



**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

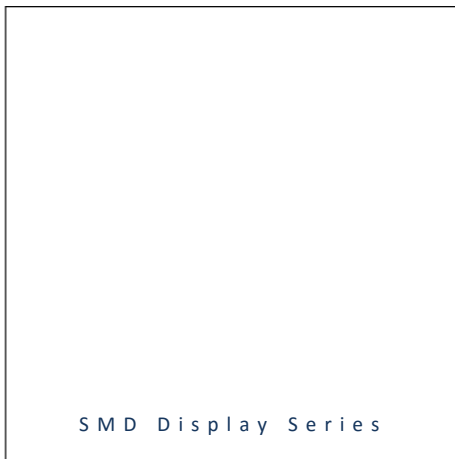


- ▶ SMD Display
- ▶ 0.28" (7mm)
- ▶ 8.8.8.8.
- ▶ Red

NOR14D07BS  
 NOR14D08BS



Release Date: 05 July 2016 Version: A1.1



SMD Display Series

## SMD Display Series

**RoHS Compliant**



### FEATURES:

- **Package:** SMD Numeral Quadruple Digits Display
- **Forward Current:** 20mA per diode
- **Pulse Current:** 90mA per diode
- **Forward Voltage (typ.):** 2.0V per diode
- **Luminous Intensity (typ.):** 10mcd @20mA per diode
- **Colour:** Red
- **Wavelength:** 625nm
- **Materials:**
  - Die: GaAlAs
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 900pcs/carton

### APPLICATIONS:

- 7-Segment Display
- Signal Display
- Information Board
- Counter

## CHARACTERISTICS:

### Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current *	$I_F$	25	mA
Peak Forward Current Duty 1/10 @1KHz	$I_{FP}$	90	mA
Reverse Current @5V	$I_R$	10	$\mu$ A
Power Dissipation	$P_D$	70	mW
Debating Liner per Segment (from 25°C)	---	0.28	mA/°C
Operating Temperature	$T_{OPR}$	-40~+105	°C
Storage Temperature	$T_{STG}$	-40~+105	°C

- All parameters are per diode.

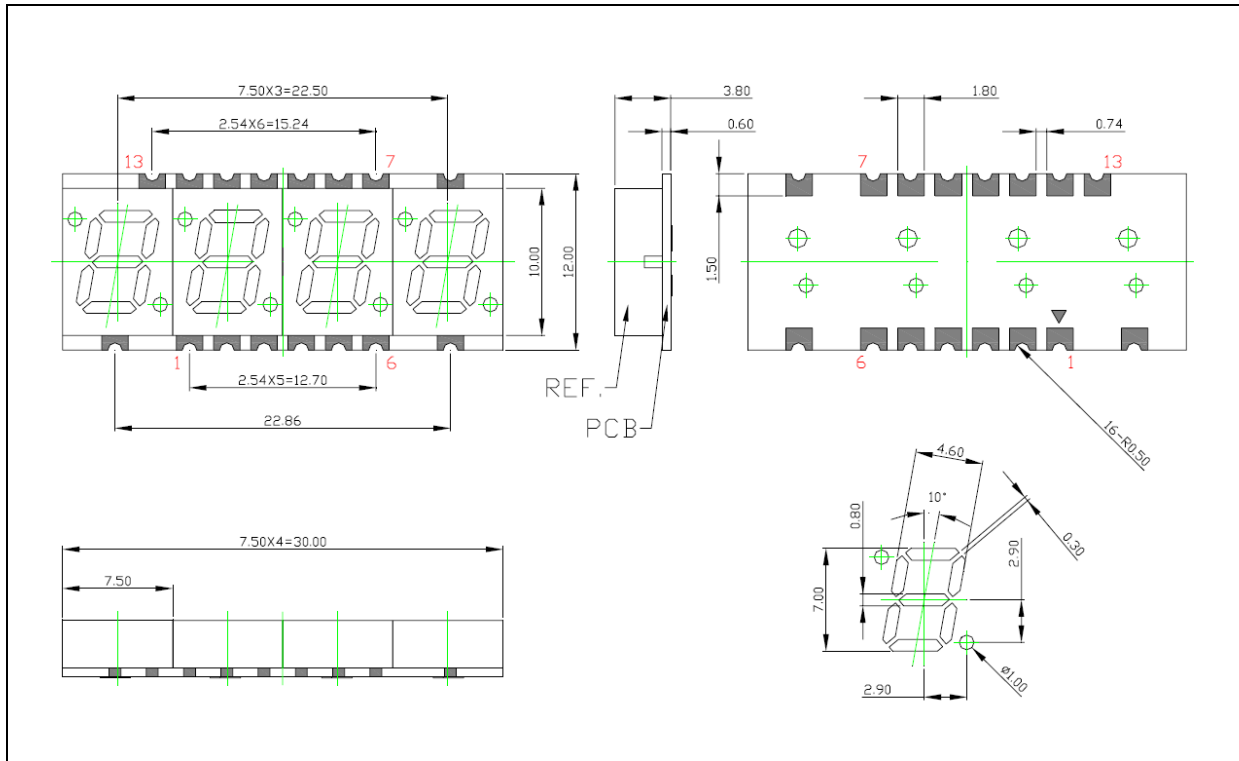
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	$V_F$	---	2.0	2.6	V	$I_F=20mA$
Luminous Intensity	$I_V$	10	---	55	mcd	$I_F=20mA$
Dominant Wavelength	$\lambda_D$	619	---	629	nm	$I_F=20mA$
Spectral Line Half Bandwidth	$\Delta \lambda$	---	20	---	nm	$I_F=20mA$

- Luminous intensity ( $I_V$ )  $\pm 15\%$ , Forward Voltage ( $V_F$ )  $\pm 0.1V$

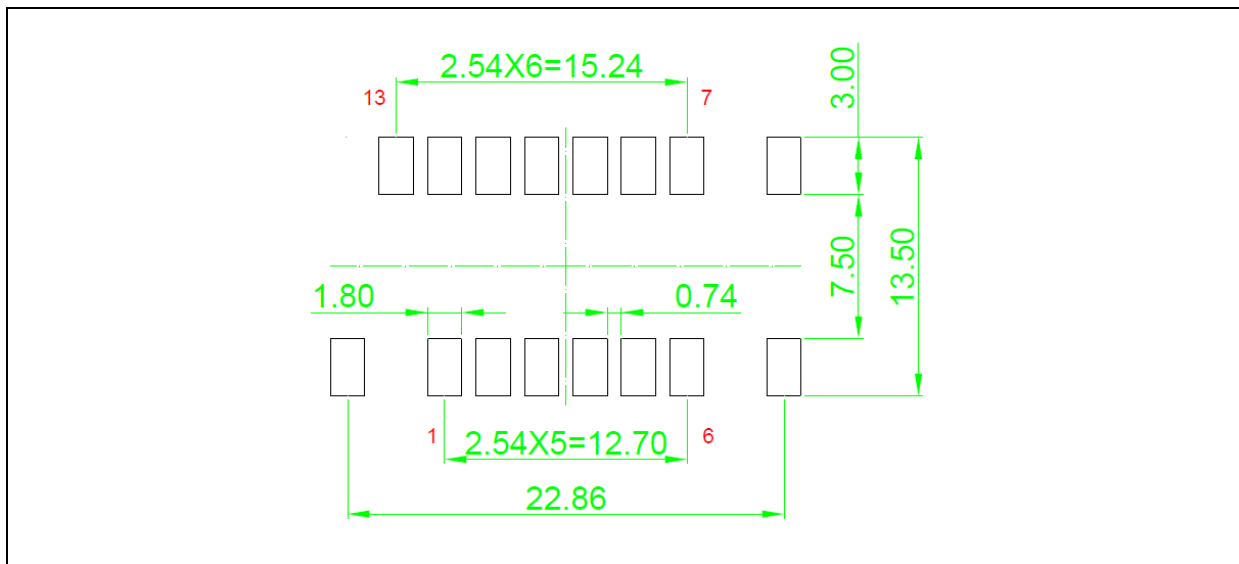
## OUTLINE DIMENSION:

### Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.25$ mm, unless otherwise noted.

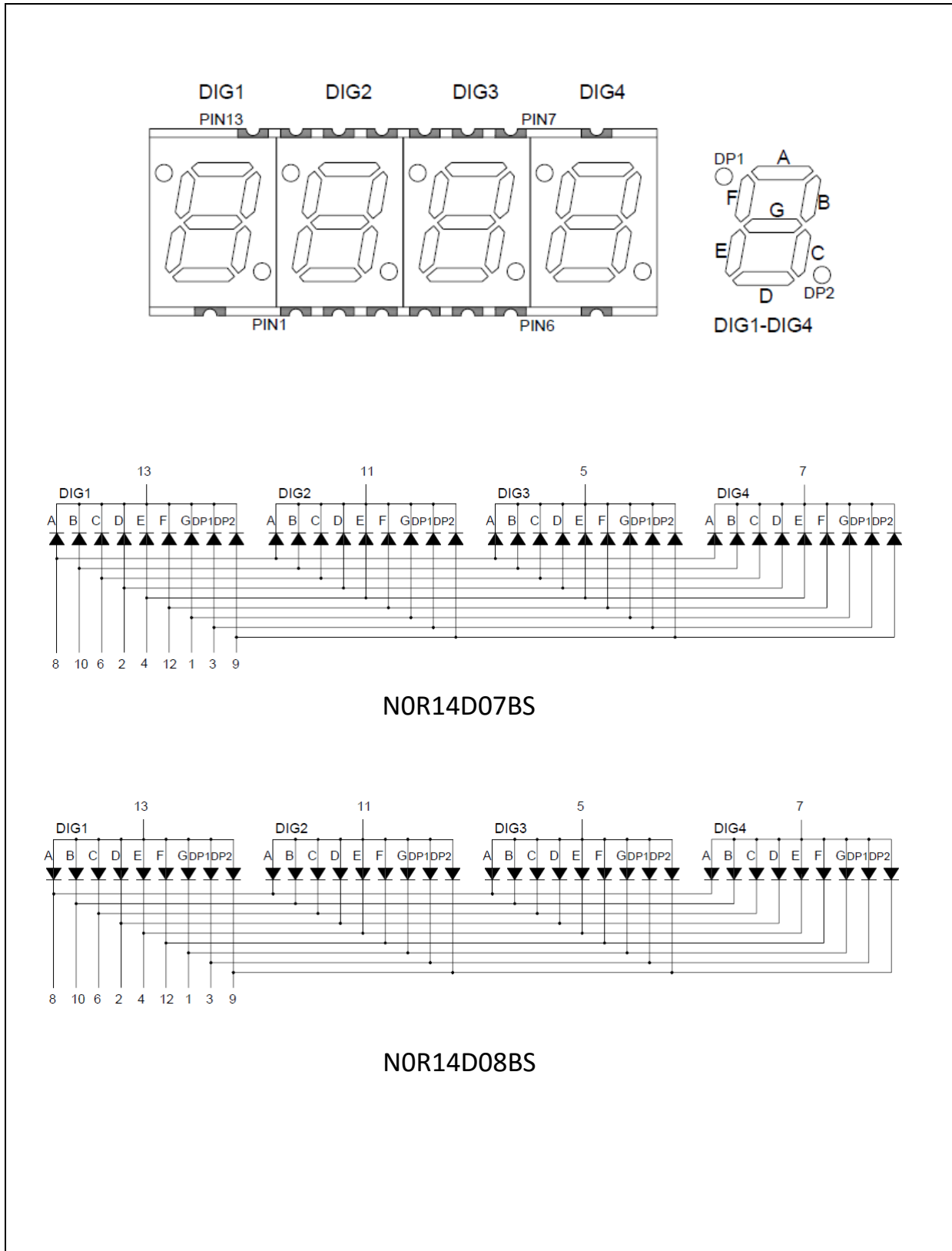
### Recommended Soldering Pad Dimension:



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

## Circuit Diagram:

Internal Circuit:



Electrical Connection:

NOR14D07BS:

Pin no.	Function	Pin no.	Function
1	Anode G	8	Anode A
2	Anode D	9	Anode DP 2
3	Anode DP 1	10	Anode B
4	Anode E	11	Common Cathode DIG 2
5	Common Cathode DIG 3	12	Anode F
6	Anode C	13	Common Cathode DIG 1
7	Common Cathode DIG 4		

NOR14D08BS:

Pin no.	Function	Pin no.	Function
1	Cathode G	8	Cathode A
2	Cathode D	9	Cathode DP 2
3	Cathode DP 1	10	Cathode B
4	Cathode E	11	Common Anode DIG 2
5	Common Anode DIG 3	12	Cathode F
6	Cathode C	13	Common Anode DIG 1
7	Common Anode DIG 4		

**BINNING GROUPS:**


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 Forward Voltage Classifications ( $I_F = 20\text{mA}$ ):

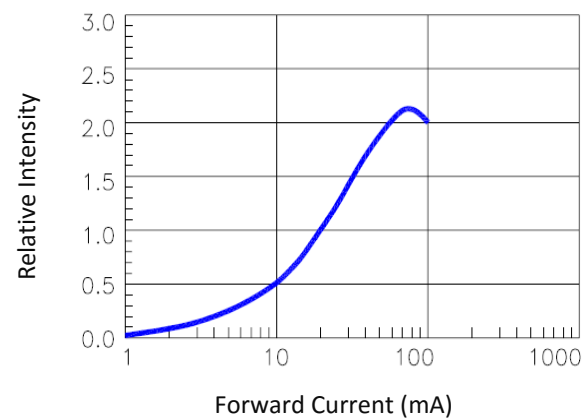
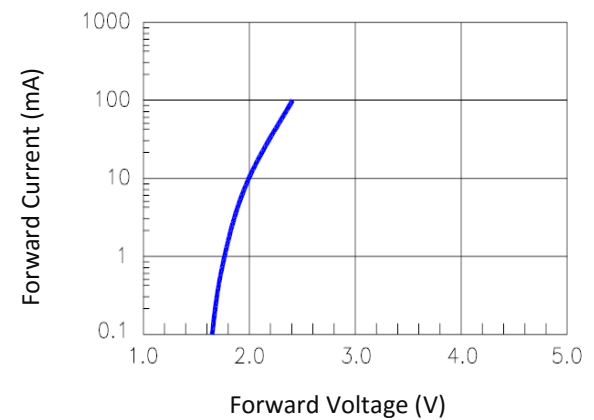
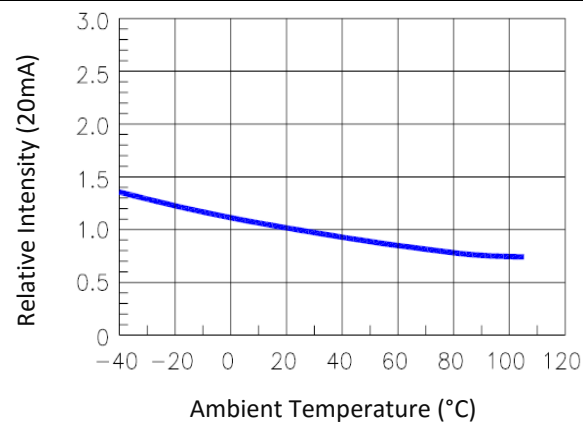
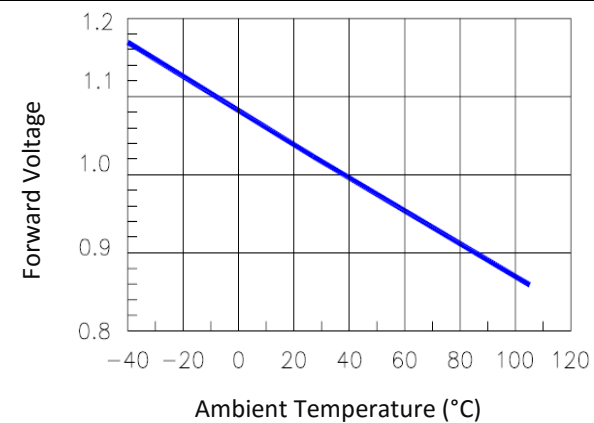
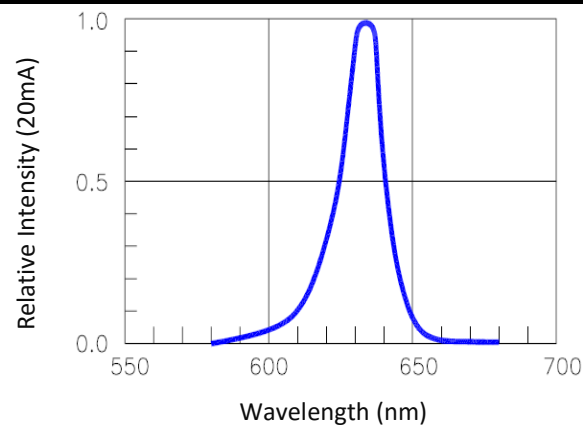
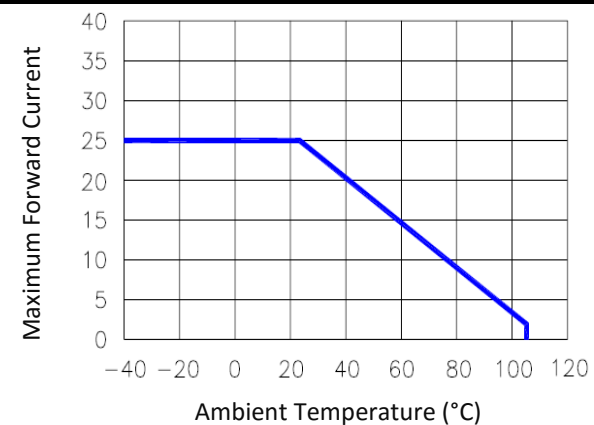
Code	Min.	Max.	Unit
D	1.6	2.6	V

 Luminous Intensity Classifications ( $I_F = 20\text{mA}$ ):

Code	Min.	Max.	Unit
K	10	25	mcd
L	25	40	
M	40	55	

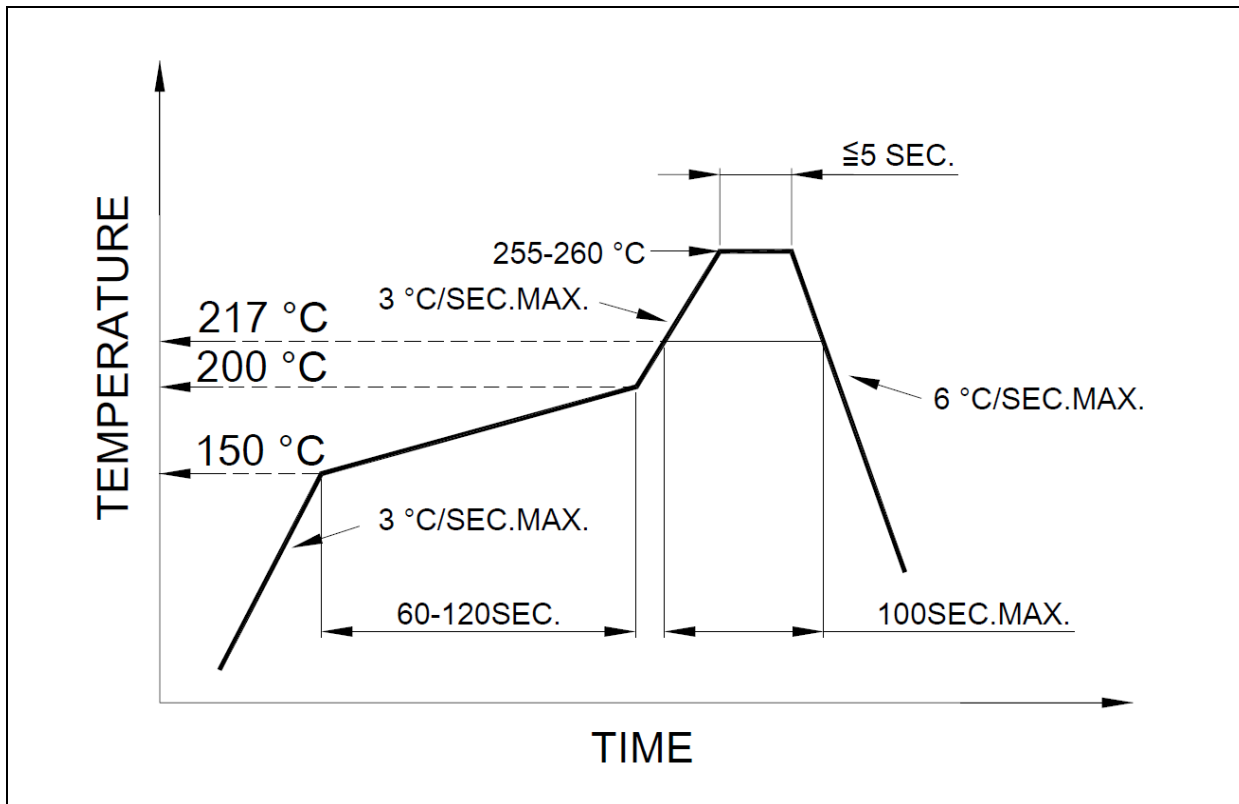
 Dominant Wavelength Classifications ( $I_F = 20\text{mA}$ ):

Code	Min.	Max.	Unit
1	619	622	nm
2	622	626	
3	626	629	

**ELECTRO-OPTICAL CHARACTERISTICS:**
**Relative Intensity v.s. Forward Current**

**Forward Current v.s. Forward Voltage**

**Relative Intensity v.s. Temperature**

**Forward Voltage v.s. Temperature**

**Relative Spectral Distribution**

**Max. Forward Current v.s. Temperature**


## RECOMMENDED SOLDERING PROFILE:

Reflow Solder:



Note:

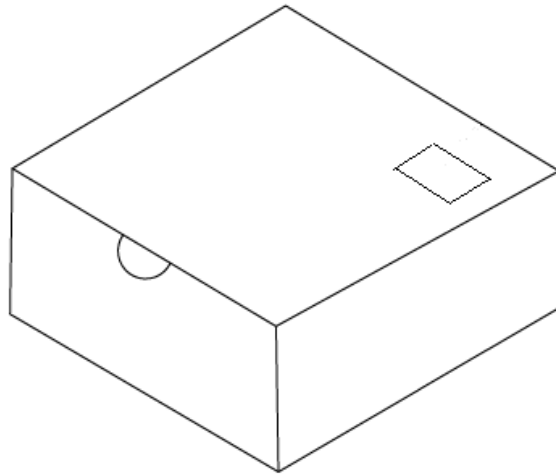
1. Maximum reflow soldering: 1 time.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.



**PACKING SPECIFICATION:**

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900pcs/carton



## PRECAUTIONS OF USE:

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### 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:

- 60±3°C x 24hrs 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-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:**

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Version	Date	Summary of Revision
A1.0	14/10/2014	Datasheet set-up.
A1.1	05/07/2016	Update dimensions.