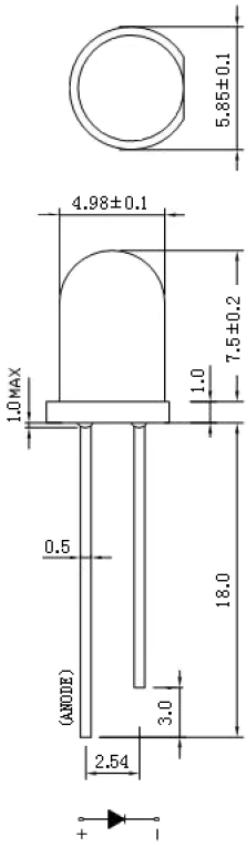
5mm Red Round LED Lamp with Tiny Diffused lens

P/N: LL50URT30-1500X (Short legs)

·Package Dimensions



Pb-free

Notes:
1. All dimension units are millimeters.
2. All dimension tolerance is ±0.25mm

·Application

·Traffic light
·Backlight
·Lighting
·Indicator light

·Product Description

·Appearance dimensions 5.0*7.5mm
·Anti-static bag packaging
·Suitable for wave soldering process
·Colloidal color: Red Tiny diffused
·Luminous color: red
·Half power view: 30 -40º

·Absolute Maximum Ratings (Ta=25Cº)

Item	Symbol	Maximum	Unit
Power Dissipation	P_D	78	mW
Peak Forward Current (1/10 Duty Cycle 0.1ms Pulse Width)	I_{FP}	90	mA
Forward Current	I_{Fmax}	25	mA
Reverse Voltage	V_R	5	V
Electrostatic discharge	ESD	1000	V
Operating Temperature Range	Topr	-40 to+85℃	
Storage Temperature Range	Tstg	-40 to+85℃	
Soldering Temperature	Tsol	Wave soldering 265℃/5s Hands soldering 320℃/3s	

·Electrical / Optical Characteristics (Ta=25Cº)

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous intensity	Iv	1500	--	1800	mcd	I_F=20mA
Dominant wavelength	λd	620	--	625	nm	I_F=20mA
Peak wavelength	λp	--	642	--	nm	I_F=20mA
Spectrum radiation bandwidth	△λ	--	30	--	nm	I_F=20mA
Forward Voltage	V_F	1.8	2.0	2.4	V	I_F=20 mA
Reverse Current	I_R	-	-	10	μA	V_R=5V
Half power view	**2θ½**	30	--	40	deg	I_F=20 mA

·Typical Electro-optical characteristics

FIG. 1 Forward Current Vs. Forward Voltage

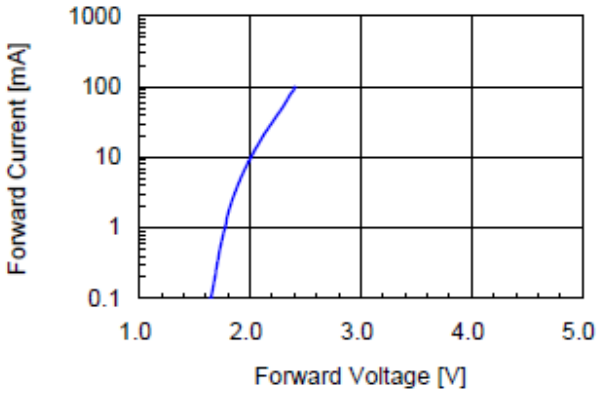


FIG. 2 Relative Intensity Vs. Forward Current

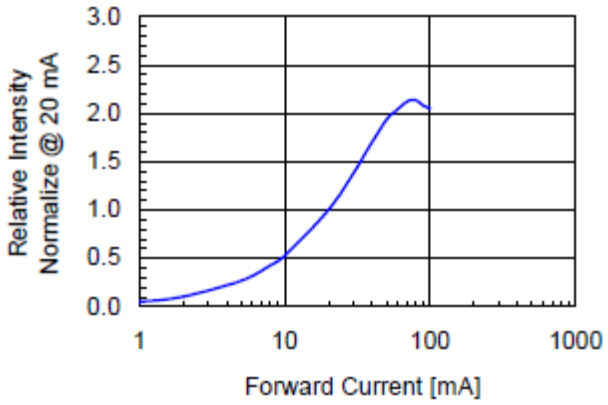


FIG. 3 Forward Voltage Vs. Temperature

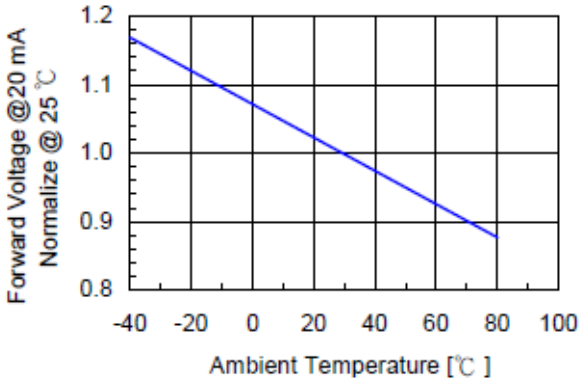


FIG. 4 Relative Intensity Vs. Temperature

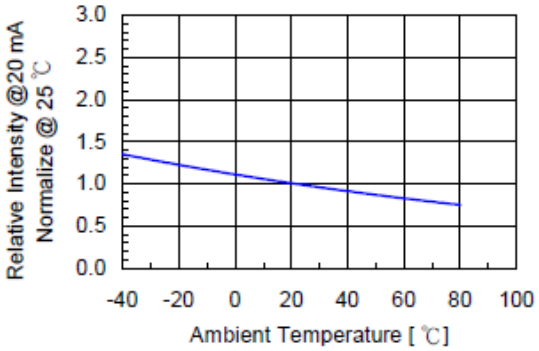
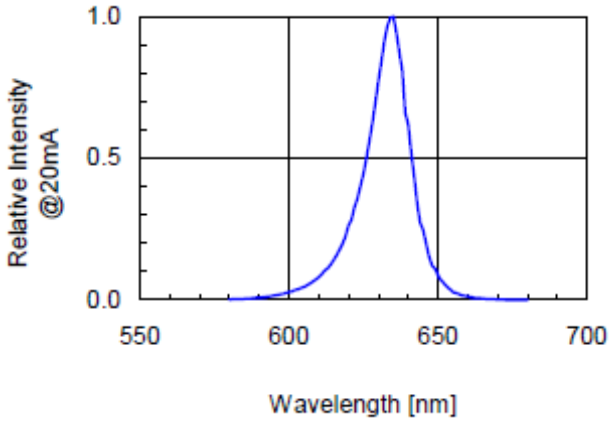


FIG. 5 Relative Intensity Vs. Wavelength



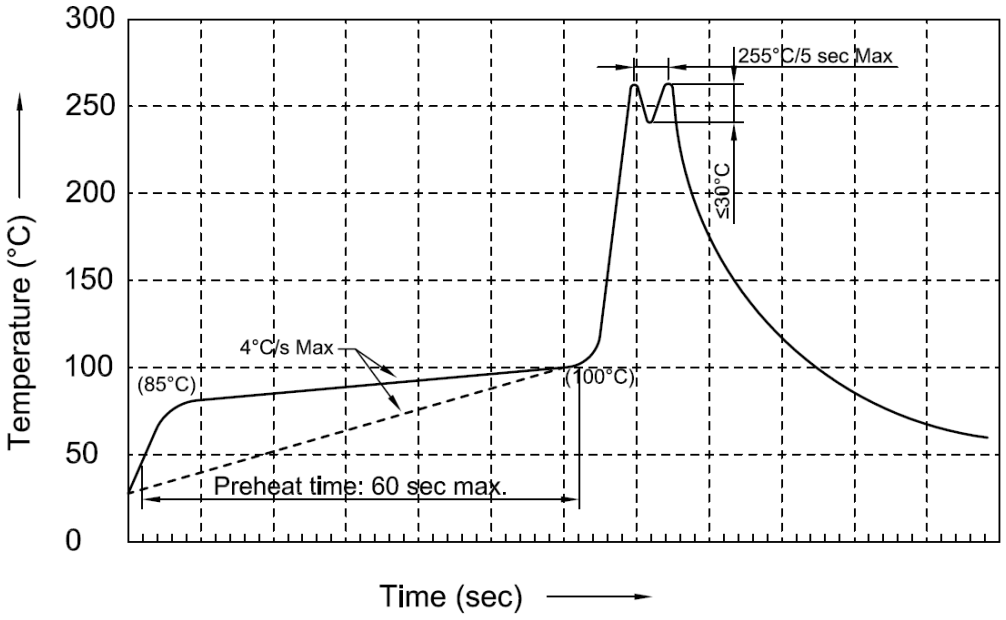
Instruction manual of through-hole LED lamp

·Soldering condition

Manual soldering		Solder Dipping	
Soldering iron	30W max	Preheat	100℃ max
Temperature	300℃ max	Preheat time	60 seconds max
		Solder-bath temperature	260℃ max
Soldering time	3 seconds max	Dipping time	2 seconds max
Position	Not less than 3mm from the base of the package	Position	Not less than 3mm from the base of the package

Manual soldering onto the PCB is not recommended because soldering time is uncontrollable.

The recommended wave soldering is as below:



Notes:

1.Recommend pre-heat temperature of 105℃ or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260℃.

2.Peak wave soldering temperature between 245-255℃ for 3 sec (5 sec max).

3.Do not apply stress to the epoxy resin while the temperature is above 85℃.

4. Fixtures should not apply stress on the component when mounting and soldering process.

5. More than one wave soldering is not allowed.

·Pin forming method

a. 2 mm from collate is required to bend the bracket.
b. Bracket forming must be done with a fixture or by a professional.
c. Bracket forming must be done before welding.
d. Bracket forming needs to ensure that the pins and spacing are consistent with the circuit board.

·LED installation method

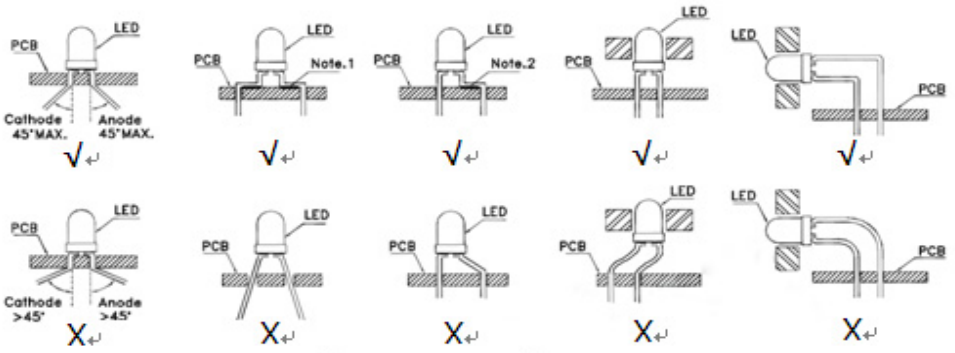
a. Please pay attention to the arrangement of the external lines of various types of devices, in order to prevent polarity from being misplaced. The device must not be too close to the heating element and the working conditions should not exceed its specified limits.
b. Be sure not to install led in the case of pin deformation.
c. When deciding to install in the hole, calculate the dimensions and tolerances of the face and the pitch of the hole on the circuit board to avoid excessive pressure on the bracket.
d. When installing LEDs, the construction of a guide set positioning.
e. Before the welding temperature returns to normal, the LED must be avoided by any vibration or external force.

·Storage conditions

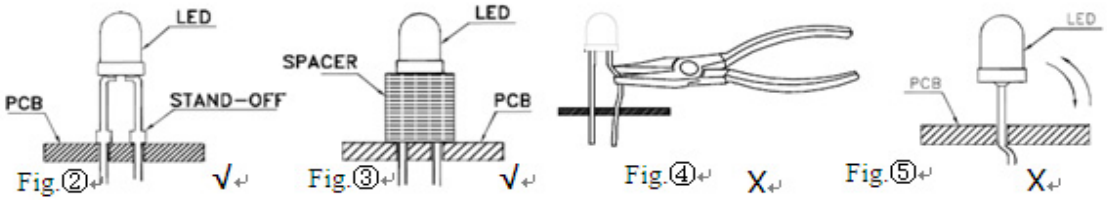
a. Prevent continued exposure to the condensing moisture environment and keep the product away from rapid transitions in ambient temperature.
b. LEDs should be stored with temperature ≤30℃ and relative humidity ≤60%。
c. Product in the original sealed package is recommended to be assembled within 72 hours of opening. Product in opened package for more than a week should be baked for 30 (+10/-0) hours at 85-100℃.

·Others

1. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component. Lead-forming may be required to insure the lead pitch matches the pitch. Refer to the figure below for proper lead forming procedures. (Fig.①)



3. Fig.① Use stand-offs (fig.②) or spacers (fig.③) to securely position the LED above the PCB.



2. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB.(fig.④)

3. Do not bend the leads more than twice. (fig.⑤)

4. During soldering, component covers and holders should leave clearance to avoid placing damaging stress on the LED during soldering