

# 5mm White Round LED with Built in 500Ω Resistor

**multicomp** PRO

**RoHS  
Compliant**

## Description

This product is generally used as indicator and luminary for electronic equipment such as household appliances, communication equipment and dashboard.



## Features

- Choice of various viewing angles
- Reliable and robust
- Pb free

## Applications

- TV set
- Monitor
- Telephone
- Computer

## Selection Guide

Dice	Lens Type	Luminous intensity(mcd) @ 20mA			Viewing Angle 2θ1/2
		Min.	Typ.	Max.	
White (InGaN)	Water Clear	10000	20000	-	20

### Note:

1. 1/2 is the angle from optical centre line where the luminous intensity is 1/2 the optical centre line value.
2. The above luminous intensity measurement allowance tolerance  $\pm 15\%$

## Electrical / Optical Characteristics at T<sub>A</sub> = 25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	VF	12	13	14	V	IF=20mA
Reverse Current	IR	-	-	10	μA	VR = 5V
Chromaticity Coordinates	x/y	-	0.255/0.26	-		IF=20mA

## Absolute Maximum Ratings at T<sub>A</sub> = 25°C

Parameter	Symbol	Rating	Units
Power Dissipation	Pd	90	mW
DC Forward Current	IF	30	mA
Peak Forward Current [1]	IFP	60	mA
Reverse Voltage	VR	5	V
Electrostatic Discharge (HBM)	ESD	2000	V
Operating Temperature	Topr	-40 to +85	°C
Storage Temperature	Tstg	-40 to +100	°C
Lead Soldering Temperature [1.6mm (0.063") from Body]		260°C for 5 seconds	

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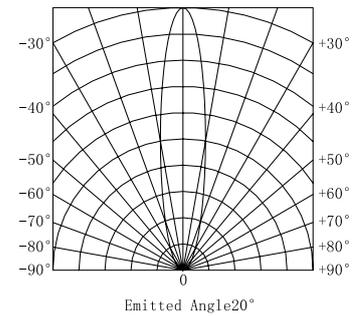
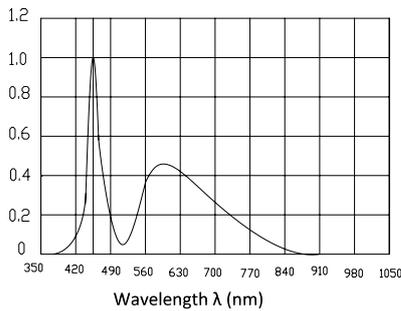
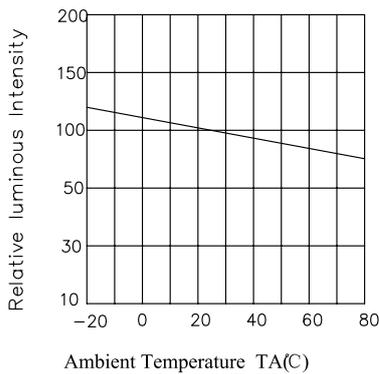
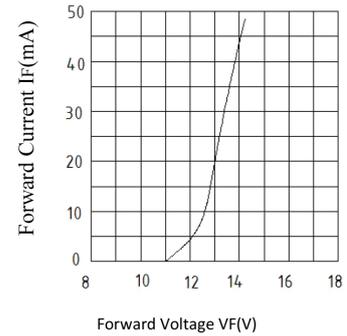
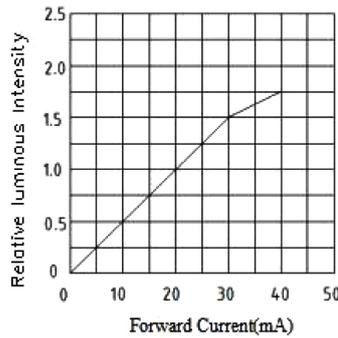
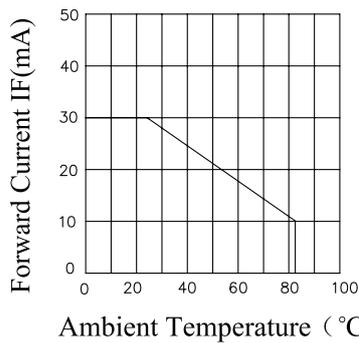
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**Note:**

- 1/10 Dut cycle, 0.1ms pulse width.
- Measurement Errors: Forward Voltage:  $\pm 0.1V$ , Luminous Intensity:  $\pm 10\%mcd$ , Wavelength(x,y)  $\pm 1nm/\pm 0.01$

## Typical Optical Characteristics Curves

Ambient Temperature VS. Forward Current



**Storage time**

LED can be stored for a year under the condition: The temperature of 5°C to 28°C and humidity of RH 60%  
These production must be re-inspected and tested before use if their storage time exceed a year.

**Soldering**

When soldering leave a minimum of 2mm clearance from the base of the lens to the soldering point.  
Dipping the lens into the solder must be avoided.  
Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.  
Recommended soldering conditions:

Soldering iron		Wave soldering	
Temperature	320°C Max.	Pre-heat Pre-heat time	120°C Max. 120 sec. Max.
Soldering time	3 sec. Max (one time only)	Solder wave Soldering time	260°C Max 5 sec. Max.

**Note:**

Excessive soldering temperature and/or time might result in deformation of the LED lens or catastrophic failure of the LED.

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## Drive Method

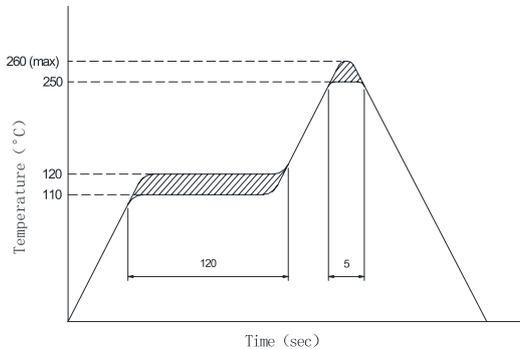
An LED is a current-operated device, in order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



(A) Recommended circuit

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

## Soldering temperature curve chart

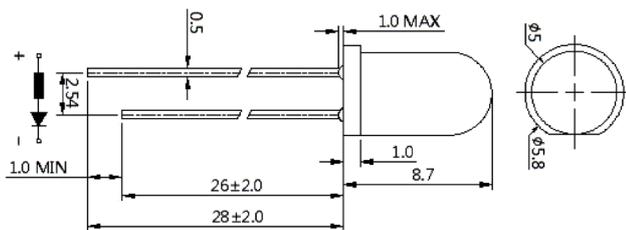


## Notes

After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.

A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.

## Diagram



Dimensions : Millimetres  
Tolerance is  $\pm 0.25\text{mm}$

## Part Number Table

Description	Part Number
5mm White Round LED, with Resistor, PK30	MP-703-1066

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