BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

APPROVAL SHEET

CUSTOMER: _____

CUSTOMER PART NO. _____

TYPE NO.: N0R51D06BS / N0R51D07BS

PACKAGE SIZE: 0.56 inch Four Digit Common Cathode LED Display

DICE MATERIAL: AlInGaP **PEAK WAVE LENGTH(nm)** 650

EMITTED COLOR: Super Red **VIEWING ANGLE (deg):** _____

EPOXY COLOR: White Diffused **IV(mcd):** 4.5

SURFACE INK COLOR Black

● ELECTRICAL / OPTICAL CHARACTERISITICS AT Ta = 25°C

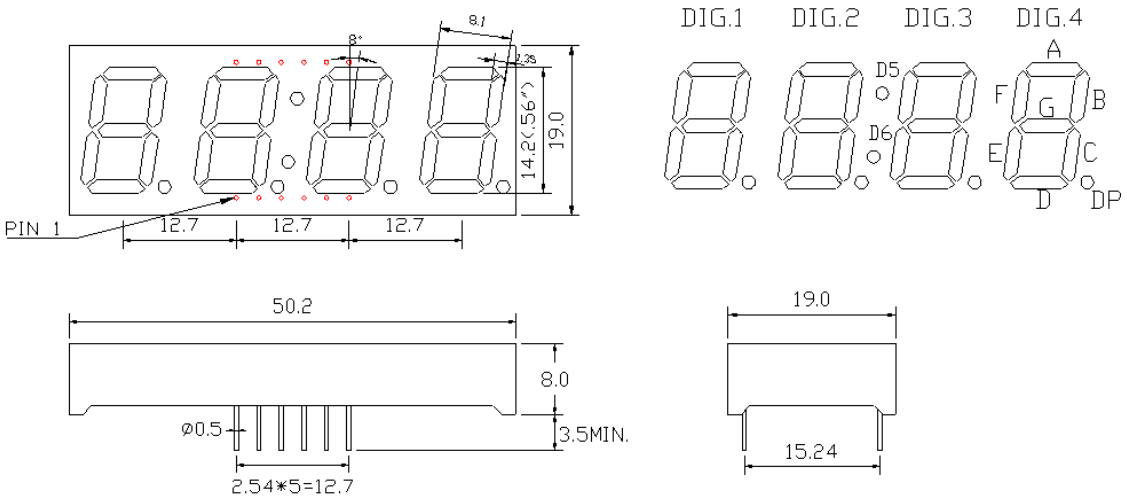
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	**IV**	2.8	4.5	6.0	mcd	IF = 20mA
Viewing Angle	**2θ1/2**				deg	
Peak Emission Wavelength	**λp**		650		nm	
Dominant Wavelength	**λD**	635	640	645	nm	
Spectral Line Half-Width	**△λ**		20		nm	
Forward Voltage	**VF**	1.8	1.9	2.2	V	
Reverse Current	**Ir**	-	-	10	uA	VR=5V

▲ Luminous intensity (IV) ±10%, Forward Voltage (VF) ±0.1V, Wavelength (λd) ±0.5nm

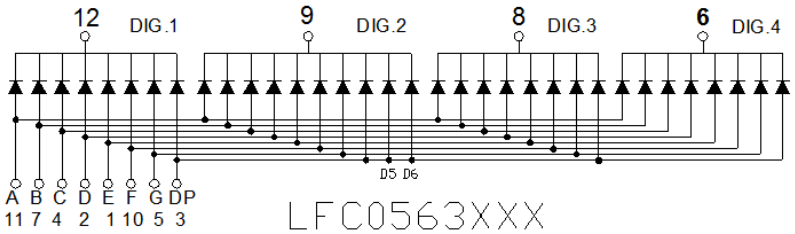
● ABSOLUTE MAXIMUM RATINGS：(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	85	mW
Peak Forward Current (Duty 1/10 @ 1KHZ)	IF (Peak)	100	mA
Recommended Operating Current	IF (Rec)	30	mA
Electrostatic Discharge	ESD_{HBM}	2000	V
Operating Temperature Range	T_{OPR}	-40 ~ +85	℃
Storage Temperature Range	T_{STG}	-40 ~ +100	℃
Lead Soldering Temperature Range 【1.6 mm (1/16 inch) from body】	Reflow Soldering : 260 ℃ for 5 sec. Hand Soldering : 350 ℃ for 3 sec.		

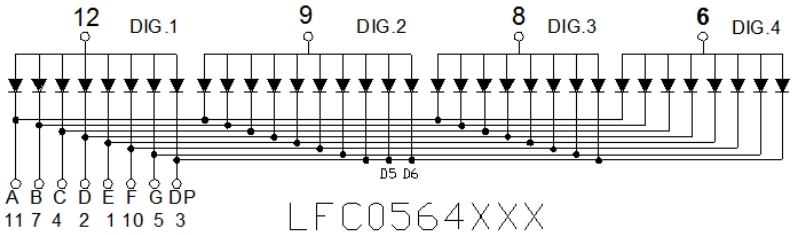
LED DISPLAYS PACKAGE DIMENSIONS



N0R51D06BS



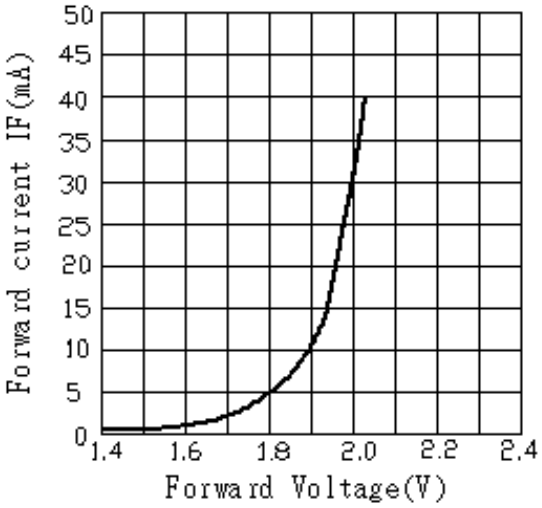
N0R51D07BS



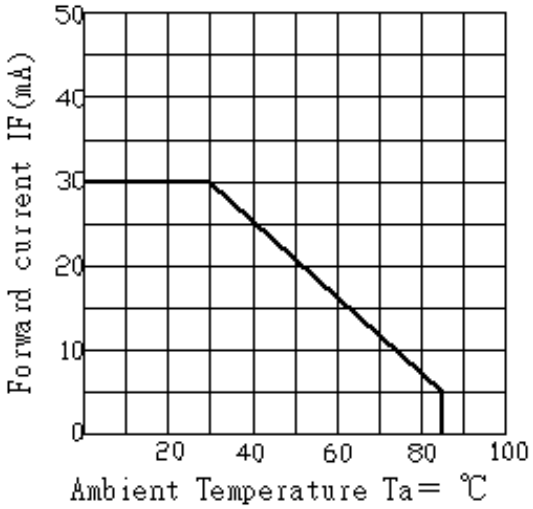
DEVICE NO.: **N0R51D06BS / N0R51D07BS**	**DRAWING NO.**	**ENGINEER**
ALL TOLERANCE SHALL BE **±0.01 inch/0.25mm** **UNLESS OTHERWISE NOTED**	**DRAWING DATE**	**APPROVER**

Typical Electro-Optical Characteristics Curves

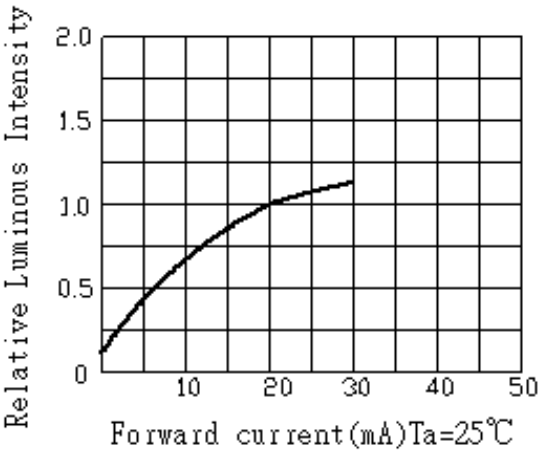
Super Red (AlInGaP λd=640nm)



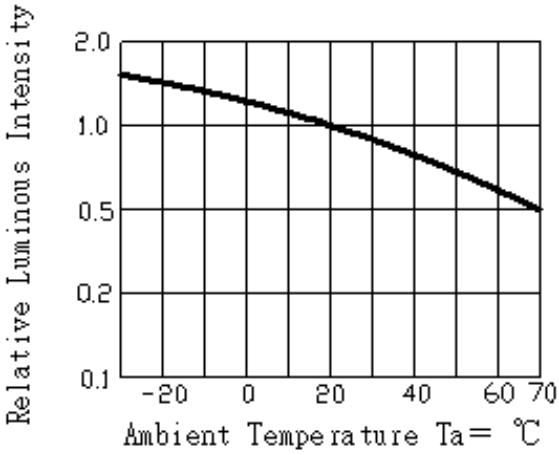
Forward current vs. Forward Voltage



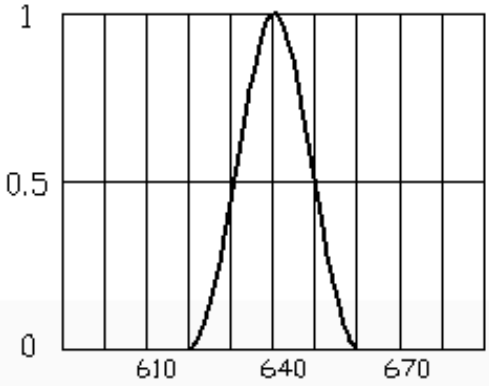
Forward current Derating curve



Luminous Intensity vs.Forward current



Luminous Intensity vs.Ambient Temperature



Relative Intensity VS. wavelength

Reliability test For LED Lamps

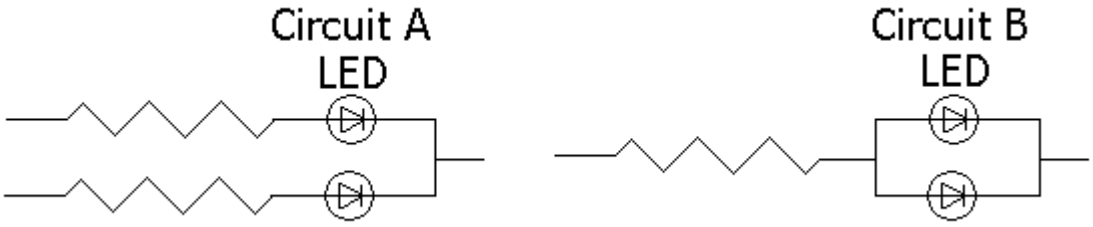
Type No.: N0R51D06BS / N0R51D07BS

NO.	Item	Test Conditions	Test Time/ Cycle	Sample Size	Ac/Re
1	DC Operating Life	Temperature:25℃ IF:20mA	1000HRS	20PCS	0/1
2	High Temperature High Humidity	Temperature:85℃ 85%RH	1000HRS	20PCS	0/1
3	High Temperature Storage	Temperature:100℃	1000HRS	20PCS	0/1
4	Low Temperature Storage	Temperature:—40℃	1000HRS	20PCS	0/1
5	Temperature Cycling	85℃~ 25℃~—35℃ 15min~ 5min~ 15min	15Cycles	20PCS	0/1
6	Thermal Shock	85℃~ 25℃~—10℃ 5min~ 10sec ~ 5min	15Cycles	20PCS	0/1
7	Solder Heat	Temperature:260℃±5℃	10SEC.	20PCS	0/1

Precautions For Use LED

1. Drive Method

LED is current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in a application, it is recommended that a current limiting resistor be incorporated in the drive circuit.



(a) Circuit A it is recommended circuit.

(b) Circuit B the brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

2. Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change(Burn out will happen).

3. Storage

The Storage Temperature and RH are: 5℃ ~ 30℃, RH 60% or less.

Once the package is opened, the products should be used with in a week. Otherwise, they should be kept in moisture proof package with moisture absorbent material (silica gel).

we suggest our customers to use our products within a year.

If the moisture absorbent material (silica gel) has faded away or the LEDs exceeded the storage time , baking treatment should be performed using the following conditions.

Baking treatment: more than 24 hours at 60℃ ±5℃.

4. Electrostatic Discharge (ESD)

Static electricity or surge voltage will damage the LEDs

Suggestions to prevent ESD damage:

Use of a conductive wrist band or ante-electrostatic glove when handing these LEDs

All devices, equipment, and machinery must be properly grounded.

Work tables storage racks, etc. should be properly grounded

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

5. Others

(a) If want to have the uniform luminance and color, please use the same binning number,

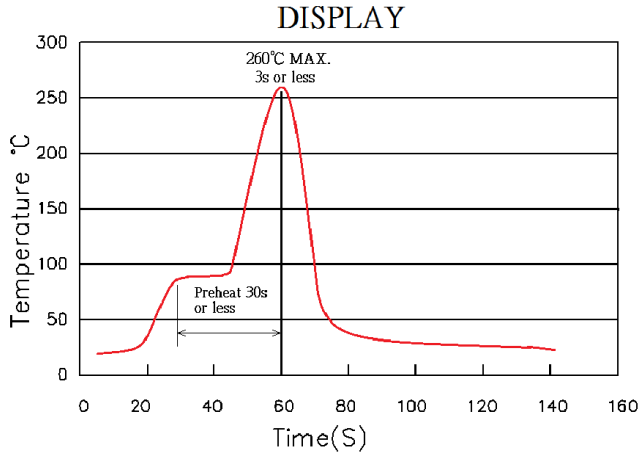
and avoid using intermix to cause the differences of luminance and color.

(b) The appearance and specifications of the product may be modified for improvement without prior notice.

6. Soldering

Recommended soldering condition as shown below:

- **Soldering heat (DIP)**



- **Soldering Iron**

  Temperature at tip of iron : 350℃ Max.

  Soldering Time: 3 sec. ± 1 sec. (one time only)

  If temperature is higher, time should be shorter