



**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

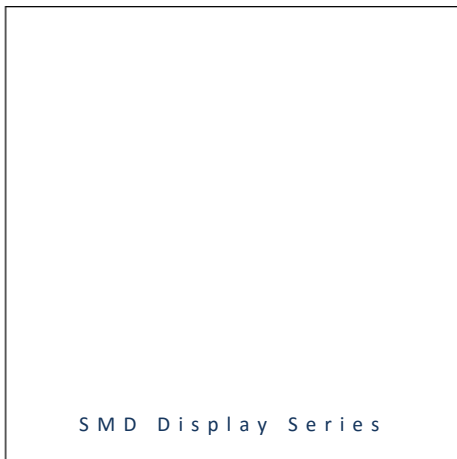


- ▶ SMD Display
- ▶ 0.28" (7mm) 8.8.8.
- ▶ Red (625nm)

NOR42D91GS  
 NOR42D92GS



Release Date: 02 November 2017 Version: A1.0



SMD Display Series

## SMD Display Series

**RoHS**  
Compliant



### FEATURES:

- **Package:** SMD Numeral Triple 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:** 200pcs/reel

### 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 @10KHz	$I_{FP}$	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~+1005	°C

- All parameters are per diode.

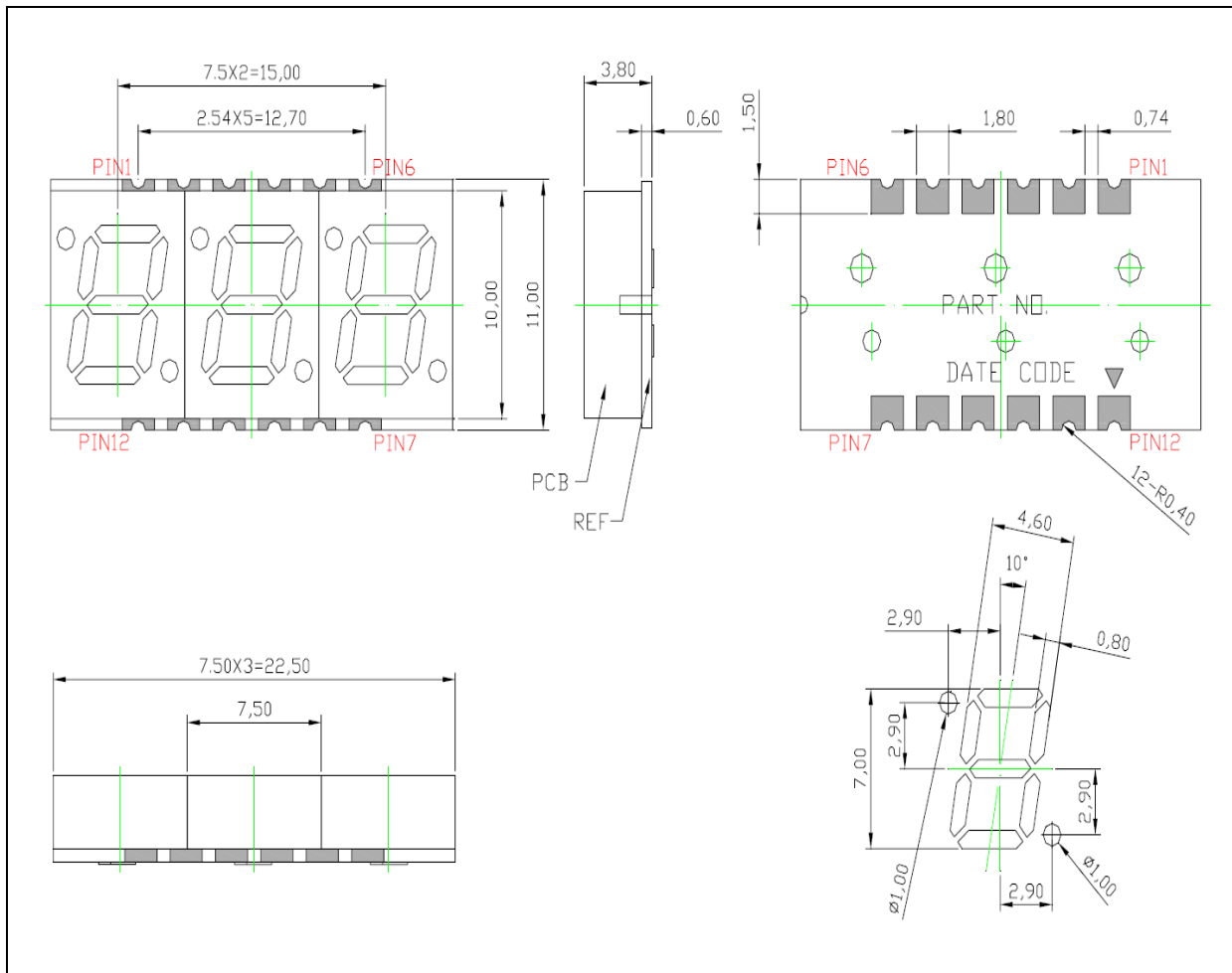
### Electrical & Optical Characteristics (Ta=25°C)

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	---	mcd	$I_F=20mA$
Dominant Wavelength	$\lambda_D$	---	625	---	nm	$I_F=20mA$
Spectral Line Half Bandwidth	$\Delta \lambda$	---	20	---	nm	$I_F=20mA$

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

## OUTLINE DIMENSION:

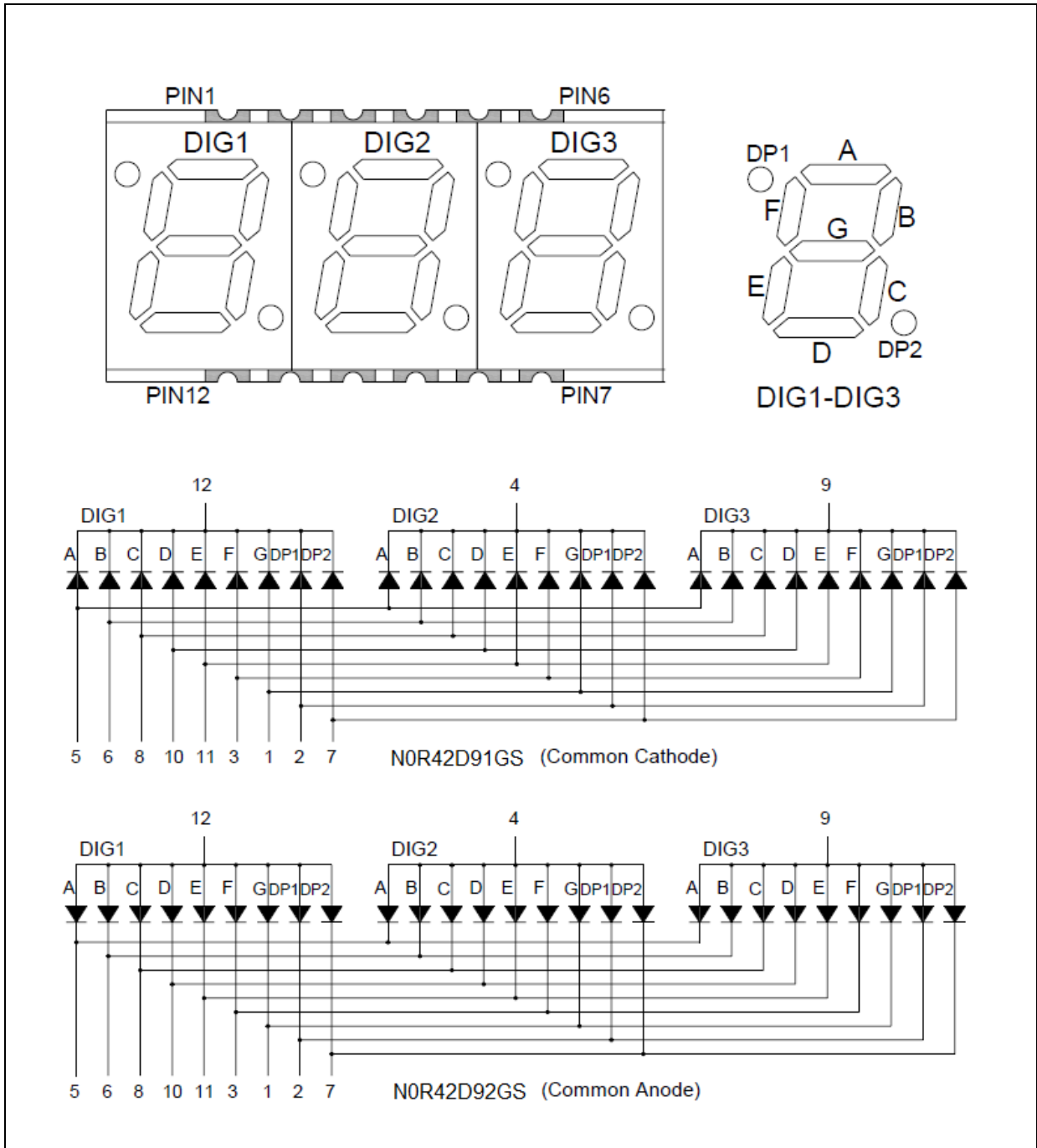
### Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2$ mm, unless otherwise noted.

### Circuit Diagram:

Internal Circuit:



Electrical Connection:

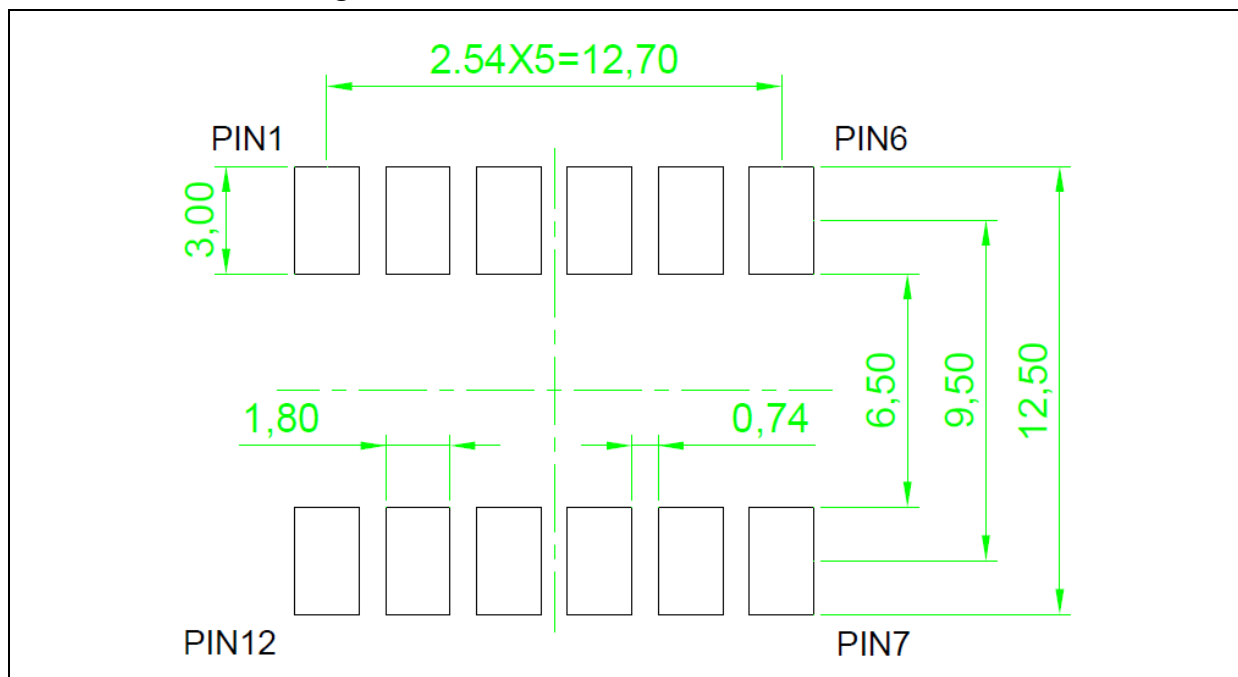
NOR42D91GS:

Pin no.	Function	Pin no.	Function
1	Anode G	7	Anode DP2
2	Anode DP1	8	Anode C
3	Anode F	9	Common Cathode DIG3
4	Common Cathode DIG2	10	Anode D
5	Anode A	11	Anode E
6	Anode B	12	Common Cathode DIG1

NOR42D92GS:

Pin no.	Function	Pin no.	Function
1	Cathode G	7	Cathode DP2
2	Cathode DP1	8	Cathode C
3	Cathode F	9	Common Anode DIG3
4	Common Anode DIG2	10	Cathode D
5	Cathode A	11	Cathode E
6	Cathode B	12	Common Anode DIG1

Recommended Soldering Pad:



**BINNING GROUPS:**


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

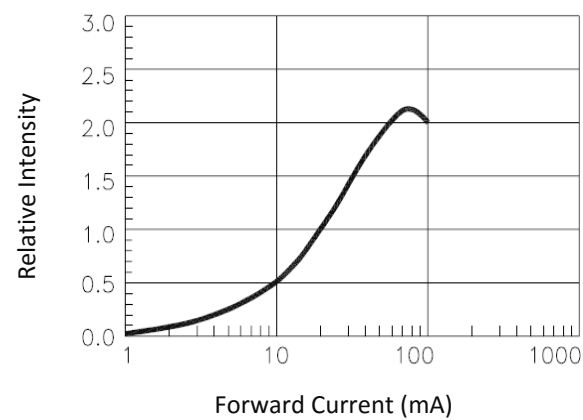
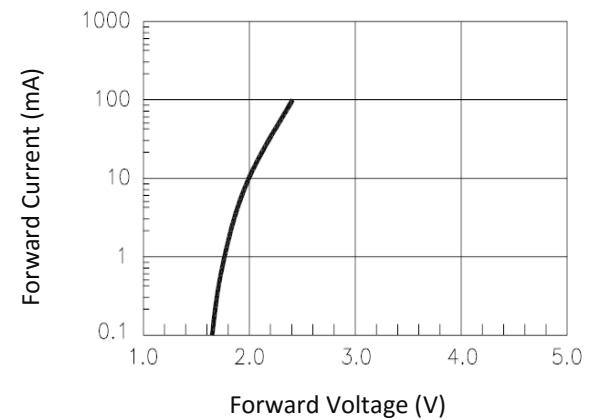
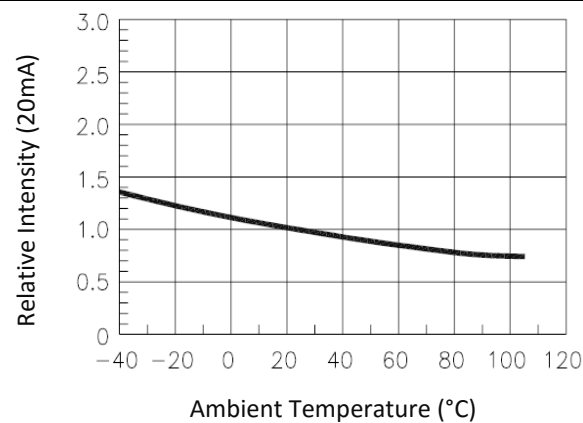
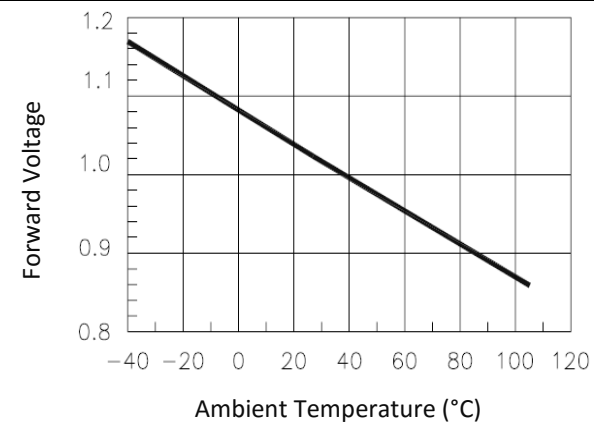
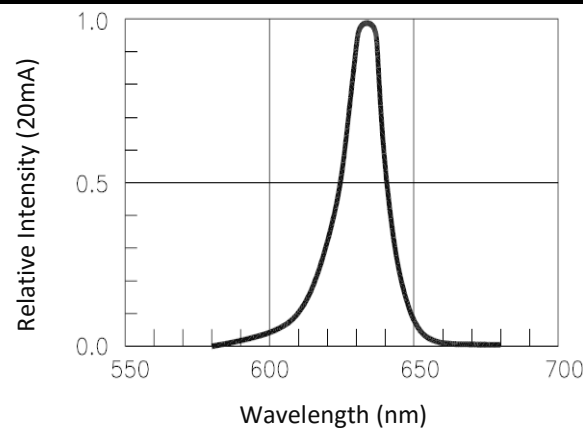
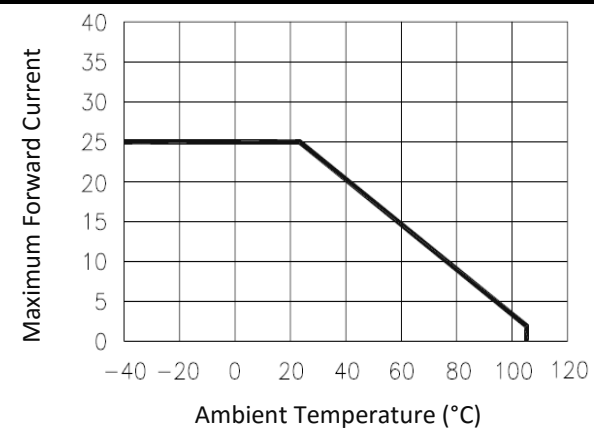
Code	Min.	Max.	Unit
D	1.6	2.6	V

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

Code	Min.	Max.	Unit
K	3	20	mcd

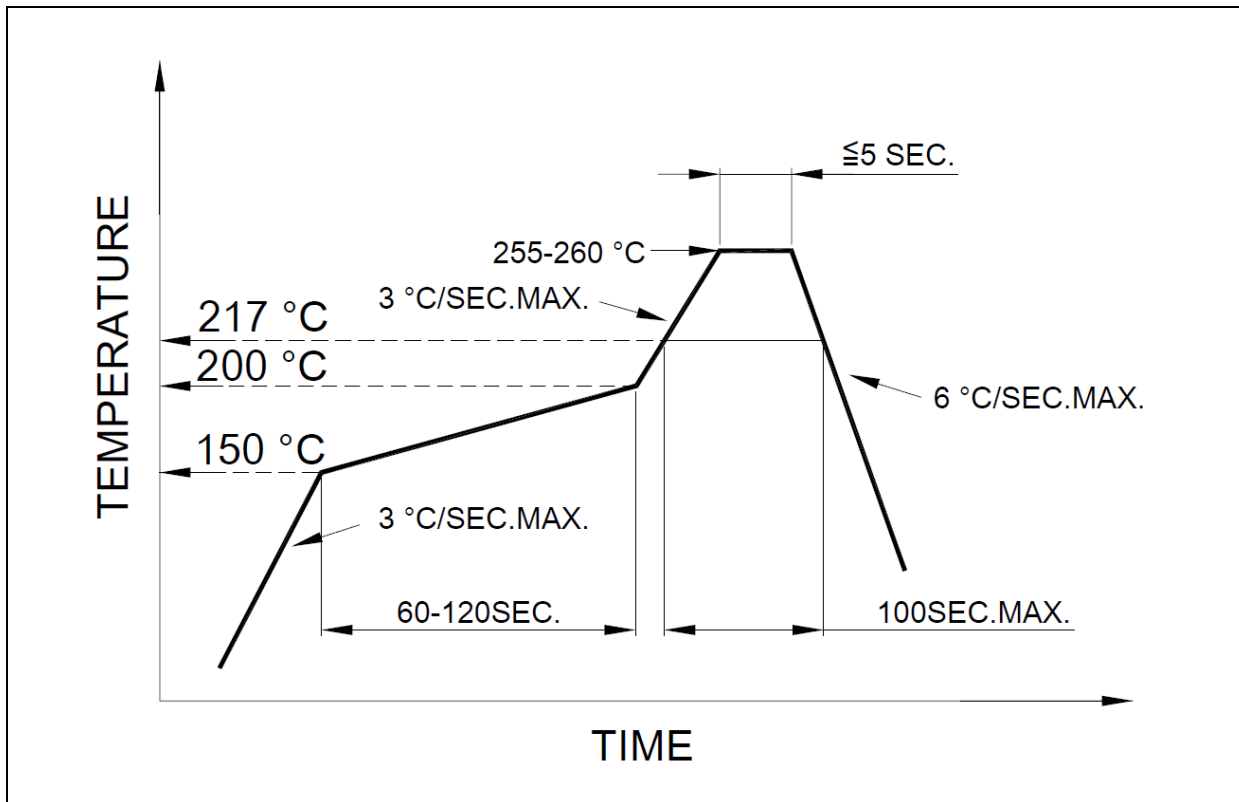
 Dominant Wavelength Classifications ( $I_F = 20\text{mA}$ ):

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. Recommend reflow temperature 245°C. Maximum soldering temperature should be limited to 260°C.
2. Maximum reflow soldering: 1 time.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.



**PACKING SPECIFICATION:**

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200pcs/reel

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

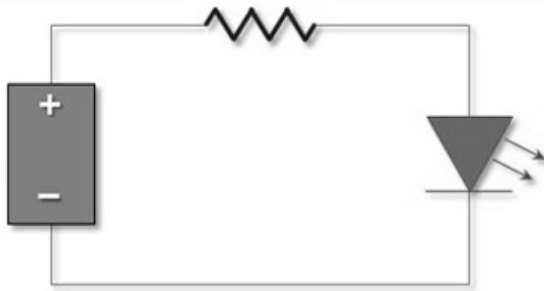
### Baking:

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 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-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	02/11/2017	Datasheet set-up.