

10mm Round LEDs with Built in 500Ω Resistor

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**RoHS
Compliant**



Description

These product are 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

Part Number	Dice	Lens Type	Luminous intensity(mcd) @ 20mA			Viewing Angle
			Min.	Typ.	Max.	2θ1/2
MP-703-1067	Red (AlGaInP)	Red Diffused	75	130	-	100
MP-703-1068	Blue (InGaN)	Blue Diffused	50	100	-	100
MP-703-1069	Green (InGaN)	Green Diffused	350	800	-	100
MP-703-1070	Yellow (AlGaInP)	Yellow Diffused	100	180	-	100
MP-703-1071	White (InGaN)	Water Clear	7500	12000	-	30

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_A = 25°C

Part Number	Forward Voltage V _F (V)			Reverse Current I _R (μA)			Dominate Wavelength λ _d (nm)		
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
	Test Conditions I _F = 20mA			Test Conditions V _R = 5V			Test Conditions I _F = 20mA		
MP-703-1067	11	12	13	-	-	10	618	-	630
MP-703-1068	12	13	14				460	-	475
MP-703-1069	12	13	14				510	-	520
MP-703-1070	11	12	13				585	-	596
MP-703-1071	12	13	14				-	-	-

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Part Number	Chromaticity Coordinates x/y		
	Min.	Typ.	Max.
	Test Conditions IF = 20mA		
MP-703-1071	-	0.26/0.25	-

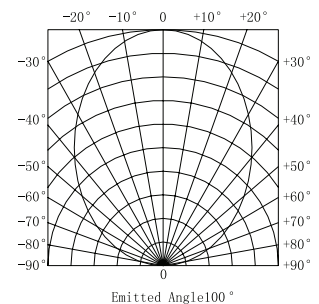
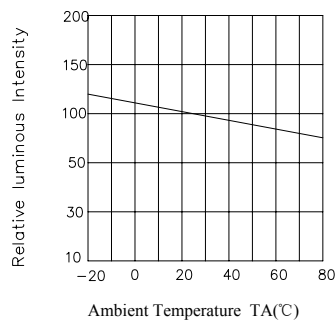
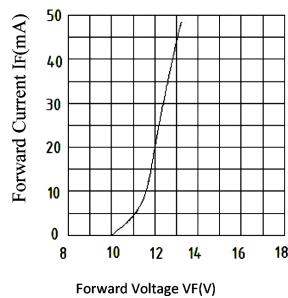
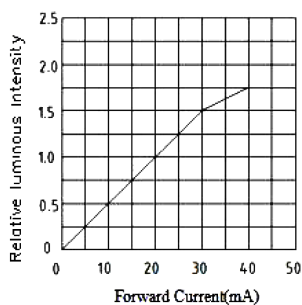
Absolute Maximum Ratings at TA = 25°C

Parameter	Symbol	Rating					Units
		MP-703-1067	MP-703-1068	MP-703-1069	MP-703-1070	MP-703-1071	
Power Dissipation	Pd	60	90	90	60	90	mW
DC Forward Current	IF	25	30	30	25	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					

Note:

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

Typical Optical Characteristics Curves



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.

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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:

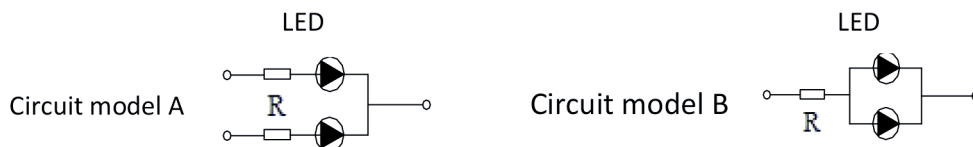
Soldering iron		Wave soldering	
Temperature	320°C Max.	Pre-heat Pre-heat time	120°C Max. 120 sec. Max.
Soldering time	3 sec. Max (one time only)	Solder wave Soldering time	260°C Max 5 sec. Max.

Note:

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

Drive Method

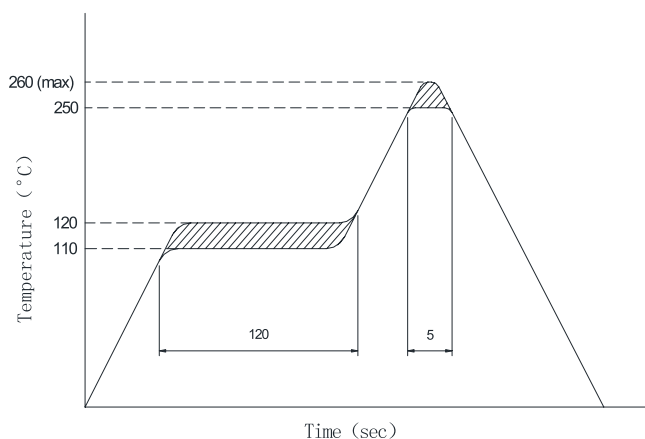
An LED is a current-operated device, in order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



(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

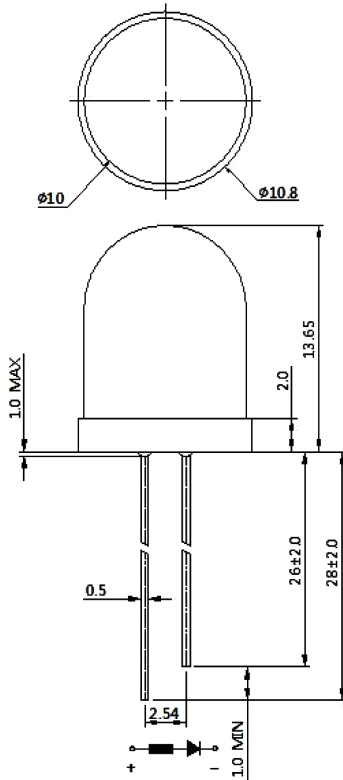
After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.

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

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Diagram



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

Part Number Table

Description	Colour	Part Number
10mm Round LED DIP F10, with Resistor, PK40	Red	MP-703-1067
10mm Round LED DIP F10, with Resistor, PK40	Blue	MP-703-1068
10mm Round LED DIP F10, with Resistor, PK40	Green	MP-703-1069
10mm Round LED DIP F10, with Resistor, PK40	Yellow	MP-703-1070
10mm Round LED DIP F10, with Resistor, PK40	White	MP-703-1071

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