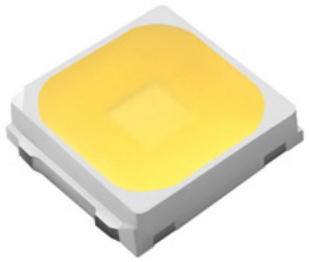
# MP-3030-11F2

## Mid Power LED



## Features

- High efficacy
- CRI Options: Minimum 70, 80, 90
- Low thermal resistance
- Compatible with automatic placement equipment
- Compatible with infrared reflow solder process
- Sulfur resistant

## Applications

- Replacement lamps
- Panel lighting
- Down lights
- Horticulture

## Table of Contents

# Ordering Information

## Ordering Part Numbers

| Minimum CRI[1] | Nominal CCT | Luminous Flux[2] | | Ordering Part Number |
|---|---|---|---|---|
| | | Minimum Flux (lm)[3] | Typical Flux (lm)[3] | |
| 70 | 2700K | 36.0 | 38.0 | MP-3030-11F2-27-70 |
| 80 | | 34.0 | 35.5 | MP-3030-11F2-27-80 |
| 90 | | 30.0 | 31.0 | MP-3030-11F2-27-90 |
| 70 | 3000K | 36.0 | 39.0 | MP-3030-11F2-30-70 |
| 80 | | 36.0 | 37.0 | MP-3030-11F2-30-80 |
| 90 | | 30.0 | 32.0 | MP-3030-11F2-30-90 |
| 70 | 3500K | 38.0 | 41.0 | MP-3030-11F2-35-70 |
| 80 | | 36.0 | 38.5 | MP-3030-11F2-35-80 |
| 90 | | 32.0 | 33.5 | MP-3030-11F2-35-90 |
| 70 | 4000K | 38.0 | 41.0 | MP-3030-11F2-40-70 |
| 80 | | 38.0 | 40.0 | MP-3030-11F2-40-80 |
| 90 | | 33.0 | 35.0 | MP-3030-11F2-40-90 |
| 70 | 5000K | 38.0 | 41.0 | MP-3030-11F2-50-70 |
| 80 | | 38.0 | 40.0 | MP-3030-11F2-50-80 |
| 90 | | 33.0 | 35.0 | MP-3030-11F2-50-90 |
| 70 | 5700K | 38.0 | 41.0 | MP-3030-11F2-57-70 |
| 80 | | 37.5 | 39.5 | MP-3030-11F2-57-80 |
| 90 | | 32.5 | 34.5 | MP-3030-11F2-57-90 |
| 70 | 6500K | 38.0 | 41.0 | MP-3030-11F2-65-70 |
| 80 | | 37.5 | 39.5 | MP-3030-11F2-65-80 |
| 90 | | 32.5 | 34.5 | MP-3030-11F2-65-90 |

**Notes:**

1. CRI tolerance ±2.

2. Luminous flux tolerance ±7 %.

3. Test condition: $I_f$=65 mA, $T_c$=25°C

# Ordering Information

## PPF and PPF/W Performance[1]

| PPF (µmol/s) | PPF/W (µmol/J) | Ordering Part Number |
|---|---|---|
| 0.53 | 3.01 | MP-3030-11F2-27-80 |
| 0.56 | 3.18 | MP-3030-11F2-30-80 |
| 0.58 | 3.36 | MP-3030-11F2-35-80 |
| 0.60 | 3.40 | MP-3030-11F2-40-80 |
| 0.58 | 3.31 | MP-3030-11F2-50-80 |
| 0.57 | 3.26 | MP-3030-11F2-57-80 |
| 0.55 | 3.18 | MP-3030-11F2-65-80 |

**Notes:**

1. Test condition: $I_f$=65 mA, $T_c$=25°C

# Ordering Information

## Part Number Nomenclature

| MP | 3030 | 11F2 | ## | ## |
|---|---|---|---|---|

| Product Family | Package Type | Package Configurator | Nominal CCT[1] | Minimum CRI |
|---|---|---|---|---|
| **MP**: Mid Power LED | **3030**: 3.0 mm x 3.0 mm | **11F2**: Package code | **27**: 2700K<br>**30**: 3000K<br>**35**: 3500K<br>**40**: 4000K<br>**50**: 5000K<br>**57**: 5700K<br>**65**: 6500K | **70**: CRI>70<br>**80**: CRI>80<br>**90**: CRI>90 |

**Note:**

1. Correlated Color Temperatures (CCT)

# Binning Structure

All MP-3030-11F2 monochromatic LEDs are tested for luminous flux/ dominant wavelength and placed into one of the following flux/wavelength bins. The binning structure is universally applied across each monochromatic color of the MP-3030-11F2 product line.

## Flux Bins

| Bin Code | Binning @ 65 mA, $T_c$= 25°C[1] | |
|---|---|---|
| | Minimum Flux (lm) | Maximum Flux (lm) |
| D7 | 28.0 | 30.0 |
| D8 | 30.0 | 32.0 |
| D9 | 32.0 | 34.0 |
| E1 | 34.0 | 36.0 |
| E2 | 36.0 | 38.0 |
| E3 | 38.0 | 40.0 |
| E4 | 40.0 | 42.0 |

## Forward Voltage Bins[2]

| Bin Code | Binning @ 65 mA, $T_c$= 25°C[1] | |
|---|---|---|
| | Minimum Voltage (V) | Maximum Voltage (V) |
| Y1 | 2.5 | 2.6 |
| Z1 | 2.6 | 2.7 |
| A1 | 2.7 | 2.8 |

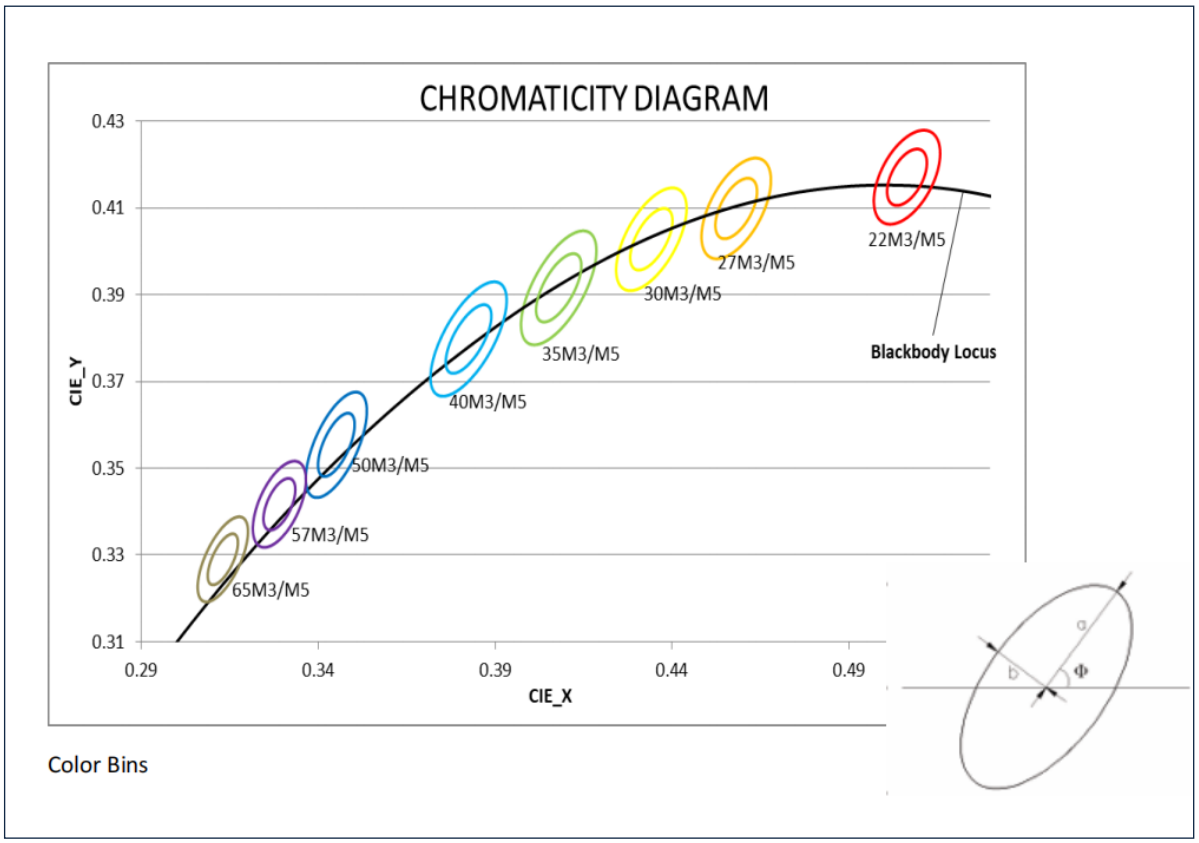
**Notes:**

1. LEDs are measured at drive current 65 mA and $T_c$=25°C.

2. Forward Voltage measurement tolerance ±0.1 V.

# Binning Structure

## Chromaticity Binning Diagram




Color Bins

# Binning Structure

## Color Bins[1]

| Color Code | Center | | Radius | | Angle(°) |
|---|---|---|---|---|---|
| | x | y | a | b | Φ |
| 22M3 | 0.5065 | 0.4171 | 0.007500 | 0.004200 | 53.00 |
| 22M5 | 0.5065 | 0.4171 | 0.012500 | 0.007000 | 53.00 |
| 27M3 | 0.4582 | 0.4099 | 0.008100 | 0.004200 | 53.42 |
| 27M5 | 0.4582 | 0.4099 | 0.013500 | 0.007000 | 53.42 |
| 30M3 | 0.4342 | 0.4028 | 0.008340 | 0.004080 | 53.13 |
| 30M5 | 0.4342 | 0.4028 | 0.013900 | 0.006800 | 53.13 |
| 35M3 | 0.4080 | 0.3916 | 0.009270 | 0.004140 | 54.00 |
| 35M5 | 0.4080 | 0.3916 | 0.015450 | 0.006900 | 54.00 |
| 40M3 | 0.3825 | 0.3798 | 0.009390 | 0.004020 | 53.43 |
| 40M5 | 0.3825 | 0.3798 | 0.015650 | 0.006700 | 53.43 |
| 50M3 | 0.3451 | 0.3554 | 0.008220 | 0.003540 | 59.37 |
| 50M5 | 0.3451 | 0.3554 | 0.013700 | 0.005900 | 59.37 |
| 57M3 | 0.3290 | 0.3417 | 0.006705 | 0.003300 | 58.35 |
| 57M5 | 0.3290 | 0.3417 | 0.011175 | 0.005500 | 58.35 |
| 65M3 | 0.3130 | 0.3290 | 0.006690 | 0.002850 | 58.34 |
| 65M5 | 0.3130 | 0.3290 | 0.011150 | 0.004750 | 58.34 |

**Note:**

1. Chromaticity Coordinate measurement tolerance ±0.005.

## Absolute Maximum Ratings[1,2,3]

| Parameter | | Symbol | Values | Unit |
|---|---|---|---|---|
| Forward Current | Maximum | $I_{f\ max}$ | 400 | mA |
| Pulse Forward Current | Maximum | $I_{fp\ max}$ | 600 | mA |
| Power Dissipation | | $P_d$ | 1100 | mW |
| Reverse Voltage | | $V_r$ | 5 | V |
| Operating Temperature Range | | $T_{opr}$ | -40 to 85 | °C |
| Storage Temperature Range | | $T_{stg}$ | -40 to 85 | °C |
| Junction Temperature | | $T_j$ | 125 | °C |

**Notes:**

1. Maximum operating case temperature combined with maximum current defines the total maximum operating condition for the device. To prevent damage, please do not exceed rated conditions.
2. All ratings are based on standard testing conditions at drive current 65 mA and $T_c$ = 25°C.
3. Pulse Forward Current condition: Pulse width ≤100 µs, Duty cycle ≤1/10

## Characteristics[1,2,3]

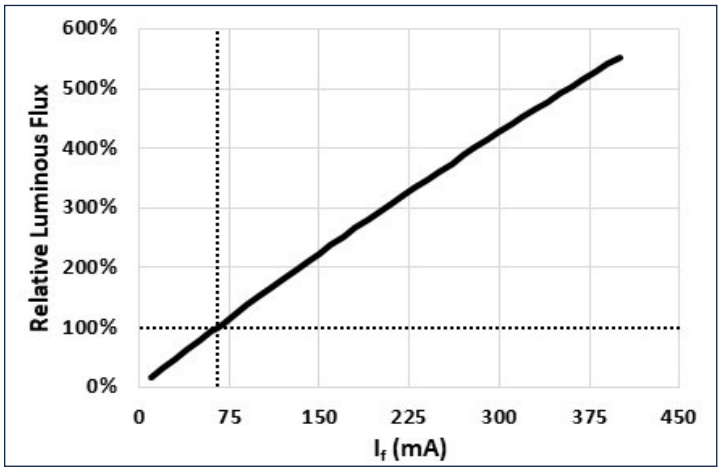
| Parameter ($I_f$=65 mA, $T_c$=25°C) | | Symbol | Value | Unit |
|---|---|---|---|---|
| Forward Voltage | Minimum | $V_{f\ min}$ | 2.55 | V |
| | Typical | $V_{f\ typ}$ | 2.65 | |
| | Maximum | $V_{f\ max}$ | 2.75 | |
| Reverse Current ($V_r$=5 V) | Maximum | $I_{r\ max}$ | 10 | µA |
| Viewing Angle | | $2\theta_{1/2}$ | 120 | ° |
| Thermal Resistance | | $R_{th\ J\text{-}C}$ | 10 | ˚C/W |
| Electrostatic Discharge | | $V_{ESD}$ | 8000 | V |

**Notes:**

1. Product test condition: 65 mA, $T_c$ = 25°C.
2. To prevent damage refer to operating conditions and derating curves for appropriate maximum operating conditions
3. Mid power LEDs are designed for operation up to an absolute maximum forward drive current as specified below. Product lifetime data is specified at typical forward drive currents. Sustained operation at absolute maximum currents will result in a reduction of device lifetime compared to typical forward drive currents. Actual device lifetimes will also depend on case temperature.

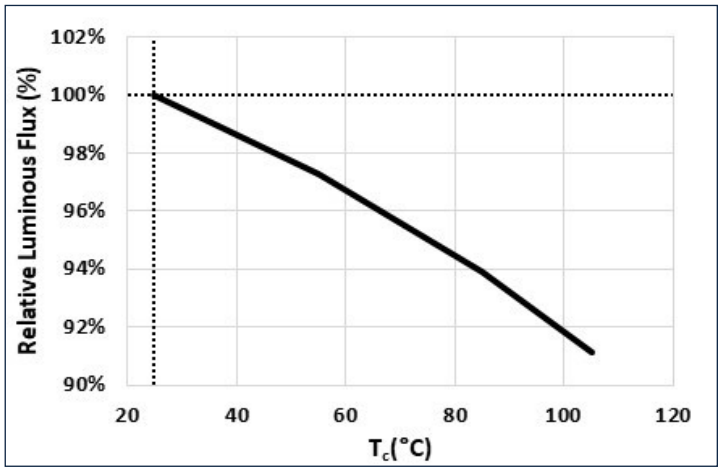
## Relative Luminous Flux vs Forward Current

$T_c$ = 25°C



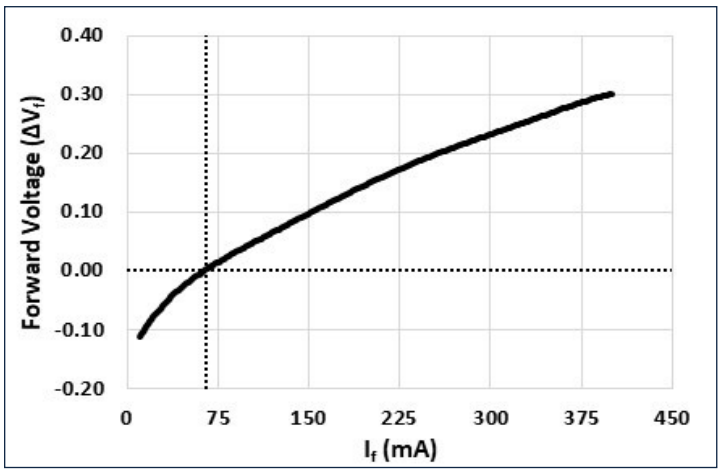

## Relative Luminous Flux vs Temperature

$I_f$ = 65 mA



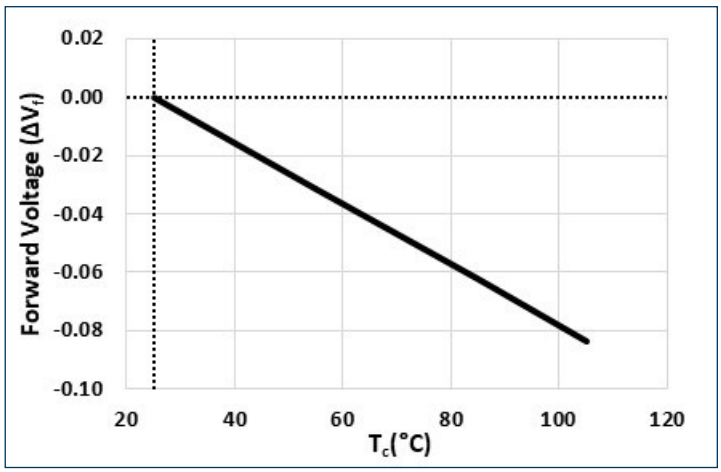

## Forward Voltage vs Forward Current

$T_c$ = 25°C



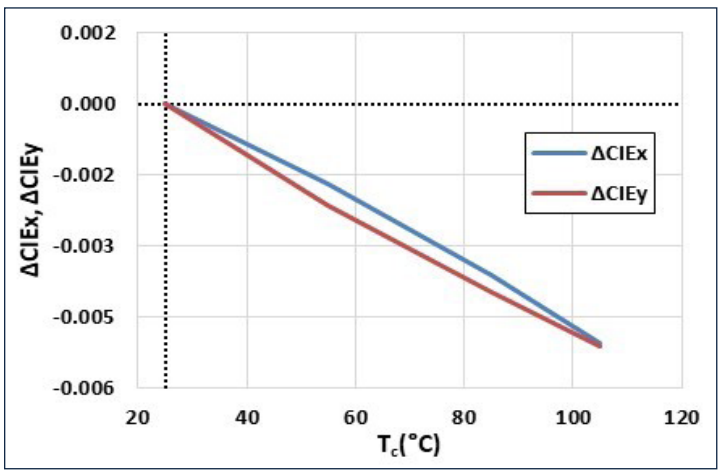

## Forward Voltage vs Temperature

$I_f$ = 65 mA




## Relative Chromaticity vs Temperature

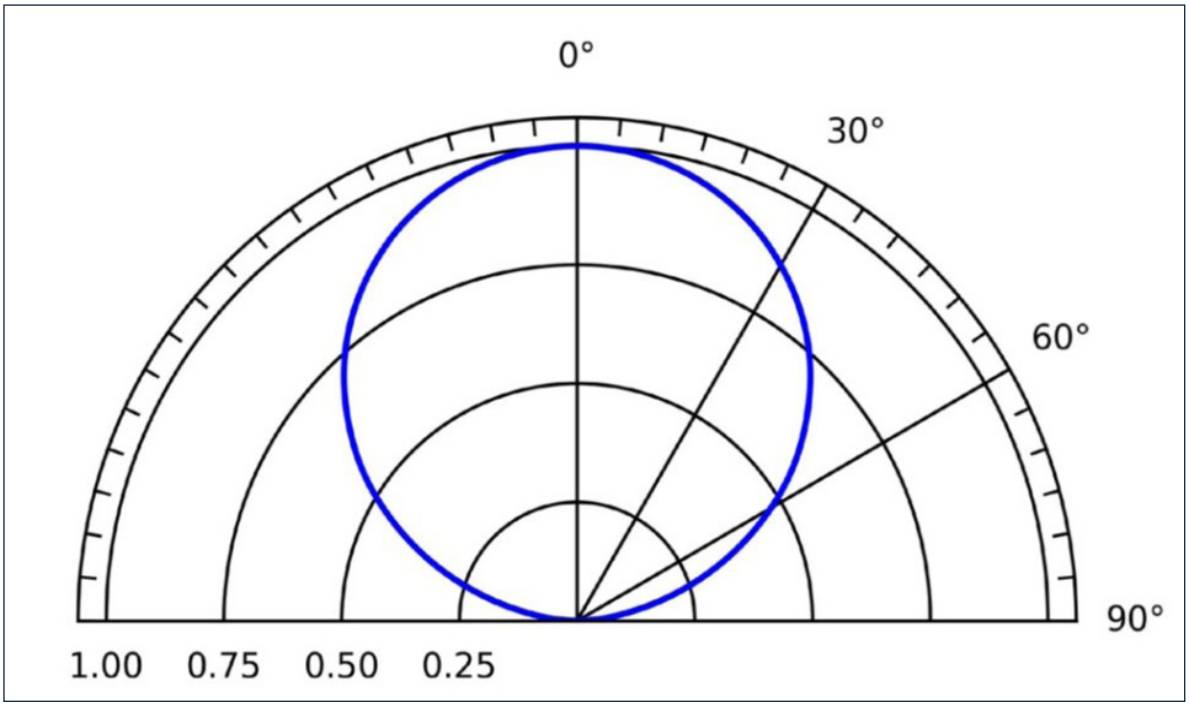
$I_f$ =65 mA



# Angular Distribution and Typical Spectrum

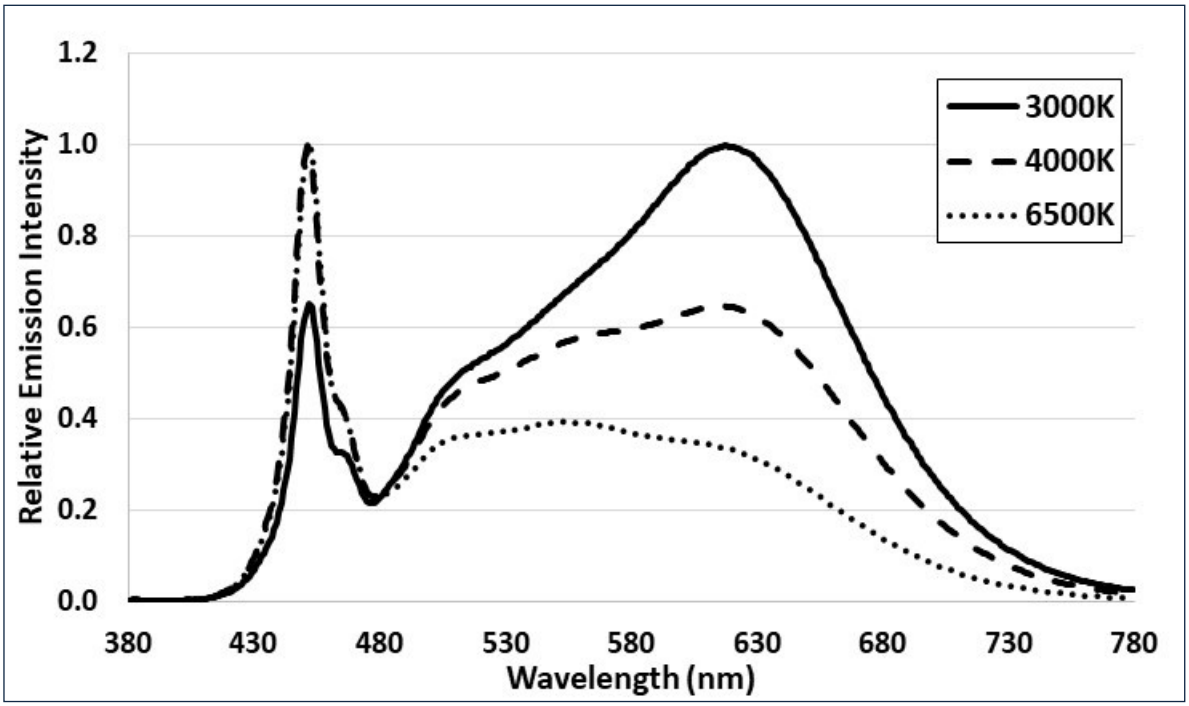
## Typical Polar Radiation Pattern

$T_c$= 25°C




## Relative Spectral Power Distribution

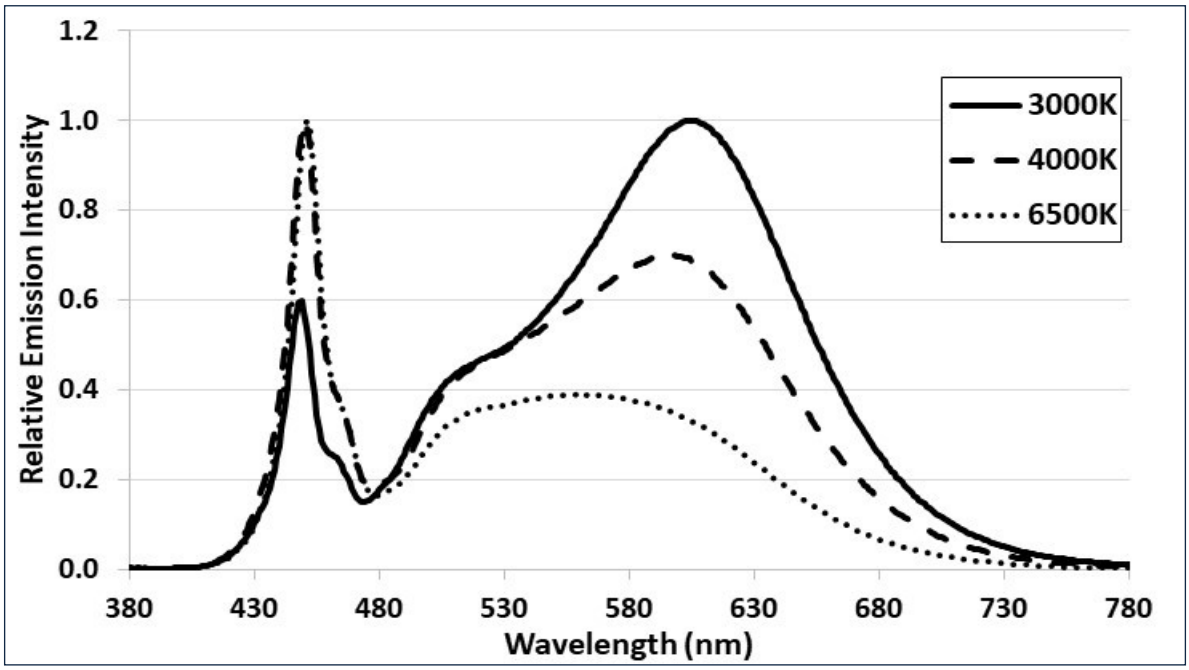
Ra≥ 90, $T_c$= 25°C



# Angular Distribution and Typical Spectrum

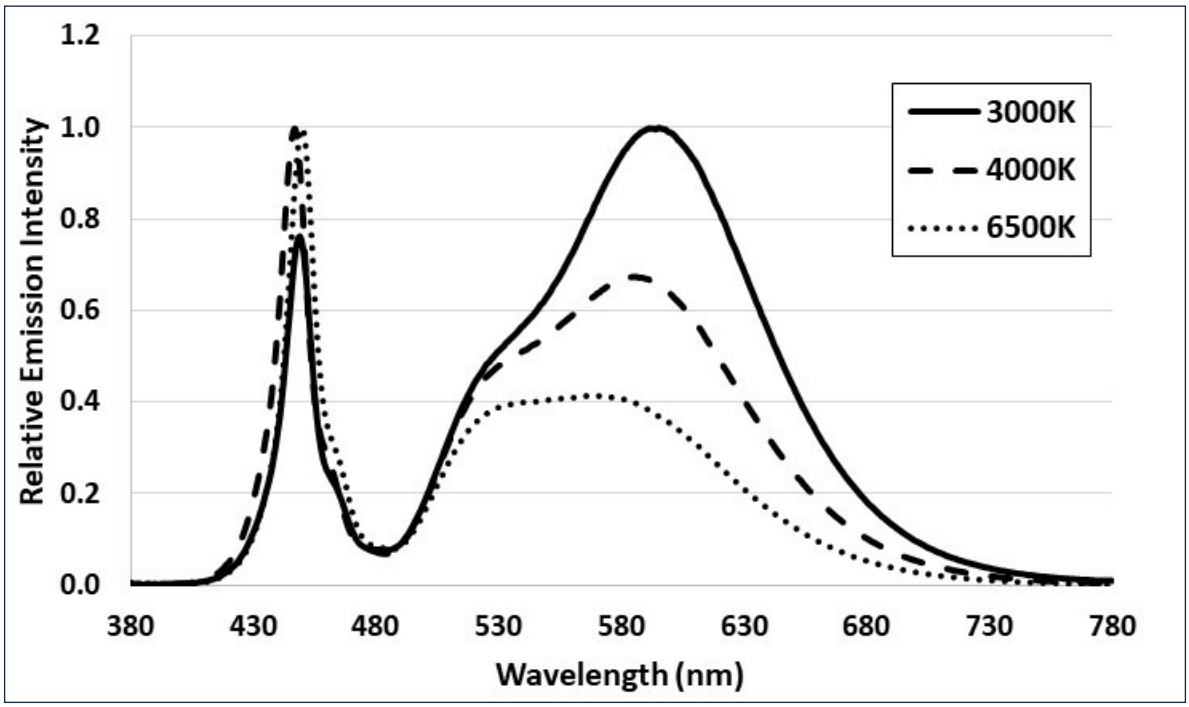
## Relative Spectral Power Distribution

Ra≥ 80, $T_c$= 25°C

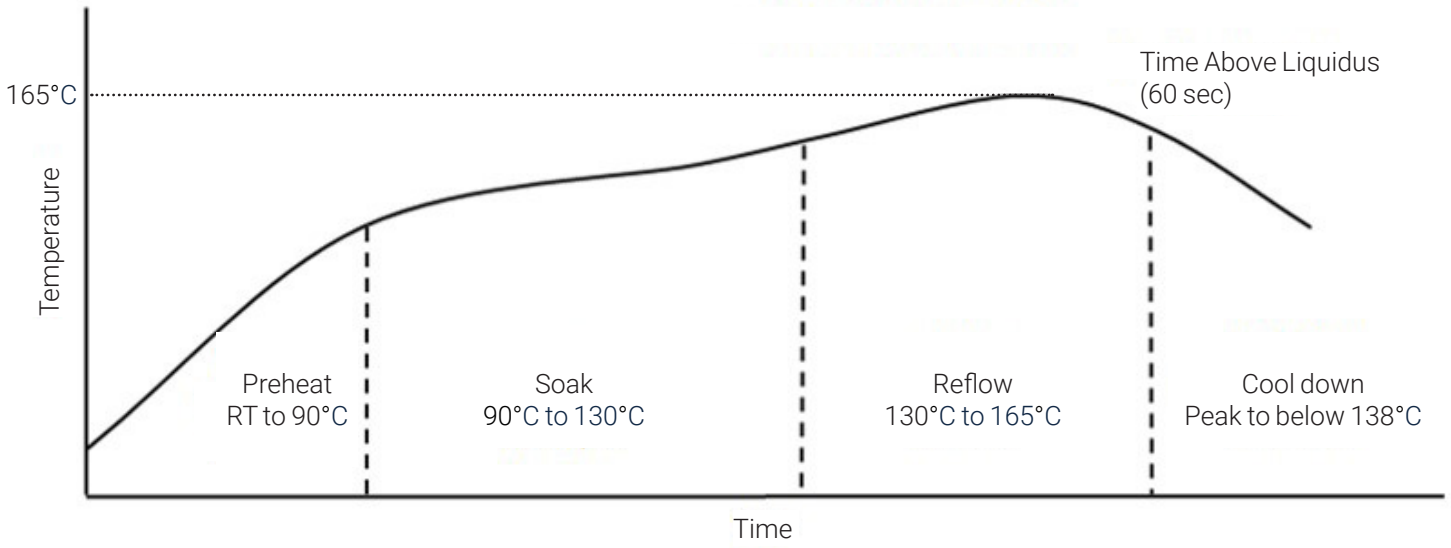



## Relative Spectral Power Distribution

Ra≥ 70, $T_c$= 25°C



## Soldering Profile

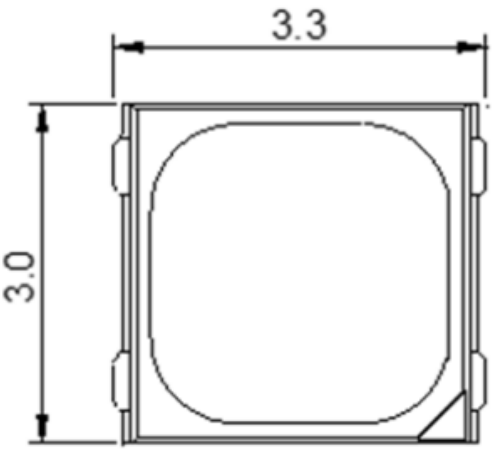



| SMT Rework Guideline | Manual Hotplate Reflow | Hot Air Gun Reflow |
|---|---|---|
| Heating Time | < 60 sec | |

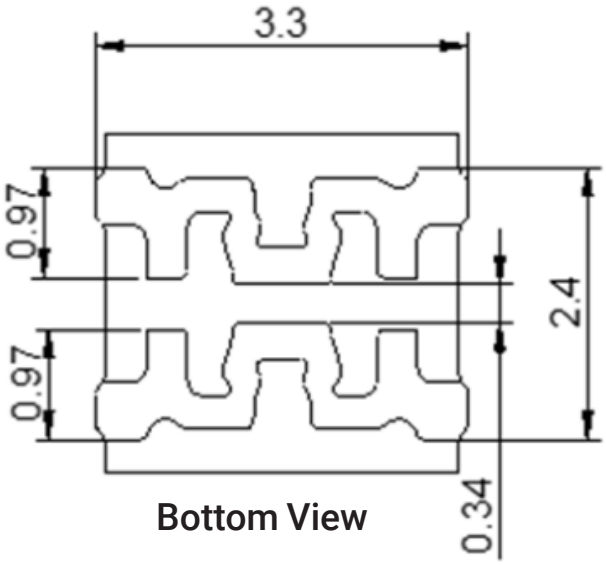
**Notes:**

1. Product complies to Moisture Sensitivity Level 3 (MSL 3).
2. Please note this product is only suitable for low temp solder reflow. See soldering profile graph above for tin bismuth, Sn42/Bi57.6/Ag0.4, reflow.
3. During the pick and place process, axial forces on the dome (or window) should not exceed 0.5 Newtons (N).
4. Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.
5. Time-temperature profile of the reflow process showing the four functional profile zones are defined in IPC-7801. Temperature is referenced to the center of the PCB.
6. Luminus recommends to use the solder paste data sheet information as a starting point in time-temperature process development.
7. For any technical questions about soldering process, please contact Luminus at techsupport@luminus.com.

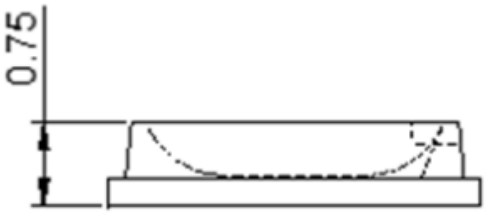
## Mechanical Dimensions



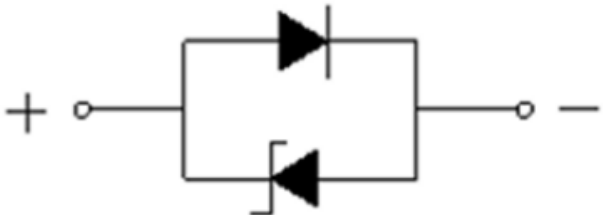

Top View

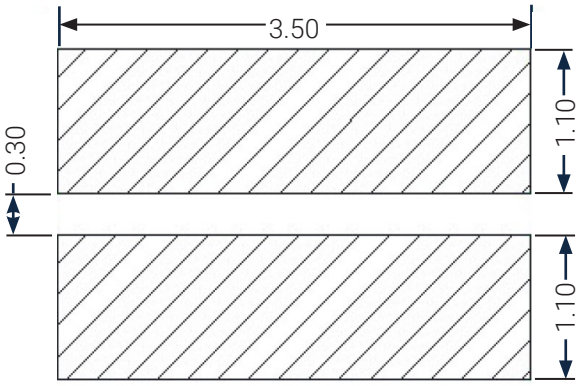



Bottom View




Side View



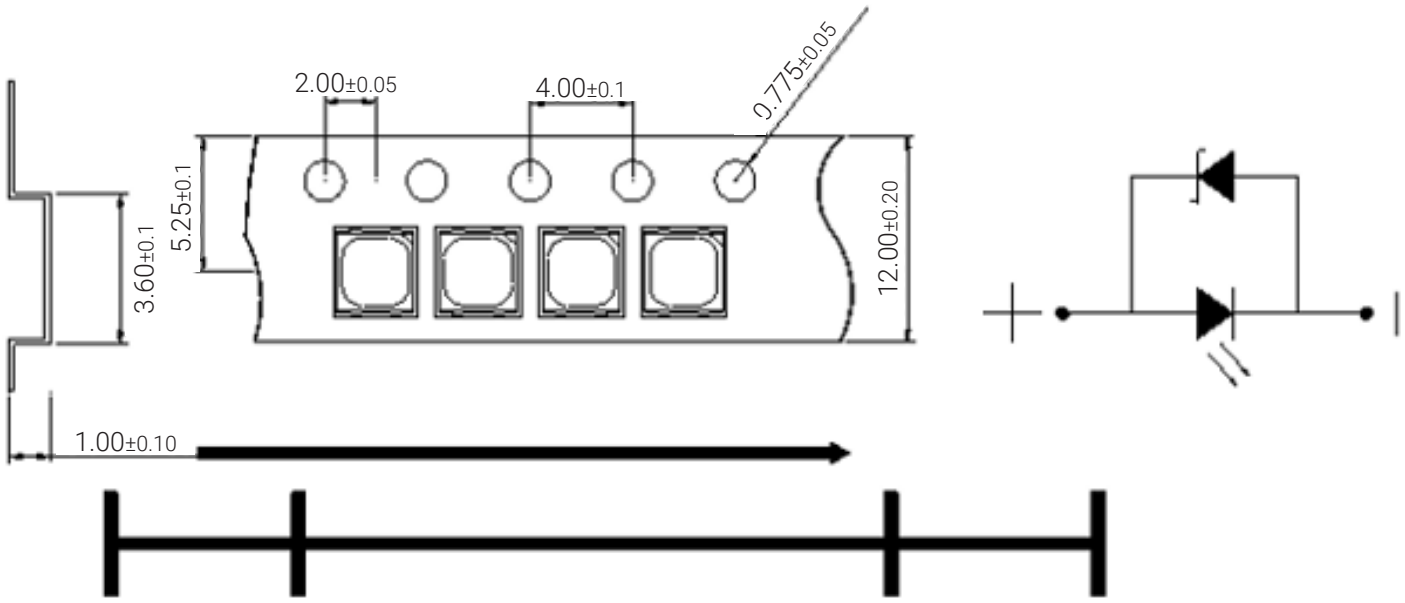

Recommended Solder Pad Pattern

**Note:**

1. All dimensions are in mm, tolerance is ± 0.1 mm.

# Tape and Reel Outline

## Tape Package Dimensions



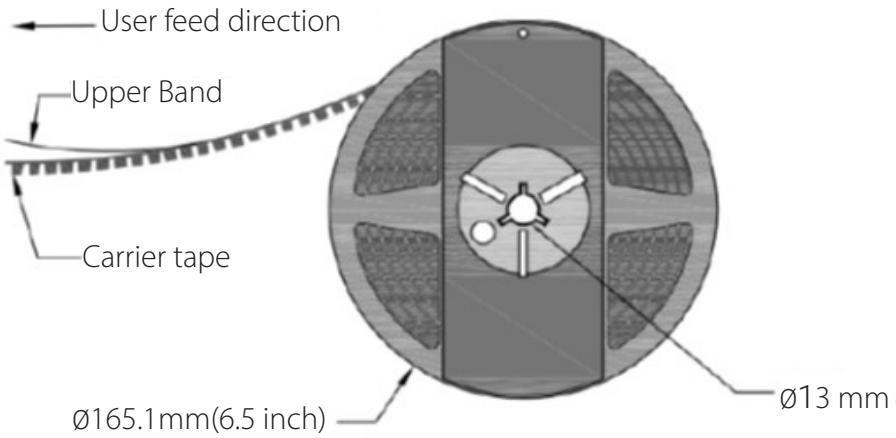

**More than 350 mm unloaded tape** | **Mounted with Top view LED** | **More than 350 mm unloaded tape**

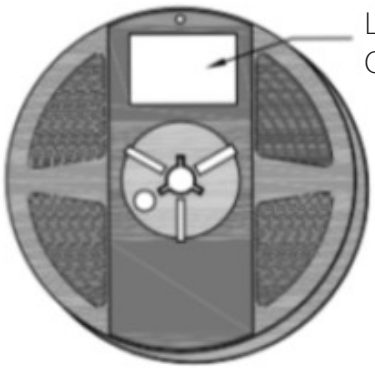
**Notes:**

1. Quantity : Max 4000 pcs/Reel
2. Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.2 mm
3. Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7 N when the cover tape is turned off from the carrier tape at the angle of 10° to the carrier tape.
4. Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package

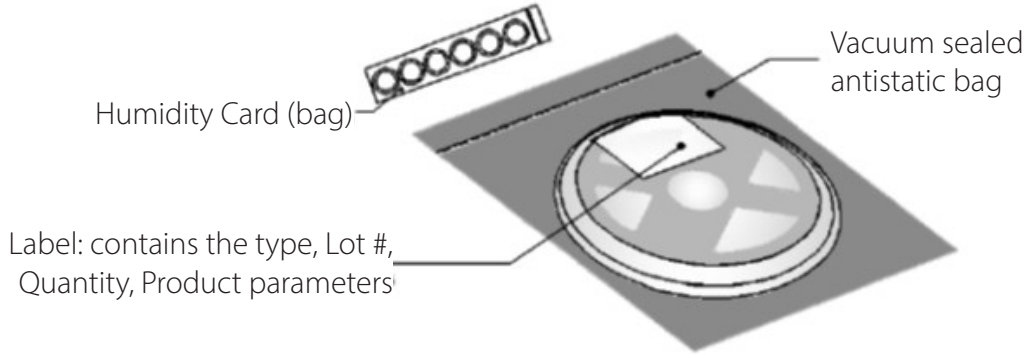
# Tape and Reel Outline

### Reel Package Dimensions



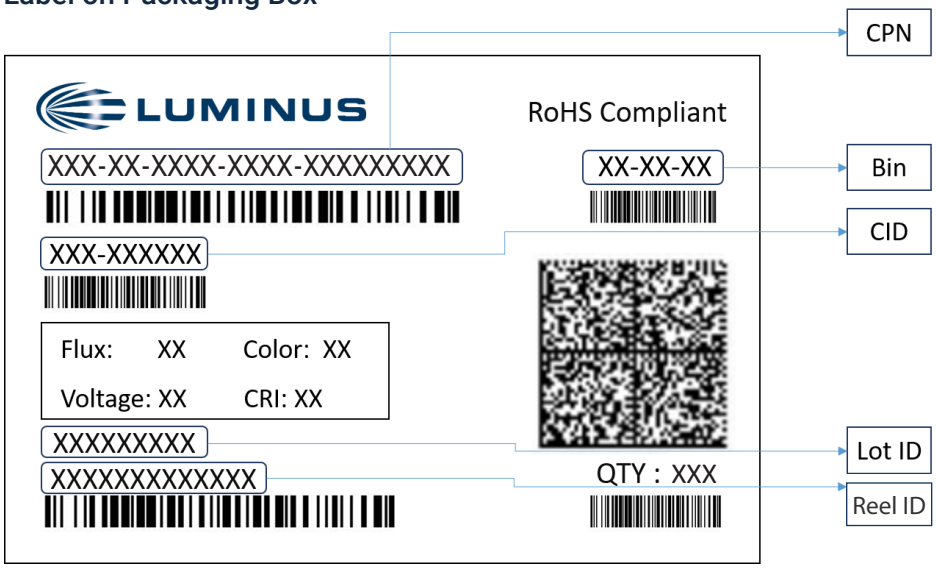







# Shipping Label

## Label on Packaging Box



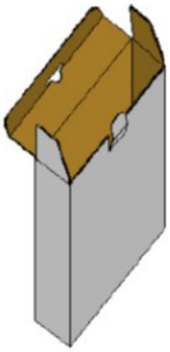

**Label Fields:**

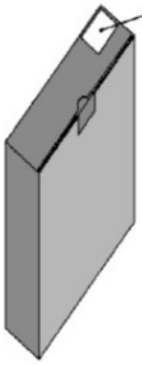
- CPN: Luminus ordering part number
- CID: Customer's part number
- QTY: Quantity of parts per reel
- Flux: Bin as defined on page 5
- Voltage: Bin as defined on page 5
- Color: Bin as defined on page 6
- CRI: Bin as defined on page 2

**Packing Configuration:**

- 4000 pieces per reel
- Partial pack or tray may be shipped
- Each pack is enclosed in anti-static bag
- Shipping label is placed on top of each pack

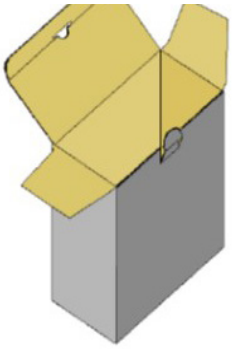
## Packaging Boxes

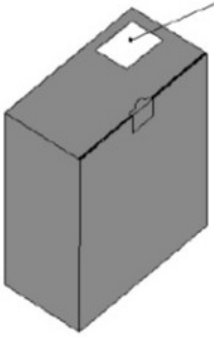




Label: contains the type, Lot #, Quality, Product parameters

*Capacity 5 reels per box





Label: contains the type, Lot #, Quality, Product parameters

*Capacity 10 reels per box

# Notes

## Static Electricity

1. The products are sensitive to static electricity, and care should be taken when handling them.
2. Static electricity or surge voltage will damage the LEDs. It is recommended to wear a anti-electrostatic wristband or an anti-electrostatic gloves when handling the LEDs.
3. 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.

## Storage

1. This device is rated at MSL 3 per JEDEC J-STD-020 standard.
2. Recommended storage condition:

   At 5°C - 30°C and relative humidity 60 % RH in its original package
3. After this bag is opened, devices that will be applied to infrared reflow, vapor - phase reflow, or equivalent soldering process must be:

   a) Completed within 168 hours

   b) Stored at less than 60 %RH

   c) If not completely used within 168 hours, seal the remaining in the moisture barrier bag
4. Devices require baking before mounting, if 3 a) is not met.
5. If baking is required, devices must be baked under below conditions:

   24 hours at 60°C±5°C

# Revision History

| Rev | Date | Description of Change |
|---|---|---|
| 01 | 08/03/2023 | Initial release |
| 02 | 11/25/2024 | Format, solder pad drawing udpate |
| 03 | 02/12/2025 | Update Chromaticity Diagram and Chromaticity Coordinate |

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Luminus Devices:

MP-3030-11F2-22-80 MP-3030-11F2-22-90 MP-3030-11F2-27-80 MP-3030-11F2-27-90 MP-3030-11F2-27-95 MP-3030-11F2-30-80 MP-3030-11F2-30-90 MP-3030-11F2-30-95 MP-3030-11F2-35-80 MP-3030-11F2-35-90 MP-3030-11F2-35-95 MP-3030-11F2-40-80 MP-3030-11F2-40-90 MP-3030-11F2-40-95 MP-3030-11F2-50-80 MP-3030-11F2-50-90 MP-3030-11F2-57-80 MP-3030-11F2-57-90 MP-3030-11F2-57-95 MP-3030-11F2-65-80 MP-3030-11F2-65-90