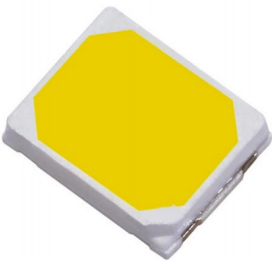


SP-2835-12TY

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



Applications

- Traditional lighting replacement
- Indoor&Outdoor sign board back light
- Ordinary lighting
- Architectural lighting

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Ordering Information

Ordering Part Numbers^{1,2,3}

Minimum CRI	CCT	Luminous Flux		Ordering Part Number
		Minimum Flux (lm)	Maximum Flux (lm)	
70	2700K	30	32	SP-2835-12TY-27-70
80		28	30	SP-2835-12TY-27-80
90		24	26	SP-2835-12TY-27-90
70	3000K	32	34	SP-2835-12TY-30-70
80		30	32	SP-2835-12TY-30-80
90		26	28	SP-2835-12TY-30-90
70	3500K	32	34	SP-2835-12TY-35-70
80		30	32	SP-2835-12TY-35-80
90		26	28	SP-2835-12TY-35-90
70	4000K	34	36	SP-2835-12TY-40-70
80		32	34	SP-2835-12TY-40-80
90		28	30	SP-2835-12TY-40-90
70	5000K	34	36	SP-2835-12TY-50-70
80		32	34	SP-2835-12TY-50-80
90		28	30	SP-2835-12TY-50-90
70	5700K	34	36	SP-2835-12TY-57-70
80		32	34	SP-2835-12TY-57-80
90		28	30	SP-2835-12TY-57-90
70	6500K	34	36	SP-2835-12TY-65-70
80		32	34	SP-2835-12TY-65-80
90		28	30	SP-2835-12TY-65-90

Notes:

1. Test condition : $I_f = 60 \text{ mA}$, $T_j = 25^\circ\text{C}$.
2. Ordering Part Numbers specify the full distribution of forward voltage (Vf) bins.
3. Standard ordering uses 5-step chromaticity binning (M5). For 3-step binning (M3), contact your Luminus sales representative for availability.

Ordering Information

Part Number Nomenclature

SP

2835

12TY

##

##

Product Family	Package Type	Package Configurator	Nominal CCT¹	Minimum CRI
SP: Mid Power LED	2835: 2.8 mm x 3.5 mm	12TY: Package code	27: 2700K 30: 3000K 35: 3500K 40: 4000K 50: 5000K 57: 5700K 65: 6500K	70: CRI>70 80: CRI>80 90: CRI>90

Note:

1. Correlated Color Temperatures (CCT)



Binning Structure

Flux Bins^{1,2}

Flux Bin	Binning @ 60 mA, T _j = 25°C	
	Minimum Flux (lm)	Maximum Flux (lm)
X4	24	26
X5	26	28
X6	28	30
X7	30	32
X8	32	34
X9	34	36

Forward Voltage Bins²

Voltage Bin	Binning @60 mA, T _j = 25°C	
	Minimum Voltage (V)	Maximum Voltage (V)
Y1-1	2.6	2.7
Y1-2	2.7	2.8
Y1-3	2.8	2.9
Y1-4	2.9	3.0
Y1-5	3.0	3.1
Y1-6	3.1	3.2

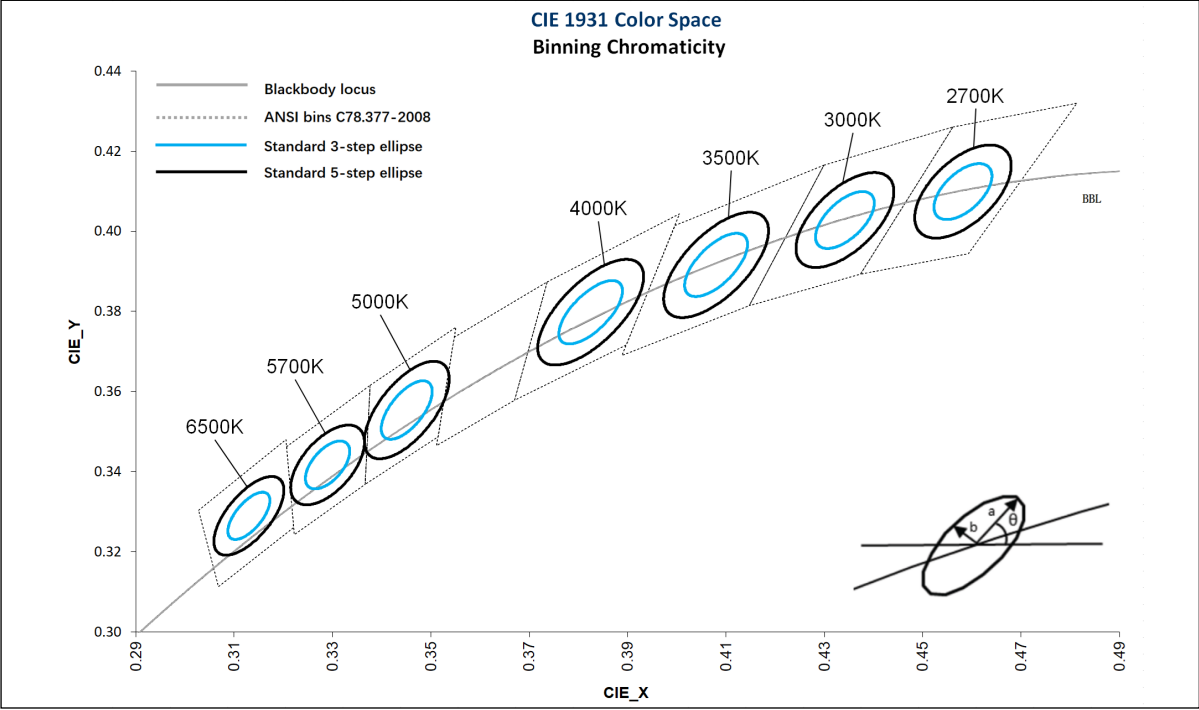
Notes:

1. Luminus maintains a ±6% tolerance on flux measurement.
2. Products are production tested then sorted and packed by bin.



Binning Structure

Chromaticity Binning Diagram



Chromaticity Bin Definition¹ ($I_f=60\text{ mA}$, $T_j=25^\circ\text{C}$)

CCT	Center point		3-step Bin		5-step Bin		Angle (deg)
	x	y	a	b	a	b	Φ
2700K	0.4582	0.4099	0.00810	0.00420	0.01350	0.00700	53.42
3000K	0.4342	0.4028	0.00834	0.00408	0.01390	0.00680	53.13
3500K	0.4080	0.3916	0.00927	0.00414	0.01545	0.00690	54.00
4000K	0.3825	0.3798	0.00939	0.00402	0.01565	0.00670	53.43
5000K	0.3451	0.3554	0.00822	0.00354	0.01370	0.00590	59.37
5700K	0.3290	0.3417	0.00671	0.00330	0.01118	0.00550	58.35
6500K	0.3130	0.3290	0.00669	0.00285	0.01115	0.00475	58.34

Note:

1. M3: ANSI<=3 SCDM, M5: ANSI<=5 SCDM.



Absolute Maximum Ratings

Parameter	Symbol	Values	Unit
Forward Current	I_f	300	mA
Pulse Forward Current ¹	I_{fp}	360	mA
Power Dissipation	P_d	200	mW
Reverse Voltage	V_r	5	V
Junction Temperature	T_j	125	°C
Case Temperature	T_c	105	°C
Operating Temperature Range	T_{opr}	-40~+85	°C
Storage Temperature Range	T_{stg}	-40~+85	°C
Electrostatic Discharge, HBM, Class 3B in accordance with ANSI/ESDA/JEDEC JS-001	V_{ESD}	2000	V

Notes:

1. Frequency 10 kHz, duty ratio ≤10 %.
2. LEDs are rated for operation up to the specified maximum forward current and temperatures. Exceeding these limits can reduce device lifetime. To ensure LED longevity and prevent accelerated flux degradation, follow the Maximum Forward Current vs. Case Temperature derating curves provided in this data sheet.



Characteristics

Parameter		Symbol	Value	Unit
Forward Voltage ($I_f=60\text{ mA}$, $T_j=25^\circ\text{C}$)	Minimum	$V_{f\text{ min}}$	2.6	V
	Maximum	$V_{f\text{ max}}$	3.2	
Reverse Current ($V_r=5\text{ V}$)		I_r	10	μA
Viewing Angle		$2\theta_{1/2}$	120	$^\circ$
Typical Electrical Thermal Resistance (junction to case) ^{1,2}		$R_{\text{th J-C}}$	25	$^\circ\text{C/W}$

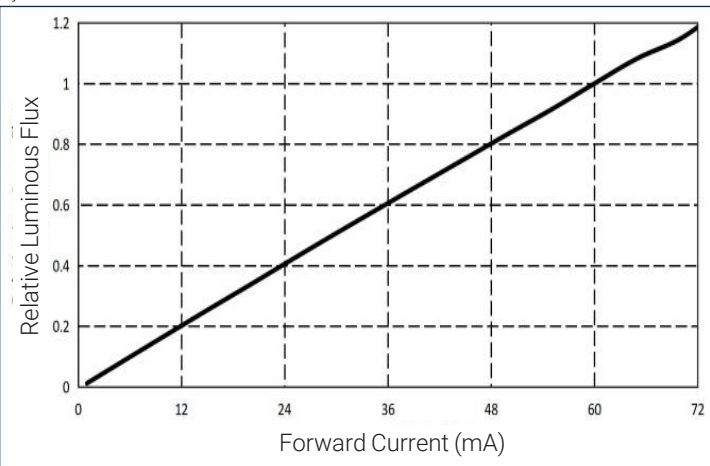
Notes:

1. Thermal resistance measurement is in accordance with JEDEC 51-14.
2. Typical Electrical Thermal Resistance is defined as the ratio between temperature difference (junction to case) and electrical input power.



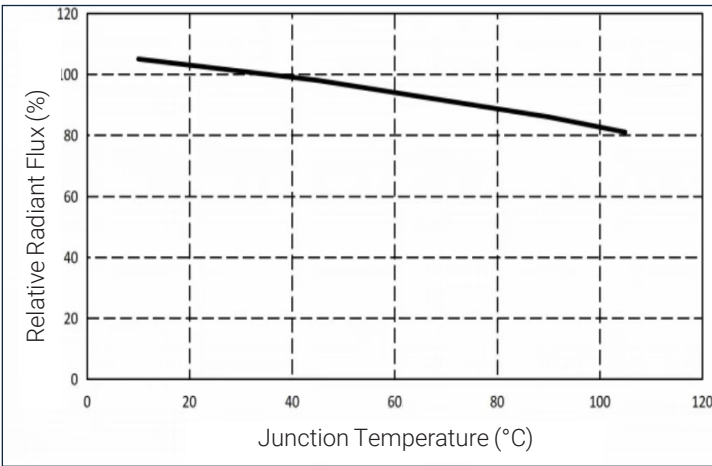
Relative Luminous Flux vs Forward Current

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



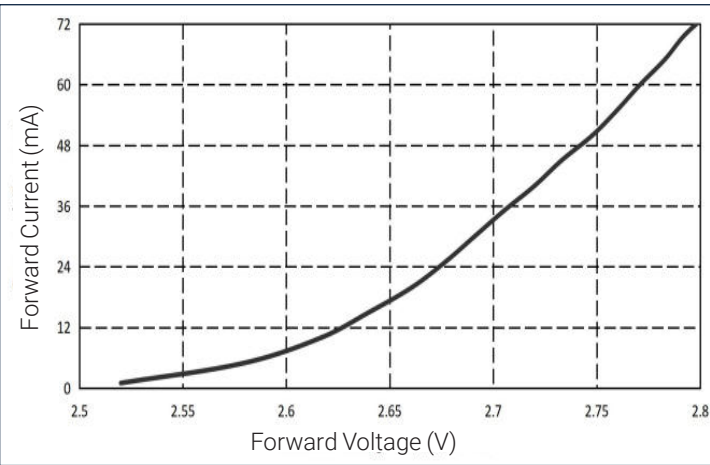
Relative Radiant Flux vs Junction Temperature

$I_f = 60\text{ mA}$



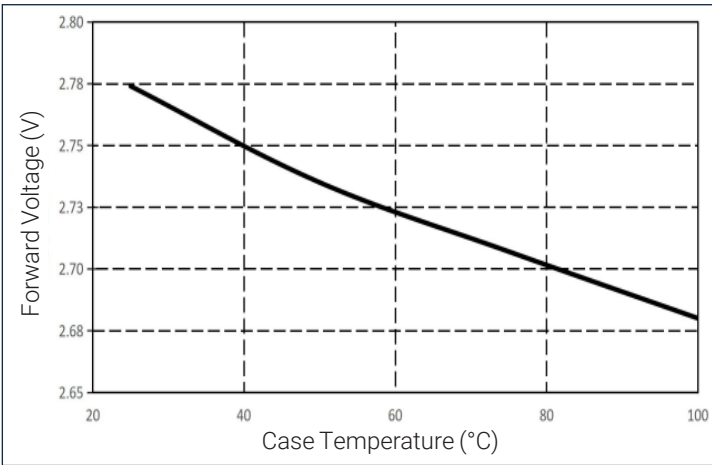
Forward Current vs Forward Voltage

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

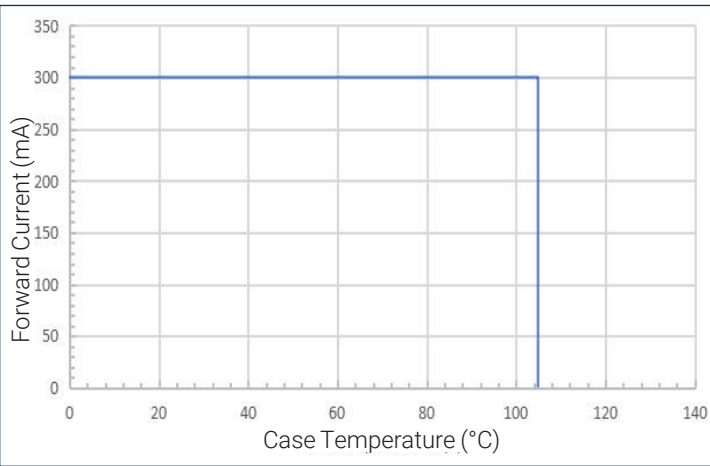


Forward Voltage vs Case Temperature

$I_f = 60\text{ mA}$



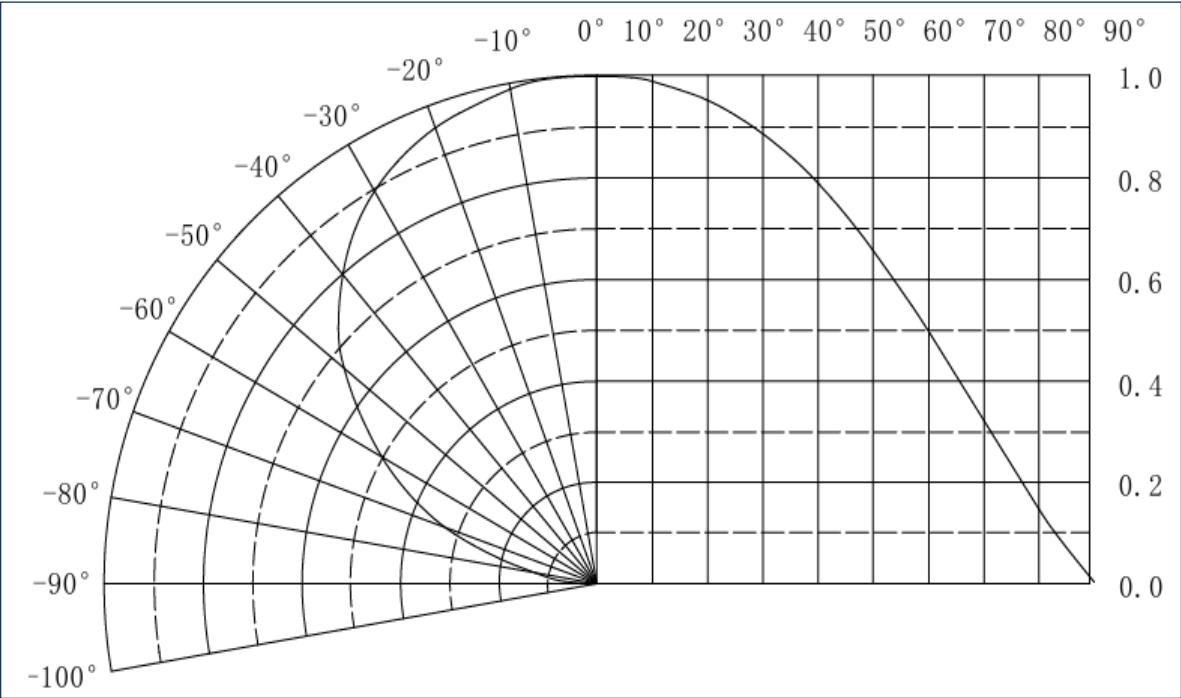
Forward Current vs Case Temperature





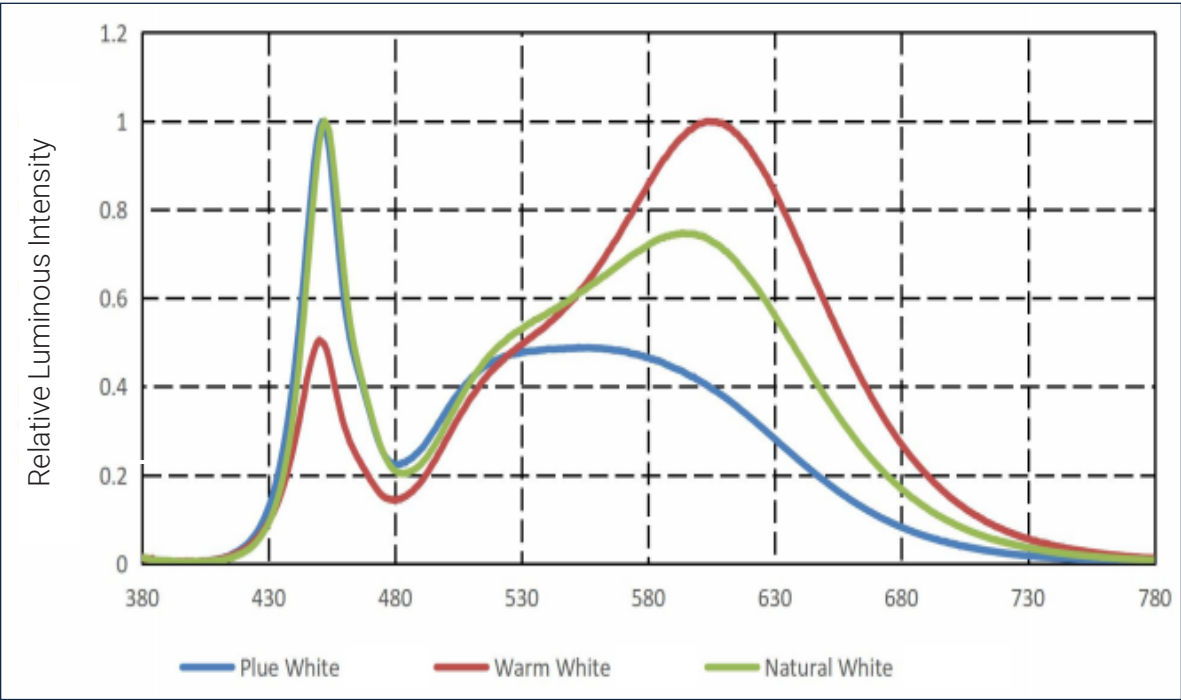
Angular Distribution and Typical Spectrum

Angular Distribution



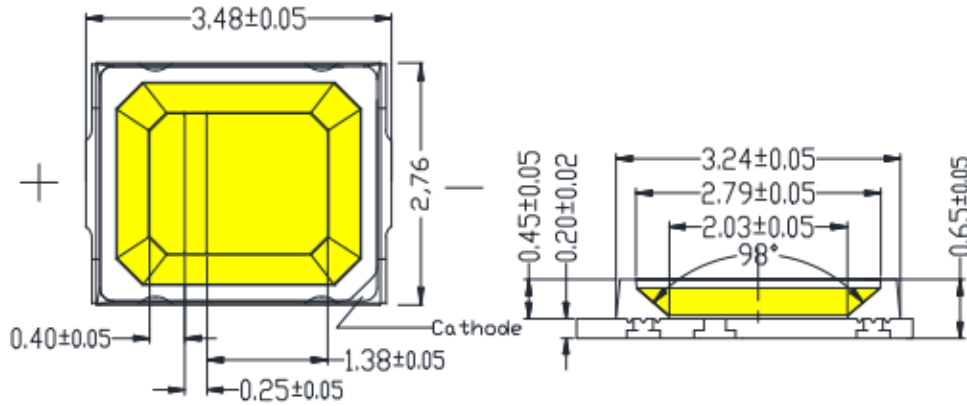
Relative Spectral Power Distribution

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



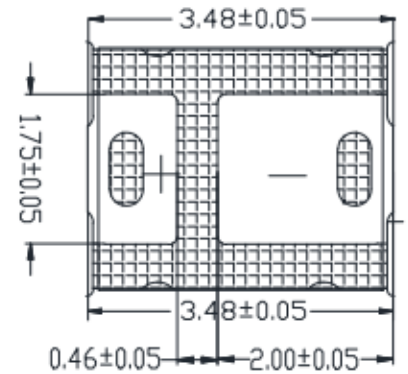


Mechanical Dimensions^{1,2}

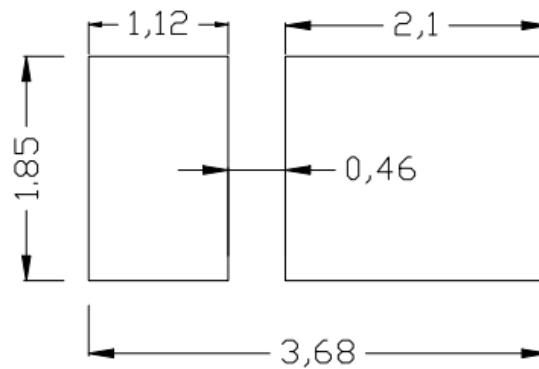


Top View

Side View



Perspective View



Recommended Solder Pad Design

Notes:

1. All dimensions are in millimeter ± 0.15 mm, unless otherwise noted.
2. Lead finish: Silver plated.



Mechanical Characteristics

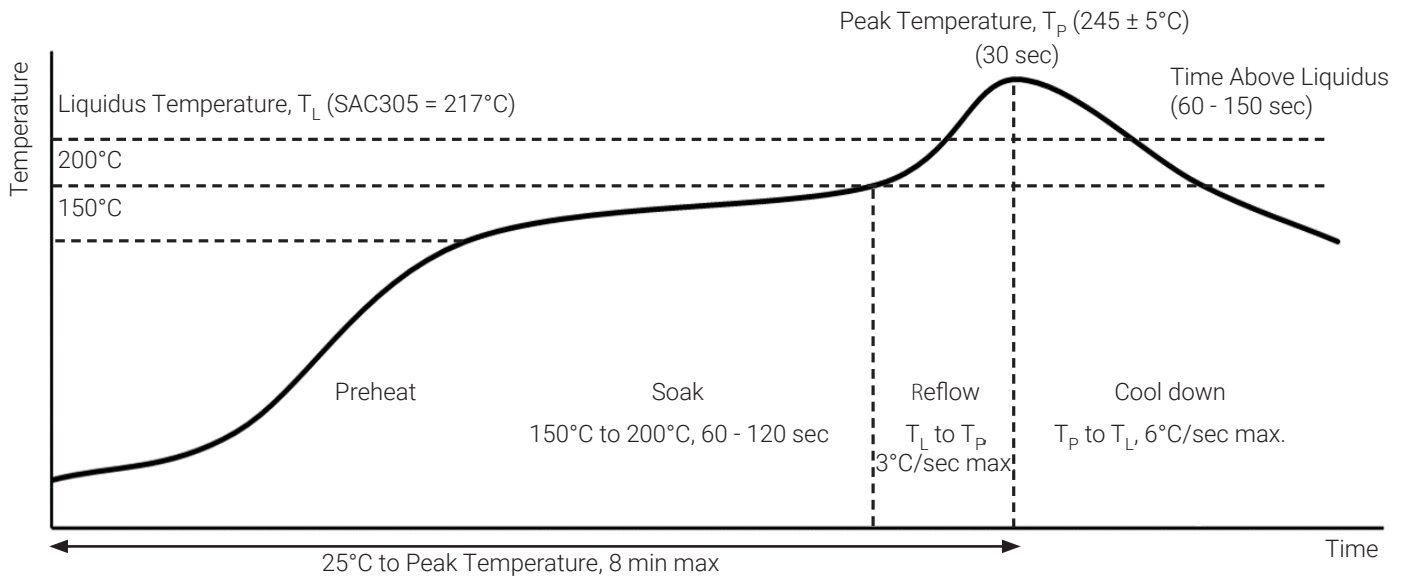
JEDEC Moisture Sensitivity^{1, 2}

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.

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

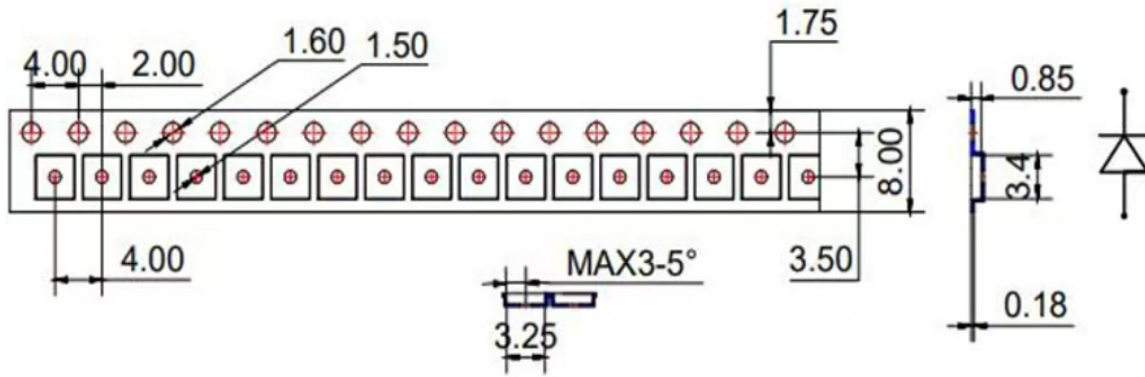
Notes:

- 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.



Tape and Reel Outline

Tape Package Dimensions



Notes:

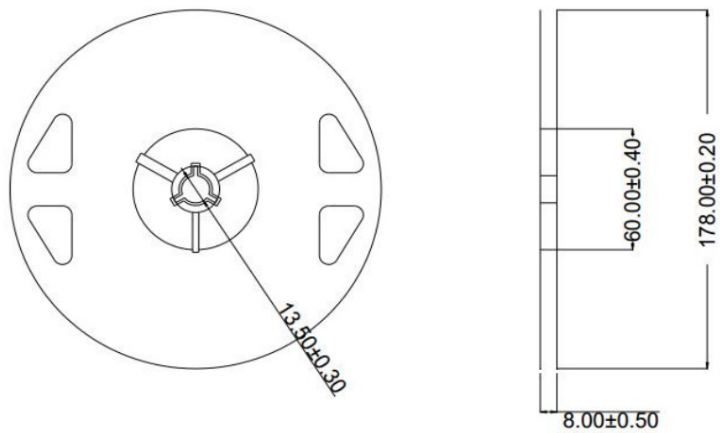
1. Quantity: Max 4,000/16,000 pcs per reel. Priority option: 16,000 pcs per reel.
2. Cumulative Tolerance: Cumulative Tolerance/10 pitches to be ± 0.2 mm.
3. Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7 N when the cover tape is pulled off from the carrier tape at the angle of 10° to the carrier tape.
4. Package: P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof package.
5. All dimensions are in millimeter.



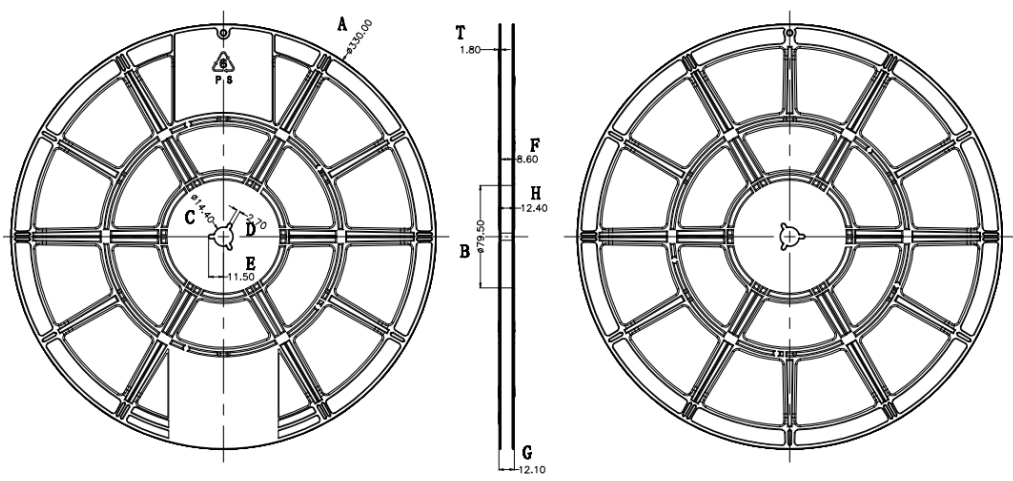
Tape and Reel Outline

Reel Package Dimensions¹

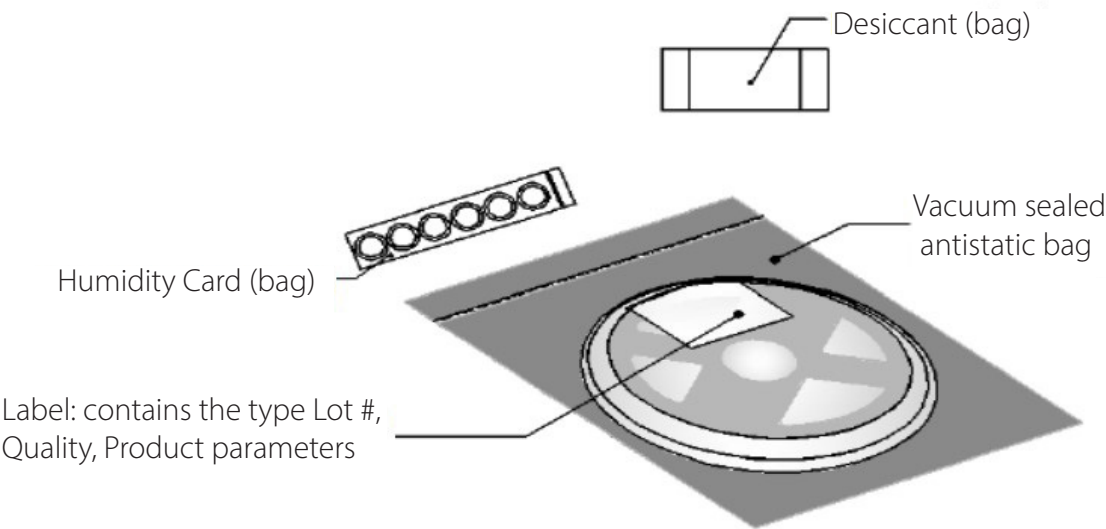
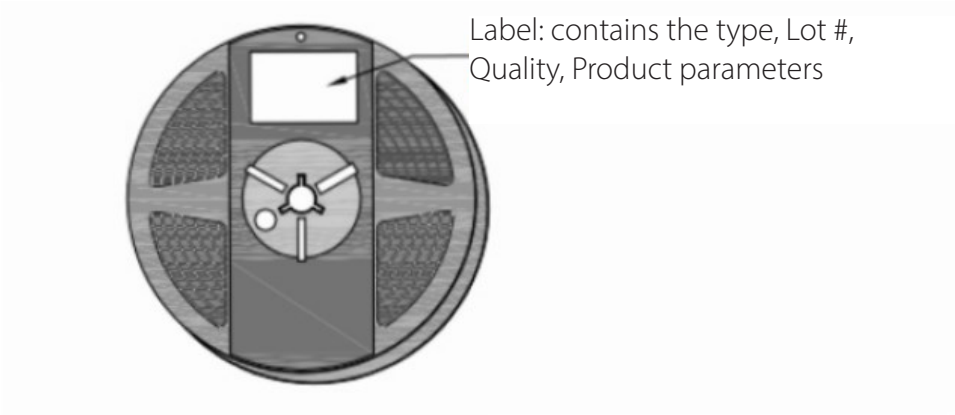
4000 pcs/reel



16000 pcs/reel



A±0.2	B±0.5	C±0.2	D±0.2	E±0.2	F±0.3	G±0.5	H±0.5	T±0.2
ø330	ø79.5	ø14.4	2.7	11.5	8.6	12.1	12.4	1.8

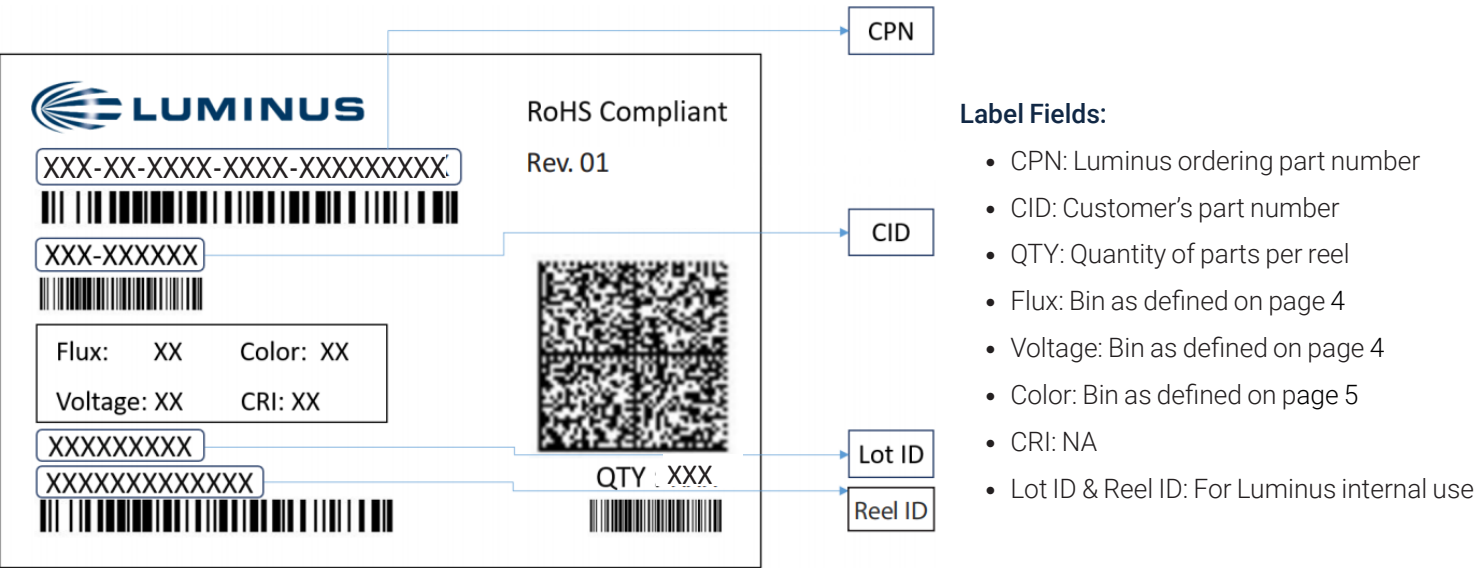


Note:

1. All dimensions are in millimeter.



Shipping Label



Packing Configuration:

- 4,000/16,000 units per reel
- Each reel is placed in an anti-static moisture barrier bag
- Partial reep may be shipped
- Shipping label is placed on top of each packaging 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 an 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. Moisture Sensitivity Rating:
 - The LEDs have an MSL 3 (Moisture Sensitivity Level) rating.
 - Adhere to the guidelines specified in JEDEC J-STD-033 for safe handling.
 2. Temperature and Humidity:
 - Store the LEDs in an environment with the following conditions:
 - Temperature: Lower than 30°C (86°F)
 - Relative Humidity: Lower than 85%
 - Maintaining these conditions helps prevent moisture-related issues.
 3. Moisture-Proof Packaging:
 - When storing the LEDs, use moisture-proof packaging.
 - Include absorbent material (such as silica gel) within the package further protects against moisture ingress.
- By following these guidelines, you can ensure the longevity and reliability of the LEDs.



Revision History

Rev	Date	Description of Change
01	07/09/2026	Initial release