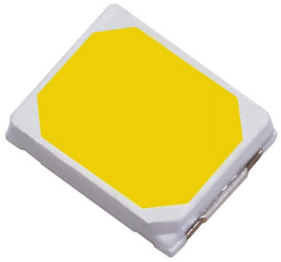
SP-2835-12YY

Mid Power LED



Features

- High efficacy
- CRI Options: Minimum 80, 90
- Low thermal resistance
- Compatible with automatic placement equipment
- Compatible with infrared reflow solder process
- Coating process for superior sulfur resistance

Applications

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

Table of Contents

Ordering Information

Ordering Part Numbers[1,2]

Minimum CRI	CCT	Luminous Flux		Ordering Part Number
		Minimum Flux (lm)	Maximum Flux (lm)	
80K	2700K	33	35	SP-2835-12YY-27-80K
90K		29	31	SP-2835-12YY-27-90K
80K	3000K	35	37	SP-2835-12YY-30-80K
90K		31	33	SP-2835-12YY-30-90K
80K	3500K	35	37	SP-2835-12YY-35-80K
90K		31	33	SP-2835-12YY-35-90K
80K	4000K	37	39	SP-2835-12YY-40-80K
90K		33	35	SP-2835-12YY-40-90K
80K	4500K	37	39	SP-2835-12YY-45-80K
90K		33	35	SP-2835-12YY-45-90K
80K	5000K	37	39	SP-2835-12YY-50-80K
90K		33	35	SP-2835-12YY-50-90K
80K	5700K	37	39	SP-2835-12YY-57-80K
90K		33	35	SP-2835-12YY-57-90K
80K	6500K	37	39	SP-2835-12YY-65-80K
90K		33	35	SP-2835-12YY-65-90K

Notes:

1. Test condition : I_f= 60 mA, T_c= 25°C.

2. M/F3: KSF, ANSI<=3 SCDM; M/F5: KSF, ANSI<=5 SCDM.

Ordering Information

Part Number Nomenclature

SP	2835	12YY	###	###

Product Family	Package Type	Package Configurator	Nominal CCT[1]	Minimum CRI
SP: Mid Power LED	**2835**: 2.8 mm x 3.5 mm	**12YY:** Package code	**27**: 2700K **30**: 3000K **35**: 3500K **40**: 4000K **45**: 4500K **50**: 5000K **57**: 4000K **65**: 6500K	**80K**: CRI>80, KSF **90K**: CRI>90, KSF

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[1]

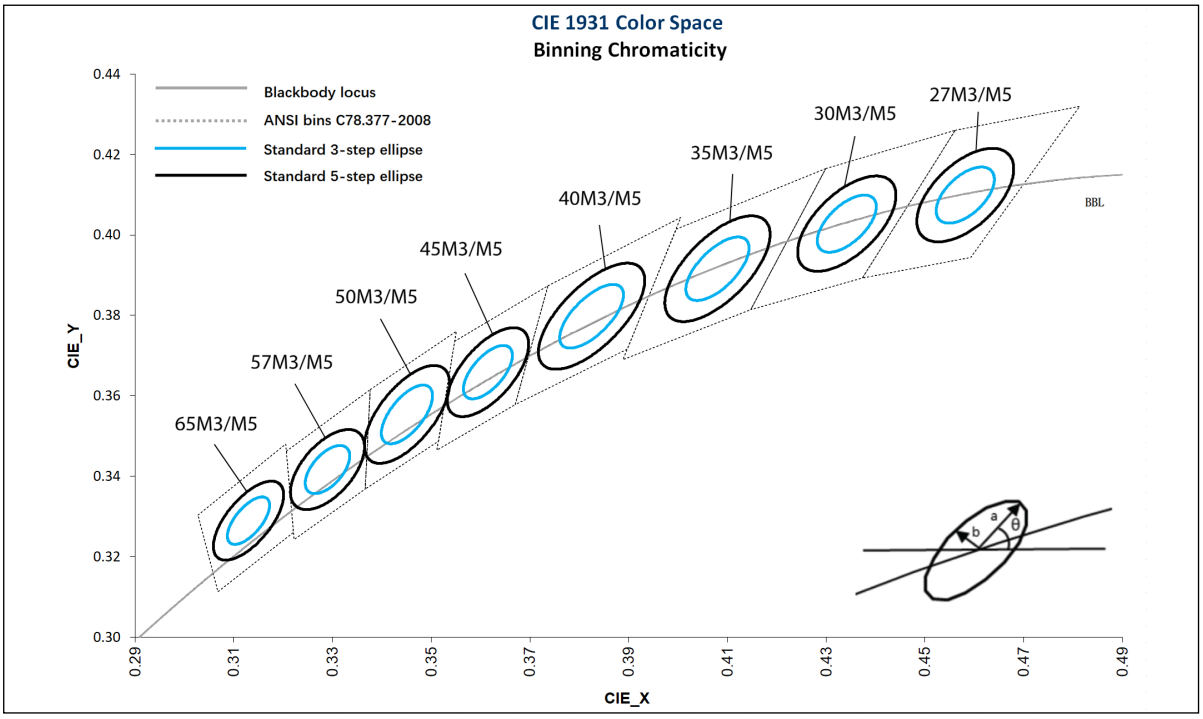
Flux Bin	Binning @ 60 mA, T_c= 25°C	
	Minimum Flux (lm)	Maximum Flux (lm)
X6	28	30
X7	30	32
X8	32	34
X9	34	36
X10	36	38
X11	38	40

Forward Voltage Bins

Voltage Bin	Binning @ 60 mA, T_c= 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

Binning Structure

Chromaticity Binning Diagram



Chromaticity Bin[1] (I_f= 60 mA, T_c= 25°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
4500K	0.3615	0.3659	0.00756	0.00338	0.01260	0.00563	57.58
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.The correlated color temperature (CCT) measurement tolerance is ±150 K.

Absolute Maximum Ratings

Parameter	Symbol	Values	Unit
Forward Current	I_f	60	mA
Pulse Forward Current[1,2]	I_{fp}	72	mA
Power Dissipation	P_d	200	mW
Reverse Voltage	V_r	5	V
Thermal Resistance (junction to case)	$R_{th\ J\text{-}C}$	30	°C/W
Junction Temperature	T_j	125	°C
Case Temperature	T_c	105	°C
Operating Temperature Range	T_{opr}	-40 to 85	°C
Storage Temperature Range	T_{stg}	-40 to 85	°C
Soldering Temperature	T_{sld}	260 °C for 10 sec	

Notes:

1. Frequency 10 KHz, duty ratio ≤10 %.

2. The forward pulse current is the maximum current used by the chip at 25°C.

Characteristics

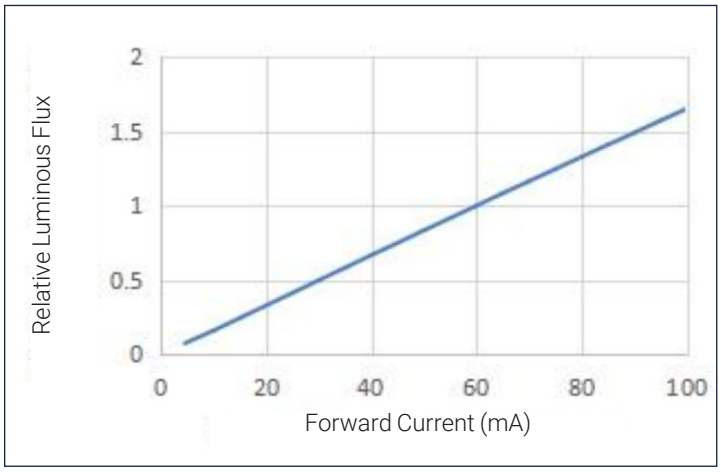
Parameter (I_f= 60 mA, T_c= 25°C)		Symbol	Value	Unit
Forward Voltage	Minimum	$V_{f\ min}$	2.6	V
	Maximum	$V_{f\ max}$	3.2	
Reverse Current (V_r= -5V)		I_r	10	µA
Viewing Angle		$2\theta_{1/2}$	120	°
ESD withstand Voltage ANSI/ESDA/JEDEC JS-001 (HBM)		V_{ESD}	2000	V

Notes:

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

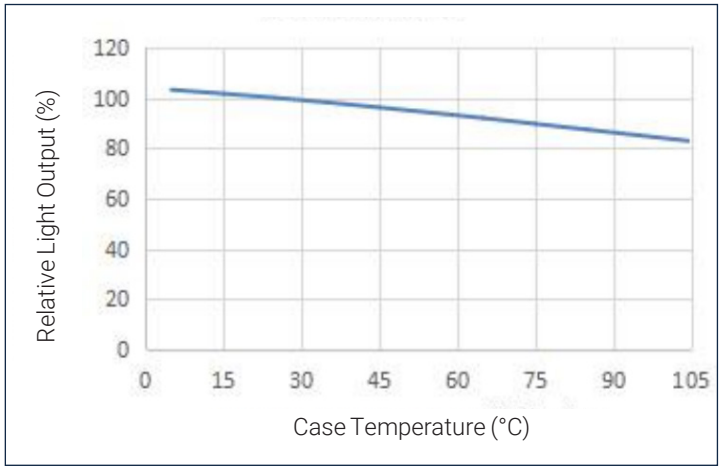
Relative Luminous Flux vs Forward Current

T_c = 25°C



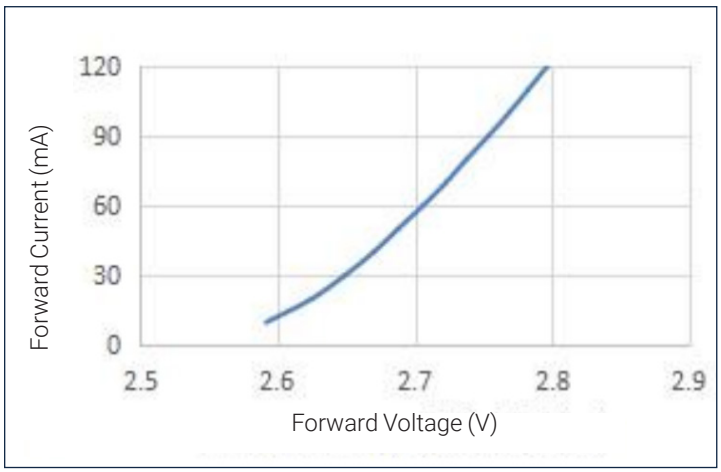
Relative Light Output vs Temperature

I_f = 60 mA

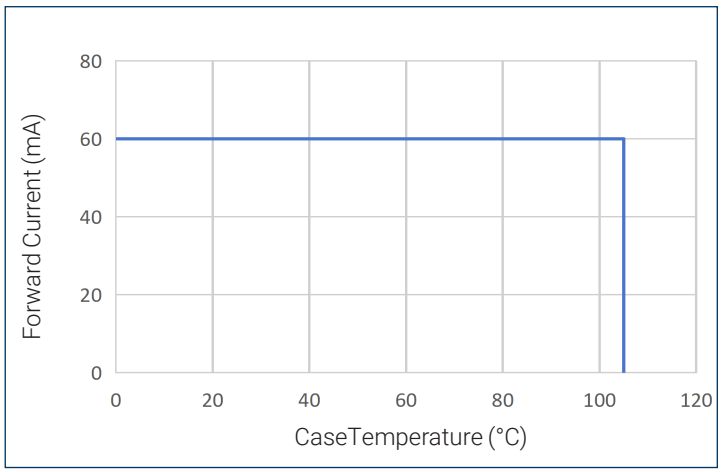


Forward Current vs Forward Voltage

T_c = 25°C



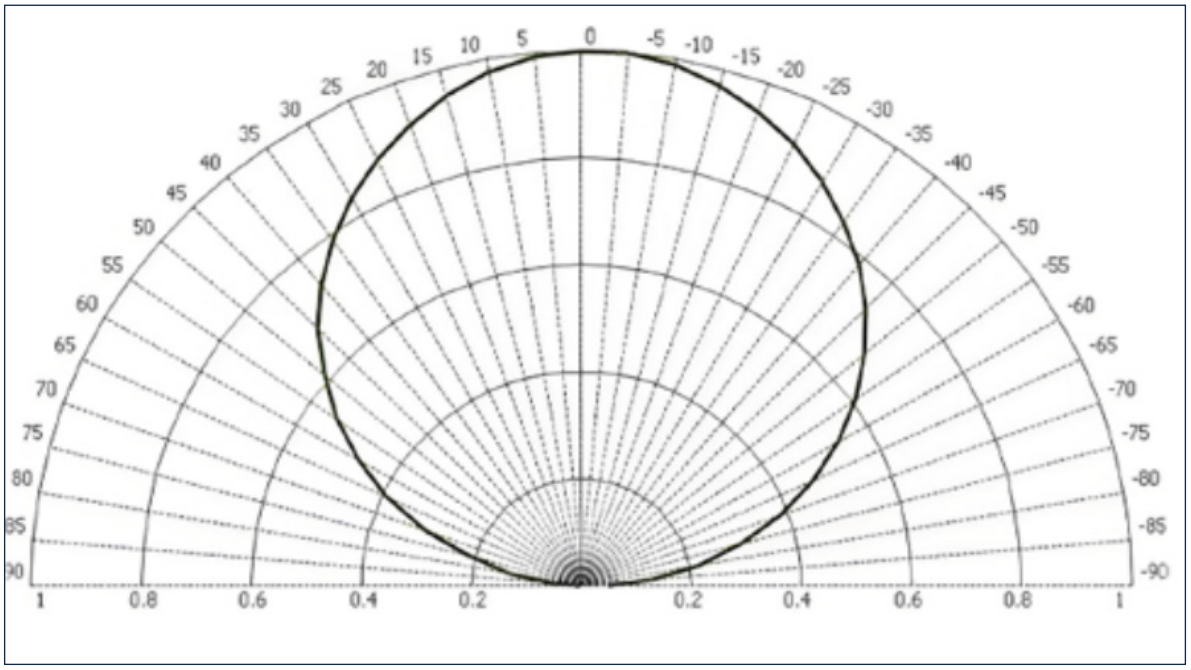
Forward Current vs Temperature



Angular Distribution and Typical Spectrum

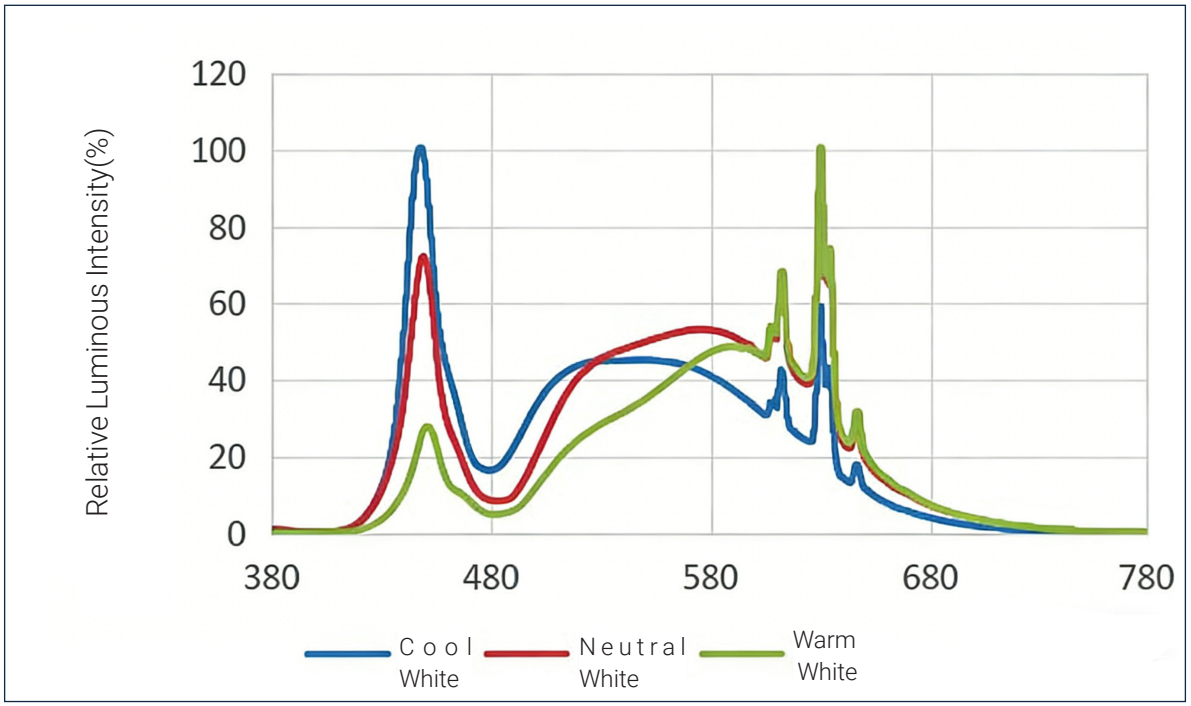
Angular Distribution

T_c= 25°C



Relative Spectral Power Distribution

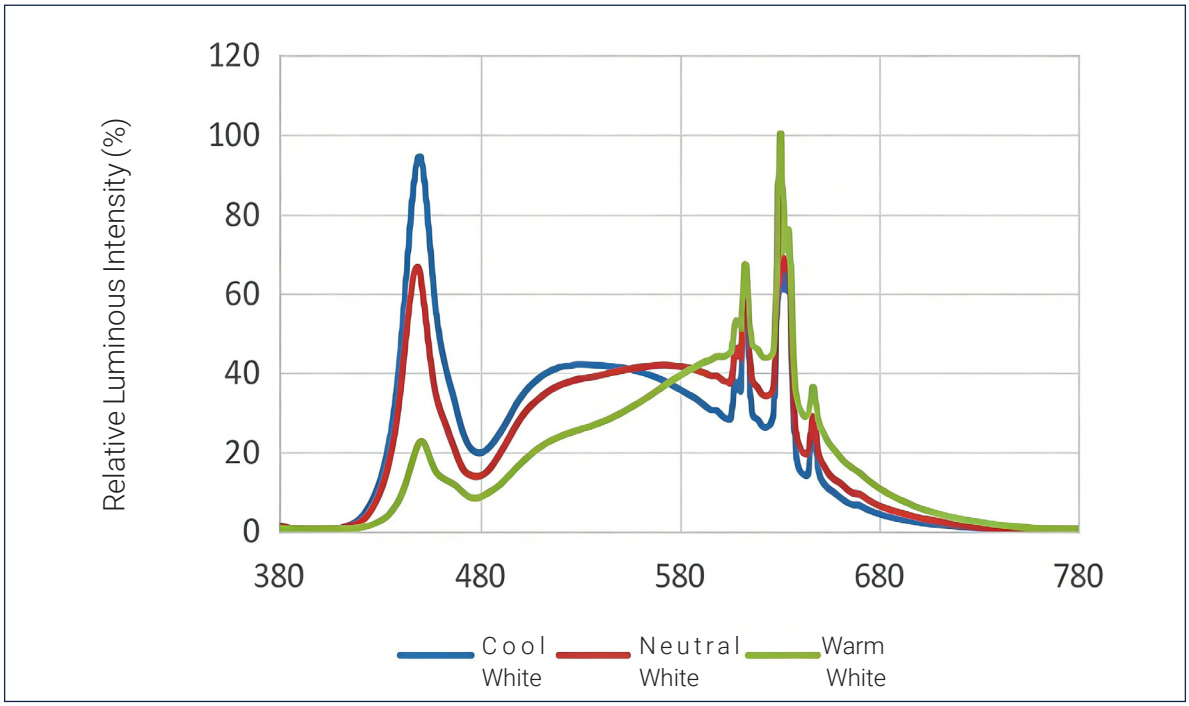
Ra >80; T_c= 25°C



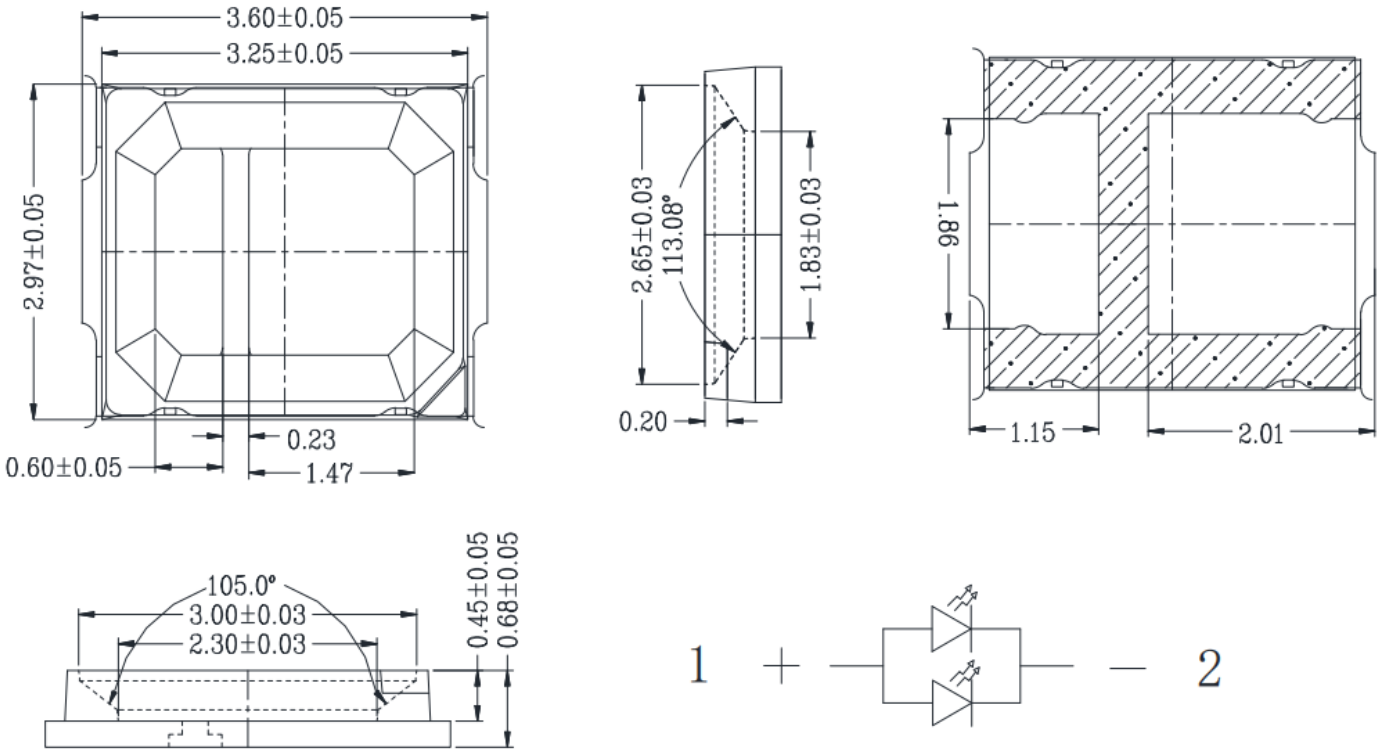
Angular Distribution and Typical Spectrum

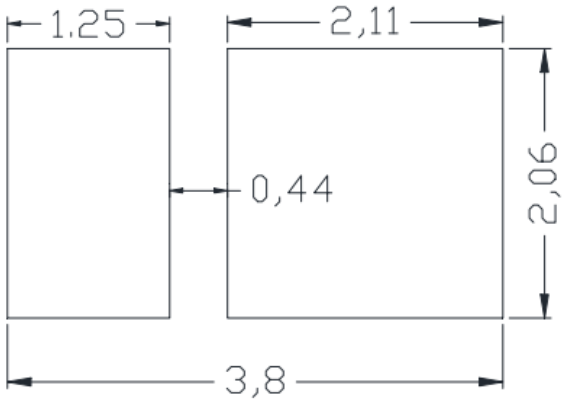
Relative Spectral Power Distribution

Ra >90; T_c = 25°C



Mechanical Dimensions





Recommended Solder Pad Design

Note:

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

Mechanical Characteristics

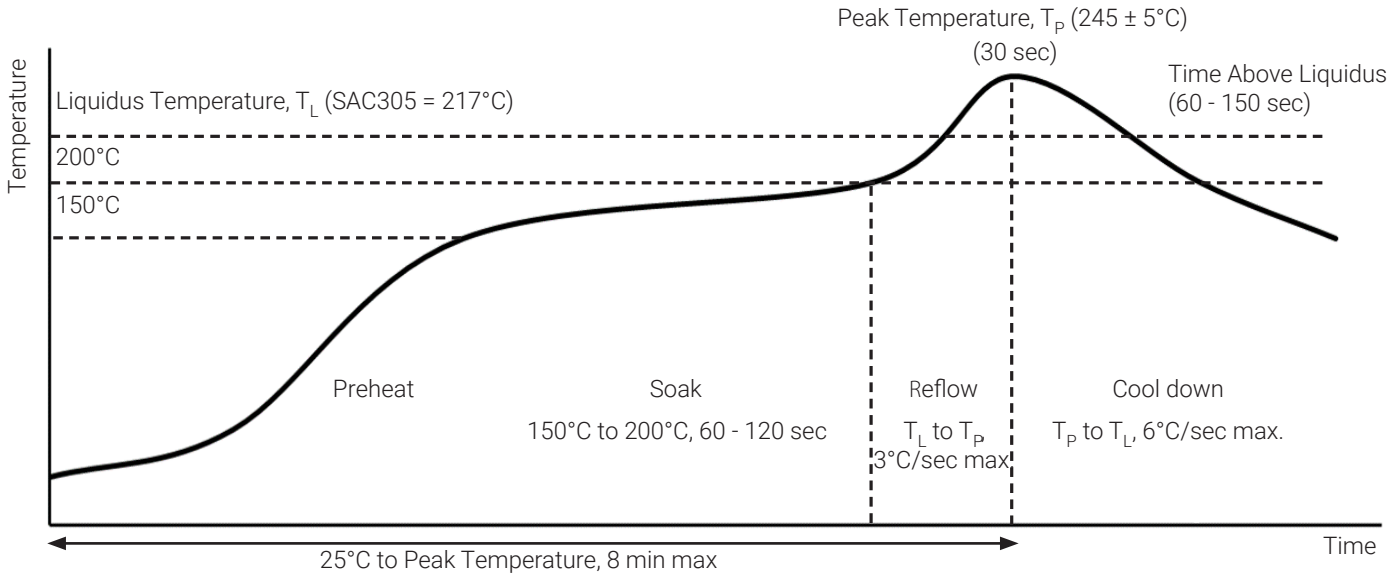
JEDEC Moisture Sensitivity[1, 2]

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.

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

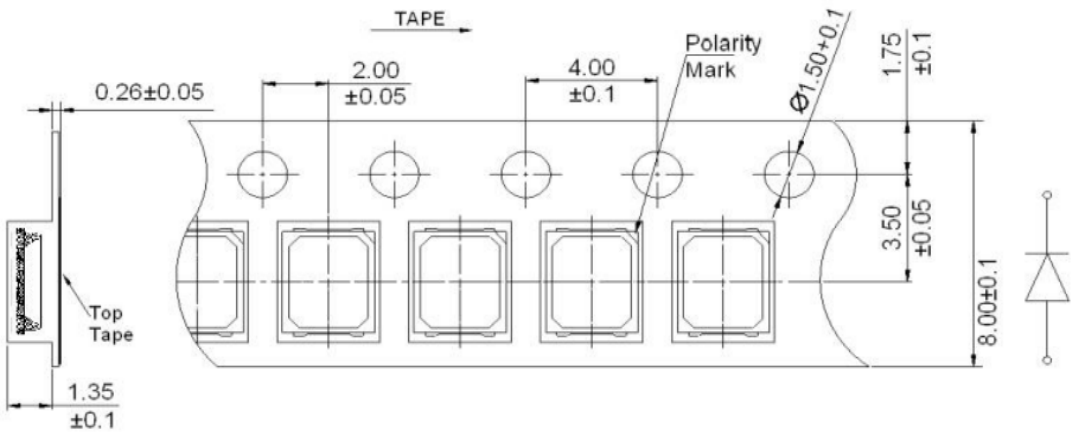
Notes:

1. 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.
2. Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.
3. 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.
4. The actual profile shall be optimized per the PCB design and configuration.
5. 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.
6. Luminus recommends to use the solder paste data sheet information as a starting point in time-temperature process development.
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-
8. For any technical questions about soldering process, please contact Luminus at techsupport@luminus.com.

Tape and Reel Outline

Tape Package Dimensions



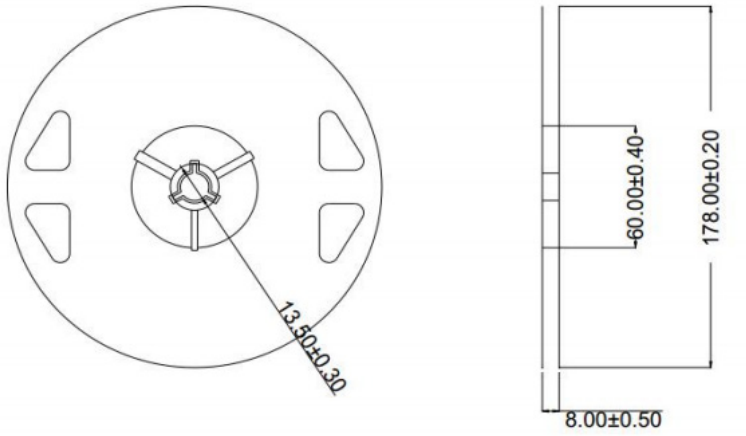
Notes:

1. Quantity: 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.

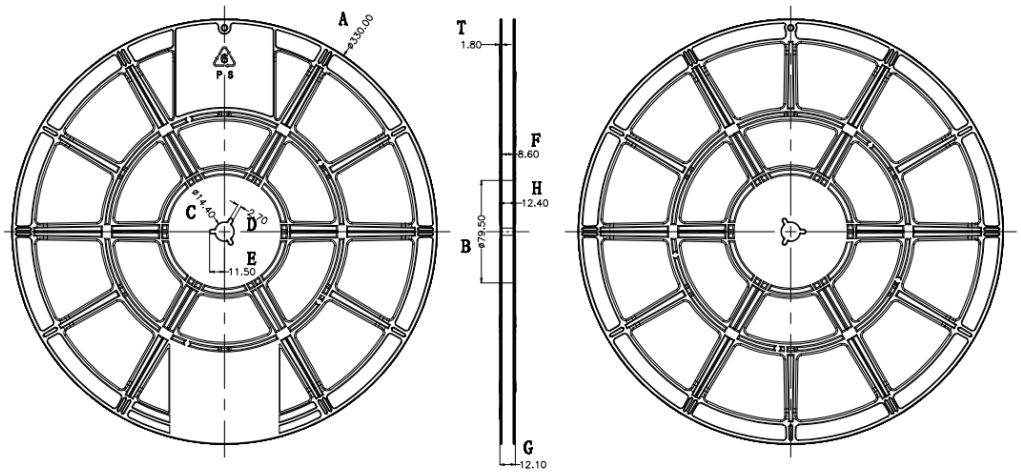
Tape and Reel Outline

Reel Package Dimensions[1]

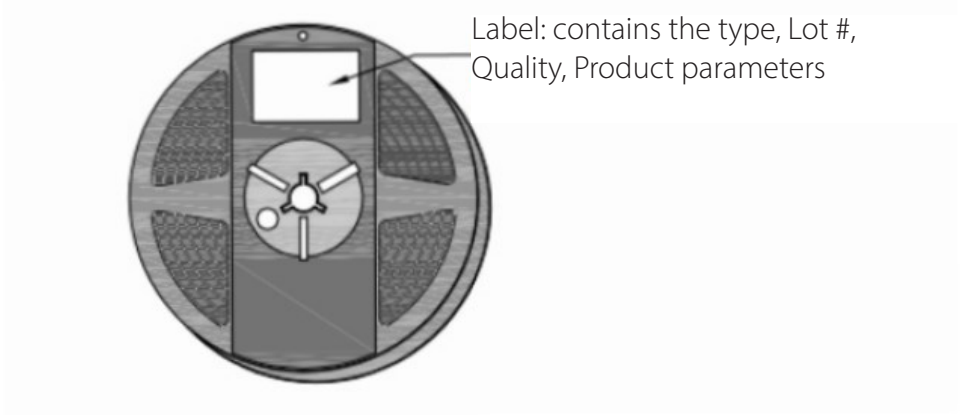
4000 pcs/reel

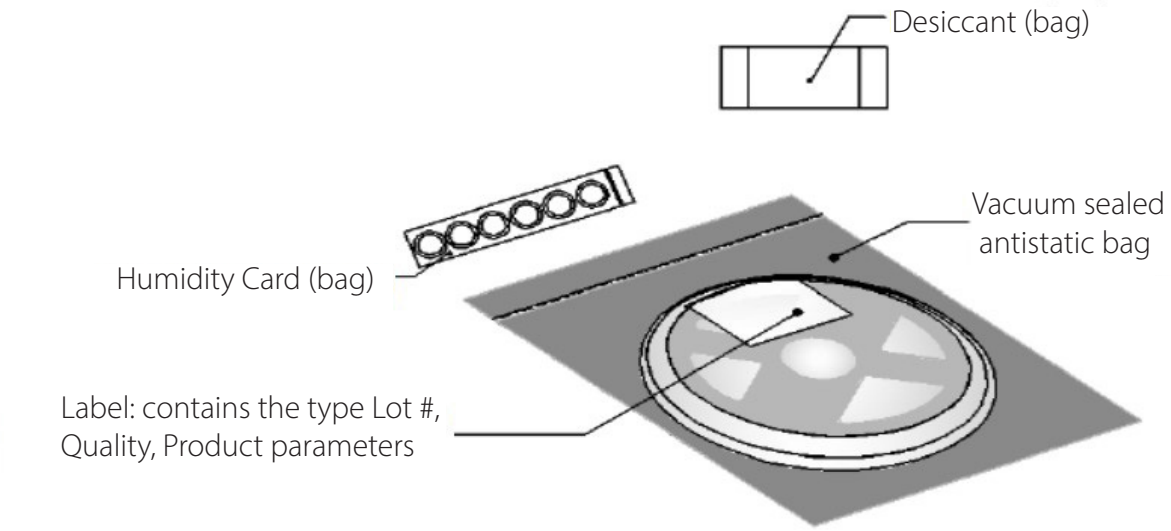


16000 pcs/reel



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

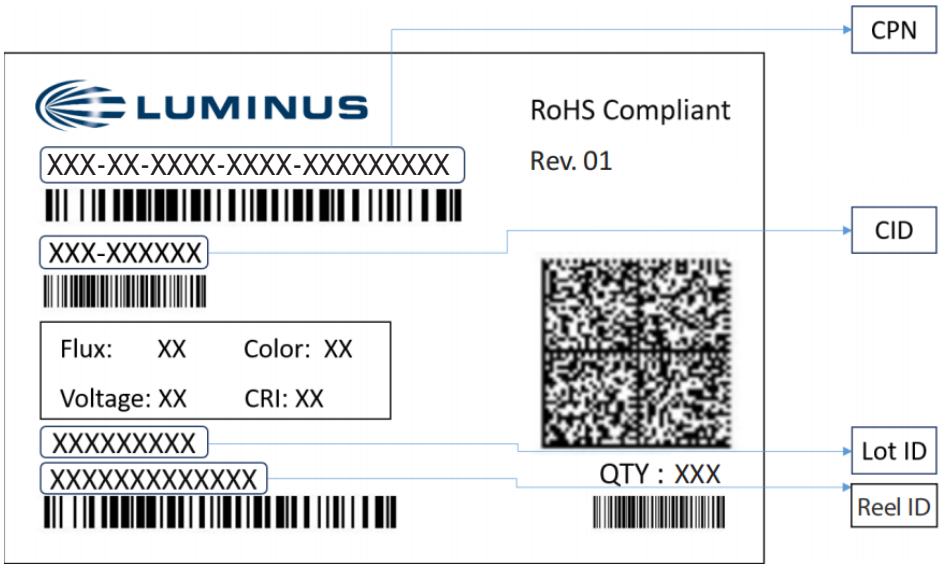




Note:

1. All dimensions are in millimeter.

Shipping Label



Label Fields:

- CPN: Luminus ordering part number
- CID: Customer's part number (this is a non-essential item)
- 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: NA
- Lot ID & Reel ID: For Luminus internal use

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. 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	03/17/2026	Initial release