

V11/23

MP-2835-120K

Mid Power LED



Features

- High efficacy
- CRI Options: Minimum 90
- Low thermal resistance
- Compatible with automatic placement equipment
- Compatible with infrared reflow solder process
- RoHs and REACH compliant



Applications

- Replacement lamps
- Panel lighting
- Down lights
- Architectural lighting

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PRODUCT ORDERING AND SHIPPING PART NUMBER NOMENCLATURE

All mid power products are packaged and labeled with part numbers as outlined in below. When shipped, each reel will contain only a single flux and voltage bin. The part number designation is as follows:

2835 Mid Power LED

| | Package Type | Package Configurator | Nominal CCT | Minimum CRI |
|----|--------------|----------------------|-------------|-------------|
| MP | 2835 | 120K | ## | ## |

Example:

The part number MP-2835-120K30-90 refers to a 2835 emitter with nominal color temperature of 4,000k and minimum CRI of 90. Please refer to page for a description of available CCT and CRI combinations.

PRODUCT SELECTION TABLE

Test condition = 65 mA ($T_c = 25^\circ\text{C}$)

| Nominal CCT | Minimum CRI | Ordering Part Number | Minimum Flux (Lumens) | Typical Flux (Lumens) |
|-------------|-------------|----------------------|-----------------------|-----------------------|
| 2700K | 90 | MP-2835-120K-27-90 | 34 | 35 |
| 3000K | 90 | MP-2835-120K-30-90 | 35 | 36 |
| 3500K | 90 | MP-2835-120K-35-90 | 35 | 37 |
| 4000K | 90 | MP-2835-120K-40-90 | 36 | 37 |
| 5000K | 90 | MP-2835-120K-50-90 | 36 | 37 |
| 5700K | 90 | MP-2835-120K-57-90 | 35 | 36.5 |
| 6500K | 90 | MP-2835-120K-65-90 | 35 | 36.5 |



BINNING STRUCTURE

All MP-2835-120K monochromatic LEDs are tested for luminous flux/ dominant wavelength and placed into one of the following flux/wave length bins. The binning structure is universally applied across each monochromatic color of the MP-2835-120K product line.

Flux Bins

| Bin Code | Minimum Flux (Lumens) | Maximum Flux (Lumens) |
|----------|-----------------------|-----------------------|
| D9 | 32 | 34 |
| E1 | 34 | 36 |
| E2 | 36 | 38 |

Forward Voltage

| Bin Code | Minimum Voltage (Volts) | Maximum Voltage (Volts) |
|----------|-------------------------|-------------------------|
| Z | 2.6 | 2.7 |
| A | 2.7 | 2.8 |
| B | 2.8 | 2.9 |

* Tolerance of measurements of the Forward Voltage is $\pm 0.1V$



MP-2835 MID POWER OPERATING CHARACTERISTICS

Optical and Electrical Characteristics($T_c = 25^\circ\text{C}$)

| Parameter | Symbol | Minimum | Typical | Maximum | Unit | Condition |
|-------------------------|-----------------|---------|---------|---------|--------------------|-------------------|
| Forward Voltage | V_f | 2.6 | 2.75 | 2.9 | V | $I_f=65\text{mA}$ |
| Reverse Current | I_r | | | 10 | μA | $V_r=5\text{V}$ |
| View Angle | $2\theta^{1/2}$ | | 120 | | $^\circ$ | $I_f=65\text{mA}$ |
| Thermal Resistance | $R_{th_{j-sp}}$ | | 14 | | $^\circ\text{C/W}$ | $I_f=65\text{mA}$ |
| Electrostatic Discharge | ESD | 1000 | | | V | |

Note 1: To prevent damage refer to operating conditions and derating curves for appropriate maximum operating conditions

Note 2: Maximum operating case temperature combined with maximum drive current defines the total maximum operating condition for the device. To prevent damage, please follow derating curves for all operating conditions.

Note 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. Refer to the current vs. case temperature derating curves for further information.

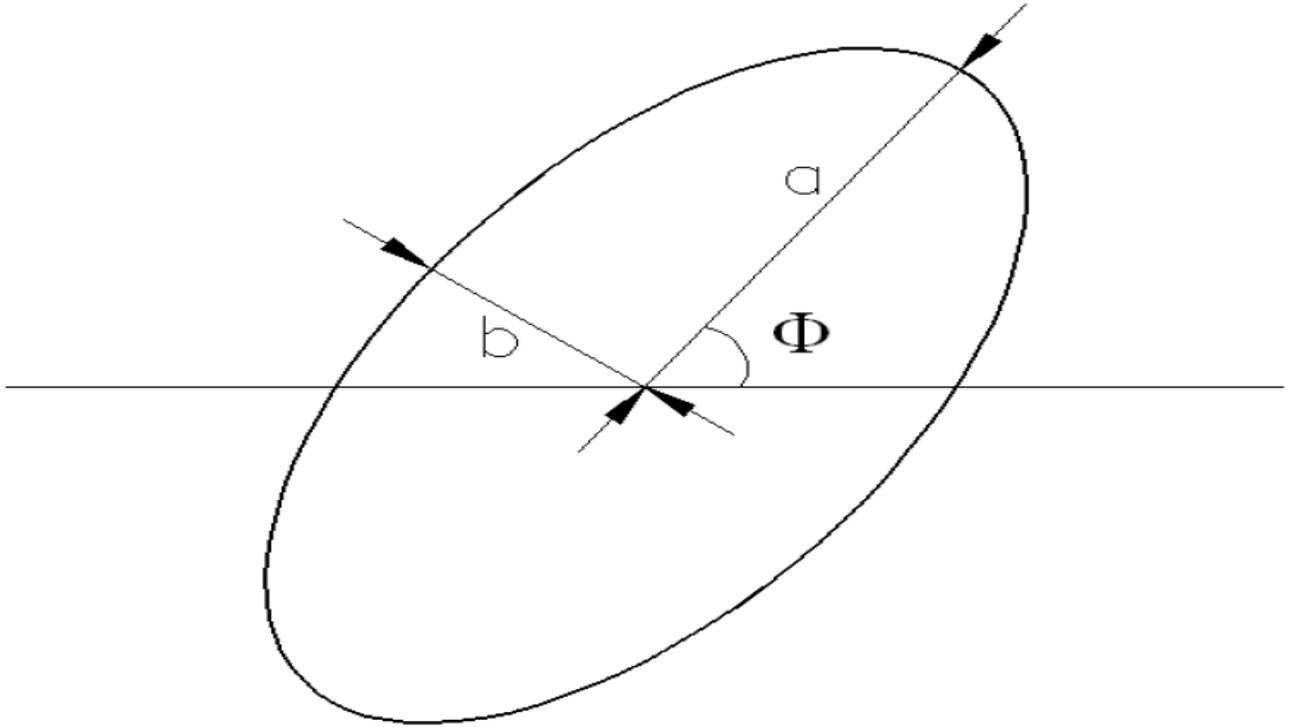
Note 4: Caution must be taken not to stare at the light emitted from these LEDs. Under special circumstances, the high intensity could damage the eye.

Absolute Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|------------------------|-----------|---|------------------|
| Forward Current | I_f | 400 | mA |
| Pulse Forward Current | I_{fp} | 600 | mA |
| Power Dissipation | P_d | 1160 | mW |
| Reverse Voltage | V_r | 5 | V |
| Operating Temperature | T_{opr} | -40~+85 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -40~+85 | $^\circ\text{C}$ |
| Junction Temperature | T_j | 120 | $^\circ\text{C}$ |
| Soldering Temperature | T_{sld} | 230 $^\circ\text{C}$ or 260 $^\circ\text{C}$ for 10 sec | |



CHROMATICITY DIAGRAM

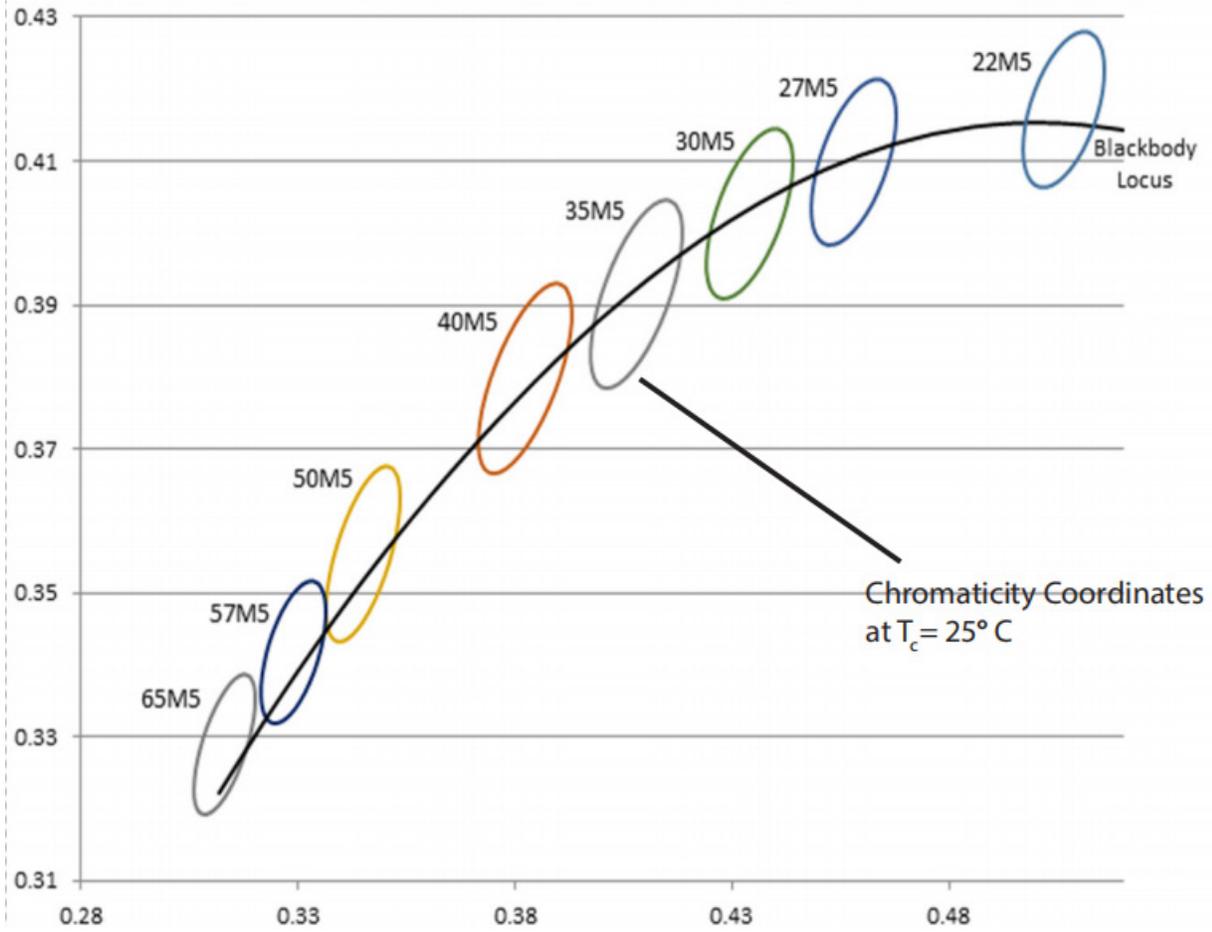


Color Bins

| Color Code | Center | | Radius | | Angle(deg) |
|------------|--------|--------|----------|----------|------------|
| | x | y | a | b | Φ |
| 27M5 | 0.4583 | 0.4099 | 0.013500 | 0.007000 | 53.42 |
| 30M5 | 0.4342 | 0.4028 | 0.013900 | 0.006800 | 53.13 |
| 35M5 | 0.4080 | 0.3916 | 0.015450 | 0.006900 | 54.00 |
| 40M5 | 0.3825 | 0.3798 | 0.015650 | 0.006700 | 53.43 |
| 50M5 | 0.3451 | 0.3554 | 0.013700 | 0.005900 | 59.37 |
| 57M5 | 0.3290 | 0.3417 | 0.011175 | 0.005500 | 58.35 |
| 65M5 | 0.3130 | 0.3290 | 0.011150 | 0.004750 | 58.34 |



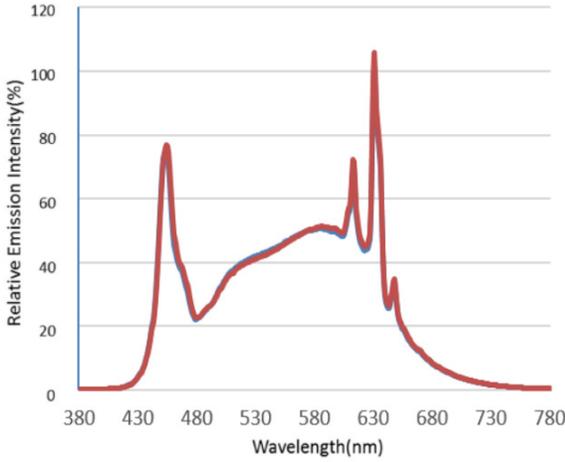
CHROMATICITY COORDINATE GROUP



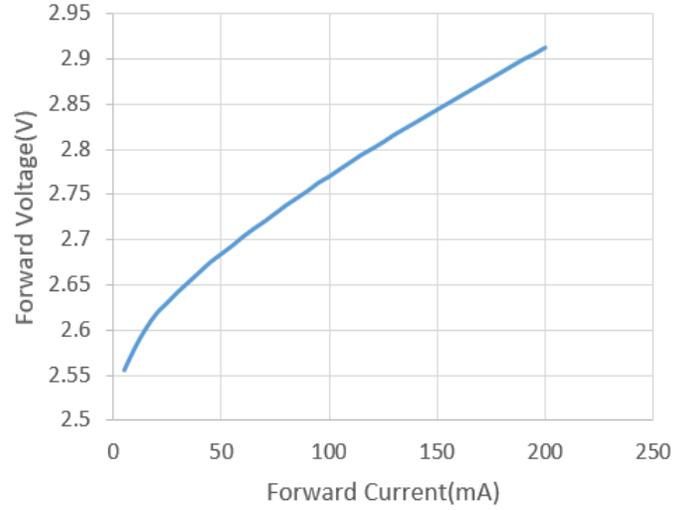


TYPICAL OPTICAL/ELECTRICAL CHARACTERISTICS GRAPHS

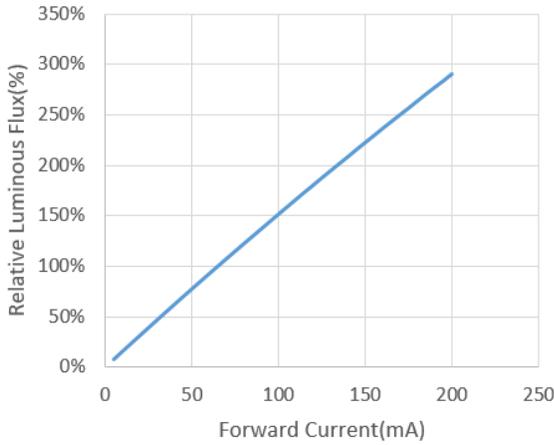
Color Spectrum (Ra≥90 Tj=25°C)



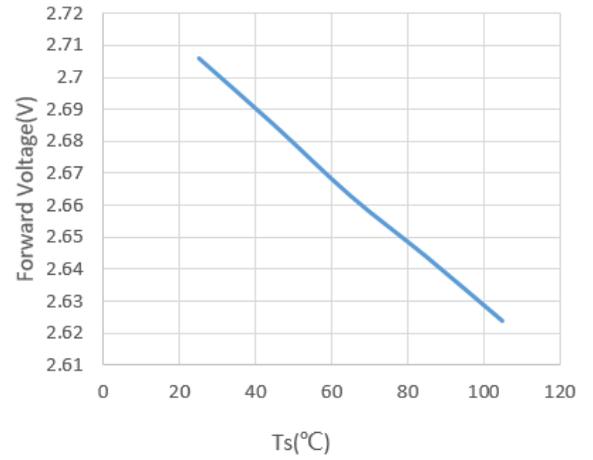
Forward Current vs. Forward Voltage(Tj = 25°C)



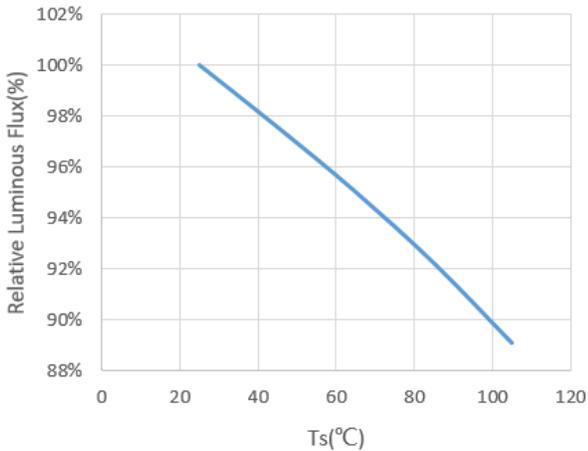
Forward Current vs. Relative Intensity(Tj = 25°C)



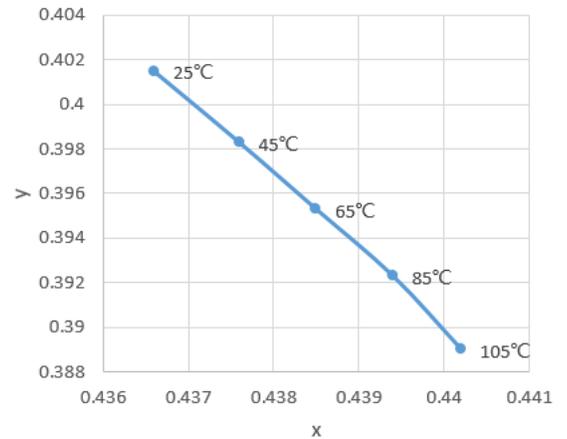
Solder Point Temperature vs. Relative Forward Voltage (IF=65mA)



Solder Point Temperature vs. Relative Luminous



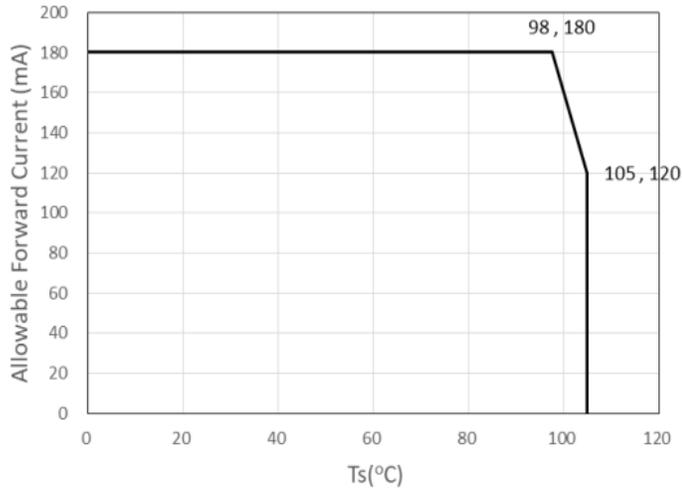
SOLDERING TEMP. VS. CIEX, Y SHIFT



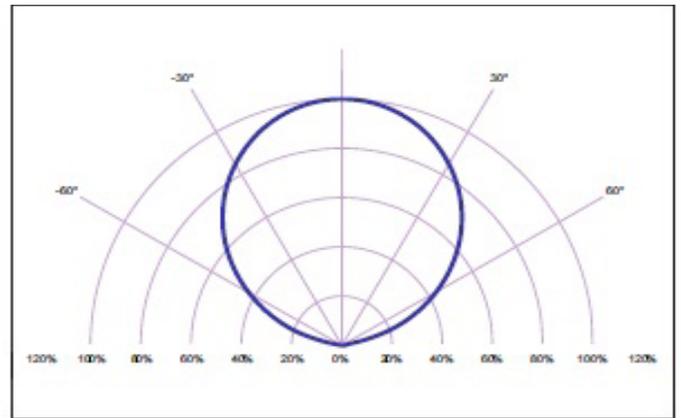


TYPICAL OPTICAL/ELECTRICAL CHARACTERISTICS GRAPHS

MAX FORWARD CURRENT VS. SOLDERING TEMP.

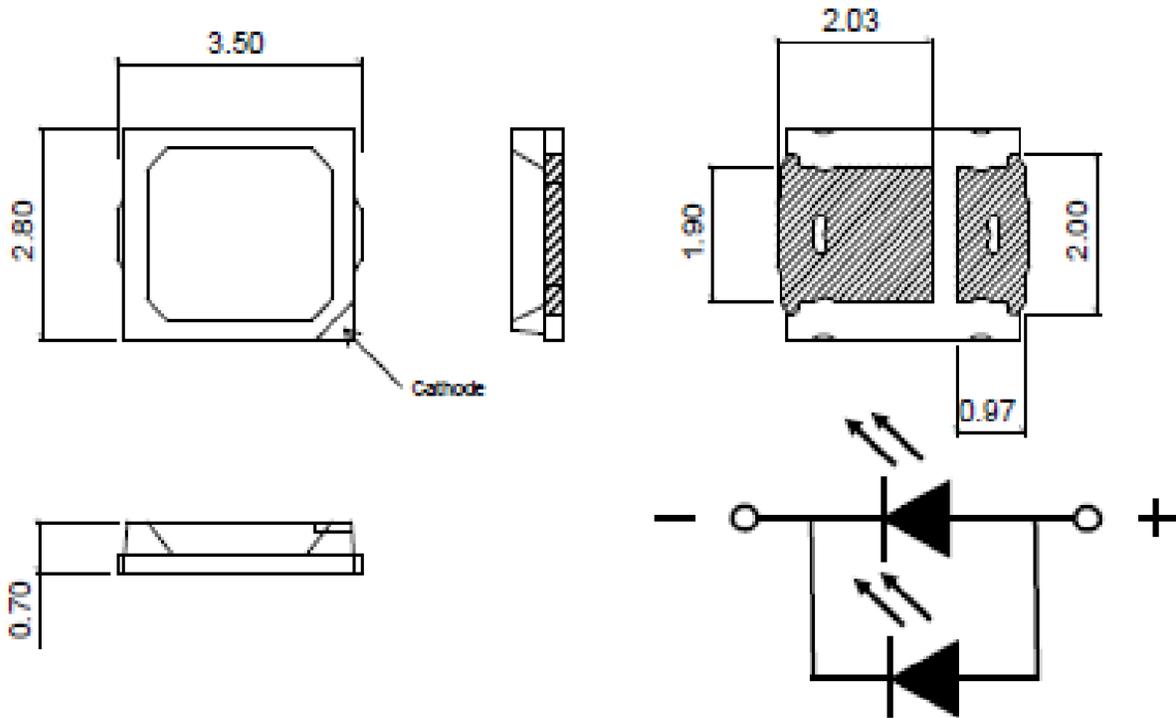


Viewing Angle Distribution ($T_j = 25^\circ\text{C}$)

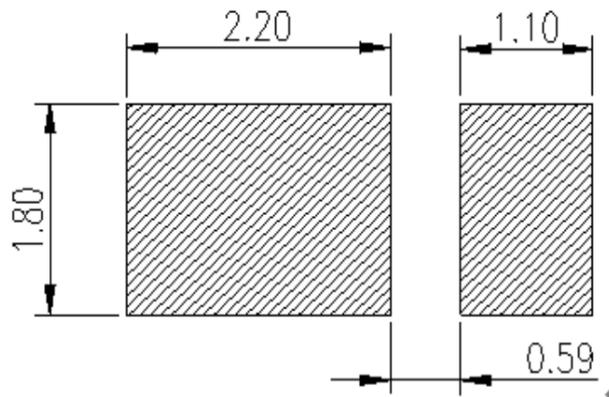




PACKAGE DIMENSION (MM)



Recommended Solder Pad



*All dimensions are in millimeters

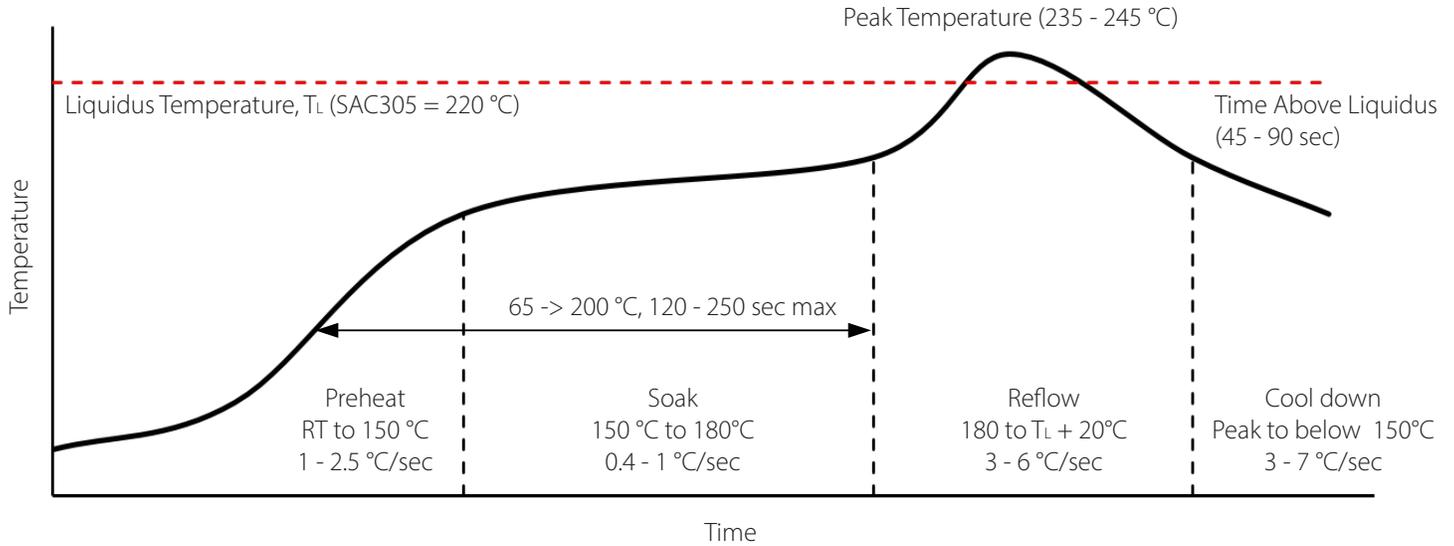
*Scale : 1:1

*This drawing without tolerances are for reference only

*Undefined tolerance: $\pm 0.10\text{mm}$

Note: tolerance : X: $\pm 0.10\text{mm}$ XX: $\pm 0.05\text{mm}$

SOLDER PROFILE



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

Note 1: Product complies to Moisture Sensitivity Level 3 (MSL 3).

Note 2: The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.

Note 3: During the pick and place process, axial forces on the dome (or window) should not exceed 0.5 Newtons (N).

Note 4: Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.

Note 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.

Note 6: Luminus recommends to use the solder paste data sheet information as a starting point in time-temperature process development.

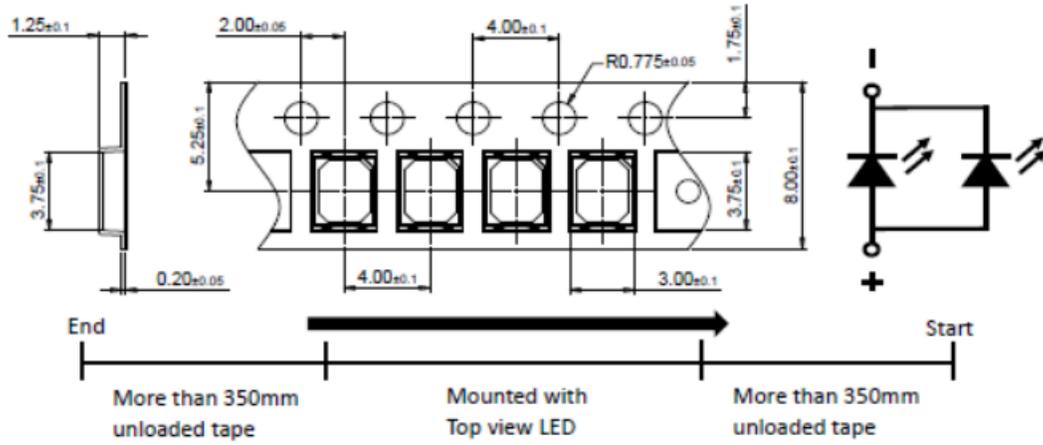
Note 7: These are general guidelines. Consult the solder paste manufacturer's datasheet for guidelines specific to the alloy and flux combination used in your application. For more information, please refer to:

<https://luminusdevices.zendesk.com/hc/en-us/articles/360060306692-How-do-I-Reflow-Solder-Luminus-SMD-Components->

Note 8: For any technical questions about soldering process, please contact Luminus at techsupport@luminus.com.



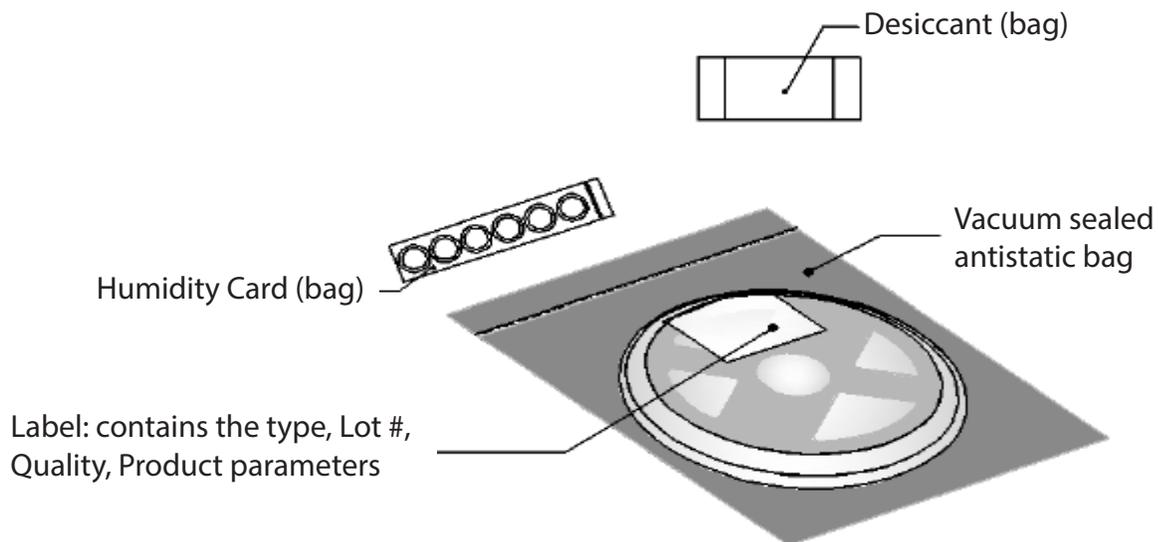
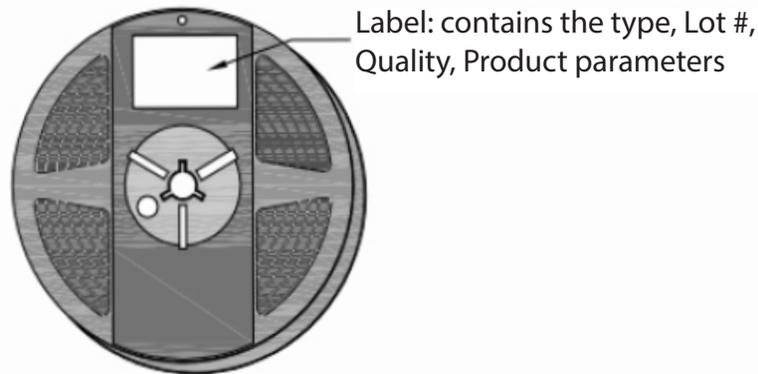
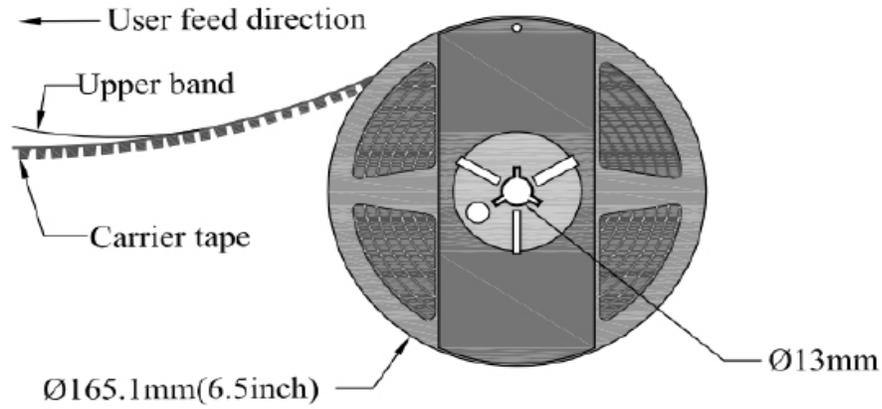
Package Dimensions of Type(mm)



Capacity per reel
(4000 PCs LEDs)

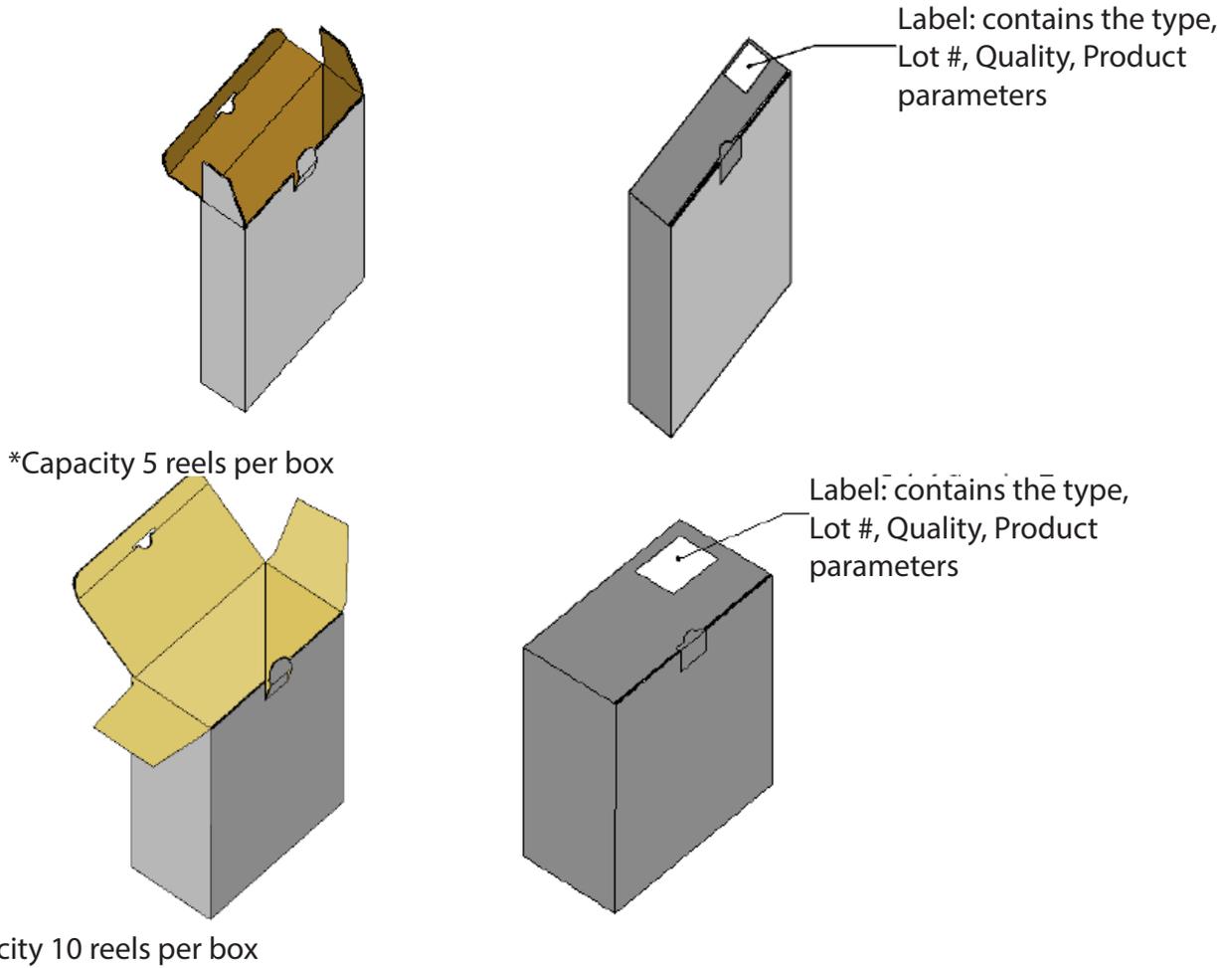


Package Dimensions of Reel(mm)

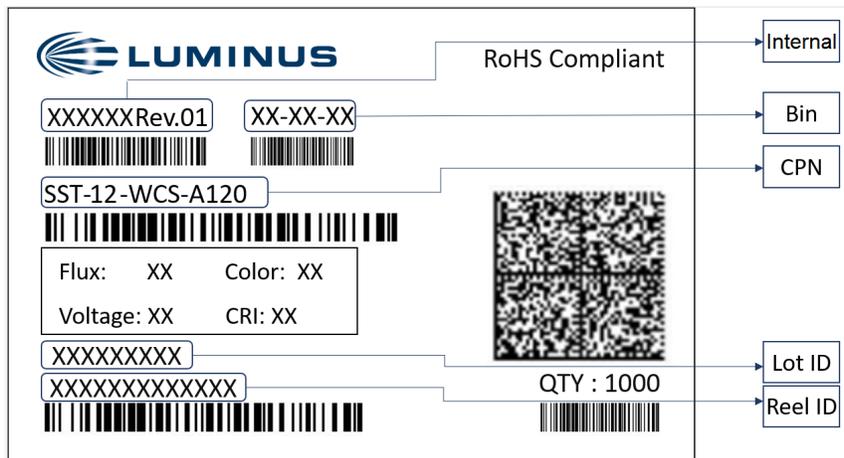




BOX PACKAGING



LABEL





PRECAUTION FOR USE

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 60C+/-5C

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.



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