



**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

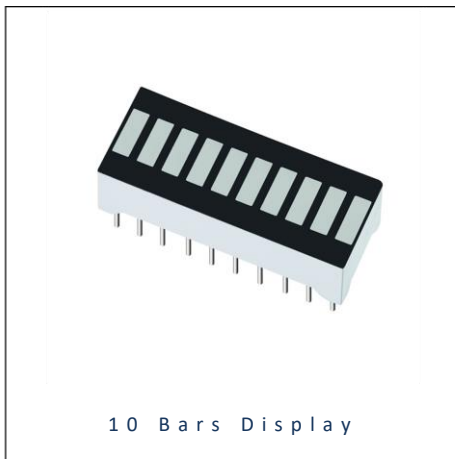


- ▶ Graphic Display
- ▶ 10 Bars
- ▶ Red (640nm)

NOR09D58BS



Release Date: 02 December 2023 Version: A1.3



### APPLICATIONS:

- LED Display
- Indicator
- Counting System

## Graphic Display



### FEATURES:

- **Package:** Black Surface Throughhole 10 Bars LED Graphic Display
- **Forward Current:** 20mA\*
- **Forward Voltage (typ.):** 1.9V\*
- **Luminous Intensity (typ.):** 10mcd @20mA\*
- **Colour:** Red
- **Wavelength:** 640nm
- **Materials:**
  - Die: AlInGaP
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping Parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant Wavelength
- **Soldering Methods:** Soldering Heat (DIP)
- **Packing:** carton

\* per single bar

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
Forward Current	$I_F$	30	Ma
Peak Forward Current Duty 1/10@1KHz	$I_{FP}$	100	Ma
Reverse Current @5V	$I_R$	10	$\mu A$
Power Dissipation	$P_D$	85	mW
Electrostatic Discharge	ESD	2000	V
Operating Temperature	$T_{OPR}$	-40~+85	°C
Storage Temperature	$T_{STG}$	-40~+100	°C

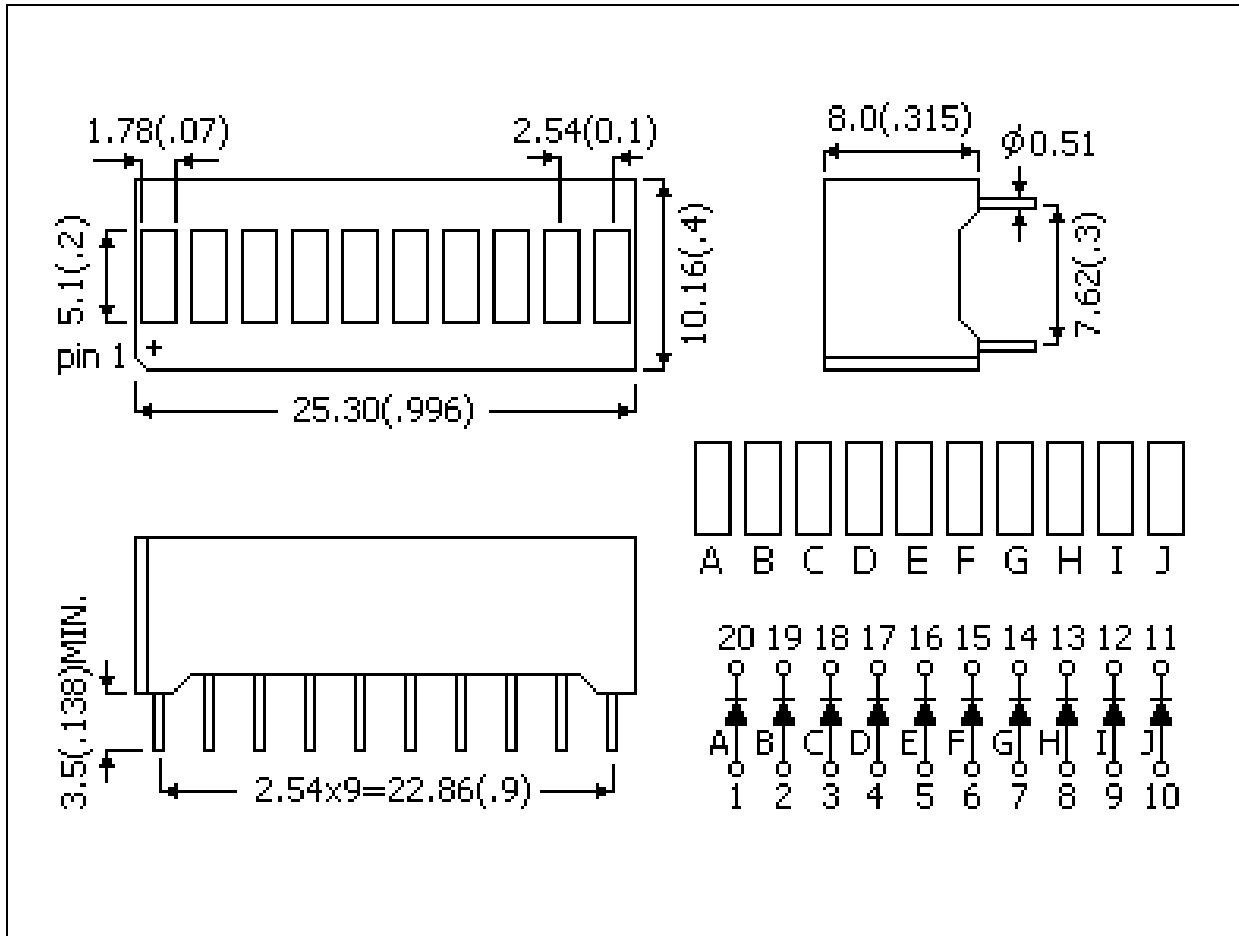
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	$V_F$	1.8	1.9	2.4	V	$I_F=20mA$
Luminous Intensity	$I_v$	8	10	15	mcd	$I_F=20mA$
Dominant Wavelength	$\lambda_D$	635	640	645	nm	$I_F=20mA$
Peak Wavelength	$\lambda_P$	---	650	---	nm	$I_F=20mA$
Spectral Half Bandwidth	$\Delta\lambda$	---	20	---	nm	$I_F=20mA$

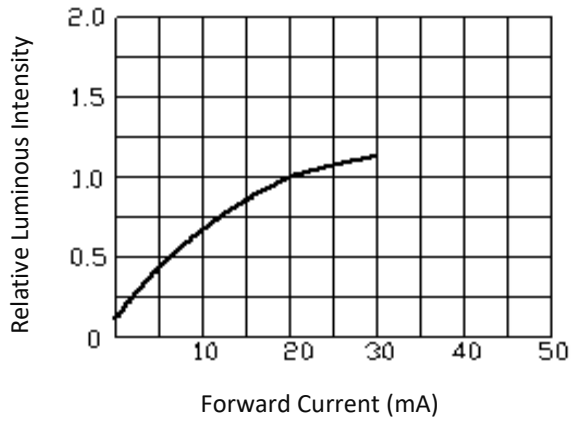
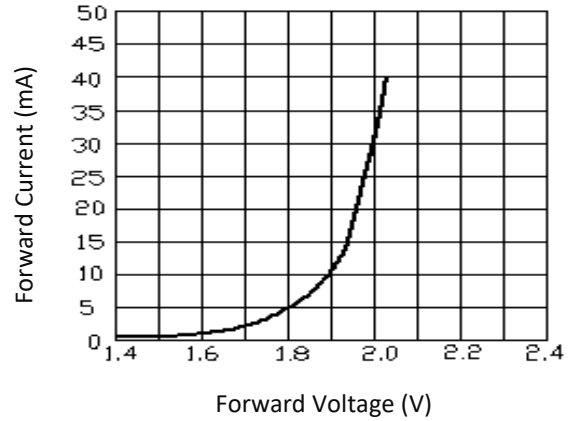
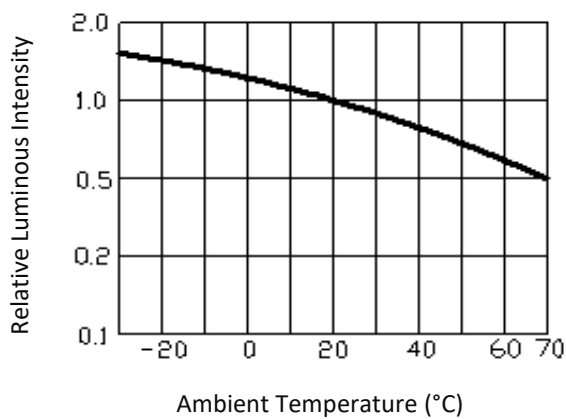
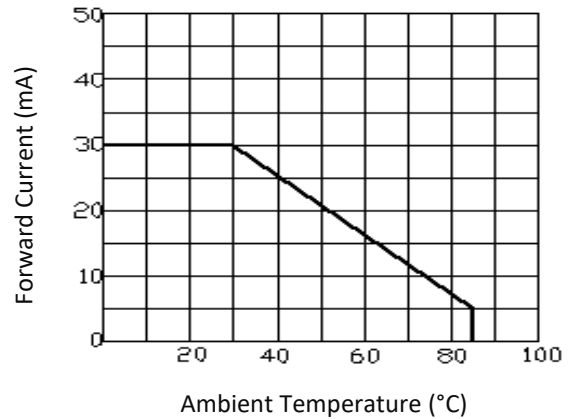
1. Luminous intensity ( $I_v$ )  $\pm 15\%$ , Forward Voltage ( $V_f$ )  $\pm 0.1V$ , Viewing angle( $2\theta_{1/2}$ )  $\pm 5\%$

**OUTLINE DIMENSION:**

Package Dimension:



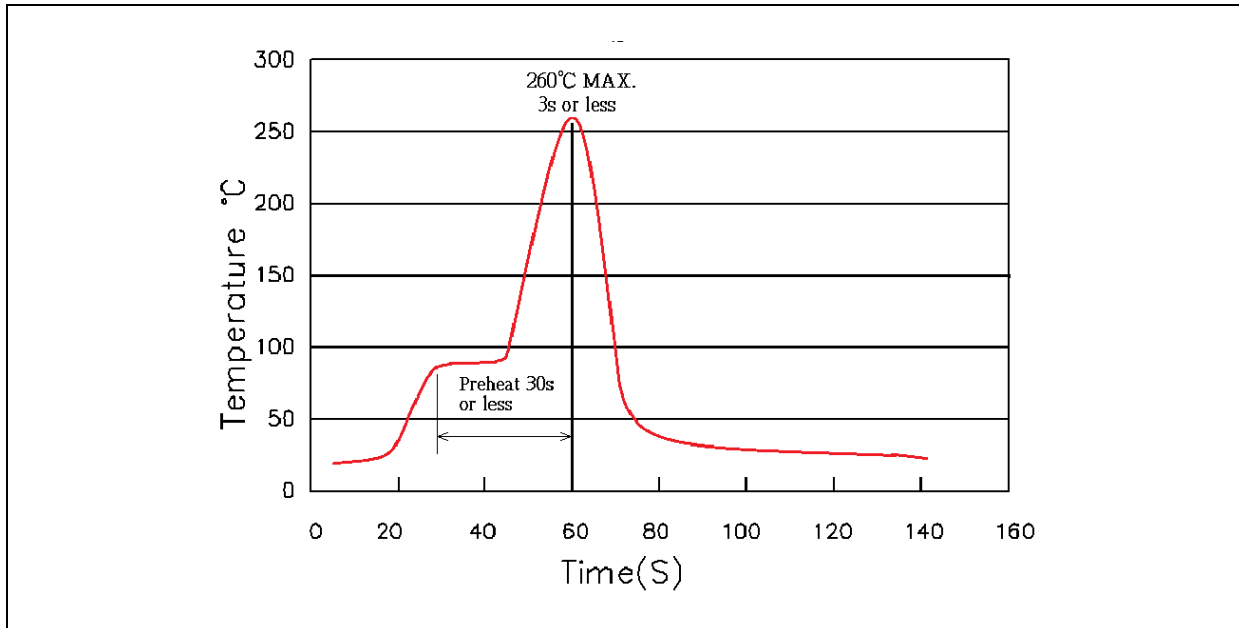
1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2\text{mm}$ , unless otherwise noted.

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

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

**Luminous Intensity v.s. Ambient Temperature**

**Forward Current Derating Curve**


## RECOMMENDED SOLDERING PROFILE:

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Soldering Heat (DIP) Solder:



Note:

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

## 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 <10% R.H. and apply baking before use.

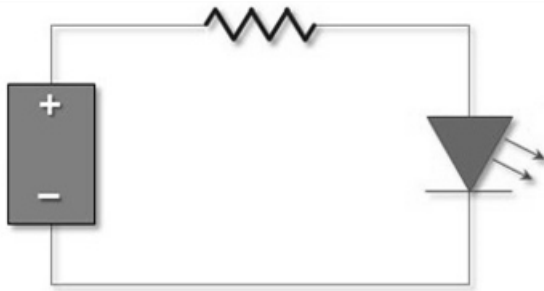
### Baking:

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	06/06/2014	Datasheet set-up.
A1.1	18/01/2023	Update intensity level.
A1.2	18/03/2023	Update product photo.
A1.3	02/12/2023	Update storage condition.