

# General Information

## Requirements to user

The LED products by HJ is designed, manufactured, and sold aiming at high standard quality and reliability, however, reliability of electronic apparatus is seen as a product of reliability superior to HJ and using status at users. From this point, HUEY-JANN requests user's for following things.

- Right product should be used properly matched to application.
- Application circuit should be designed with enough tolerance statistically.
- Careful attention should be paid for thermal radiation design.
- Use in absolute maximum rating.
- Careful consideration should be given to the fluctuation of power supply voltage not to cause faults.
- Careful attention should be paid to factors causing external stress ( surge, vibration shock, temperature and ambience).

## Storage:

To prevent humid absorption while transporting or storing the products, our products are provided by humidity proof package. Because of the humidity proof packing, it is recommended the product to be mounted immediately after unpacking. To store after unpacking, seal the packing again using a tape (with silica-gel).

Store LED in the following environment is recommended : Temp=5~30°C . Humidity=60%RH max.

## Lead forming

Make lead pin forming before soldering. During soldering, or after soldering, do not give any force to the lead. Upon forming the lead pin, do not bend the same position repeatedly, it may cause a break of lead pin.

Any unsuitable stress applied to the epoxy body may break bonding wire in LED.

The minimum distance for the place to bend the lead is 2mm from base of resin.

## Soldering

LED of resin mold has been treated with molding with highly pure resin by suppressing the addition of filler in order to increase the efficiency of light emitting and light receiving functions. Accordingly, unlike the resin such as IC, the reliability of element will be greatly influenced by the handling of chemicals, thermal, or mechanical stress. Then, make soldering for the lead pin at the position of lead wire away from base of resin more than 2mm.

Immediately after soldering, if adjustment is made for the mounting of warp of board, stress will be given to the LED, which would be broken, then, pay attention to the treatment.

If soldered by using a soldering iron, do not solder both the lead of the LED at the same time.

	Iron Soldering	Dip Soldering	Reflow Soldering
<b>General package</b>	temperature maximum:300°C soldering iron:30W tip .5φ 32mm time maximum: 3seconds small type 2seconds	preheat: 00°C 60seconds solder temp:260°C small type: 2 0°C time: 5seconds	no
<b>Mini Lamp</b>	temperature maximum:2 0°C soldering iron:30W tip .5φ 32mm time maximum: 2seconds	preheat: 00°C 60seconds solder temp:2 0°C time: 3seconds	no
<b>Surface Mount Type</b>	temperature maximum:260°C soldering iron:25W tip .5φ 32mm time maximum: 5seconds	preheat: 00°C 60seconds solder temp:260°C time: 5seconds	preheat: 20~ 50°C 60~ 20seconds solder temp:2 0°C time: 5seconds
<b>Numeric display Light bar dot matrix display</b>	temperature maximum:300°C soldering iron:30W tip .5φ 32mm time maximum: 3seconds	preheat:80°C 60seconds solder temp:260°C time: 5seconds	no

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## Lead cutting

When lead is cut in high temperature, sometimes it might be the cause of destruction. Lead should be cut in room temperature. Special attention should be paid to right after soldering.

## Thermal stress in operation:

Application of the addition agent is limited into external resin of the optical device because transmissivity is important. Therefore, deformation temperature is low comparing to LED resin such as IC, it is new maximum storage temperature (Tstg). If resin for the external case is designed without considering operating current and environmental conditions, LED may be destroy such as light power decrease or burn-out by thermal stress in the light device in operation. Also excessive current at ON/OFF mode may cause destruction.

## Chemicals resistance

Below table shows solvents may be used or met.

When forbidden chemicals is used, surface of the outer case may be deformed. When the surface of the resin is rubbed by finger etc. before the resin is dried enough, product name and marking on the surface might be vanished.

Solvent name	Use or not	Solvent name	Use or not	Solvent name	Use or not
Ethyl alcohol	Yes	Methyl alcohol	Yes	Isopropyl alcohol	Yes
Trichloroetan	Δ	Trichlene	No	Chrorosen	No
Toluene	No	Thinner	No	Acetone	No

package might be changed if freon solvent is used for transmittive sensor, reflective sensor, displays.

## Ultrasonic washing

When ultrasonic washing is not admitted, steam washing should be performed.

Type	Ultrasonic washing	Condition of ultrasonic washing
General package	yes	less than 28kHz. less than 300W. less than 30seconds.
Mini lamp	yes	
Surface mount	yes	
Display	yes	
Double end	no	

Above data are evaluation for individual device, and they should be applied after testing the assembled product in real use.

## Precautions for static electricity sensitive devices

InGa or GaInN LED are sensitive to static electricity and care should be fully in handing it. particularly, when an overvoltage is applied, which exceed static voltage or surge voltage, its energy damages the LED. Therefore, take utmost proactive measures against static electricity and surge as to building an assembly line and handing the LED drive circuit.

Beware of destruction by static electricity in handling the LED. As proactive measures against static electricity, it is effective to earth your body(with MΩ), spread conductive mat on the floor, wear semi-conductive work uniform and shoes, and use semi-conductive contains. Also, be sure to earth the nose of a soldering iron. It is recommended to use an ionizor, etc., in the facility or environment where static electricity may be generated easily.

## Preventing over current

In order to operate LED in stable condition, please put protective resistors less series.

Resistor valve can be determined by the formula

$$R = \frac{S - F}{I_F}$$

S = source voltage  
 F = forward voltage of LED  
 I<sub>F</sub> = recommended current of LED( 0~20mA)

## Brightness

For the purpose of obtaining uniform brightness, LED shall be kept at the same current.

It is useful for uniform brightness if you use larger sauce voltage and protective resistor.

## Temperature

Item	Maximum Storage Temperature	Maximum Operation Temperature (LED dice temperature)
General package	- 0 ~ 00°C	-25 ~ 85°C
Cluster LED	-25 ~ 0°C	-25 ~ 80°C
Mini Lamp	- 0 ~ 00°C	-30 ~ 85°C
Surface Mount Type	- 0 ~ 85°C	-30 ~ 85°C
Numeric Display Light Bar Dot Matrix Display	- 0 ~ 00°C	-25 ~ 80°C