Technical Datasheet LS23

*High Power Solid-State LED Light Source*

# COLOR X$^{NES}$

## Introduction

For a brighter solid-state light source, **COLOR X$^{NES}$** is an energy-efficient building block generating enough light outputs suitable for most applications in lighting field. **COLOR X$^{NES}$** offers the best solid-state light source and you might realize your modern ideas of lightings.

**COLOR X$^{NES}$** is particularly designed for architects and commercial lighting designers. For specific purpose, **COLOR X$^{NES}$** provides a large luminous flux or radiometric power output per package with monochromatic light（UV, blue, green, or red）.

*Note1: To optimize product performance and lifetime, constant DC at advised forward current and Tb less than 50℃ should be applied.

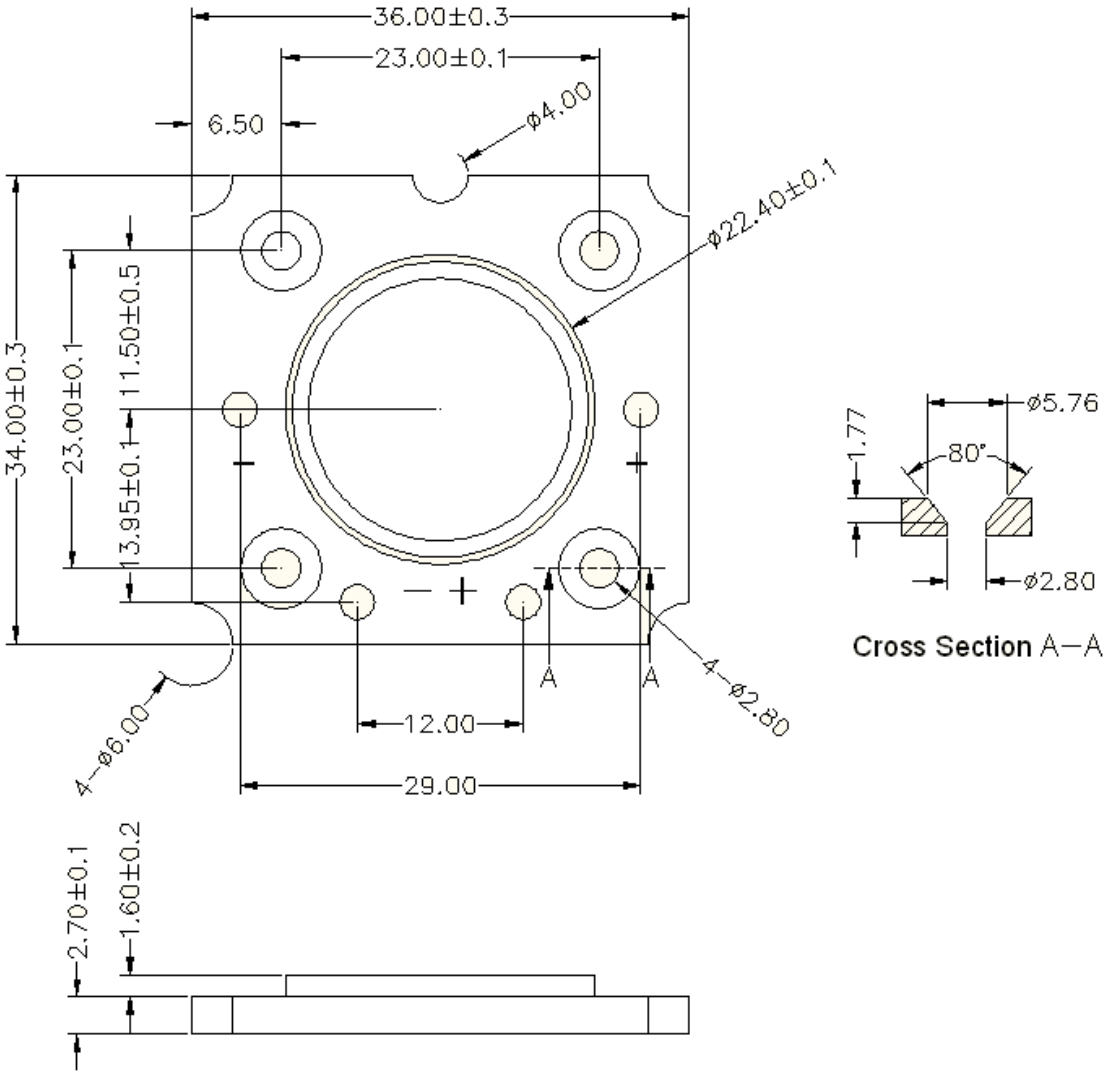
## COLOR X$^{NES}$ Part Number Matrix

**Table.1**

| Color | P/N |
|---|---|
| UV （400nm） | NES110UVC0B |
| Blue （470nm） | NES110NBC0B |
| Green （525nm） | NES110PGC0B |
| Red （625nm） | NES110NRC0B |

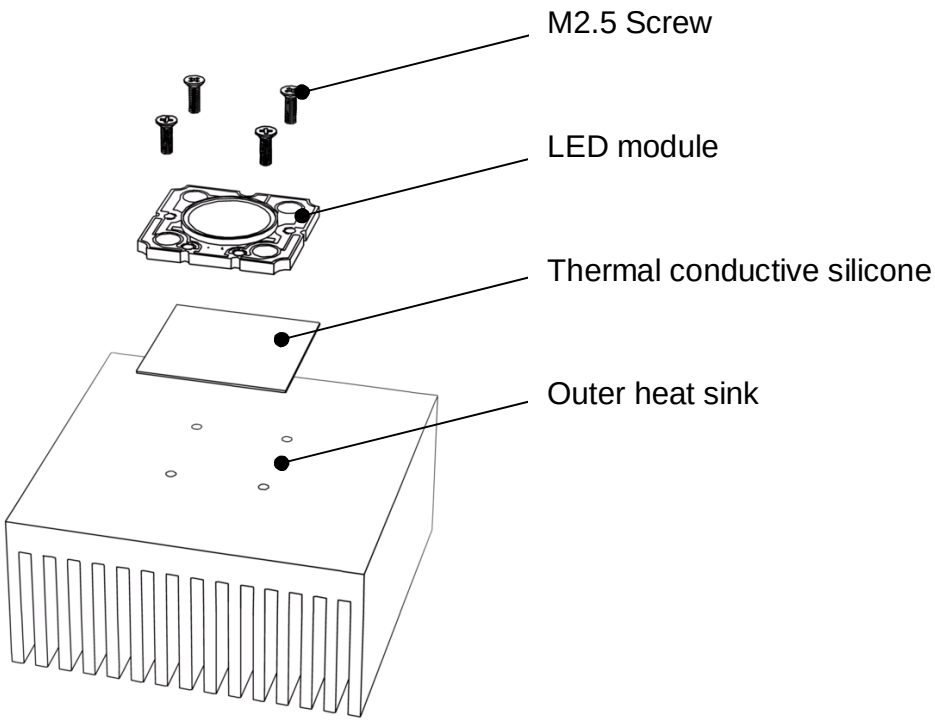
## Mechanical Dimensions

COLOR X^NES




Note1: Drawing not to scale. All dimensions are in millimeters.

## Recommended installation screw pitch




**Warning:**

**Do not** touch the lighting area during handling and assembling.

## Flux Characteristics at 1050 mA, Junction Temperature Tj = 25$^{0}C$

Table.2

| Color | Minimum Luminous Flux （lm） or Radiometric Power （mW） | Typical Luminous Flux （lm） or Radiometric Power （mW） |
|---|---|---|
| UV （400nm） | 600mW | 800mW |
| Blue （470nm） | 55 lm | 80 lm |
| Green （525nm） | 200 lm | 310 lm |
| Red （625nm） | 150 lm | 180 lm |

Note1: Brightness is measured in total power with tolerable errors of 10%.Minimum luminous flux performance guaranteed within published operating conditions.

Note2: Higher luminous flux will be ready in the near future.

## Optical Characteristics

Table.3

| Color | $\lambda_d$（nm ） or CCT（K） | | | Spectral Half-Width （nm） | Viewing Angle （degrees） | CRI |
|---|---|---|---|---|---|---|
| | Min | Typ | Max | | | |
| UV （400nm） | 380 nm | 400 nm | 420 nm | 14 | 120 | - |
| Blue （470nm） | 460 nm | 470 nm | 475 nm | 25 | 120 | - |
| Green （525nm） | 520 nm | 525 nm | 535 nm | 30 | 120 | - |
| Red （625nm） | 615 nm | 625 nm | 635 nm | 17 | 120 | - |

## Electrical Characteristics

Table.4

| Color | Forward Voltage （V） for 1050 mA forward current | | |
|---|---|---|---|
| | Min | Typ | Max |
| Warm White （2700K） | 9.4 | 10.5 | 11.5 |
| UV （400nm） | 9.4 | 10.5 | 12 |
| Blue （470nm） | 9.4 | 10.5 | 11.5 |
| Green （525nm） | 9.5 | 10.5 | 12 |
| Red （625nm） | 6.7 | 7.5 | 9 |

Note1: Lustrous Technology allows a tolerance of each LED for voltage measurements.

Note2: Measurements are taken under each nominal forward current.

## Absolute Maximum Ratings

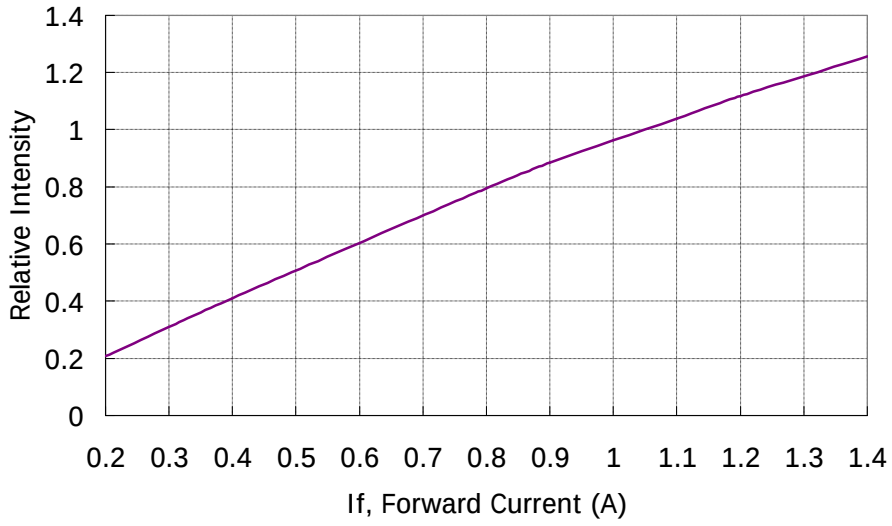
Table.5

| Parameters | For 1050mA forward current |
|---|---|
| | Warm White/ UV/ Blue/ Green/ Red |
| DC Forward Current （mA） | 1050 |
| Peak Pulsed Forward Current （mA） | 1500 |
| LED Junction Temperature （$^0C$） | < 125 |
| ESD Sensitivity | +/- 4kV （HBM） |
| Thermal Resistance （$^0C/W$） | ~2.5 |
| Operating Temperature （$^0C$） | -25 ~ +85 |
| Storage Temperature （$^0C$） | -25 ~ +100 |
| Soldering Temperature （$^0C$） | 260 （duration should be less than 5 seconds） |

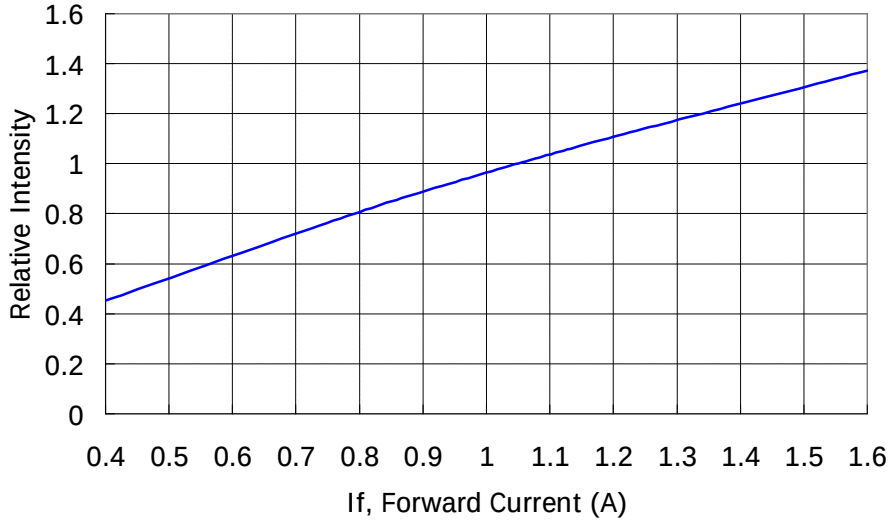
Note1: Proper current operating must be observed to maintain junction temperature below the maximum.

## Relative Intensity vs. Current （TJ = 25˚C）

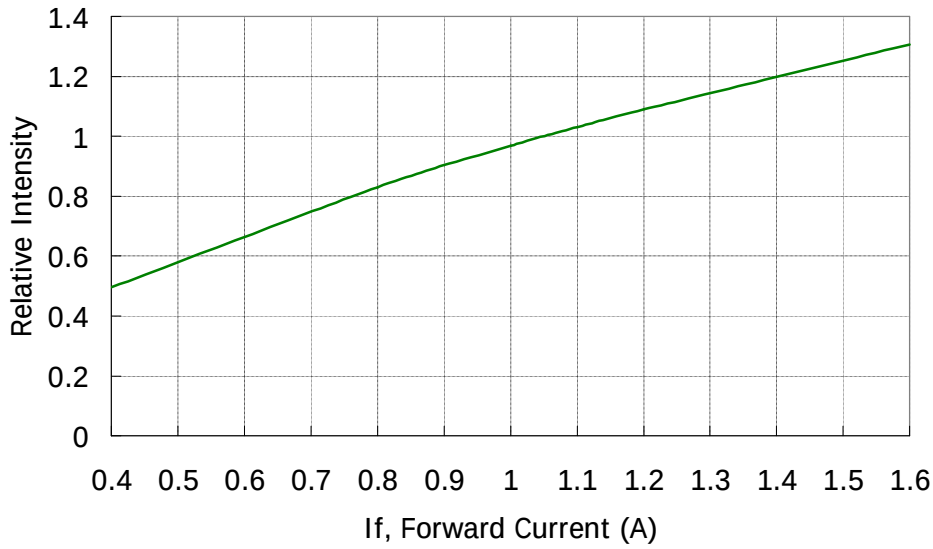
**UV （400nm）**



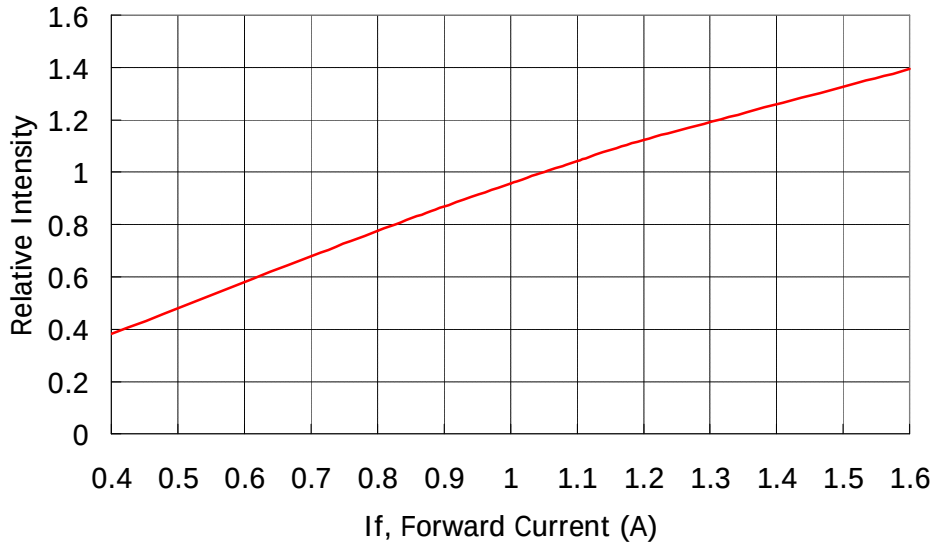

**Blue （470nm）**



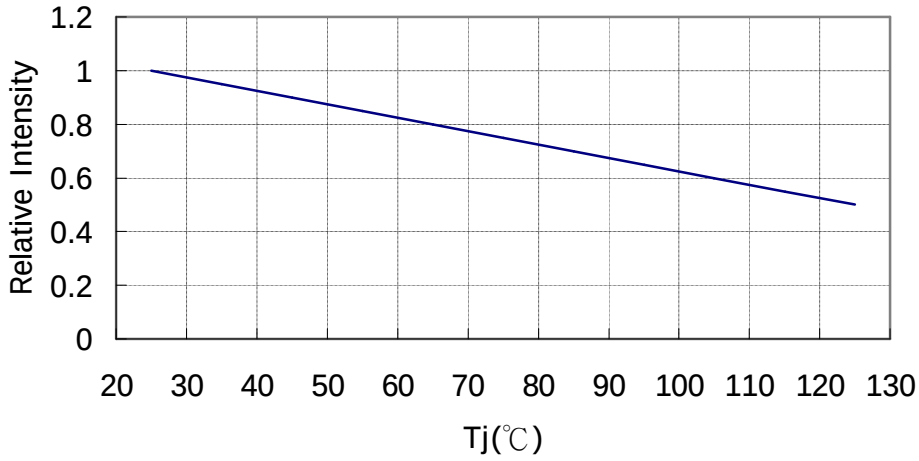
**Green （525nm）**




**Red （625nm）**

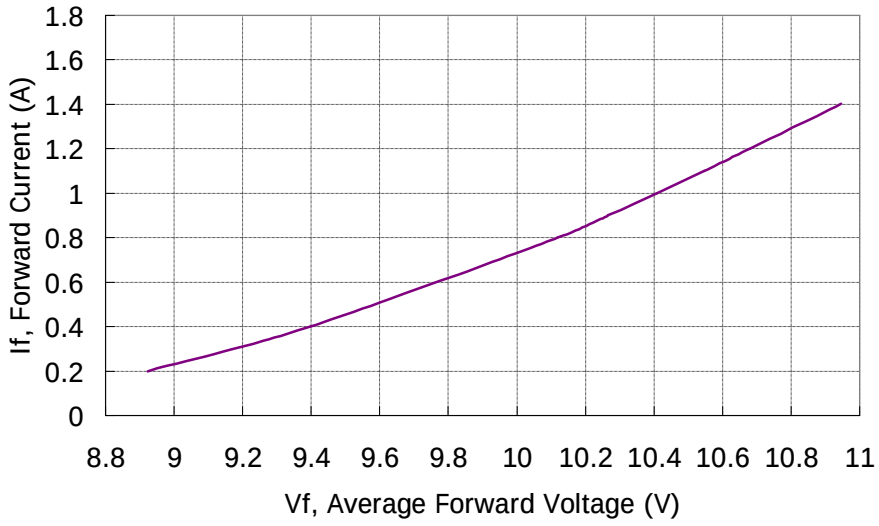


## Photometric Output vs. Junction Temperature （If = 1050 mA）

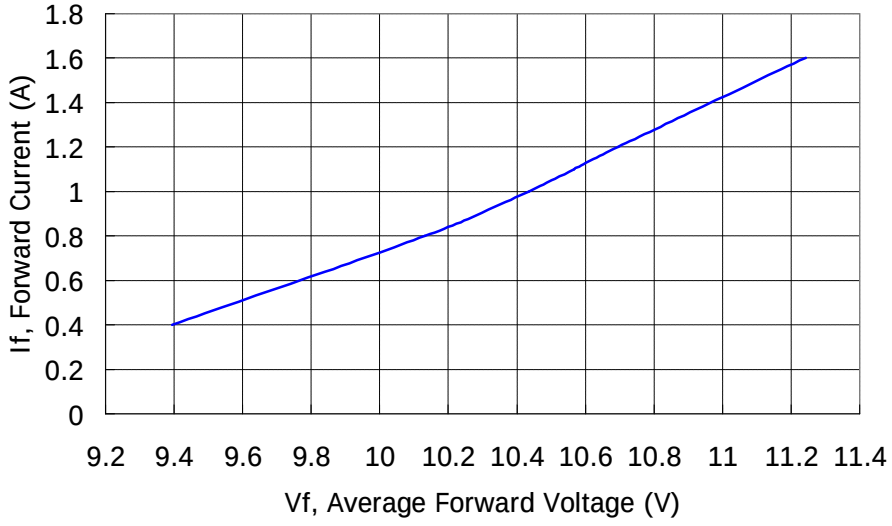


## Forward Voltage vs. Current （TJ = 25˚C）

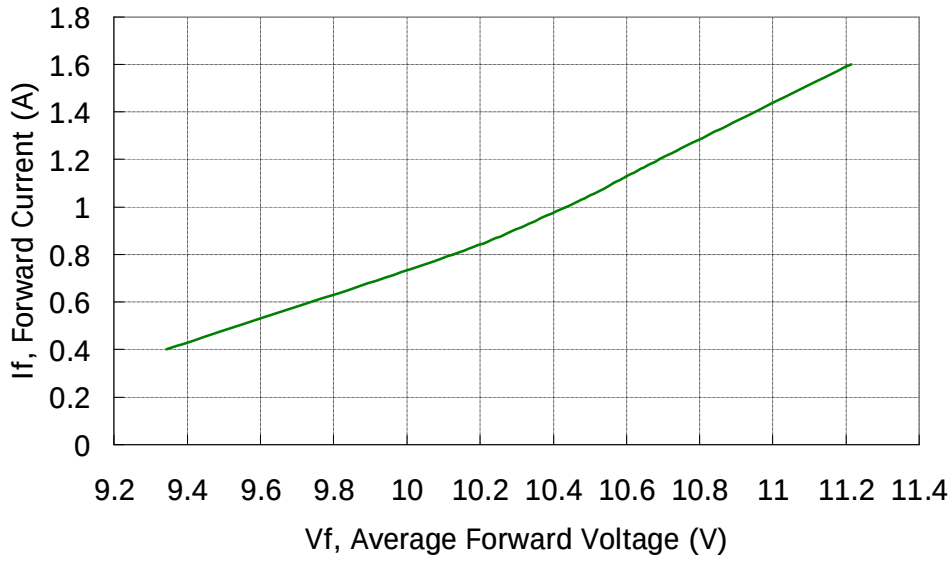
**UV （400nm）**



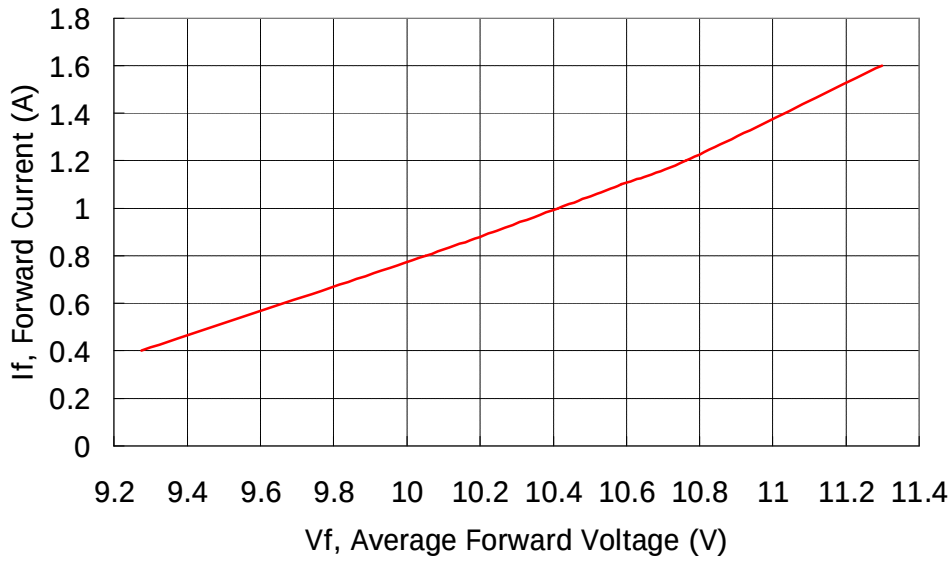

**Blue （470nm）**



**Green （525nm）**




**Red （625nm）**



## Bin Code

**n UV （400nm）**

| BIN Table for **NES110UV** | | | |
|---|---|---|---|
| NO | BIN CODE | $\lambda_d$, Dominate Wave length （nm） | |
| | | Min | max |
| 1 | V0-L0-UV1 | 380 | 420 |

**n Blue （470nm）**

| BIN Table for **NES110NB** | | | |
|---|---|---|---|
| NO | BIN CODE | $\lambda_d$, Dominate Wave length （nm） | |
| | | min | max |
| 1 | V0-L0-NB1 | 460 | 475 |

**n Green （525nm）**

| BIN Table for **NES110PG** | | | |
|---|---|---|---|
| NO | BIN CODE | $\lambda_d$, Dominate Wave length （nm） | |
| | | min | max |
| 1 | V0-L0-PG1 | 515 | 530 |

**n Red （625nm）**

| BIN Table for **NES110NR** | | | |
|---|---|---|---|
| NO | BIN CODE | $\lambda_d$, Dominate Wave length （nm） | |
| | | min | max |
| 1 | V0-L1-NR1 | 615 | 635 |

## Print Code Guideline

N E S 1 1 0 N B C 0 B -XXXXX

1 2

X X X X X X X X X X X X X X

2

V 0 – A 0 – N B 2 – X X X X X X

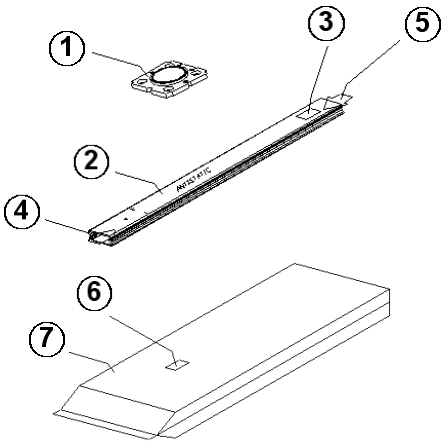
3 4 5 6 7 8

**Table.11**

| 1<br>P/N | 2<br>Internal Code | 3<br>Vf | 4<br>Luminous Flux |
|---|---|---|---|
| UV: N E S 1 1 0 U V C 0 B<br>Blue: N E S 1 1 0 N B C 0 B<br>Green: N E S 1 1 0 P G C 0 B<br>Red: N E S 1 1 0 N R C 0 B | | See Bin Code Definition | See Bin Code Definition |

| 5<br>Chromaticity | 6<br>Year | 7<br>Month | 8<br>Week |
|---|---|---|---|
| See Bin Code Definition | **08**: 2008<br>**09**: 2009<br>**10**: 2010 | **01**：January<br>**05**：May<br>**10**：October | **01**：01st Week<br>**20**：20th Week<br>**45**：45th Week |

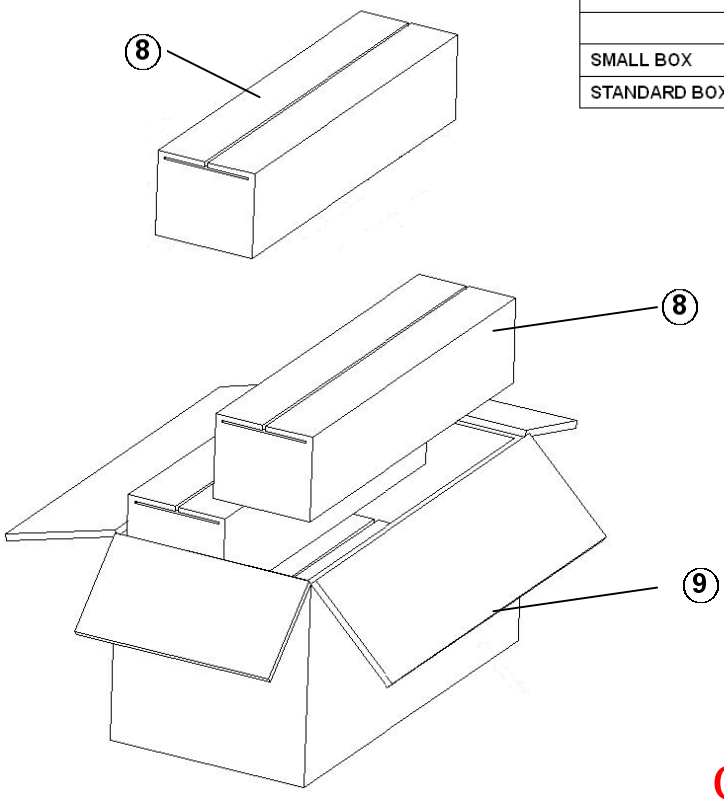
## Standard Packaging




| ITEM | DESCRIPTION |
|---|---|
| ① | LED |
| ② | PLASTIC TUBE |
| ③ | ADHESIVE MAIN LABEL |
| ④ | END-PLUG WHITE |
| ⑤ | END-PLUG BLACK |
| ⑥ | ADHESIVE MAIN LABEL |
| ⑦ | MOISTURE BARRIER BAG |
| ⑧ | SMALL BOX |
| ⑨ | STANDARD BOX |

| STACKING METHOD | |
|---|---|
| PCS/TUBE | 10 |
| TUBE/BAG | 10 |
| BAG/SMALL BOX | 2 |
| PCS/SMALL BOX | 200 |
| SMALL BOX/STANDARD BOX | 4 |
| PCS/STANDARD BOX | 800 |

| SIZE AND WEIGHT | | |
|---|---|---|
| | SIZE($mm^3$) | WEIGHT(kg) |
| SMALL BOX | 560x130x130 | 3.4±0.5 |
| STANDARD BOX | 580x280x280 | 14.3±0.5 |



# Precaution for Use

## Over-current Proof

1. Customer must not drive the LEDs with reverse current and should apply resistors for extra protection.
2. The maximum overshot of driving current should be limited under normal driving current * 1.3 times.
3. The ripple of driving current should not be over +/-10% of normal driving current.
4. The typical driving current for this series is 1050mA.
5. When driving the products, the clamp voltage must be set at 12V in driver.

## Storage

1. Do not open the moisture barrier bag （MBB） before the products are ready to be used.
2. Storage Condition （before opening the MBB）:
   - Storage Temperature: -40~90°C
   - Relative Humidity < 90% RH
   - Please re-seal the MBB when storing longer than 3 weeks.
   - The products should be used within half of a year.
3. Storage Condition （after opening the MBB）:
   - Storage Temperature: -40~90°C
   - Relative Humidity < 90% RH
   - The products should be used（assembled）as soon as possible after opening the MBB.

## Company Information

Lustrous Technology, founded in 2004, endeavors to bring a new era of solid-state lighting. Our R&D development center and production facilities are based in Taiwan, a famous island for IT technology in the world. Our products are well designed in both performance and reliability. Lustrous is one of the leading high-power LED manufacturer and solution provider in the world.

**Lustrous Technology may make process and material changes affecting performance and characteristics of our products without further notice. These products supplied after changes will continue to meet published specifications, but may not be identical to products supplied as samples or under prior orders.

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