

MP-3030-210H

High-Performance
Mid Power LED



Features

- High efficacy
- CRI Options: Minimum 70, 80, 90, 95
- Low thermal resistance
- Compatible with automatic placement equipment
- Compatible with infrared reflow solder process



Applications

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

Table of Contents

Ordering Information.	2
Binning Structure.	4
Absolute Maximum Ratings.	7
Characteristics.	8
Angular Distribution and Typical Spectrum.	10
Derating Curve.	12
Soldering Profile.	13
Mechanical Dimensions.	14
Mechanical Characteristics.	15
Tape and Reel Outline.	16
Shipping Label.	18
Packaging Boxes.	19
Notes.	20
Revision History.	21



Ordering Information

Ordering Part Numbers ^{1,2,3,4}

Minimum CRI	Nominal CCT	Luminous Flux			Ordering Part Number
		Minimum Flux @150 mA (lm)	Typical Flux @150 mA (lm)	Typical Flux @65 mA (lm)	
70	2200K	122	135	65	MP-3030-210H-22-70
80		114	122	58	MP-3030-210H-22-80
90		94	104	50	MP-3030-210H-22-90
70	2700K	139	148	71	MP-3030-210H-27-70
80		130	141	68	MP-3030-210H-27-80
90		107	120	57	MP-3030-210H-27-90
95		94	103	49	MP-3030-210H-27-95
70	3000K	148	156	75	MP-3030-210H-30-70
80		139	148	71	MP-3030-210H-30-80
90		114	126	60	MP-3030-210H-30-90
95		94	108	52	MP-3030-210H-30-95
70	3500K	148	160	77	MP-3030-210H-35-70
80		139	152	73	MP-3030-210H-35-80
90		114	128	62	MP-3030-210H-35-90
95		100	111	53	MP-3030-210H-35-95
70	4000K	156	165	79	MP-3030-210H-40-70
80		148	157	75	MP-3030-210H-40-80
90		122	133	64	MP-3030-210H-40-90
95		100	114	55	MP-3030-210H-40-95
70	5000K	156	165	79	MP-3030-210H-50-70
80		148	157	75	MP-3030-210H-50-80
90		122	133	64	MP-3030-210H-50-90
70	5700K	156	165	79	MP-3030-210H-57-70
80		148	157	75	MP-3030-210H-57-80
90		122	133	64	MP-3030-210H-57-90
95		100	114	55	MP-3030-210H-57-95
70	6500K	156	165	78	MP-3030-210H-65-70
80		148	157	74	MP-3030-210H-65-80
90		122	133	63	MP-3030-210H-65-90

Notes:

1. Test condition: $I_f=150\text{ mA}$, $T_c=25^\circ\text{C}$
2. The luminous flux measurement tolerance is $\pm 7\%$
3. The CRI measurement tolerance is ± 2
4. I_{fp} condition with Pulse: Width $\leq 100\mu\text{s}$ Duty cycle $\leq 1/10$

Ordering Information

Part Number Nomenclature

MP

3030

210H

##

##

Product Family	Package Type	Package Configurator	Nominal CCT¹	Minimum CRI
MP: Mid Power LED	3030: 3.0 mm x 3.0 mm	210H: Package code	22: 2200K 27: 2700K 30: 3000K 35: 3500K 40: 4000K 50: 5000K 57: 5700K 65: 6500K	70: CRI>70 80: CRI>80 90: CRI>90 95: CRI>95

Note:

1. Correlated Color Temperatures (CCT)



Binning Structure

Each mid power product shipped will be labeled with its specific flux and voltage bins. Not all bins listed are available in all CCTs and CRIs.

Flux Bins

Bin Code	Binning @ 150 mA, $T_c = 25^\circ\text{C}$	
	Minimum Flux (lm)	Maximum Flux (lm)
2A	94	100
2B	100	107
2C	107	114
2D	114	122
2E	122	130
2F	130	139
2G	139	148
2H	148	156
2J	156	164
2K	164	172

Forward Voltage Bins¹

Voltage Bin	Binning @ 150 mA, $T_c = 25^\circ\text{C}$	
	Minimum Voltage (V)	Maximum Voltage (V)
J	5.8	6.0
K	6.0	6.2
T	6.2	6.4

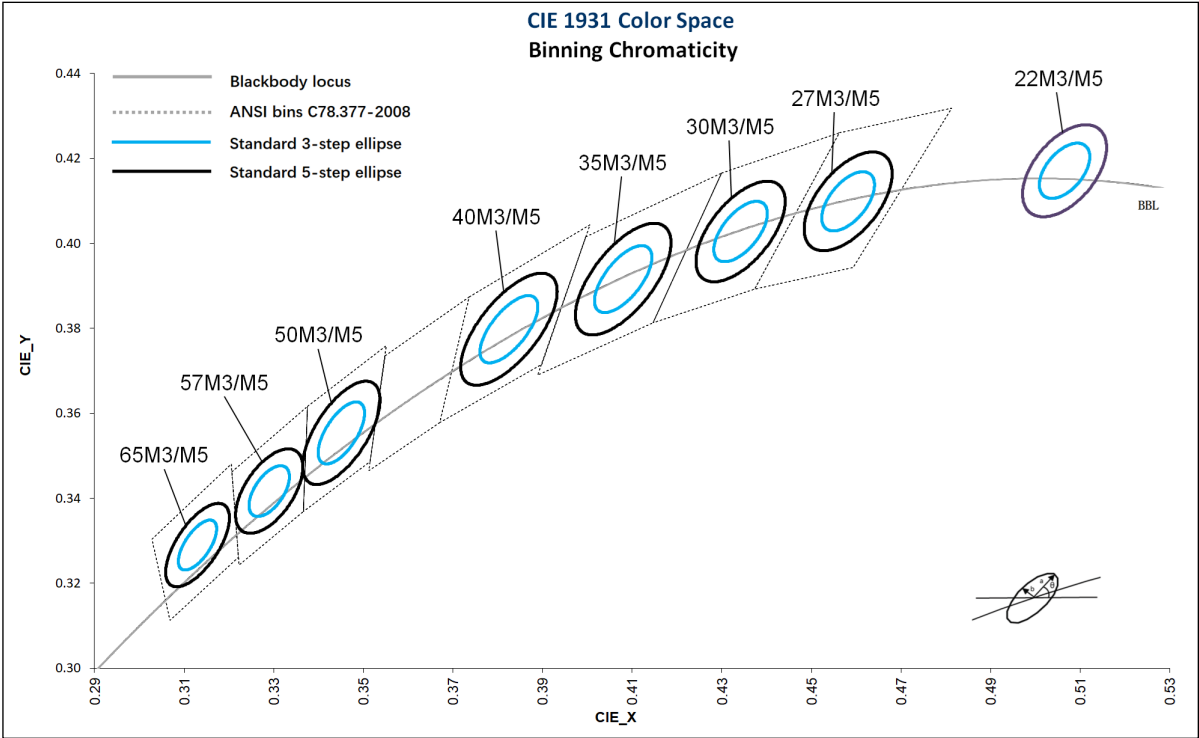
Note:

1. The Forward Voltage measurement tolerance is ± 0.1 V.



Binning Structure

Chromaticity Binning Diagram





Binning Structure

Color Bins¹

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	0.00330	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}

Parameter	Symbol	Values	Unit
Forward Current	I_f	240	mA
Pulse Forward Current	I_{fp}	300	mA
Power Dissipation	P_d	1536	mW
Reverse Voltage	V_r	5	V
Operating Temperature Range	T_{opr}	-40~+85	°C
Storage Temperature Range	T_{stg}	-40~+85	°C
Junction Temperature	T_j	125	°C
Soldering Temperature	T_{sld}	230 °C or 260 °C for 10 sec	°C

Notes:

1. Frequency 10 KHz, duty ratio $\leq 10\%$.
2. The forward pulse current is the maximum current used by the chip at 25°C.



Characteristics^{1,2,3}

Parameter ($I_f=150\text{ mA}$, $T_c=25^\circ\text{C}$)		Symbol	Value	Unit
Forward Voltage	Typical	$V_{f\text{ typ}}$	6.0	
	Maximum	$V_{f\text{ max}}$	6.4	
Reverse Current ($V_r=5\text{ V}$)		I_r	10	μA
Viewing Angle		$2\theta_{1/2}$	110	$^\circ$
Thermal Resistance		$R_{th\text{ J-C}}$	11	$^\circ\text{C/W}$
Electrostatic Discharge		V_{ESD}	1000	V

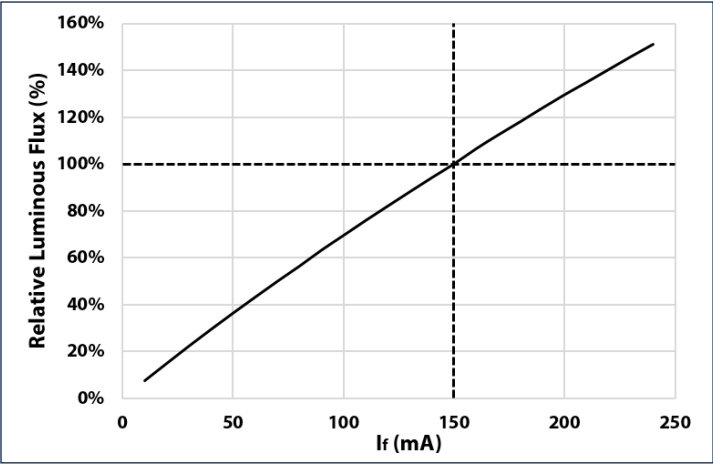
Notes:

1. Product test condition: $I_f=150\text{ mA}$ and $T_c = 25^\circ\text{C}$.
2. To prevent damage refer to operating conditions and derating curves for appropriate maximum operating conditions.
3. 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.
4. 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.



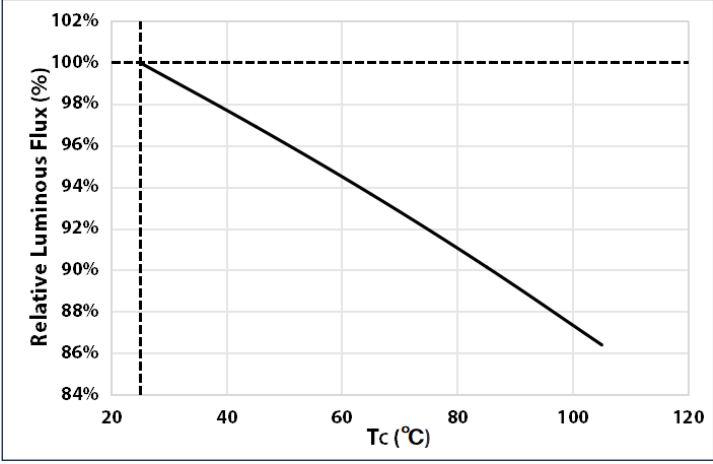
Relative Luminous Flux vs Forward Current

$T_c = 25^{\circ}\text{C}$



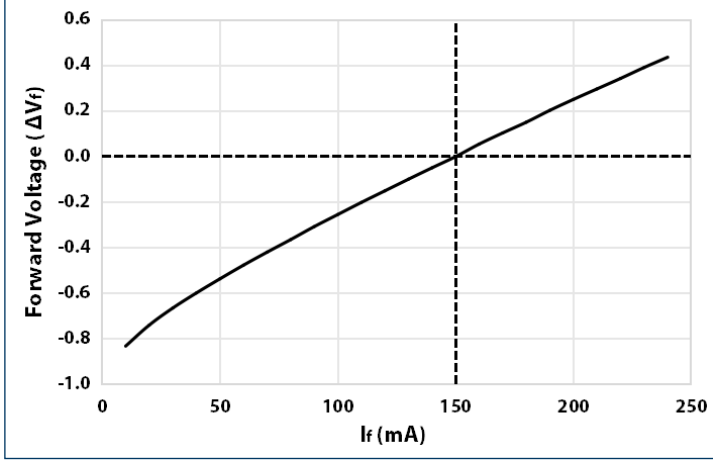
Relative Luminous Flux vs Temperature

$I_f = 150\text{ mA}$



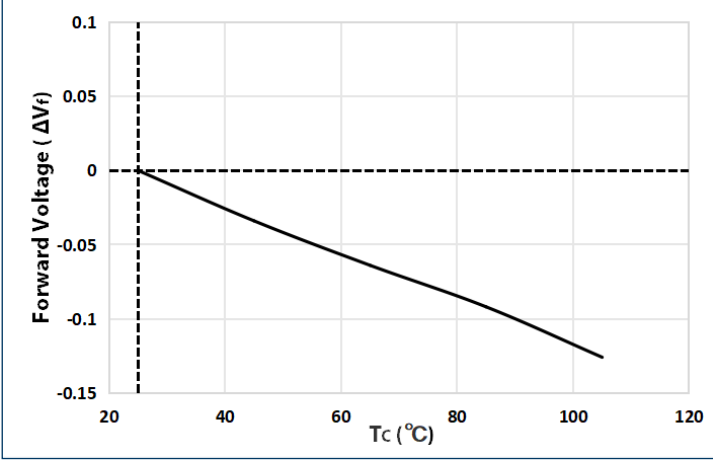
Forward Voltage vs Forward Current

$T_c = 25^{\circ}\text{C}$



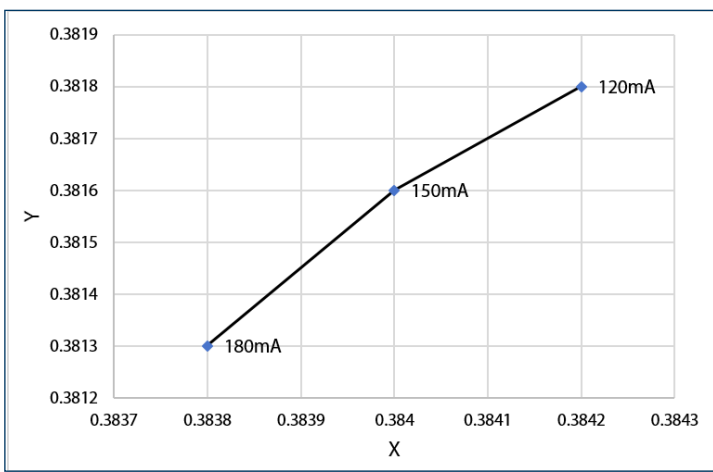
Forward Voltage vs Temperature

$I_f = 150\text{ mA}$



Relative Chromaticity vs Forward Current

$T_c = 25^{\circ}\text{C}$

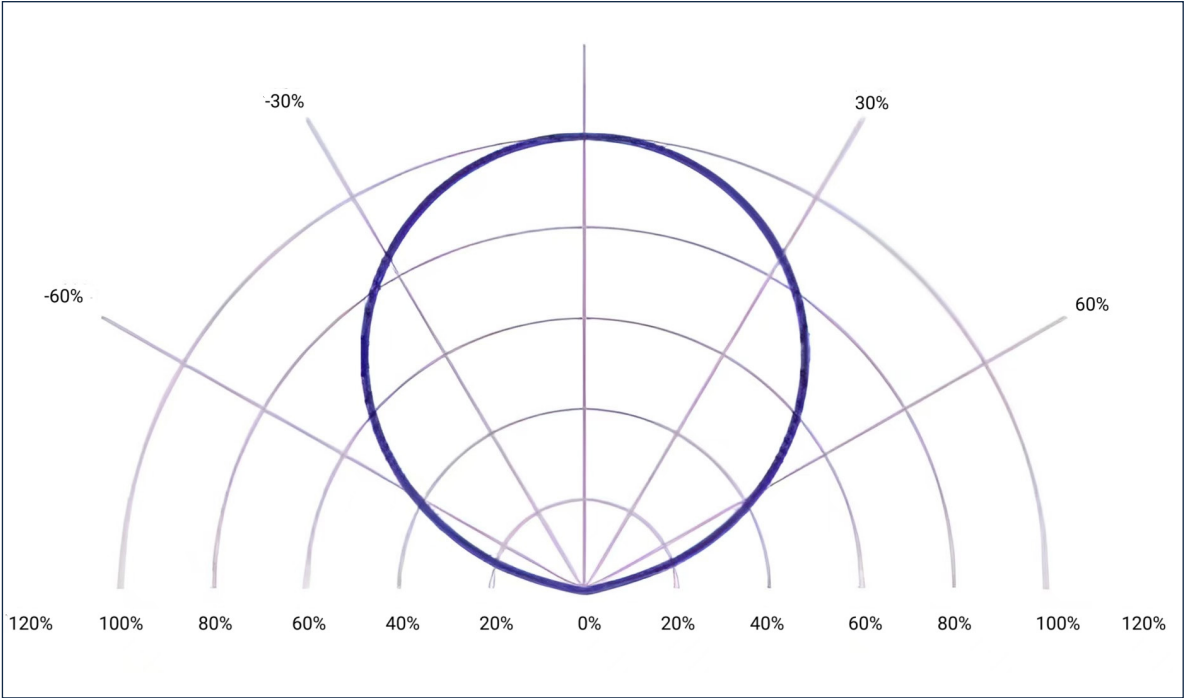




Angular Distribution and Typical Spectrum

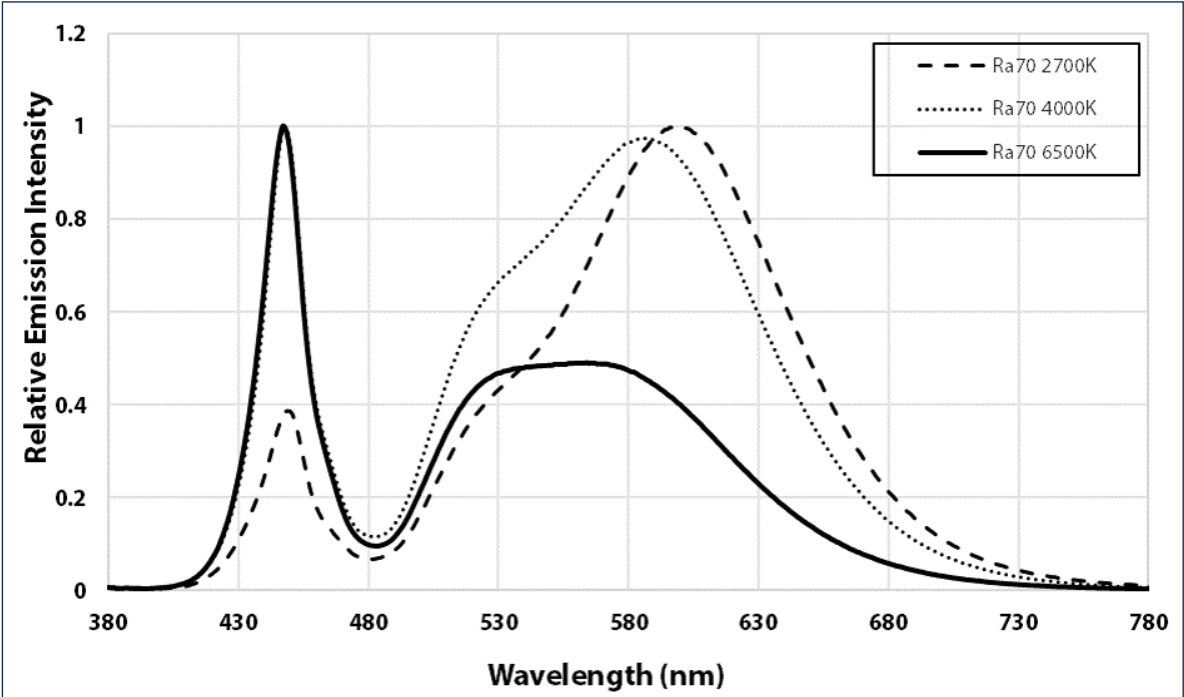
Typical Polar Radiation Pattern

$T_c = 25^{\circ}\text{C}$



Relative Spectral Power Distribution

$Ra \geq 70, T_c = 25^{\circ}\text{C}$

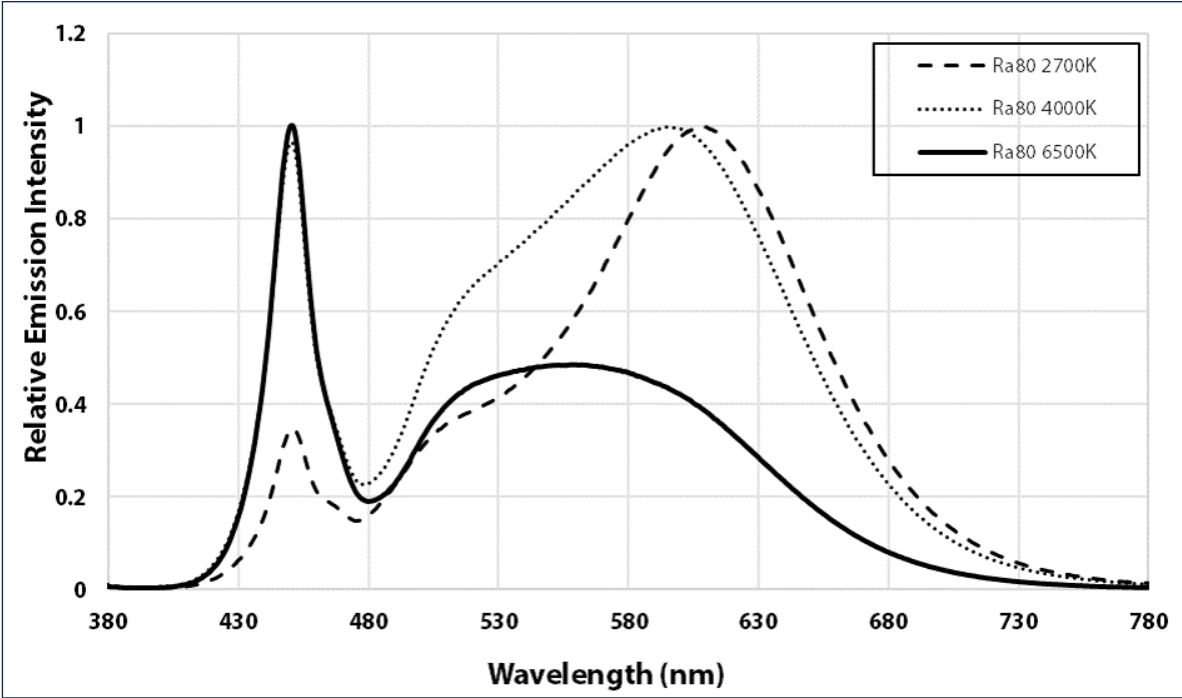




Angular Distribution and Typical Spectrum

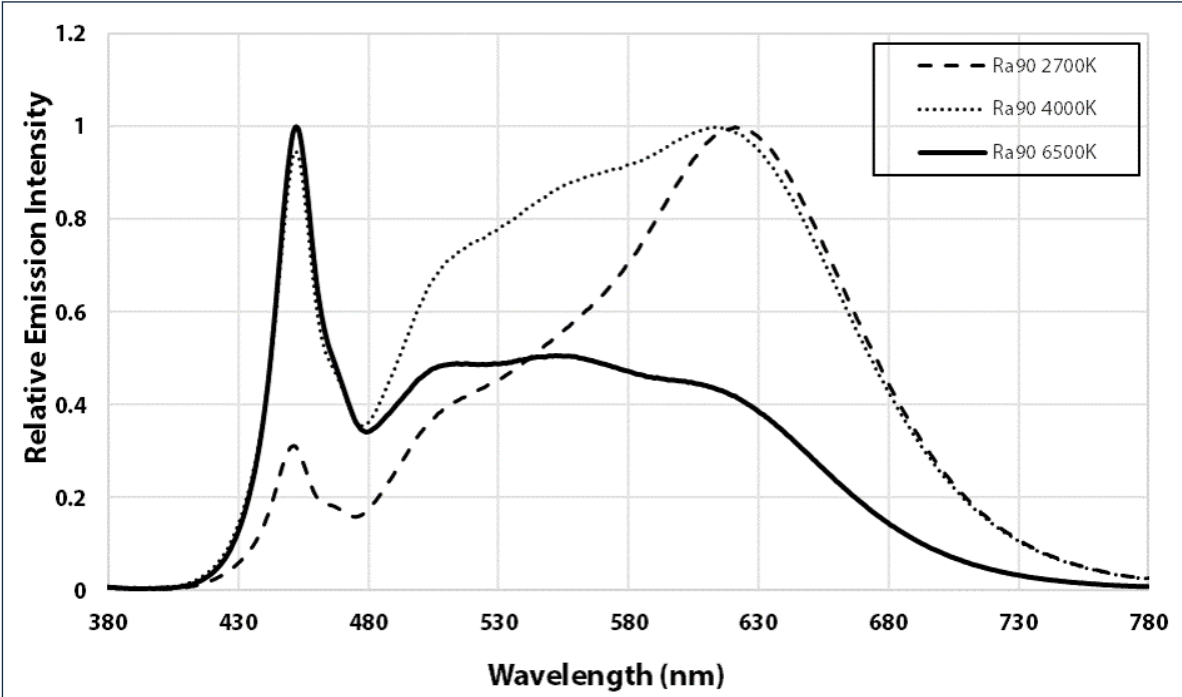
Relative Spectral Power Distribution

Ra≥ 80, T_c = 25°C



Relative Spectral Power Distribution

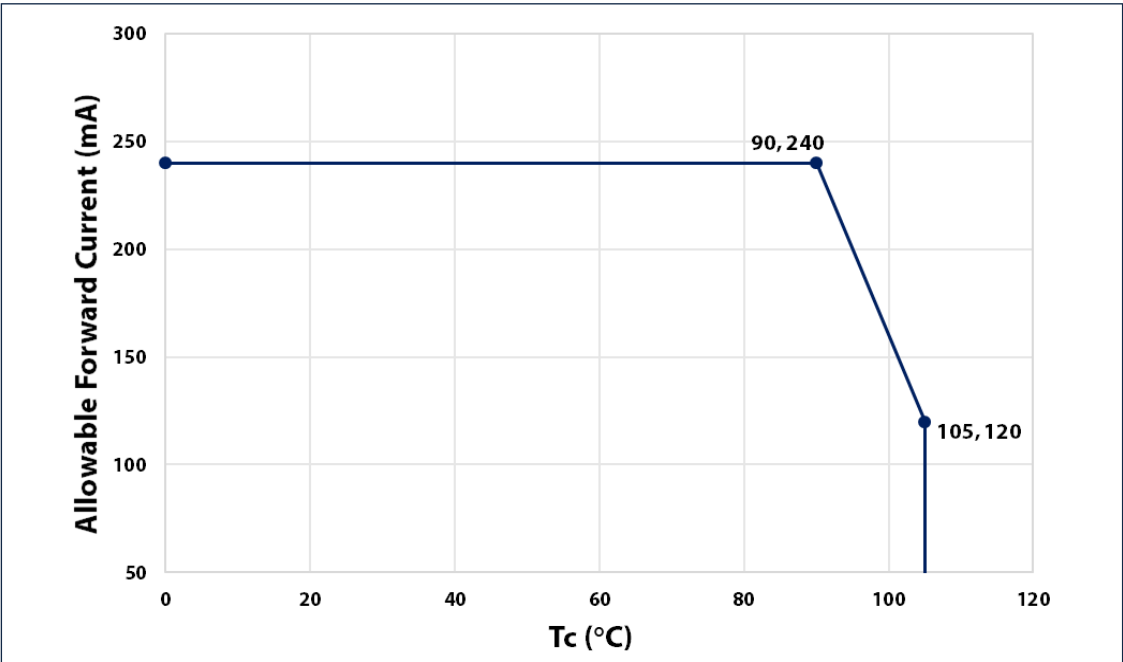
Ra≥ 90, T_c = 25°C



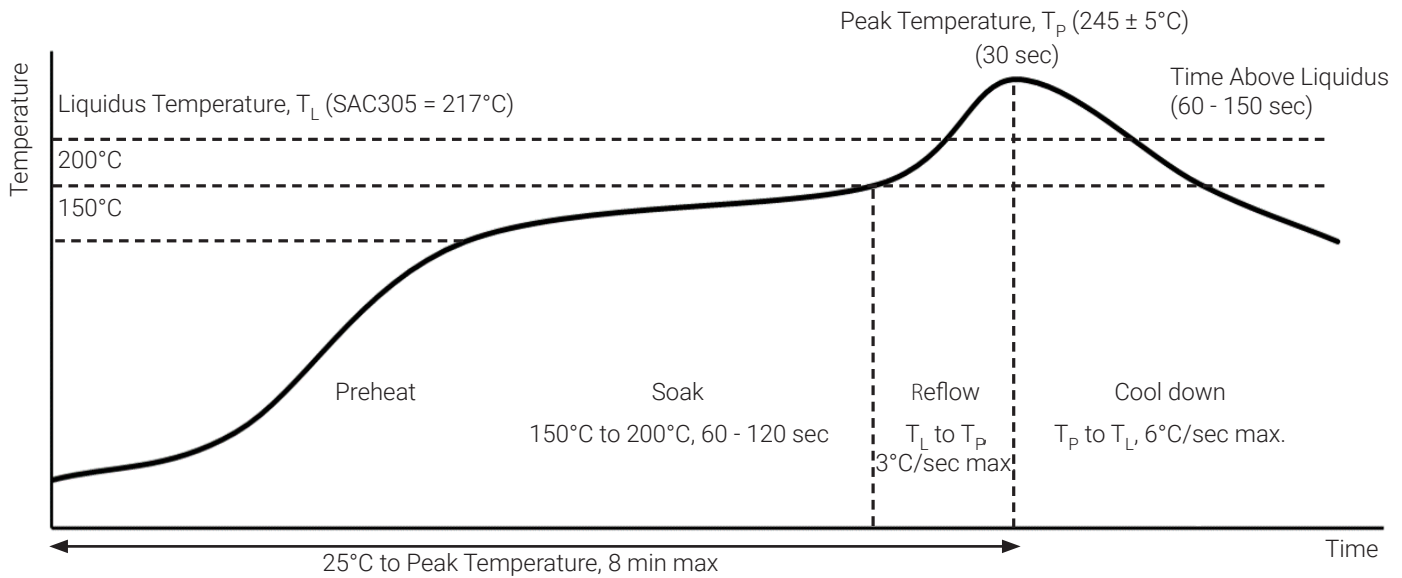


Derating Curve

Allowable Forward Current vs Temperature



Soldering Profile



SMT Solder Rework Temperature Guidelines

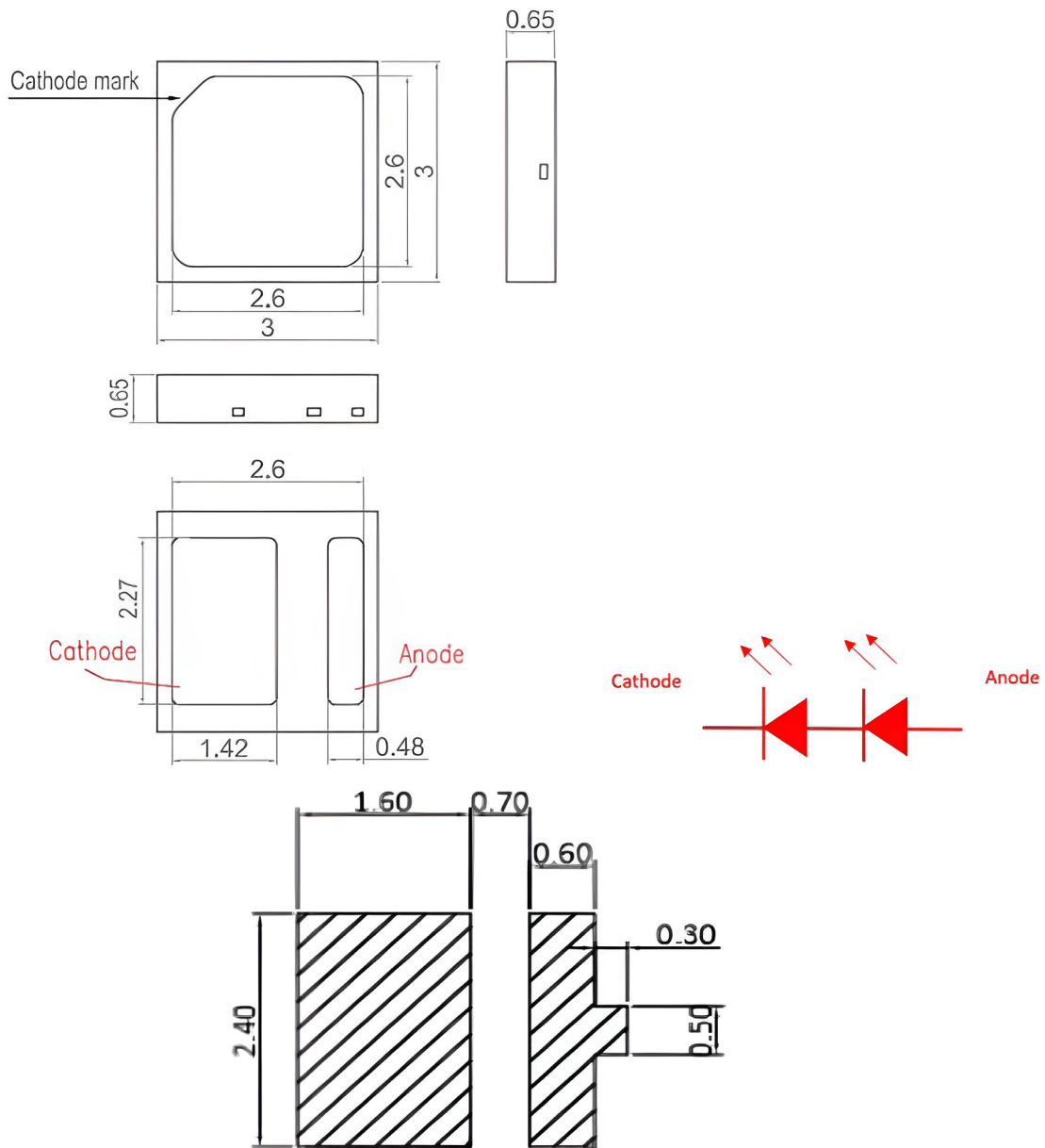
Parameter	Manual Hotplate Reflow	Hot Air Gun Reflow
Heating Time	< 60 sec	
Hotplate Temperature	< 245°C	< 150°C

Notes:

- 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.
- Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.
- Time-temperature profile of the reflow process showing the four functional profile zones are defined in IPC-7801. All the temperatures refer to the application PCB measured adjacent to the package body.
- The actual profile shall be optimized per the PCB design and configuration.
- Key visual and LED performance characteristics to consider include solder bridging, solder voiding, solder balling, LED component placement or shifting, potential contamination that may impact light emissions, and the functional performance of the LED.
- Luminus recommends to use the solder paste data sheet information as a starting point in time-temperature process development.
- 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->
- For any technical questions about soldering process, please contact Luminus at techsupport@luminus.com.



Mechanical Dimensions¹



Recommended Solder Pad Pattern

Note:

1. All dimensions are in millimeter ± 0.15 mm, unless otherwise noted.



Mechanical Characteristics

JEDEC Moisture Sensitivity^{1, 2}

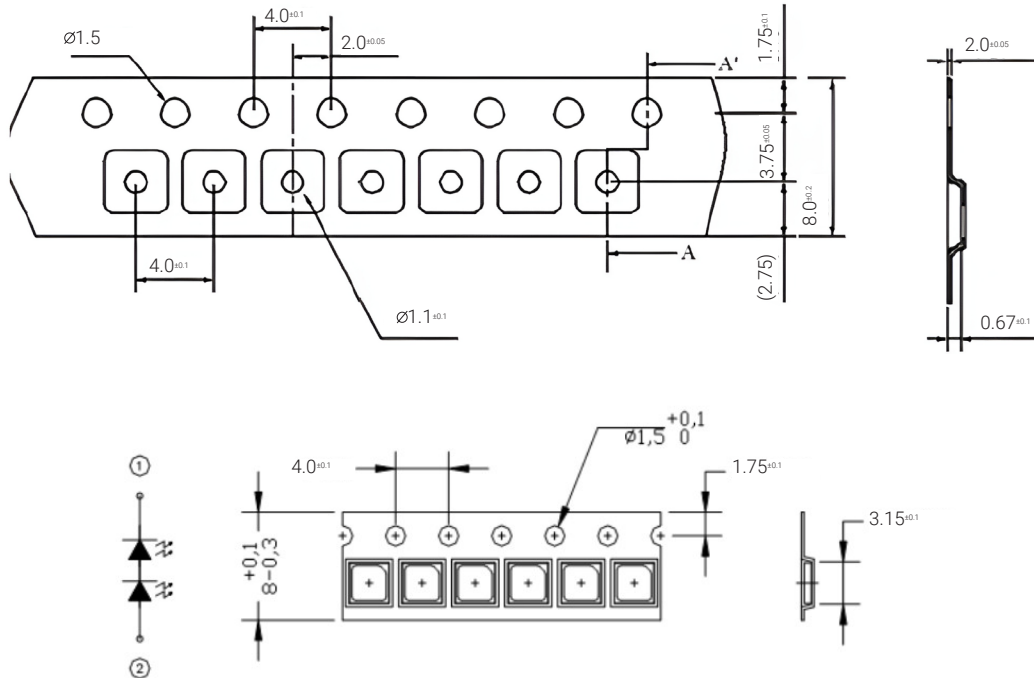
Level	Floor Life	
	Time	Conditions
3	168 Hours	≤30°C / 60% RH

Notes:

- 1. Please note that the above MSL level based on the MSL qualification rating.
- 2. This LED has silver-plated pads, and for LEDs with silver plating, MSL3 environment control is required to protect silver-plated surface from oxidation, even though the products may be qualified as MSL1 or 2.

Tape and Reel Outline

Tape Package Dimensions



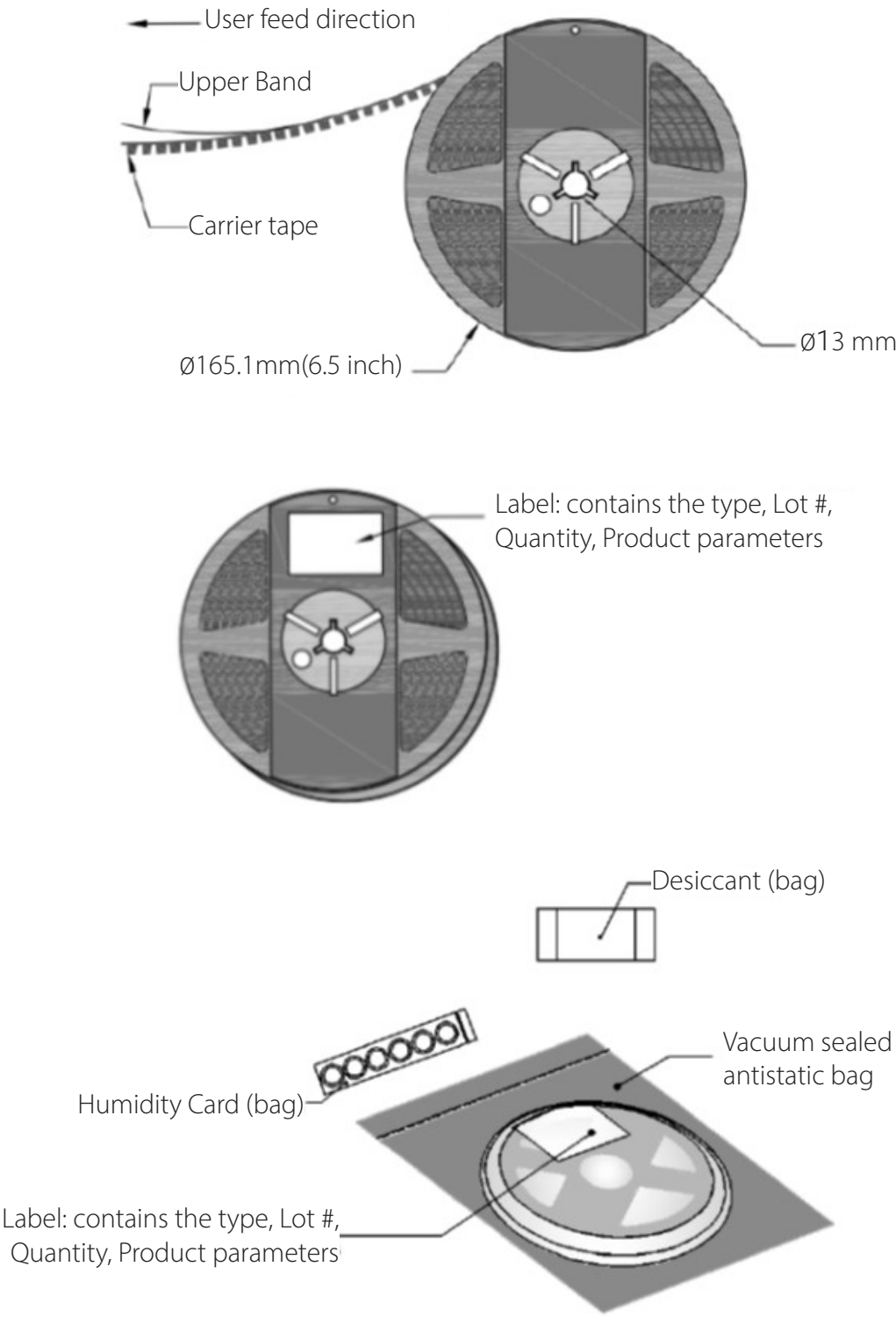
Notes:

1. Quantity: Max 4000 pcs per 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.



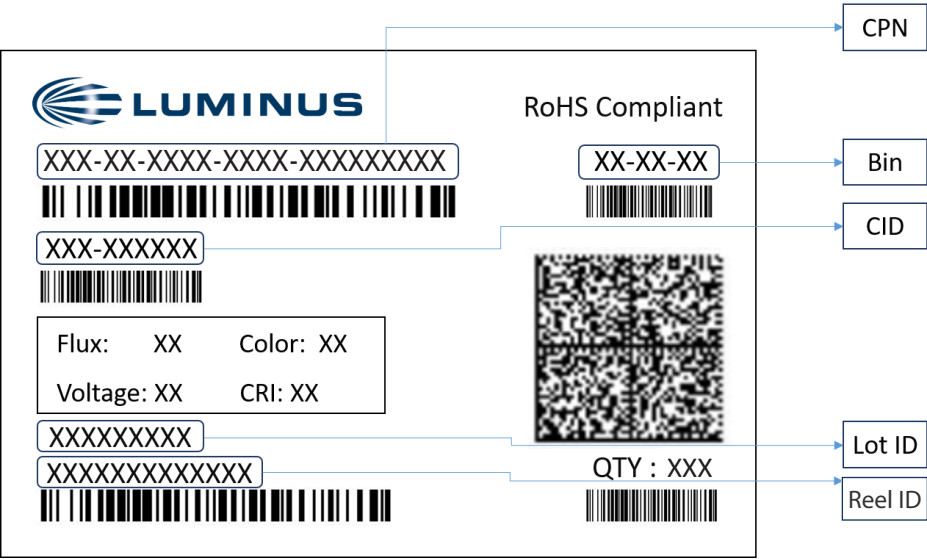
Tape and Reel Outline

Reel Package Dimensions





Shipping Label

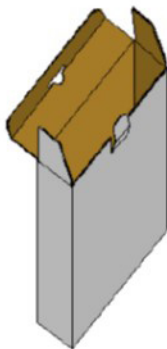


Label Fields:

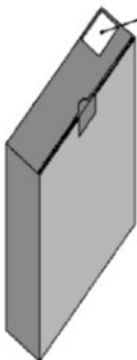
- CPN: Luminus ordering part number
- CID: Customer's part number
- QTY: Quantity of parts per reel
- Flux: Bin as defined on page 4
- Voltage: Bin as defined on page 4
- Color: Bin as defined on page 5
- CRI: Bin as defined on page 2
- Lot ID & Reel ID: For Luminus internal use



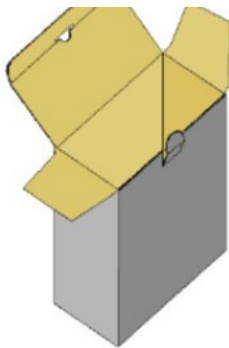
Packaging Boxes



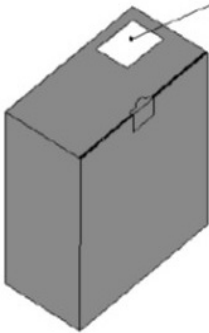
*Capacity 5 reels per box



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



*Capacity 10 reels per box



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



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: 5°C to 30°C and relative humidity 60 % RH in the 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	01/08/2025	Initial release
02	05/13/2025	Update Chromaticity Diagram and Chromaticity Coordinate, update new template