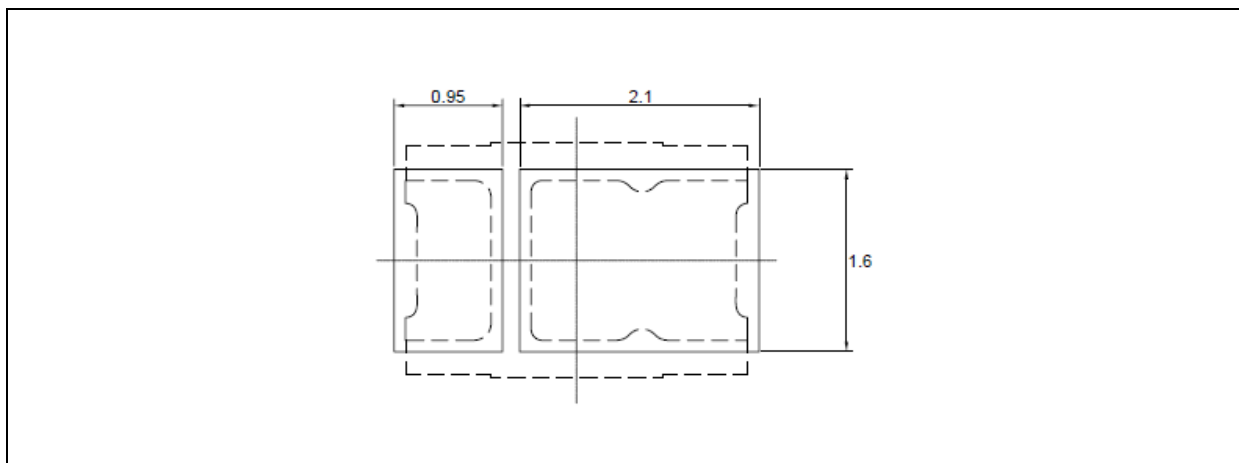
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

BINNING GROUPS:

 Forward Voltage Classifications ($I_F = 60\text{mA}$):

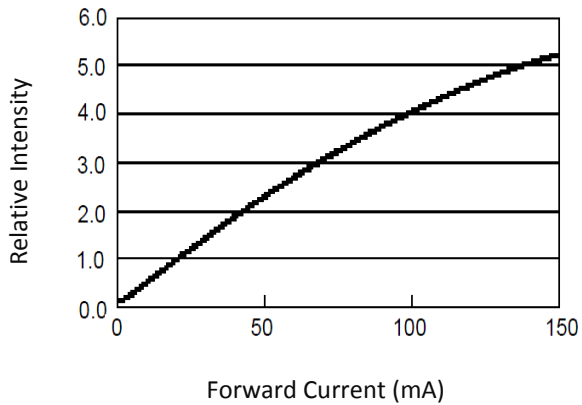
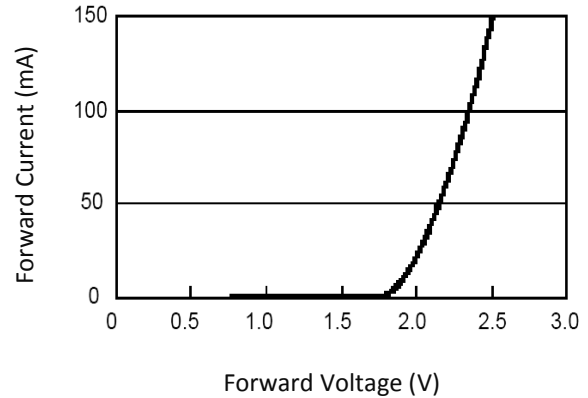
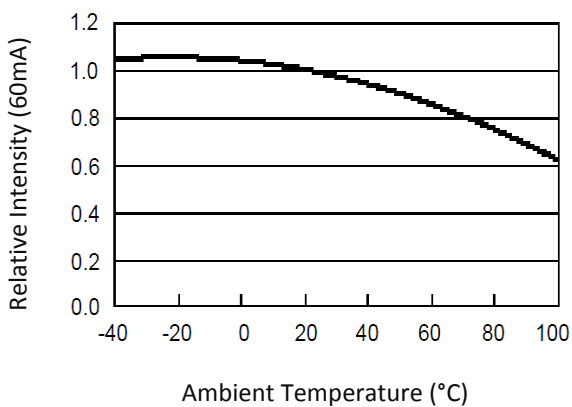
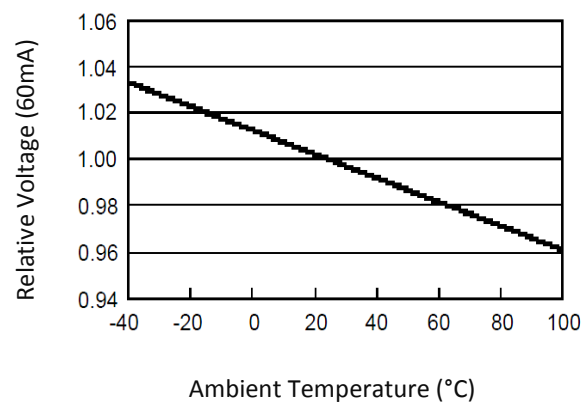
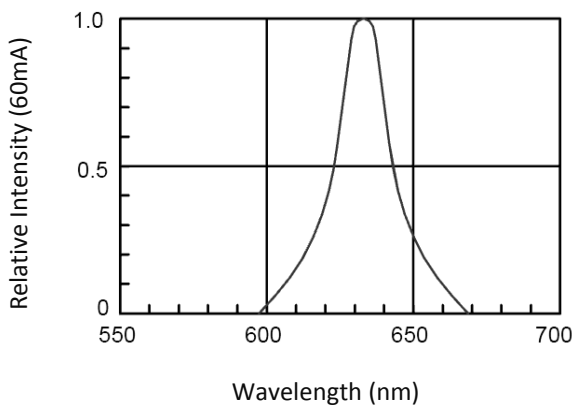
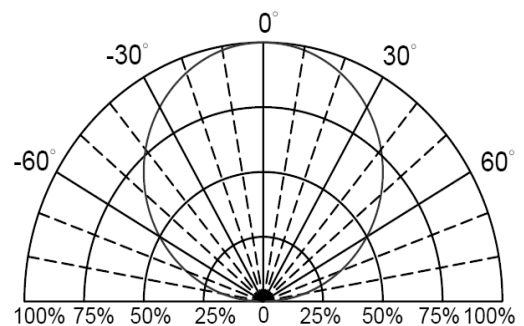
Code	Min.	Max.	Unit
1	1.6	1.7	V
2	1.7	1.8	
3	1.8	1.9	
4	1.9	2.0	
5	2.0	2.1	
6	2.1	2.2	
7	2.2	2.3	
8	2.3	2.4	
9	2.4	2.5	
10	2.5	2.6	

 Luminous Flux Classifications ($I_F = 60\text{mA}$):

Code	Min.	Max.	Unit
AV1	800	1000	mcd
AV2	1000	1250	
AW1	1250	1600	
AW2	1600	2000	

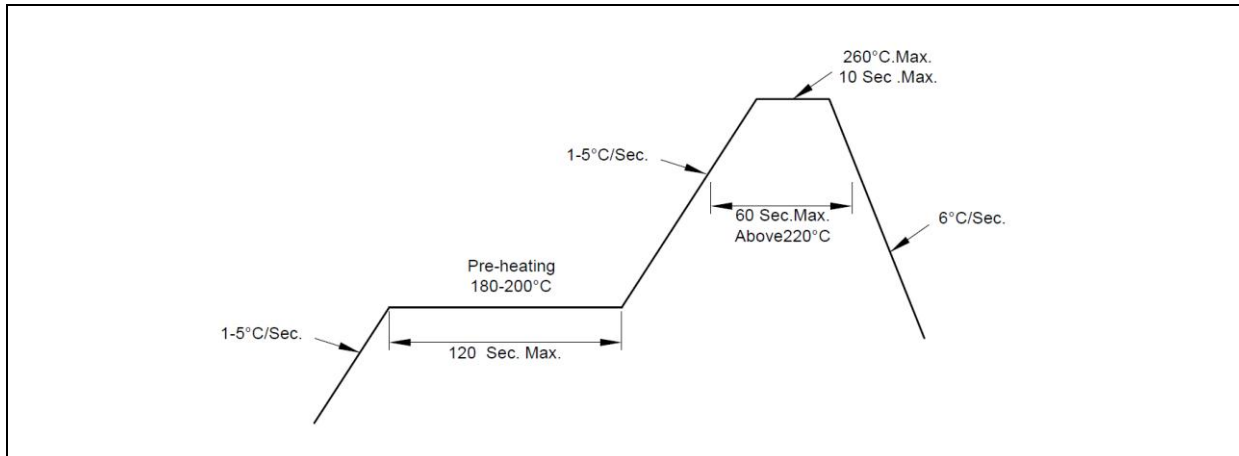
 Dominant Wavelength Classifications ($I_F = 60\text{mA}$):

Code	Min.	Max.	Unit
20	616	619	nm
21	619	622	
22	622	625	
23	625	628	
24	628	631	
25	631	634	

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


RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:

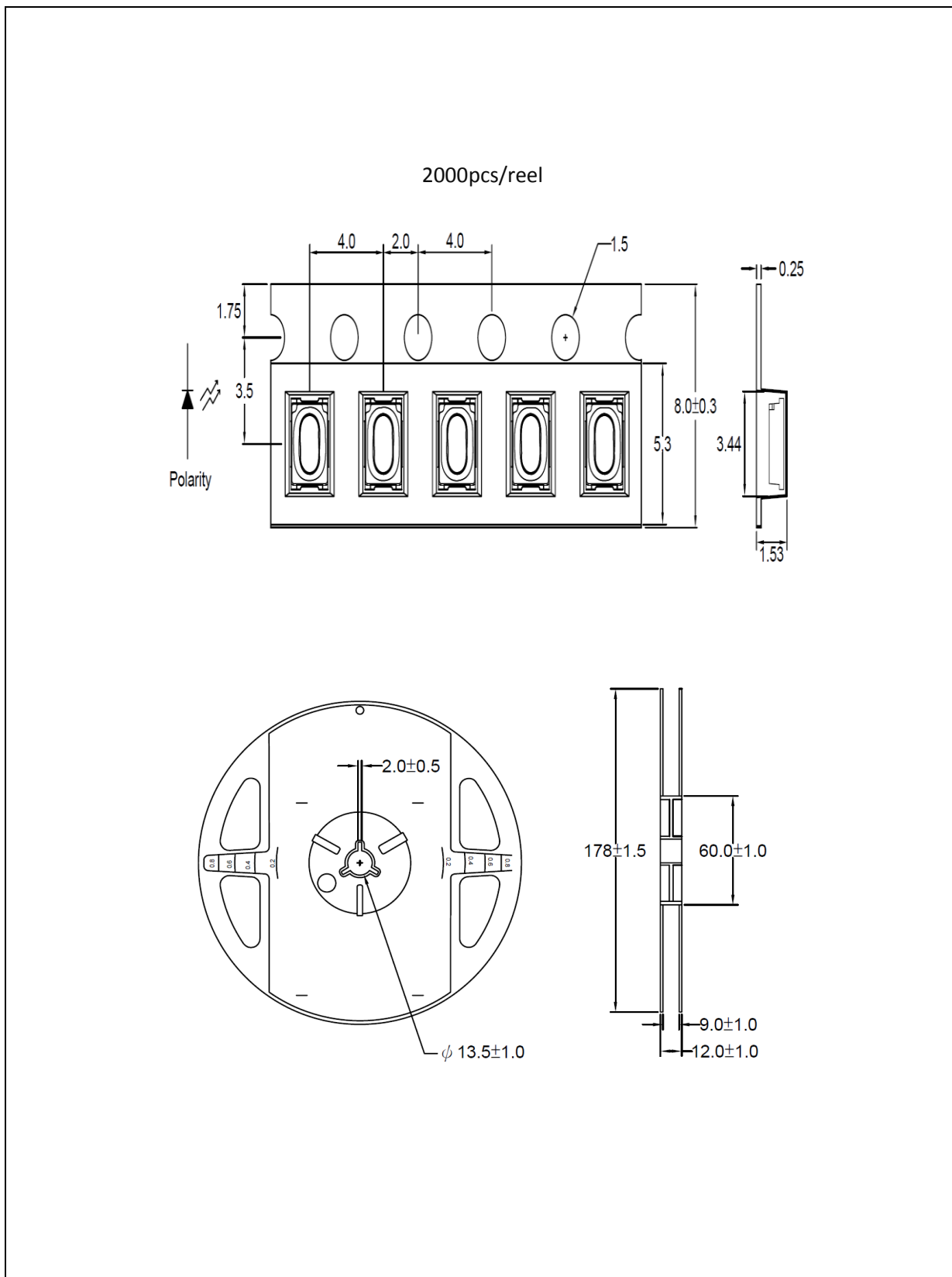


Note:

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

PACKING SPECIFICATION:

Reel Dimension:



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

Baking:

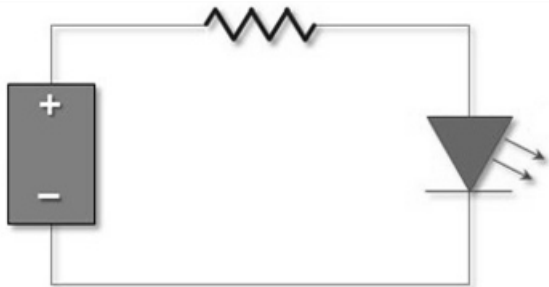
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

The suggested baking conditions are as followings:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 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-electrostatic 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:

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