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SPECIFICATION

PART NO. : LP3HN3-ST-UDR3-S27

1W HIGH POWER LED



Approved by

Checked by

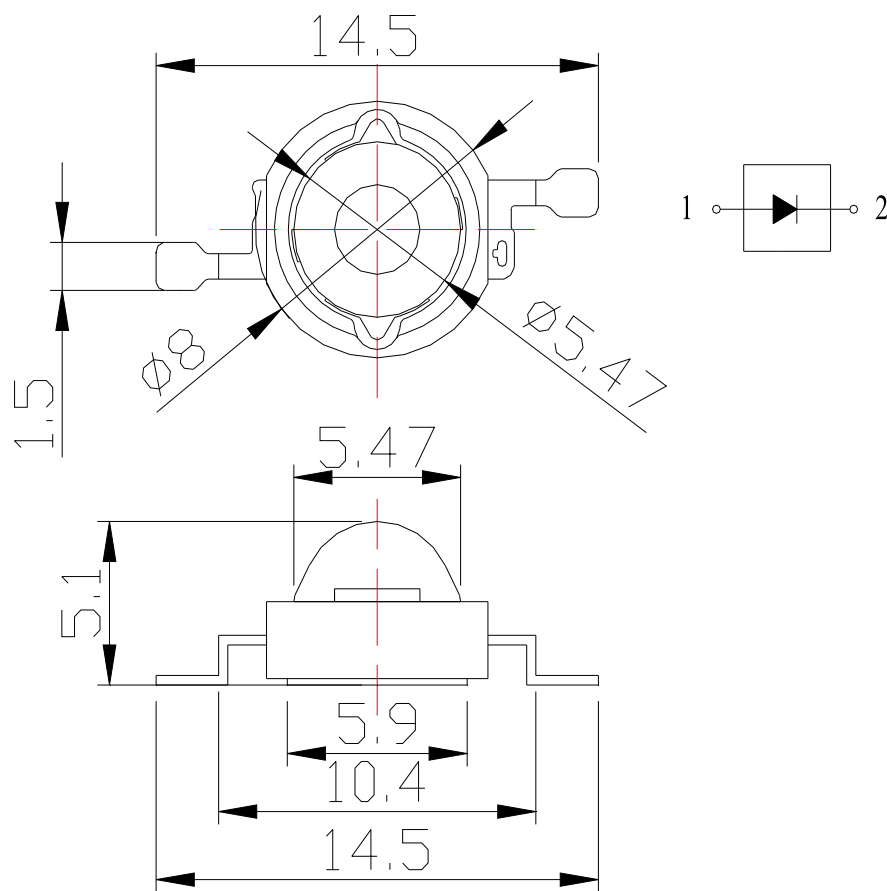
Prepared by

王方波

蘇智良

陳祥銘

Package Dimensions



Notes:

1. All dimensions are in mm.
2. Tolerance is +/-0.6mm unless otherwise noted.

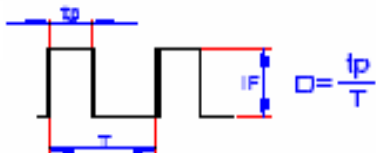
Description

| Part NO. | LED Chip | | Lens Color |
|--------------------|-----------------|-------------------|-------------|
| | Material | Color Coordinates | |
| LP3HN3-ST-UDR3-S27 | InGaN/ Sapphire | White | Water Clear |

Absolute Maximum Ratings at Ta=25°C :

| Parameter | Rating | Unit |
|--|---|------|
| Power Dissipation | 1365 | mW |
| LED Junction Temperature | 120 | °C |
| Reverse Voltage | 5 | V |
| D.C. Forward Current | 350 | mA |
| Pulsed Forward Current ; $t_p \leq 100\mu\text{s}$, Duty cycle=0.005)*1 | 700 | mA |
| Operating Temperature Range | -40 to +75 | °C |
| Storage Temperature Range | -40 to +100 | °C |
| Soldering Temperature | Reflow Soldering: 260°C for 10 sec. Hand Soldering: 350°C for 3 sec. | |
| Electric Static Discharge Threshold (HBM) | 6000 | V |

Duty Cycle :

**Notes:**

- 1、 Proper current derating must be observed to maintain junction temperature below the maximum .
- 2、 All products not sensitive to ESD damage(6000 Volts by HBM condition).
- 3、 Be careful with a powered up current limited power supply, because of current spikes during power up and/or connection. Best practice is to connect the LED then turn up the voltage gradually. People building their own power supplies should design for minimum current spikes during power up and connection.
- 4、 For best results the customer needs to provide proper control of the thermal path ,protect against electrical overstress conditions, and ensure that Ledtech emitters are properly attached to the mcpcb/heat sink.
- 5、 It is strongly recommended that the temperature of lead does not exceed 55°C.
- 6、 It is strongly recommended to apply on electrically isolated heat conducting film between the slug and contact surfaces.

Electrical and Optical Characteristics :

| Parameter | | Symbol | Condition | Values | | | Units |
|---|----------|--------------------|-----------|--------|--------|------|---------------|
| | | | | Min. | Typ. | Max. | |
| Luminous Flux | FULL | Φ_v | IF=350mA | | 115 | | lm |
| | Rank L1 | | | 100 | 120 | | |
| | Rank L2 | | | 120 | 140 | | |
| Forward voltage | Rank V01 | VF | IF=350mA | 2.9 | -- | 3.1 | V |
| | Rank V02 | | | 3.1 | -- | 3.3 | |
| | Rank V03 | | | 3.3 | -- | 3.5 | |
| | Rank V04 | | | 3.5 | -- | 3.7 | |
| | Rank V05 | | | 3.7 | -- | 3.9 | |
| Correlated Colour Temperature | | CCT | IF=350mA | | 6250 | | K |
| CIE Chromaticity Coordinates: X Axis | | X | IF=350mA | | 0.3175 | | |
| CIE Chromaticity Coordinates: Y Axis | | Y | IF=350mA | | 0.3283 | | |
| Reverse Current | | I_R | $V_r=5V$ | -- | -- | 50 | μA |
| Viewing angle | | $2\theta_{1/2}$ | IF=350mA | -- | 130 | -- | Deg. |
| Thermal Resistance Junction to Case | | $R_{\theta_{J-C}}$ | IF=350mA | -- | 15 | -- | $^{\circ}C/W$ |

Notes :

1. The datas tested by IS tester.
2. Customer's special requirements are also welcome.

Typical Electrical/Optical Characteristic Curves

(25°C Ambient Temperature Unless Otherwise Noted)

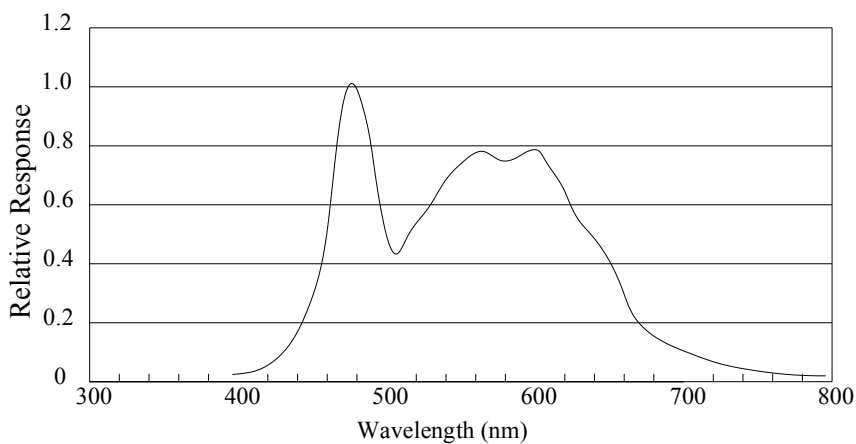
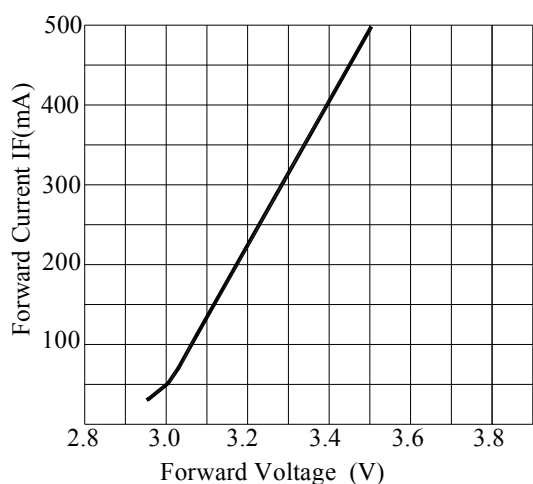
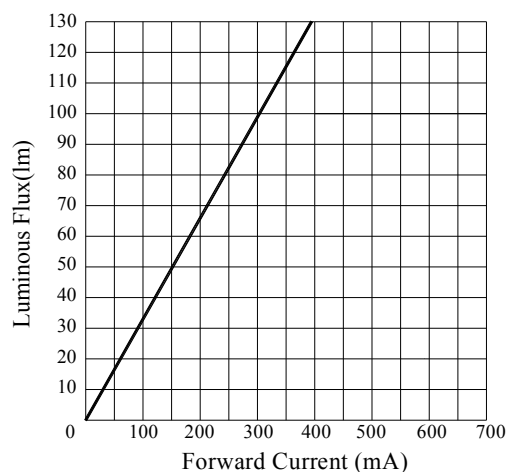


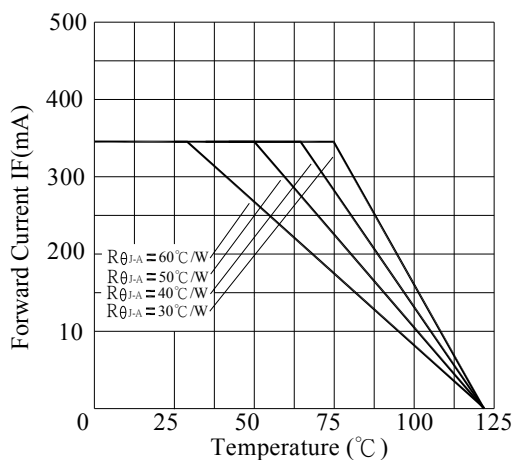
Fig.1 WHITE LED Spectrum VS. WAVELENGTH



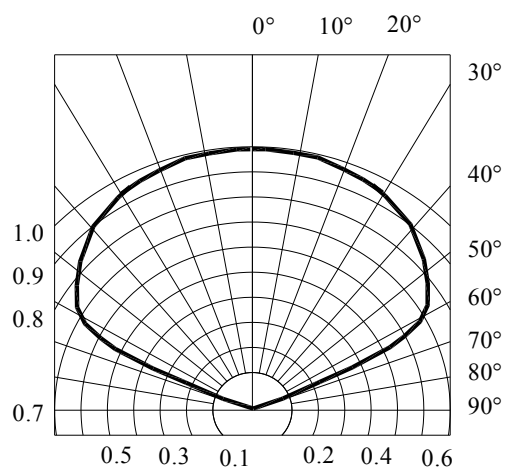
Forward Current VS. Applied Voltage



Forward Current VS. Luminous Flux



Ambient Temperature VS. Forward Current



Radiation Diagram

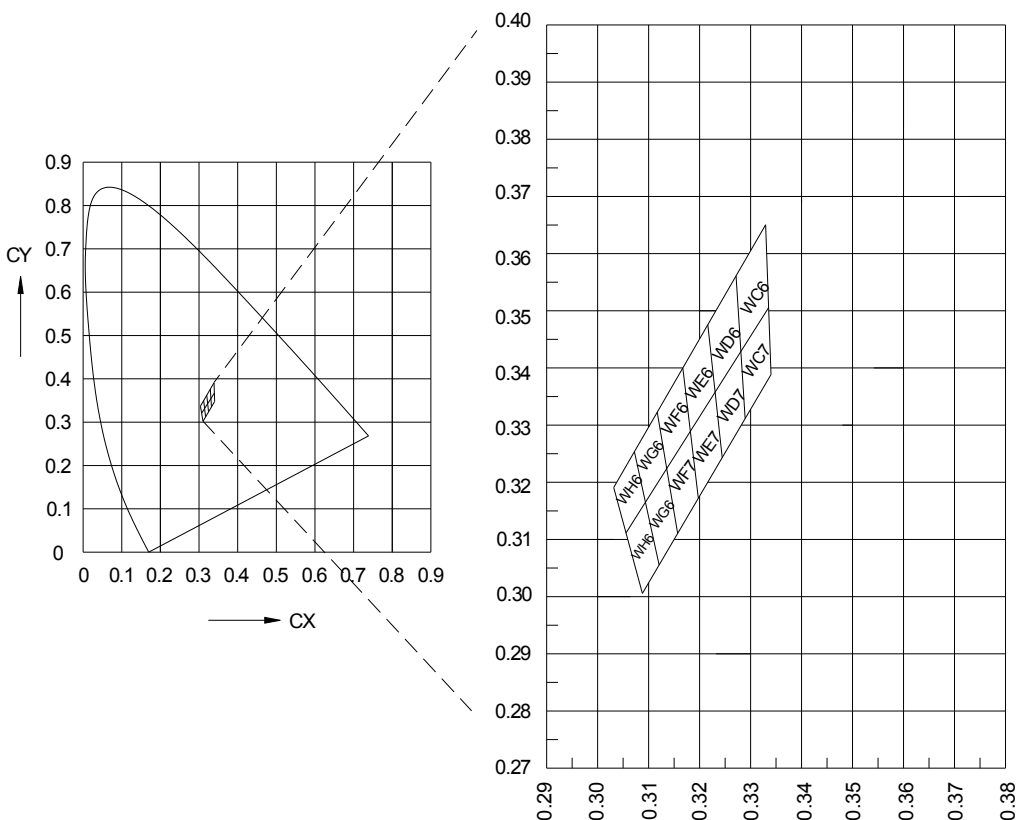
Chromaticity Coordinates Specifications for Bin Grading:

COLOR RANKS (IF=350mA, Ta=25°C)

| BIN | RANK | | | | | BIN | RANK | | | | |
|-----|------|--------|--------|--------|--------|-----|------|--------|--------|--------|--------|
| WC6 | X | 0.3264 | 0.3327 | 0.3324 | 0.3268 | WC7 | X | 0.3268 | 0.3324 | 0.3324 | 0.3272 |
| | Y | 0.3551 | 0.3650 | 0.3519 | 0.3430 | | Y | 0.3430 | 0.3519 | 0.3388 | 0.3305 |
| WD6 | X | 0.3210 | 0.3264 | 0.3268 | 0.3218 | WD7 | X | 0.3218 | 0.3268 | 0.3272 | 0.3227 |
| | Y | 0.3468 | 0.3551 | 0.3430 | 0.3353 | | Y | 0.3353 | 0.3430 | 0.3305 | 0.3233 |
| WE6 | X | 0.3164 | 0.3210 | 0.3218 | 0.3175 | WE7 | X | 0.3175 | 0.3218 | 0.3227 | 0.3186 |
| | Y | 0.3395 | 0.3468 | 0.3353 | 0.3283 | | Y | 0.3283 | 0.3353 | 0.3233 | 0.3169 |
| WF6 | X | 0.3122 | 0.3164 | 0.3175 | 0.3136 | WF7 | X | 0.3136 | 0.3175 | 0.3186 | 0.3151 |
| | Y | 0.3331 | 0.3395 | 0.3283 | 0.3223 | | Y | 0.3223 | 0.3283 | 0.3169 | 0.3114 |
| WG6 | X | 0.3085 | 0.3122 | 0.3136 | 0.310 | WG7 | X | 0.3103 | 0.3136 | 0.3151 | 0.3120 |
| | Y | 0.3273 | 0.3331 | 0.3223 | 0.3170 | | Y | 0.3170 | 0.3223 | 0.3114 | 0.3064 |
| WH6 | X | 0.3052 | 0.3085 | 0.3103 | 0.3070 | WH7 | X | 0.3070 | 0.3103 | 0.3120 | 0.3091 |
| | Y | 0.3222 | 0.3273 | 0.3170 | 0.3118 | | Y | 0.3118 | 0.3170 | 0.3064 | 0.3019 |

Note: X.Y Tolerance each Bin limit is±0.01.

Chromaticity Coordinates & Bin grading diagram:



PRECAUTION IN USE

Storage

Recommended storage environment

Temperature: 5°C ~ 30°C (41°F ~ 86°F)

Humidity: 60% RH Max.

Moisture measures: Please refer to Moisture-sensitive label on reels package bags.

If unused LEDs remain, they should be stored in moisture proof packages, such as sealed container 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.

Fold the opened bag firmly and keep in dry environment.

Soldering

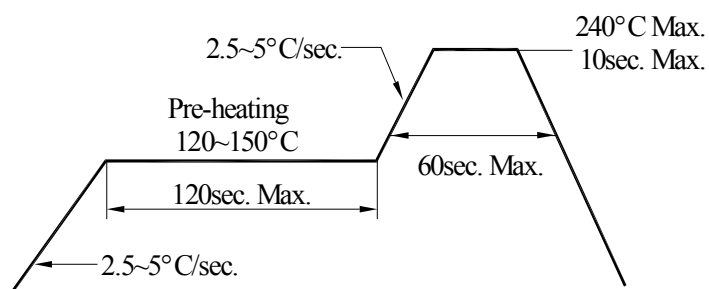
| | Reflow Soldering | | Hand Soldering | |
|------------------|---------------------------------------|---------------------------------------|----------------|-------------------------------|
| | Lead Solder | Lead – free Solder | | |
| Pre-heat | 120~150°C | 180~200°C | Temperature | 350°C Max. |
| Pre-heat time | 120sec. Max. | 120sec. Max. | Soldering time | 3sec. Max. (one time only) |
| Peak temperature | 240°C Max. | 260°C Max. | | |
| Soldering time | 10sec. Max. | 10sec. Max. | | |
| Condition | refer to Temperature- profile 1 | refer to Temperature- profile 2 | | |

*After reflow soldering rapid cooling should be avoided.

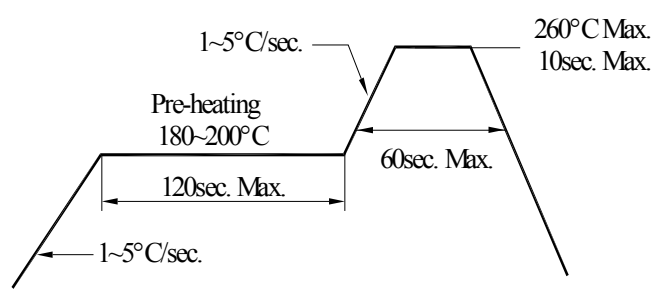
[Temperature-profile (Surface of circuit board)]

Use the conditions shown to the under figure.

< 1 : Lead Solder >

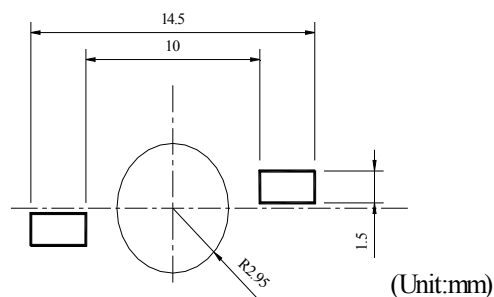


< 2 : Lead-free Solder >



Recommended soldering pad design

Use the following conditions shown in the figure.



Handling of Silicone Resin LEDs

Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound

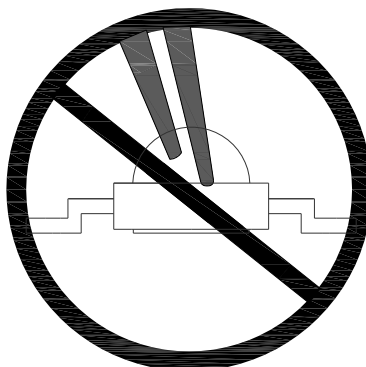


Figure 1

In general, LEDs should only be handled from the side. By the way, this also applies to LEDs without a silicone sealant, since the surface can also become scratched.

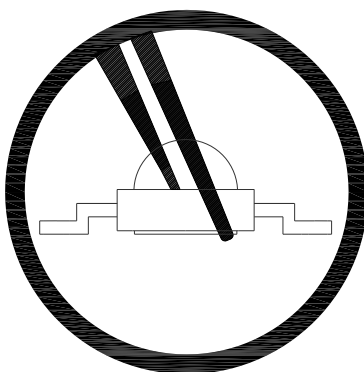


Figure 2

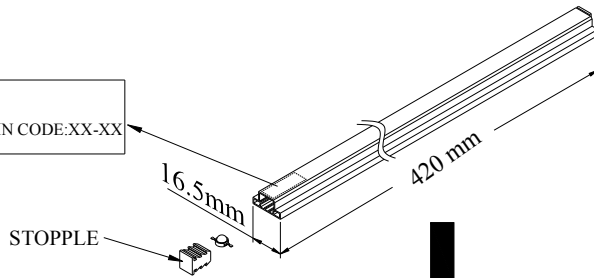
When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevented.

This is assured by choosing a pick and place nozzle which is larger than the LED's reflector area.

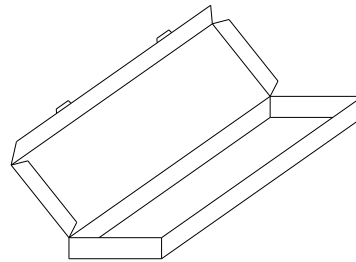
ENCASED TYPE

TUBE:
QUANTITY: 50 PCS

PART NO :LTXXXX-XX
LOT :XXXXXXXXXX QTY'S :XXPCS BIN CODE:XX-XX

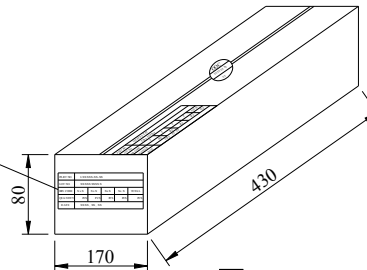


INNER BOX
QUANTITY: 10 TUBES
TOTAL: 5,00 PCS



MIDDLE BOX
QUANTITY: 10 BOXES
TOTAL: 5,000 PCS

| | | | | | |
|----------|--------------|------|------|------|-------|
| PART NO. | LXXXXX-XX-XX | | | | |
| LOT NO. | XXXXXXXXXX | | | | |
| BIN CODE | Xx X | Xx X | Xx X | Xx X | TOTAL |
| QUANTITY | PCS | PCS | PCS | PCS | PCS |
| DATE | XXXX, XX, XX | | | | |



OUTER CARTON
QUANTITY: 2 BOXES
TOTAL: 10,000 PCS

| | |
|-----------------|--------------|
| C/T NO. 箱 號 | XX |
| PART NO. 料 號 | LXXXXX-XX-XX |
| QUANTITY 數 量 | PCS |
| N.W. 淨 重 | KGS |
| G.W. 毛 重 | KGS |
| REMARK 備 註 | |

