

DATA SHEET

PART NO.: L-C191WDT-HM3

REV: A / 2

CUSTOMER'S APPROVAL : _____

DCC : _____

DRAWING NO. : DS-74-18-0018G

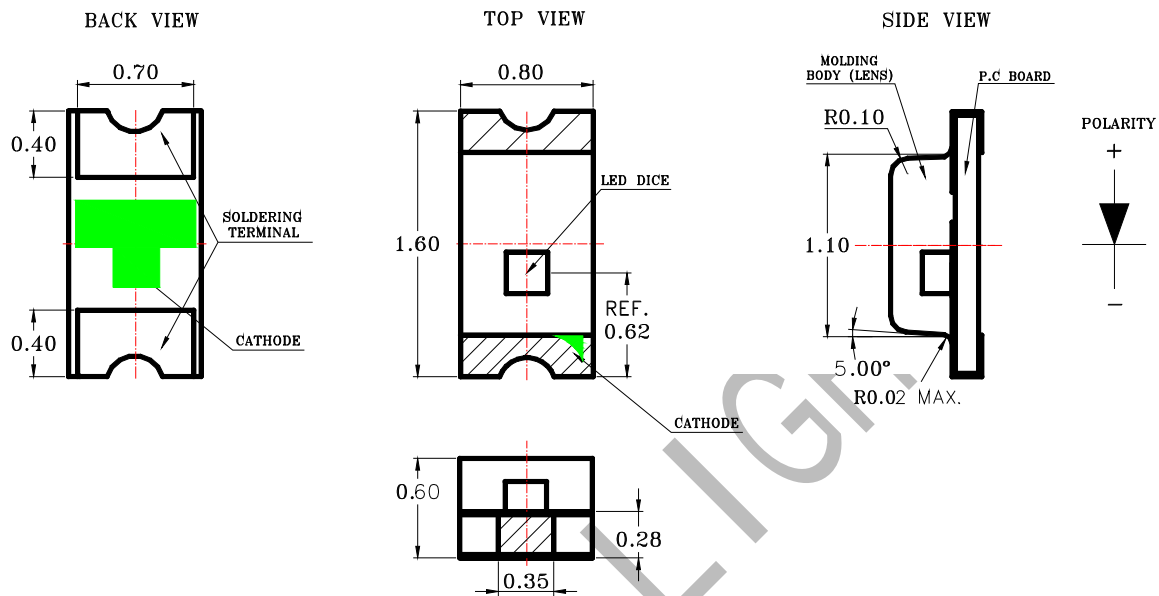
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SURFACE MOUNT DEVICE LED

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● PACKAGE OUTLINE DIMENSIONS



Notes:

1. All dimensions are in millimeters.
2. Tolerance is $\pm 0.1\text{mm}$ (.004") unless otherwise noted.

● Features

- * Top view, wide view angle, single color Chip LED.
- * Package in 8mm tape on 7" diameter reels.
- * Compatible with automatic Pick & Place equipment.
- * Compatible with Infrared and Wave soldering reflow solder processes.
- * EIA STD package.
- * I.C. compatible.
- * Pb free product.
- * Meet RoHS Green Product.

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● **CHIP MATERIALS**

- * Dice Material : InGaN
- * Light Color : White
- * Lens Color : Light Yellow Diffused.

● **Absolute Maximum Ratings(Ta=25°C)**

| Symbol | Parameter | Rating | Unit |
|--------|--|------------|-------|
| PD | Power Dissipation | 76 | mW |
| IPF | Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width) | 80 | mA |
| IF | Continuous Forward Current | 20 | mA |
| - | De-rating Linear From 25°C | 0.25 | mA/°C |
| VR | Reverse Voltage | 5 | V |
| ESD | Electrostatic Discharge Threshold(HBM)Note A | 1000 | V |
| Topr | Operating Temperature Range | -40 ~ + 85 | °C |
| Tstg | Storage Temperature Range | -40 ~ + 85 | °C |

Note A :

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

● **Electro-Optical Characteristics(Ta=25°C)**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|--------------------|---------|------|-------|------|------|----------------|
| Luminous Intensity | IV | 120 | 140 | | mcd | IF=5mA |
| Viewing Angle | 2 θ 1/2 | | 130 | | Deg | Note 2 |
| CIE Chromaticity | X | | 0.269 | | | IF=5mA |
| CIE Chromaticity | Y | | 0.284 | | | |
| Forward Voltage | VF | | 2.7 | 2.9 | V | IF =5mA |
| Reverse Current | IR | | | 50 | μ A | VR = 5V |

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Notes:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. $\theta_{1/2}$ 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.

● Typical Electro-Optical Characteristics Curves

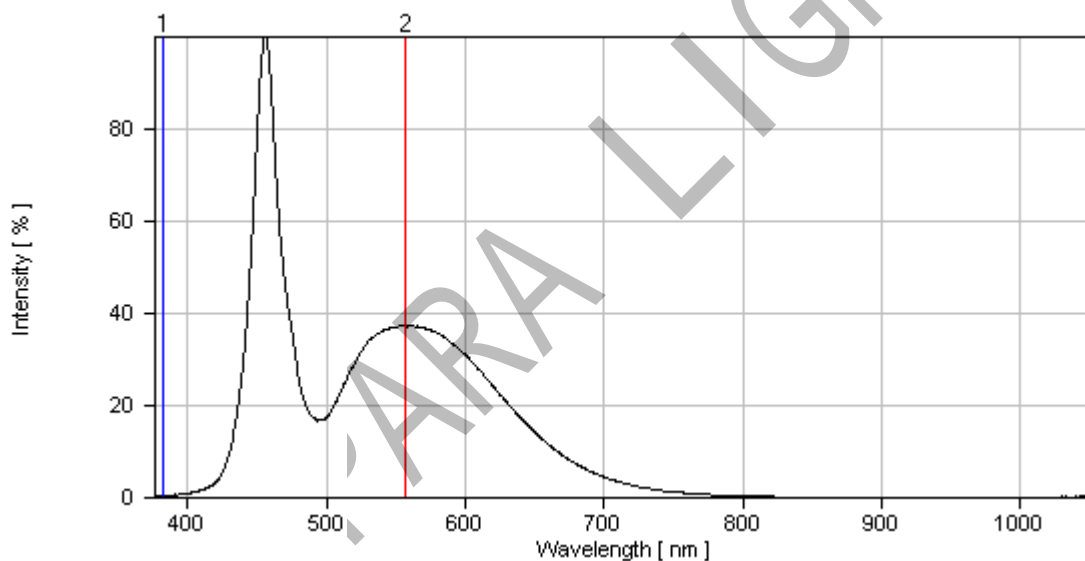


Fig.1 Relative Intensity vs. Wavelength

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● Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

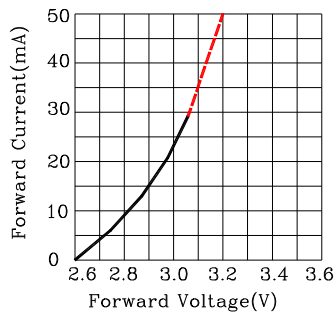


Fig.2 Forward Current vs. Forward Voltage

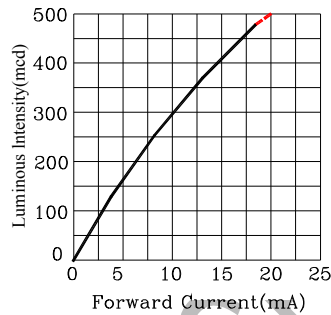


Fig.3 Luminous Intensity vs. Forward Current

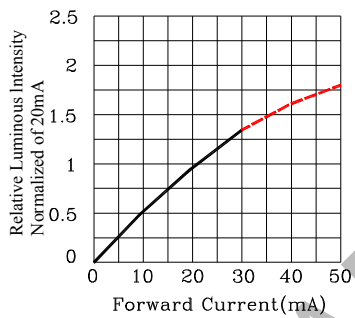


Fig.4 Relative Luminous Intensity vs. Forward Current

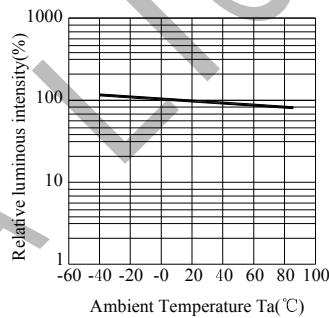


Fig.5 Luminous Intensity vs. Ambient Temperature

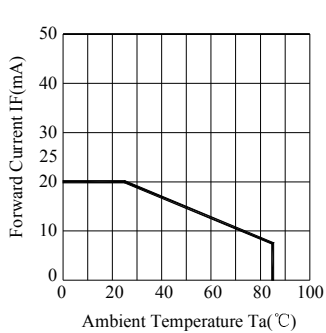


Fig.6 Forward Current Derating Curve

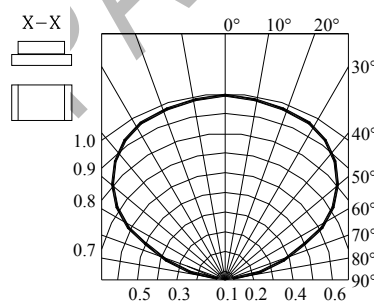


Fig.7 Relative Intensity vs. Angle

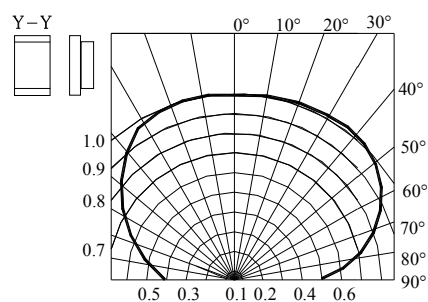


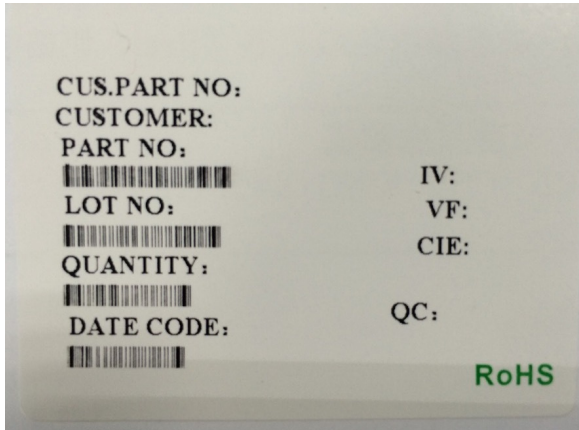
Fig.7 Relative Intensity vs. Angle

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● Label Explanation



ITEM CODE:PARRA LIGHT

PART NO: L-C191WDT-HM3

IV --- Luminous Intensity Code

LOT NO: EM S L 12 09 0110
 A B C D E F

A---EM: Emos Code

B---S:SMD

L---Local

D---Year

E---Month

F---SPEC.

PACKING QUANTITY OF BAG :

3000pcs for 150、170、110、155、115 series

4000pcs for 191 series

5000pcs for 192 series

DATE CODE: 2012 09 10
 G H I

G--- Year

H--- Month

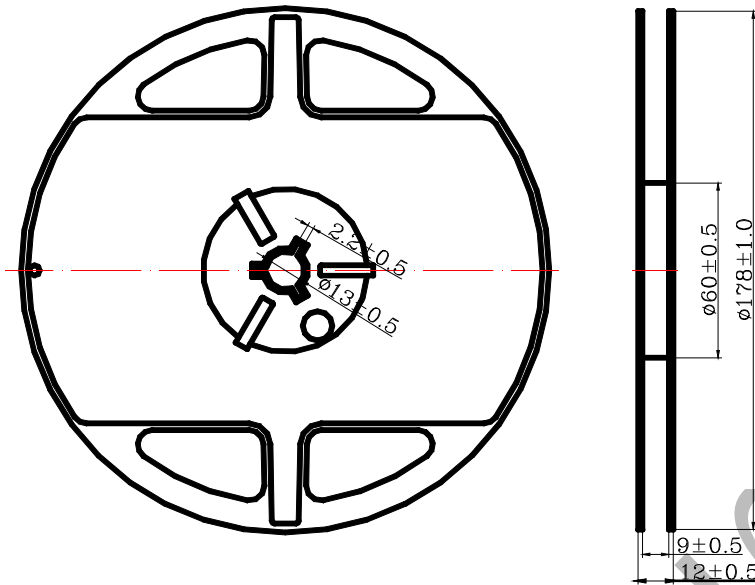
I --- Day

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● Reel Dimensions



Notes:

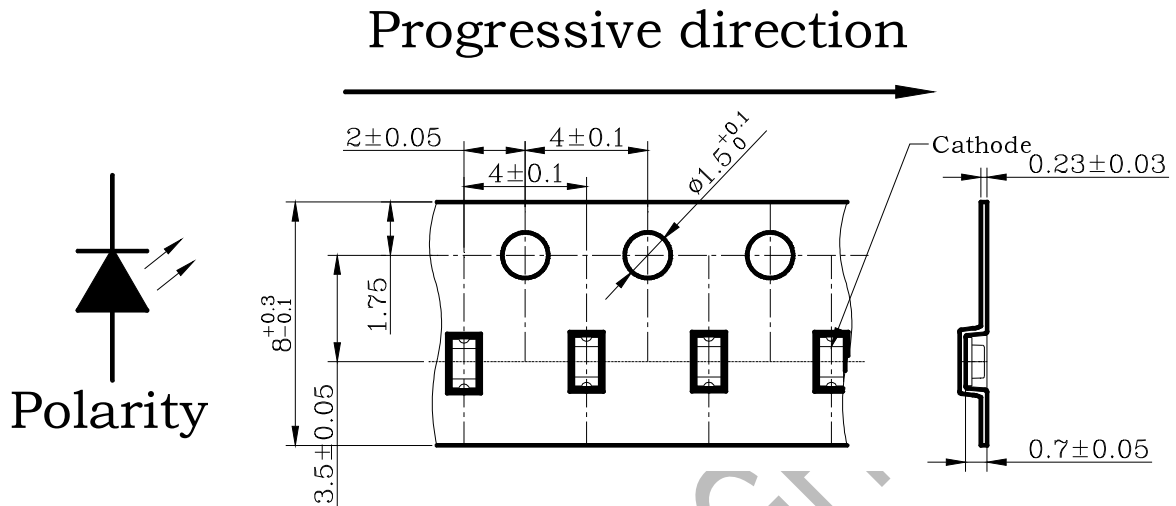
1. Taping Quantity : 4000pcs
2. The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$, Unit : mm.

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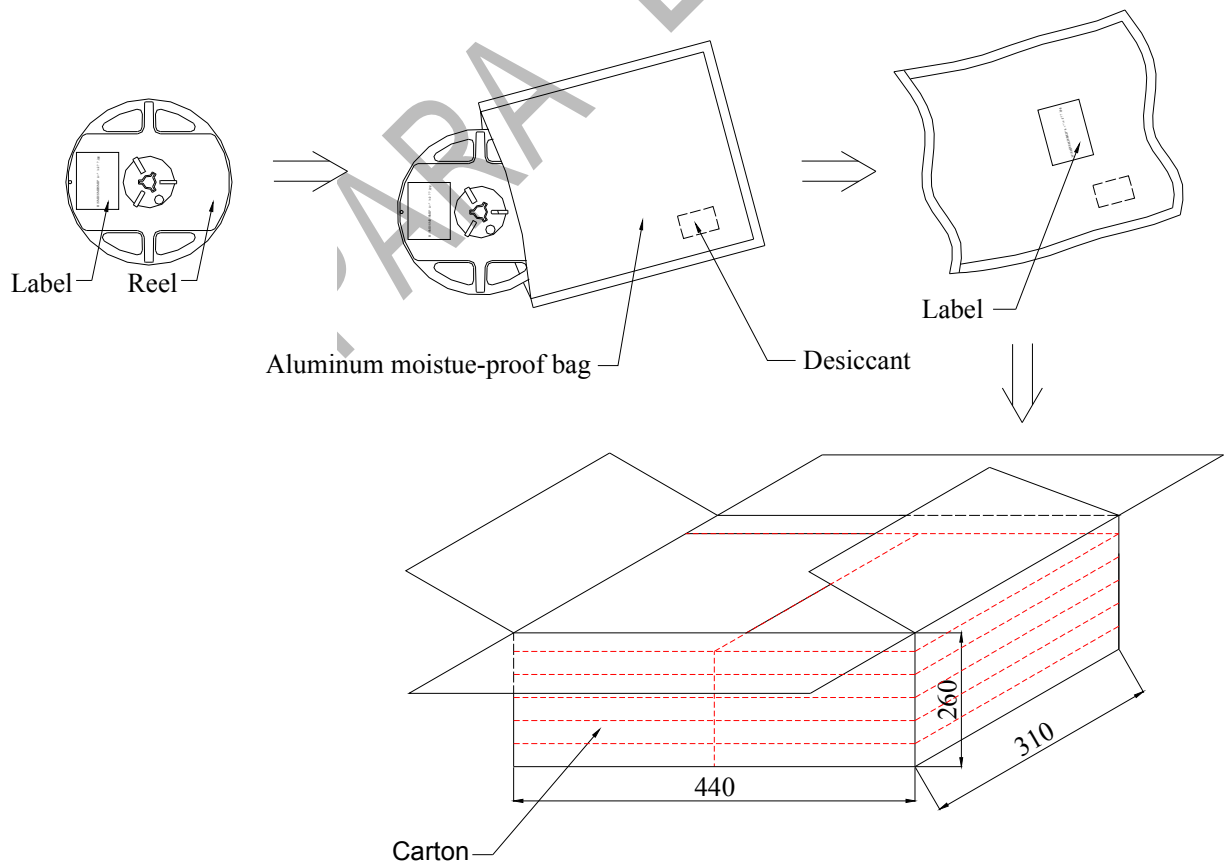
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● Package Dimensions Of Tape And Reel



Notes: All dimensions are in millimeters.

Moisture Resistant Packaging



Notes : One reel in a bag, thirty-six bag in a carton. Unit : mm.

SURFACE MOUNT DEVICE LED

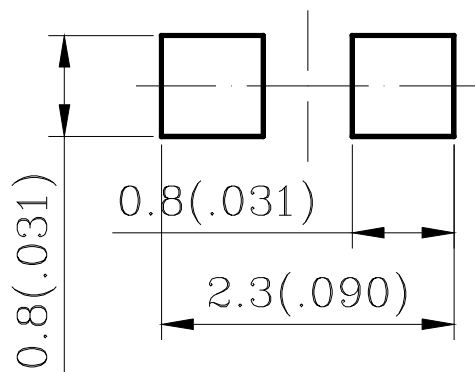
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● Cleaning

- * If cleaning is required , use the following solutions for less than 1 minute and less than 40°C.
- * Appropriate chemicals: Ethyl alcohol and isopropyl alcohol.
- * Effect of ultrasonic cleaning on the LED resin body differs depending on such factors as the oscillator output, size of PCB and LED mounting method. The use of ultrasonic cleaning should be enforced at proper output after confirming there is no problem.

● Suggest Soldering Pad Dimensions



Direction of PWB camber
and go to reflow furnace

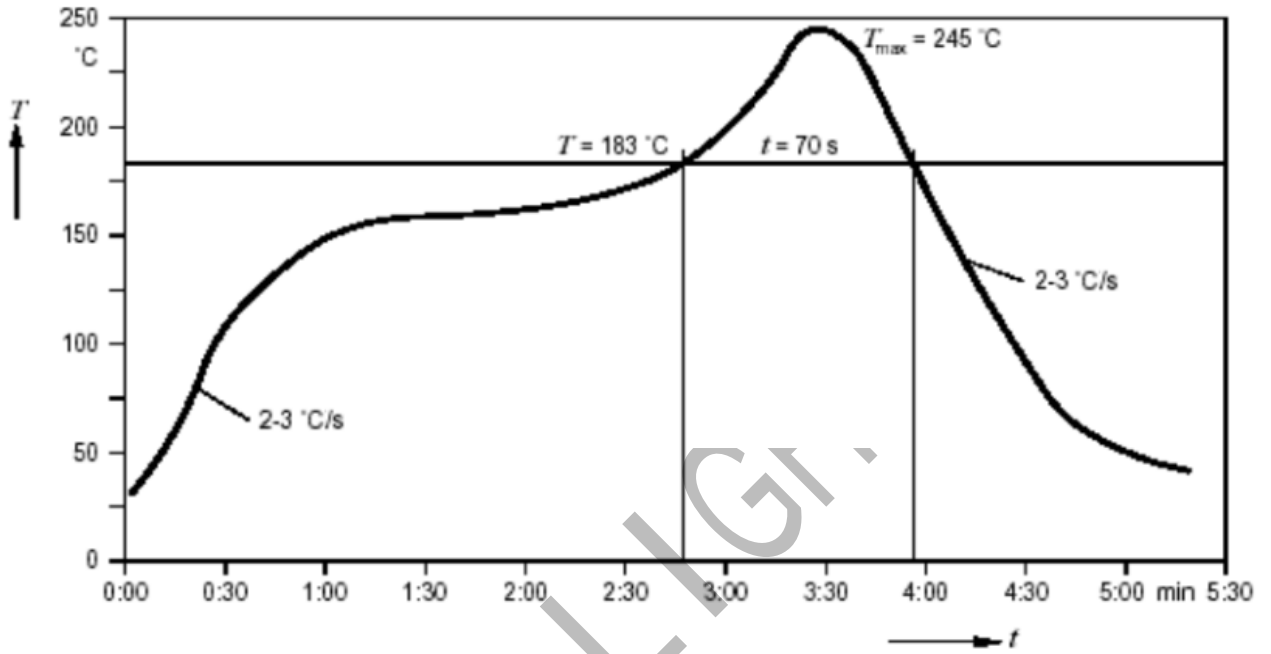
Notes : Suggest stencil print screen thickness are 0.10mm maximum.

SURFACE MOUNT DEVICE LED

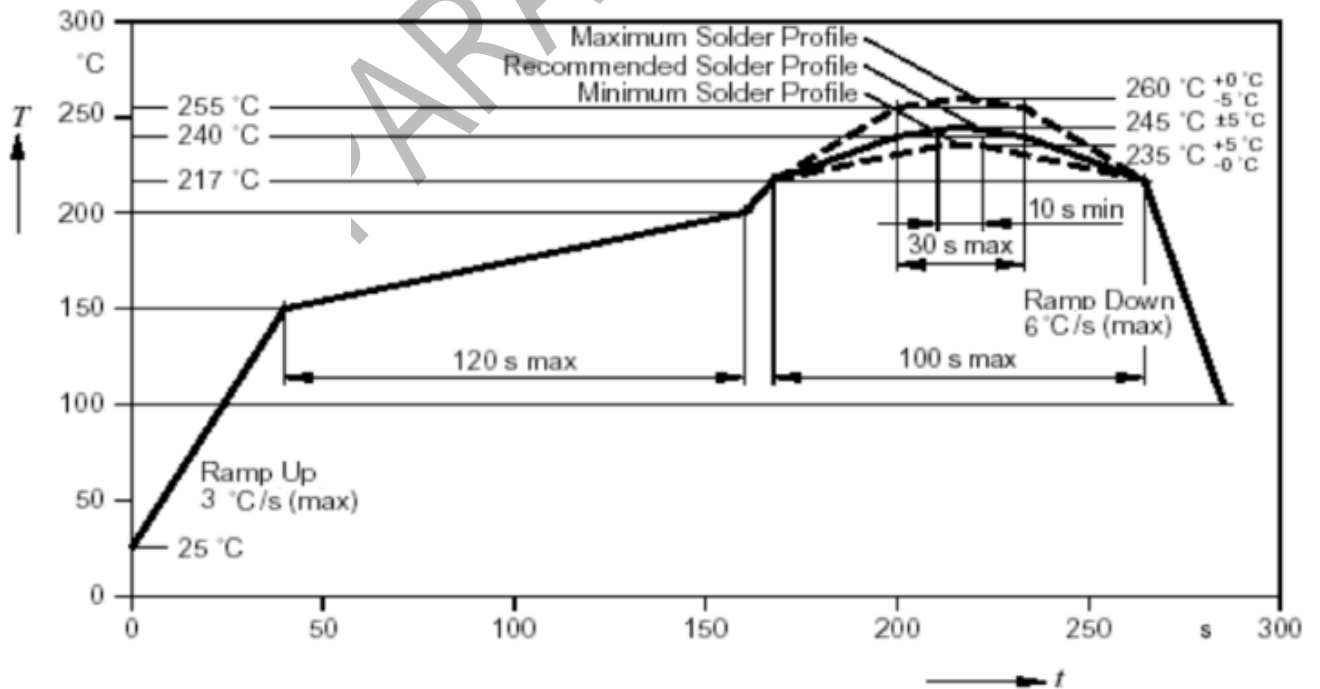
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- Suggest Sn/Pb IR Reflow Soldering Profile Condition:



- Suggest Pb-Free IR Reflow Soldering Profile Condition:



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● Bin Code List

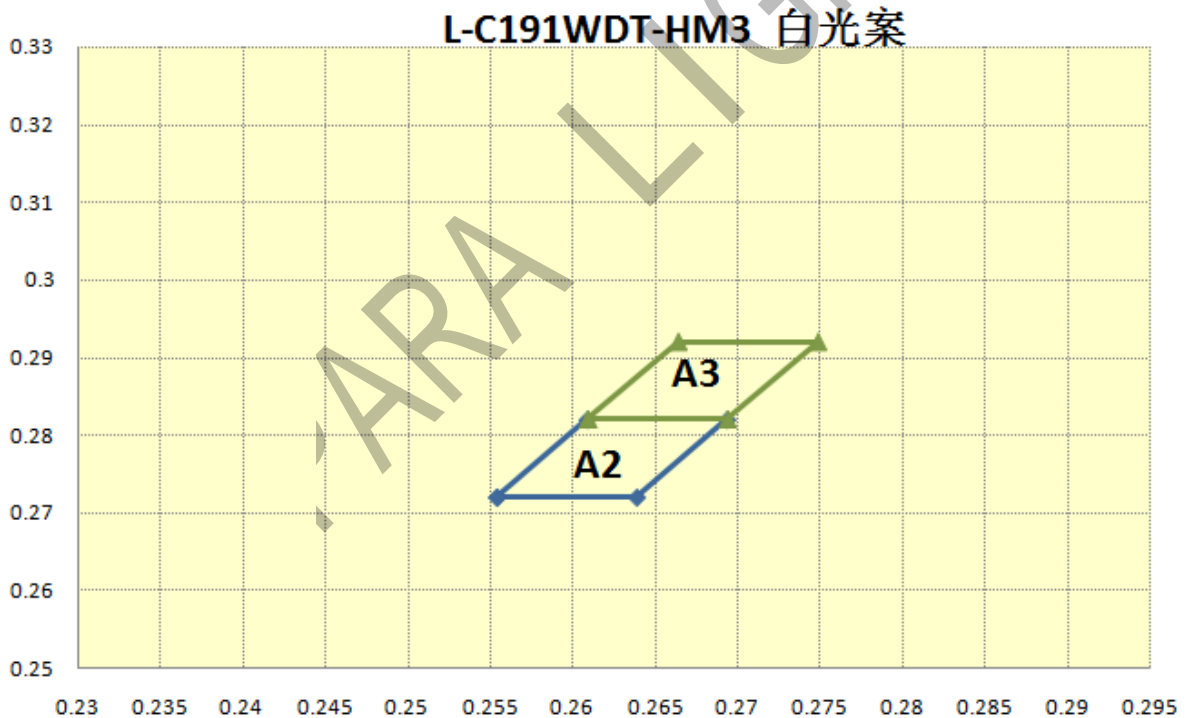
| Luminous Intensity(IV), Unit:mcd@5mA | | | Forward Voltage(VF), Unit:V@5mA | | |
|--------------------------------------|-----|-----|---------------------------------|-----|-----|
| Bin Code | Min | Max | Bin Code | Min | Max |
| R2 | 120 | 140 | 12 | 2.7 | 2.8 |
| R3 | 140 | 160 | 13 | 2.8 | 2.9 |
| | | | | | |

Tolerance of each bin are $\pm 15\%$

Tolerance of each bin are ± 0.1 Volt

| Color Rank (CIE chromaticity X , Y) @ 5mA | | | | | | | | | |
|---|--------|--------|--------|--------|---------|--------|--------|--------|--------|
| Rank A2 | | | | | Rank A3 | | | | |
| X | 0.2554 | 0.2609 | 0.2694 | 0.2639 | X | 0.2609 | 0.2664 | 0.2749 | 0.2694 |
| Y | 0.272 | 0.282 | 0.282 | 0.272 | Y | 0.282 | 0.292 | 0.292 | 0.282 |

* Measurement of Color coordinates : ± 0.02



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4. Lead-Free Soldering

For Reflow Soldering :

- 1、Pre-Heat Temp: 150-180°C,120sec.Max.
- 2、Soldering Temp: Temperature Of Soldering Pot Over 230°C,40sec.Max.
- 3、Peak Temperature: 260°C , 5sec.
- 4、Reflow Repetition: 2 Times Max.
- 5、Suggest Solder Paste Formula : 93.3 Sn/3.1 Ag/3.1 Bi/0.5 Cu

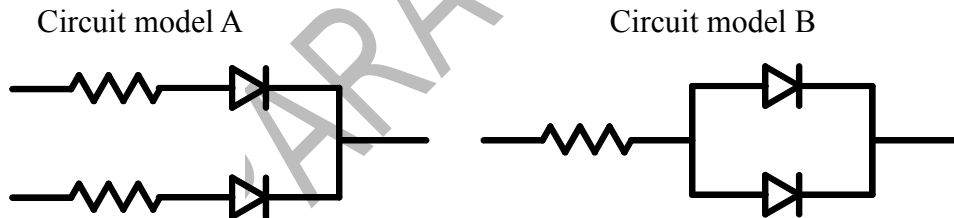
For Soldering Iron (Not Recommended) :

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

For Dip Soldering :

- 1、Pre-Heat Temp: 150°C Max. 120 Sec. Max.
- 2、Bath Temp: 265°C Max.
- 3、Dip Time: 5 Sec. Max.

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.

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6. Reliability Test

| 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)*@5mA. | 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,72H RS) | 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) |

7. Others:

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