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DATA SHEET

PART NO.: L-T670IR4CT

REV: A / 1

CUSTOMER'S APPROVAL : _____

DCC : _____

DRAWING NO. : DS-7A-11-0007

DATE :2012-2-21

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SURFACE MOUNT DEVICE LED

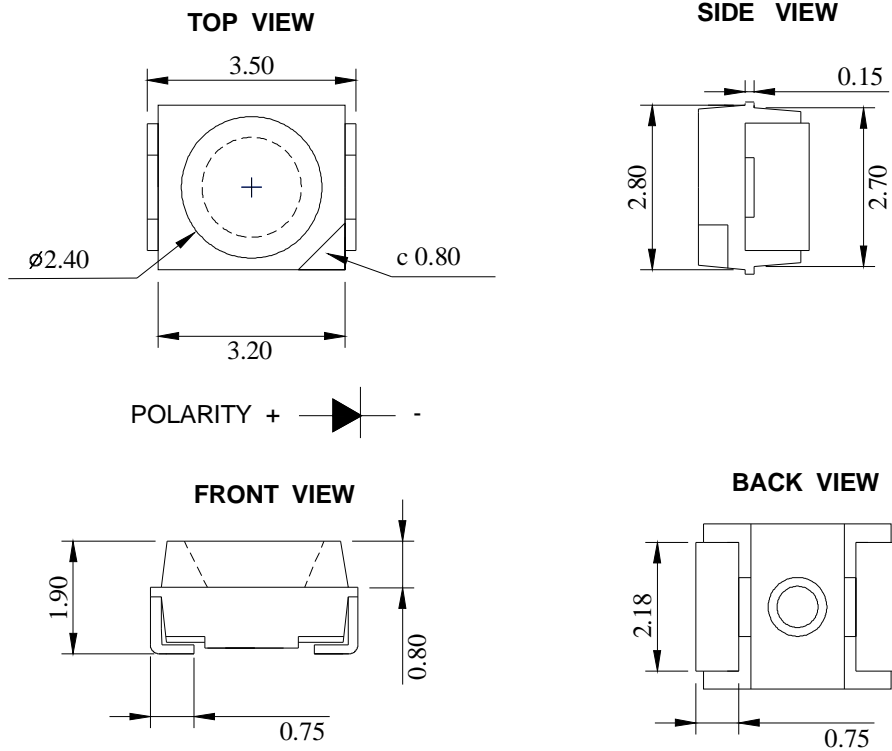
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I Features

- Ū Top view, Wide view angle, IR PLCC 2 package SMD LED .
- Ū EIA STD package, packing in 8mm tape on 7" diameter reels (ANSI/EIA-481-B-2001).
- Ū Compatible with automatic Pick & Place equipment.
- Ū Compatible with IR Reflow soldering and TTW soldering.
- Ū Pb free product and acceptable lead-free process.
- Ū Meet RoHS Green Product.

I Package Outline Dimensions



Notes:

1. All dimensions are in millimeters.
2. Tolerance is $\pm 0.10\text{mm}$ (.004") unless otherwise noted.



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I CHIP MATERIALS

Ū Dice Material : GaAlAs/GaAs

Ū Lens Color : Water Clear

I Absolute Maximum Ratings(Ta=25°C)

Symbol	Parameter	Rating	Unit
P _D	Power Dissipation	1.7	mW
I _{PF}	Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	80	mA
I _F	Continuous Forward Current	20	mA
-	De-rating Linear From 25°C	0.25	mA/°C
V _R	Reverse Voltage	5	V
Topr	Operating Temperature Range	-40 ~ +85	°C
Tstg	Storage Temperature Range	-40 ~ +85	°C
-	Wave Soldering Condition (Two times Max.)	260 (for 5 seconds)	
-	Infrared Soldering Condition (Two times MAX.)	240 (for 10 seconds)	

Note A :

HBM : Human Body Model. Seller gives no other assurances regarding the ability of to withstand ESD.

I Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Radiant Intensity	IE	0.6	1.1		mW/sr	IF=70mA
Viewing Angle	2 θ 1/2		130		deg	Note 2
Peak Emission Wavelength	λ p		850		nm	Measurement @Peak
Spectral Line Half-Width	Δ λ		35		nm	
Forward Voltage	VF		1.6	1.9	V	IF =70mA
Reverse Current	IR			100	μ A	VR = 5V

Radiant Intensity(IE), Unit:mw/sr@70mA		
Bin Code	Min	Max
D	0.45	0.71
E	0.71	1.12
F	1.12	1.80

Notes:

1. Luminous intensity is measured with a light sensor and filter combination that proximities the CIE eye-response curve.
2. θ 1/2 is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. Caution in ESD :
Static Electricity and surge damages the LED. It is recommended use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
4. Major standard testing equipment by “Instrument System” Model : CAS140B Compact Array Spectrometer and “KEITHLEY” Source Meter Model : 2400.

I Typical Electro-Optical Characteristics Curves

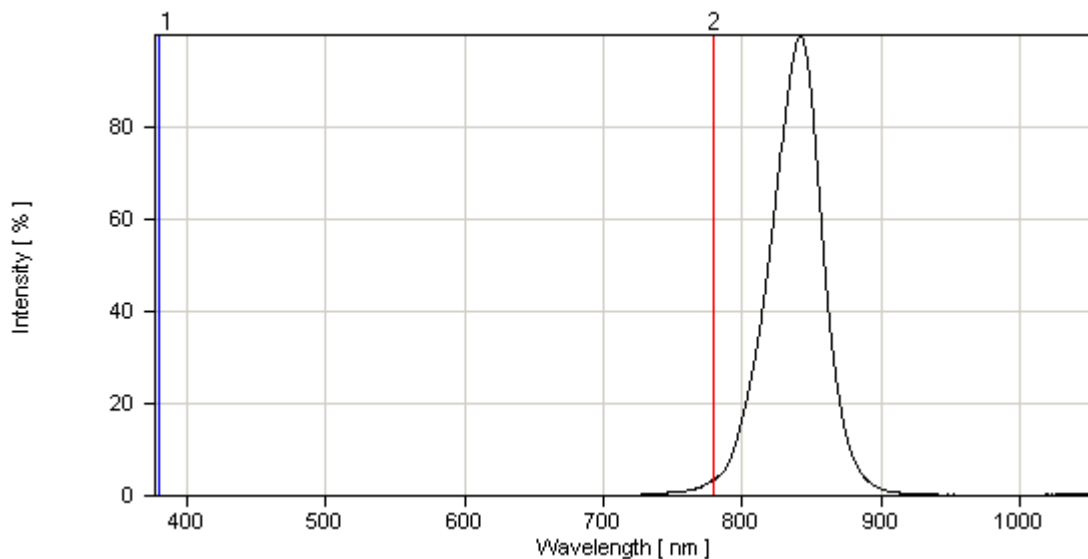


Fig.1 Relative Intensity vs. Wavelength



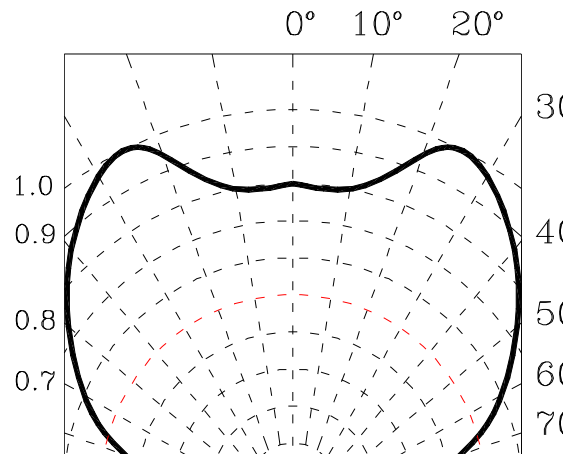
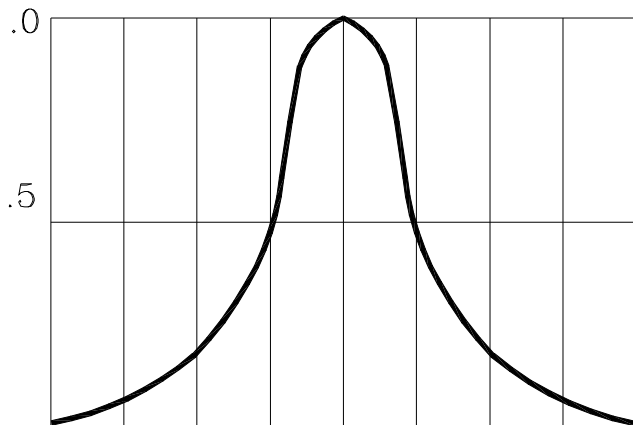
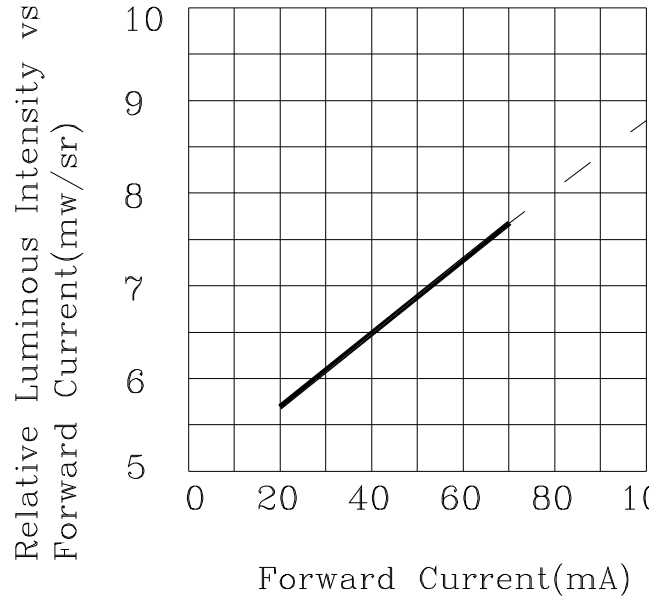
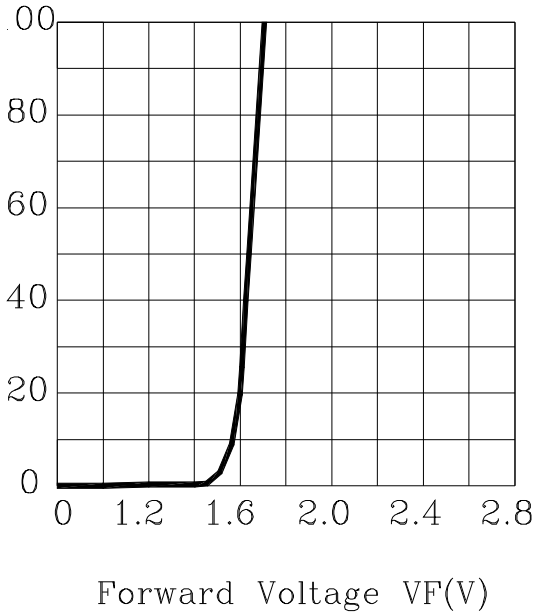
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I Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)



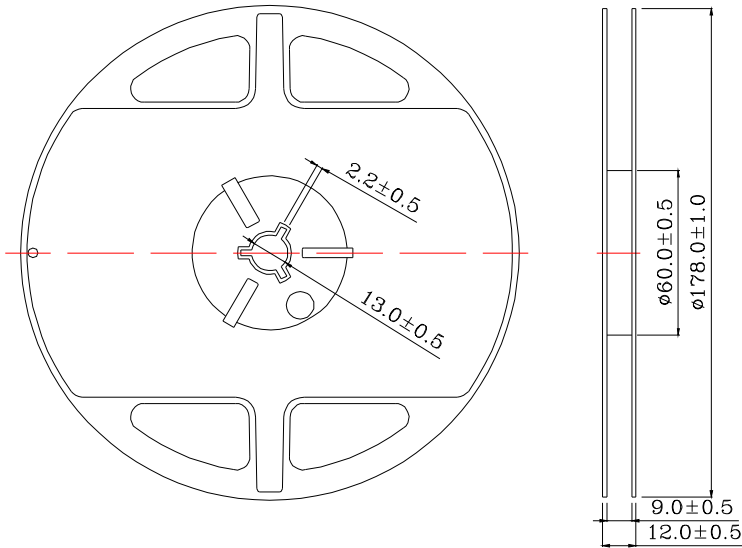


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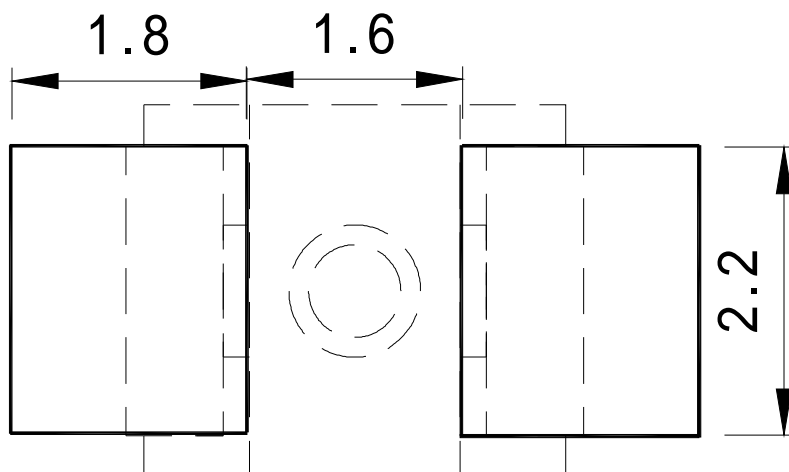
I Reel Dimensions



Notes:

1. Taping Quantity : 2000pcs
2. The tolerances unless noted is ± 0.1 mm, Angle $\pm 0.5^\circ$, Unit: mm.

I Suggest Soldering Pad Dimensions



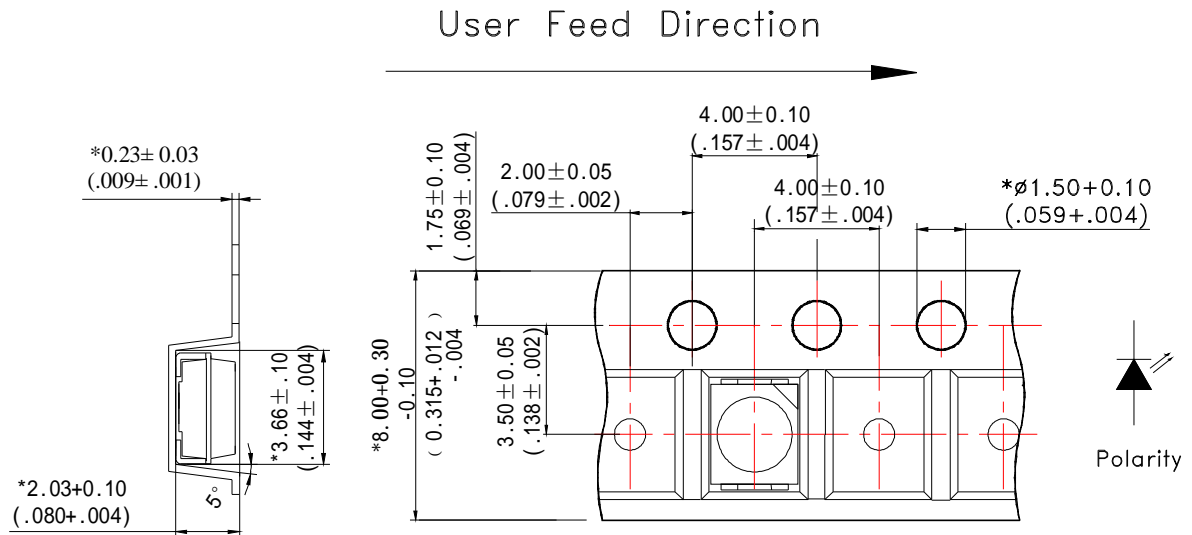


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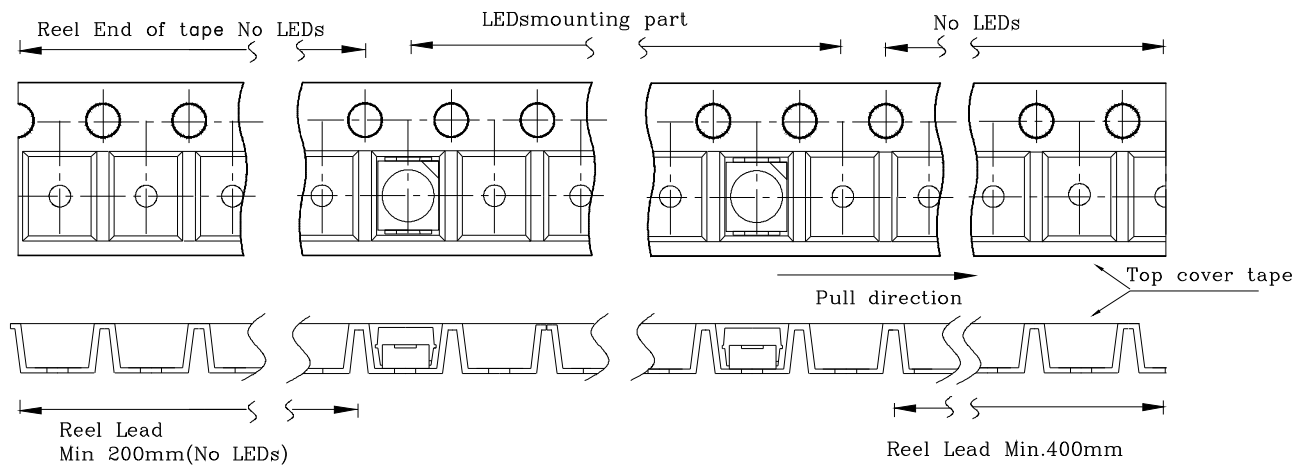
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I Package Dimensions Of Tape And Reel

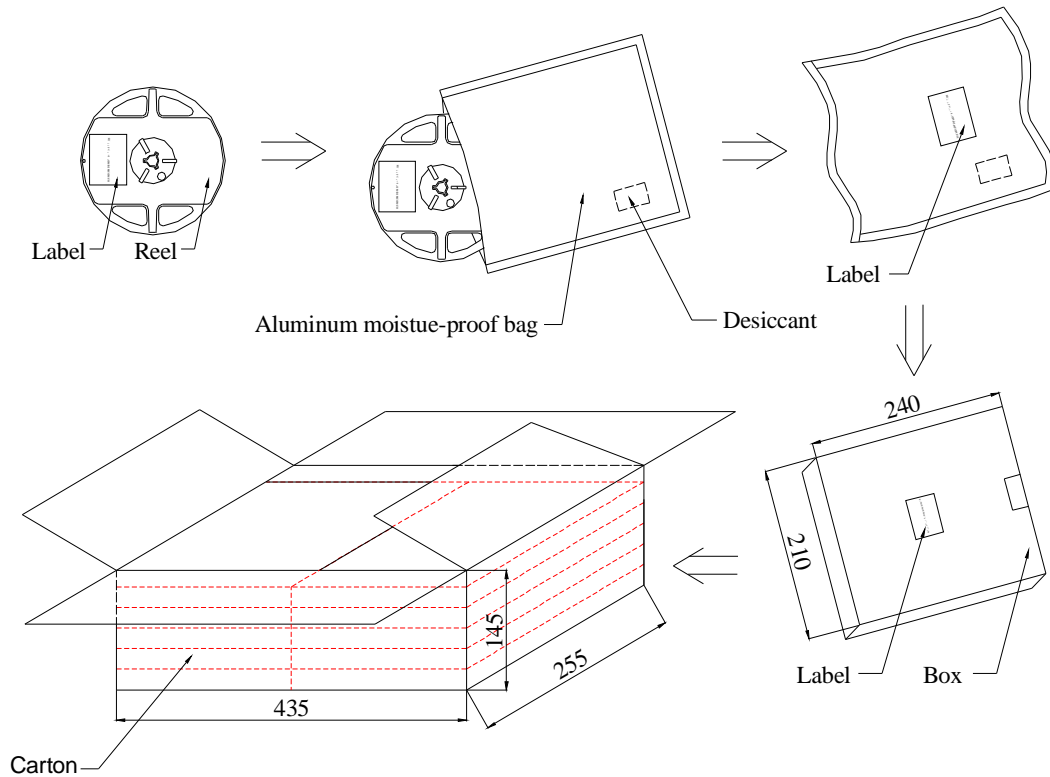


Notes: All dimensions are in millimeters.

I Packaging Of Electronic Components On Continuous Tapes



I **Moisture Resistant Packaging**



Notes : One reel in a bag, one bag in a inner box, ten inner boxes in a carton. Unit : mm.

I **Cleaning**

- Ū If cleaning is required , use the following solutions for less than 1 minute and less than 40°C.
- Ū Appropriate chemicals: isopropyl alcohol. (When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.)
- Ū Effect of ultrasonic cleaning on the LED resin body differs depending on such factors as ultrasonic power and the assembled condition. Before cleaning, a pre-test should be confirm whether any damage to the LEDS will occur.

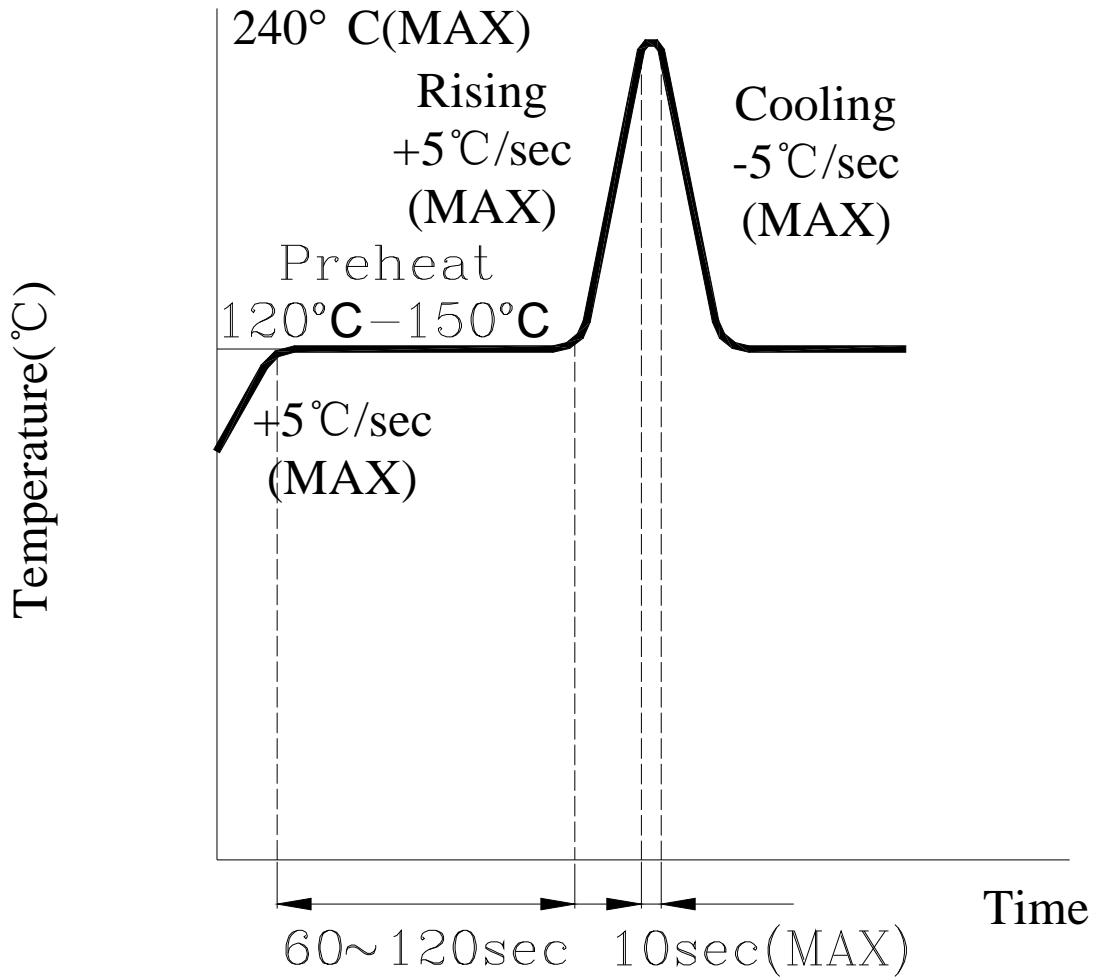


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I Suggest IR Reflow Soldering Profile Condition:





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I CAUTIONS

1. Static Electricity:

* Static electricity or surge voltage damages the LEDs.

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

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

It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.

* When inspecting the final products in which LEDs were assembled, it is recommended to check whether the assembled LEDs are damaged by static electricity or not. It is easy to find static-damaged LEDs by a light-on test or a VF test at a lower current (blew 1mA is recommended).

* Damaged LEDs will show some unusual characteristics such as the leak current remarkably increases, the forward voltage becomes lower, or the LEDs do not light at the low current.

Criteria: (VF>2.0V, at IF=0.5mA)

2. Storage :

* Before opening the package :

The LEDs should be kept at 30°C or less and 85%RH or less. When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

* After opening the package :

The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be soldered within 168 hours (7 days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

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

Baking treatment: more than 24hours at 65±5°C.

* Please avoid rapid transitions in ambient temperature in high humidity environments where condensation may occur.

3. Soldering:

Do not apply any stress to the LED lens during soldering while the LED is at high temperature.

Recommended soldering condition.

* Reflow Soldering :

Pre-heat 120~150°C, 120sec. MAX., Peak temperature : 240°C Max. Soldering time : 10 sec Max.

* Soldering Iron : (Not recommended)

Temperature 350°C Max., Soldering time : 3 sec. Max.(one time only), power dissipation of iron : 20W Max. use SN60 solder of solder with silver content and don't touch LED lens when soldering.

4. Lead-Free Soldering

For Reflow Soldering :

1、Pre-Heat Temp: 150-180°C, 120sec. Max.

2、Soldering Temp: Temperature Of Soldering Pot Over 240°C, 40sec. Max.



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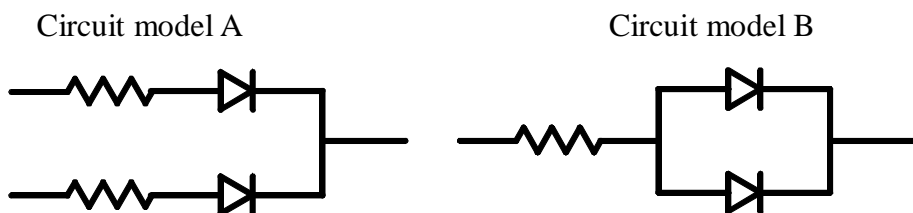
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- 3、Peak Temperature: 260°C · 10sec.
- 4、Reflow Repetition: 2 Times Max.
- 5、Suggest Solder Paste Formula : 93.3 Sn/3.1 Ag/3.1 Bi/0.5 Cu

For Soldering Iron (Not Recommended) :

- 1、Iron Tip Temp: 350°C Max.
- 2、Soldering Iron: 30w Max.
- 3、Soldering Time: 3 Sec. Max. One Time.

5. Drive Method



(A) Recommended circuit.

(B) The difference of brightness between LED`s could be found due to the Vf-If characteristics of LED.

6. Reliability

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operation Life	Ta= Under Room Temperature As Per Data Sheet Maximum Rating *Test Time= 1000HRS (-24HRS,+72HRS)*@20mA.	MIL-STD-750D:1026 (1995) MIL-STD-883D:1005 (1991) JIS C 7021:B-1 (1982)
	High Temperature High Humidity Storage	IR-Reflow In-Board, 2 Times Ta= 65±5°C, RH= 90~95% *Test Time= 1000HRS±2HRS	MIL-STD-202F:103B(1980) JIS C 7021:B-11(1982)
	High Temperature Storage	Ta= 105±5°C Test Time= 1000HRS (-24HRS,72HRS)	MIL-STD-883D:1008 (1991) JIS C 7021:B-10 (1982)
	Low Temperature Storage	Ta= -55±5°C *Test Time=1000HRS (-24HRS,72HRS)	JIS C 7021:B-12 (1982)
Environmental Test	Temperature Cycling	105±5°C -55±5°C 10mins 10mins 100 Cycles	MIL-STD-202F:107D (1980) MIL-STD-750D:1051(1995) MIL-STD-883D:1010 (1991) JIS C 7021:A-4(1982)
	Thermal Shock	IR-Reflow In-Board, 2 Times 105±5°C -55°C±5°C 10mins 10mins 100 Cycles	MIL-STD-202F:107D(1980) MIL-STD-750D:1051(1995) MIL-STD-883D:1011 (1991)
	Solder Resistance	Tsol= 260 ± 5°C Dwell Time= 10 ± 1sec	MIL-STD-202F:210A(1980) MIL-STD-750D:2031(1995) JIS C 7021:A-1(1982)
	Solder ability	Tsol= 235 ± 5°C Immersion time 2±0.5 sec Immersion rate 25±2.5 mm/sec Coverage ≥95% of the dipped surface	MIL-STD-202F:208D(1980) MIL-STD-750D:2026(1995) MIL-STD-883D:2003(1991) IEC 68 Part 2-20 JIS C 7021:A-2(1982)



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7.Others:

The appearance and specifications of the product may be modified for improvement without notice.

●PART NO. SYSTEM :

L - T 67 0 X X T - X X X X

XXXX : Special specification for customer

T : Taping for 7 inch reel
TC : Taping for 13 inch reel

Lens color
C : Water Clear
W : White Diffused
T : Color Transparent
D : Color Diffused

KY : 9mil AlInGap 590nm Super Yellow
KR : 9mil AlInGap 630 nm Super Red
TE : 14mil AlInGap 624 nm Super Red
TY: 14mil AlInGap590 nm Super Yellow
LB : InGaN ITO rough 470nm Blue
LG : InGaN ITOrough520nm Green
W : InGaN + YAG White color
IR4: GaAlAs/GaAs 850nm

0 : Single chip
1/2 : Super thin single chip
5/6 : Dual chip
F : Three chip(Full color)

650 : 3020 1.3T TYPE
670 : 3528 1.9T TYPE
020 : 3812 0.6T TYPE

C : PCB Top View Type
T : PLCC Top View Type
S : Side View Type