DATASHEET

ES-2835-1018V-XX-XXX

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This 2835 LED Light Source is a high performance energy efficient device which can handle high thermal and high driving current. The small package outline and high intensity make it an ideal choice for LED panel light, LED bulb light, LED tube light, backlighting and etc.

The White Power LED is available in the range of color temperature from 2600K to 7000K.

This part has a foot print that is compatible to most of the same size LED in the market today



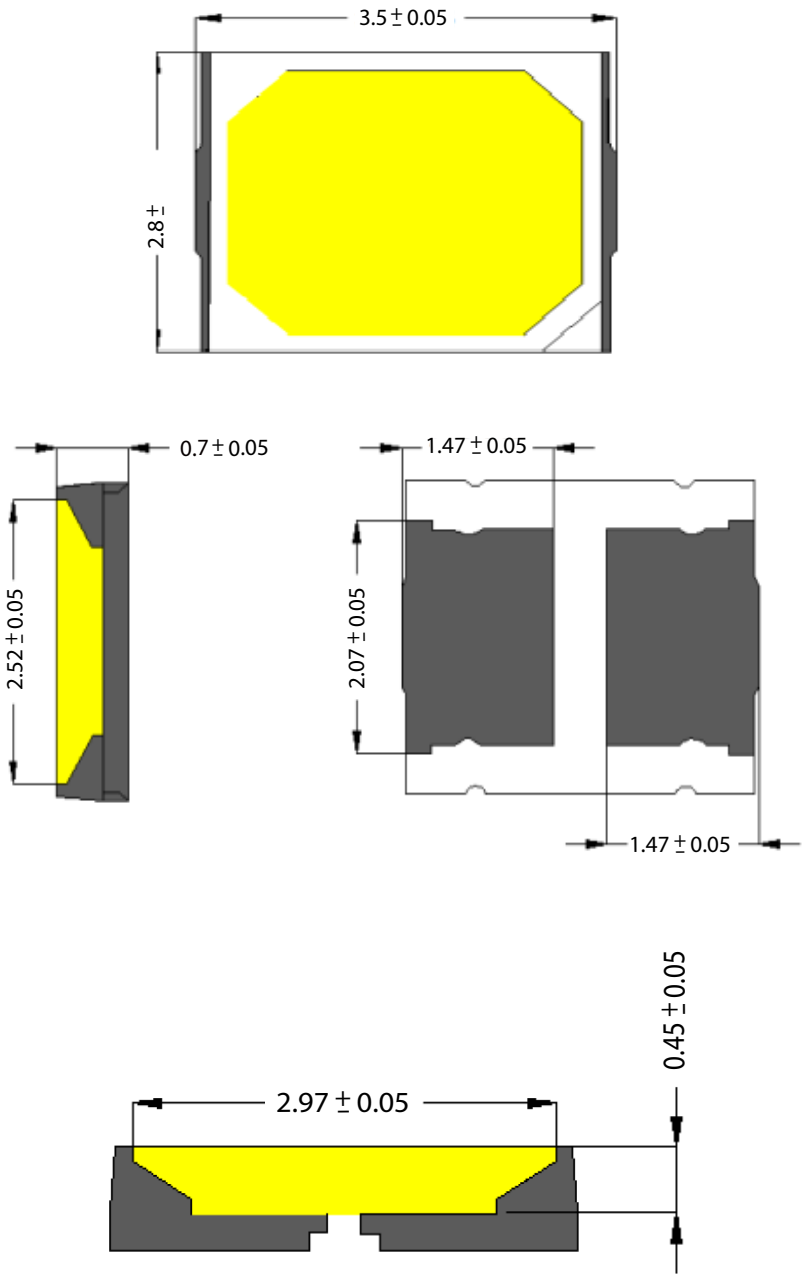
FEATURES

- Available in Cool White, Neutral White and Warm White color
- ANSI-compatible chromaticity bins
- High luminous Intensity and high efficiency
- Compatible with reflow soldering process
- Low thermal resistance
- Long operation life
- Wide viewing angle at 120°
- Silicone encapsulaton
- Environmental friendly, RoHS Compliance

APPLICATIONS

- Flat panel light
- LED tube light
- LED bulb light

PACKAGE DIMENSIONS



ABSOLUTE MAXIMUM RATINGS (Tj=25°C)

Item	Symbol	Value	Unit
Forward current	I_F	60	mA
Peak Forward Current	I_{FP}	80	mA
Reverse Voltage	V_R	20	V
Power Dissipation	P_d	1080	mW
Operating Temperature	T_{opr}	-30~+85	℃
Storage Temperature	T_{stg}	-40~+100	℃
Soldering Temperature	T_{sld}	Max. 350℃ for 5 sec	℃
LED Junction Temperature	T_j	115 ℃	℃
ESD Sensitivity	ESD	2000V HBM	V

Note: IFP Conditions: Pulse Width ≦ 10msec. and Duty ≦ 1/10.

CHARACTERISTICS (Tj=25°C)

Item	Symbol	Condition	Min.	Type	Max.	Unit
Forward Voltage	VF	IF=60mA	17.5	--	19.5	V
Viewing Angle	2θ1/2	IF=60mA	--	120		deg.
Luminous Flux	Φv	IF=60mA	150	--	180	lm
Color Rendering Index	CRI	IF=60mA	2700	--	6500	K
Color Temperature	CCT	IF=60mA	80	--	--	--
Thermal Resistance (Junction to Solder point)	Rth-js	IF=60mA		24		C/W
Reverse Leakage Current	Ir	21V	--	--	5	μA

Notes:

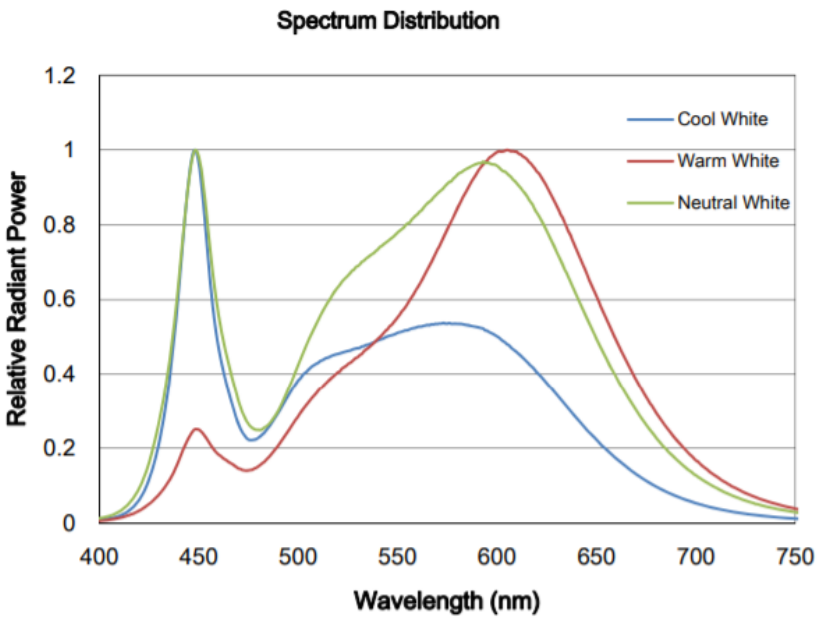
1. Luminous flux is measured with an accuracy of ± 10%.

2. Chromaticity coordinate bins are measured with an accuracy of ± 0.01.

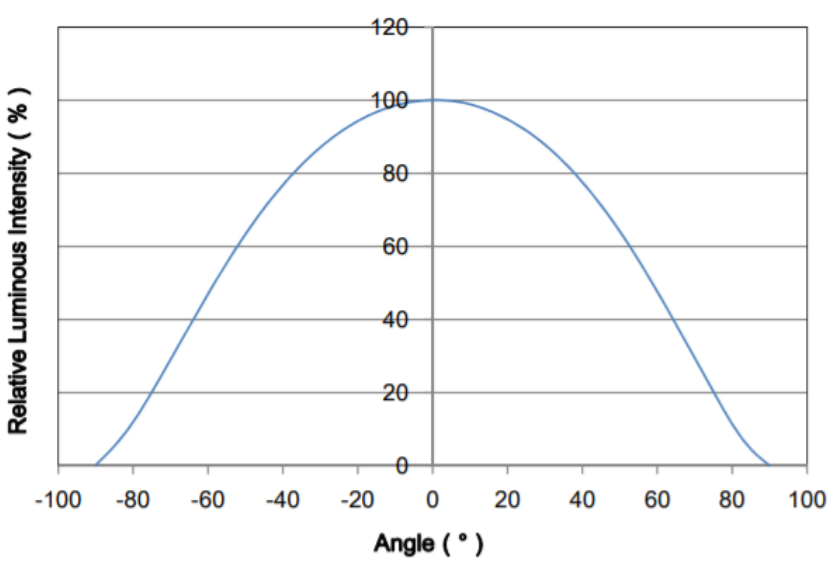
3. CRI is measured with an accuracy of ± 2.

4. Some color and CRI bins may have limited availability, please contact us before ordering.

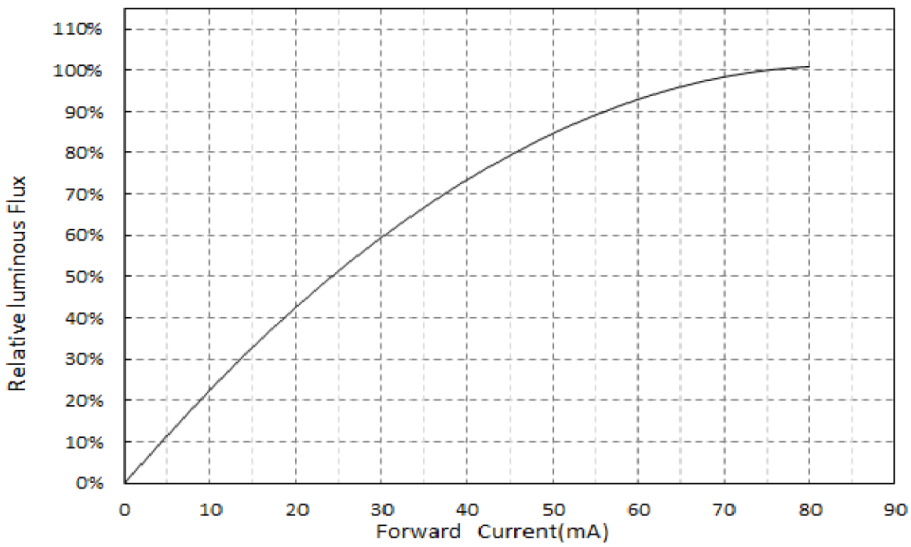
RELATIVE SPECTRAL POWER DISTRIBUTION (Tj=25°C)



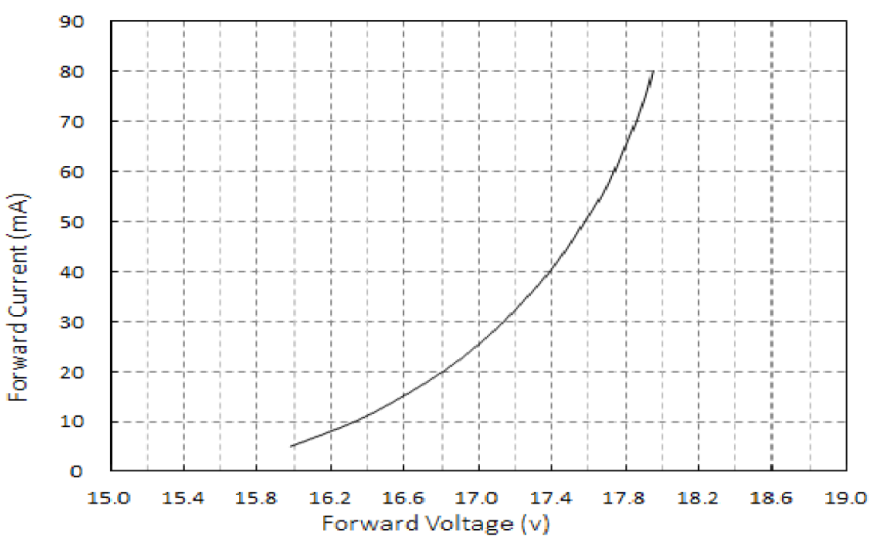
TYPICAL SPATIAL DISTRIBUTION



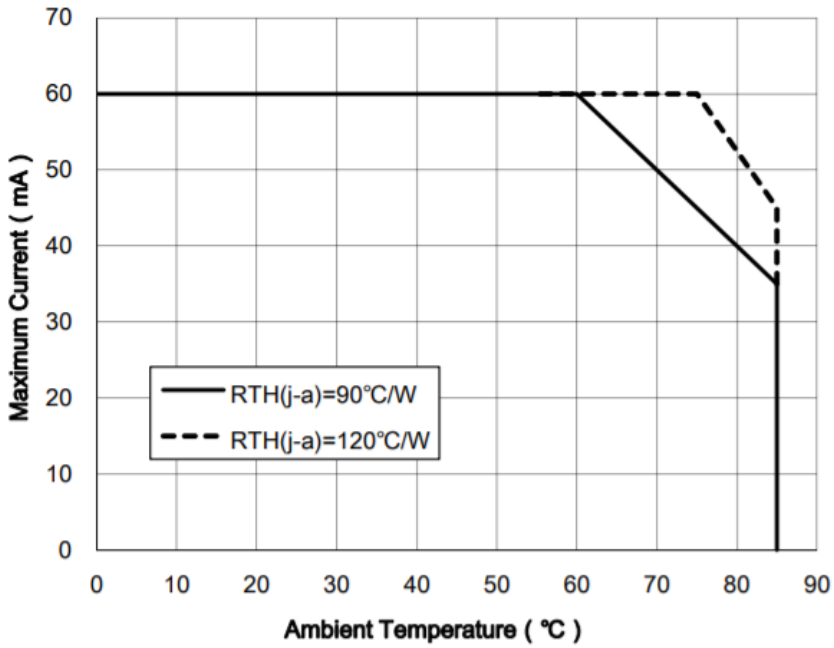
RELATIVE LUMINOUS FLUX VS.CURRENT (T=25°C)



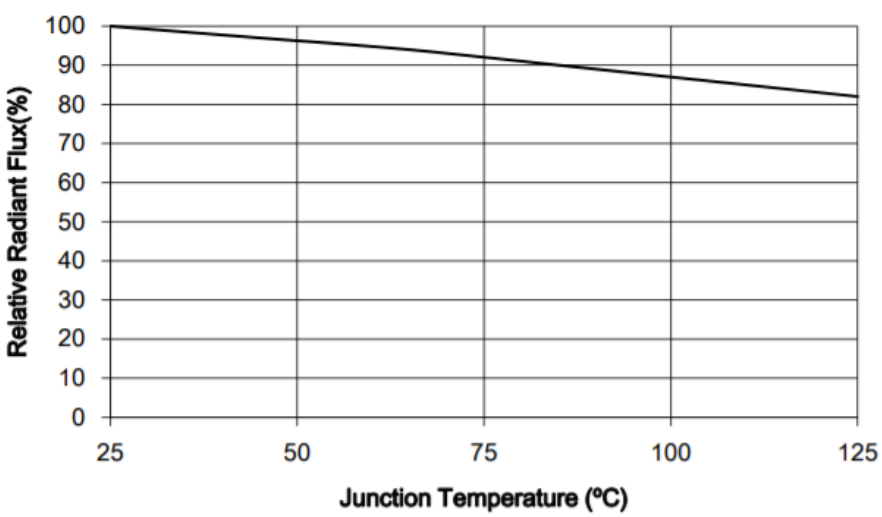
ELECTRICAL CHARACTERISTICS (Tj=25°C)



MAXIMUM CURRENT VS. AMBIENT TEMPERATURE



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE



SORTING RANKS

(1) Luminous Flux (Tj=25°C)

Part No.	Condition	Rank			Unit
ES-2835-1018V-XX-827	60mA	L1 130-140	L2 140-150	L3 150-160	lm
ES-2835-1018V-XX-830		L1 140-150	L2 150-160	L3 160-170	
ES-2835-1018V-XX-840		L1 150-160	L2 160-170	L3 170-180	
ES-2835-1018V-XX-850		L1 150-160	L2 160-170	L3 170-180	
ES-2835-1018V-XX-857		L1 150-160	L2 160-170	L3 170-180	
ES-2835-1018V-XX-865		L1 150-160	L2 160-170	L3 170-180	

(2) Forward Voltage (Tj=25℃)

Rank	Condition	Min.	Max.	Unit
V1	60mA	17.5	18.0	V
V2		18.0	18.5	
V3		18.5	19.0	
V4		19.0	19.5	

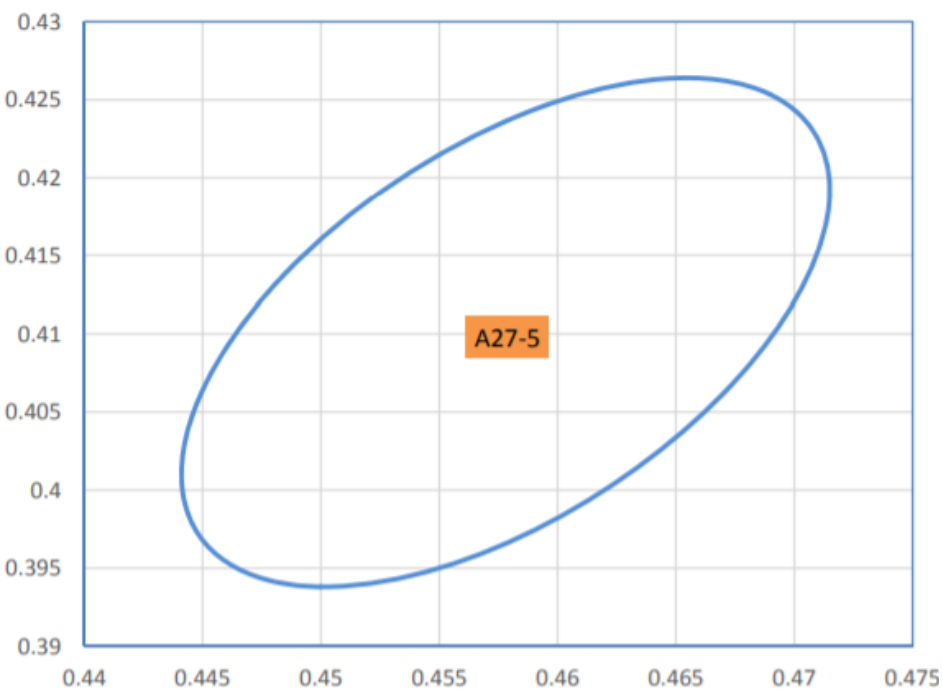
Notes:

1. 10% tolerance for luminous intensity may be caused by measurement inaccuracy.

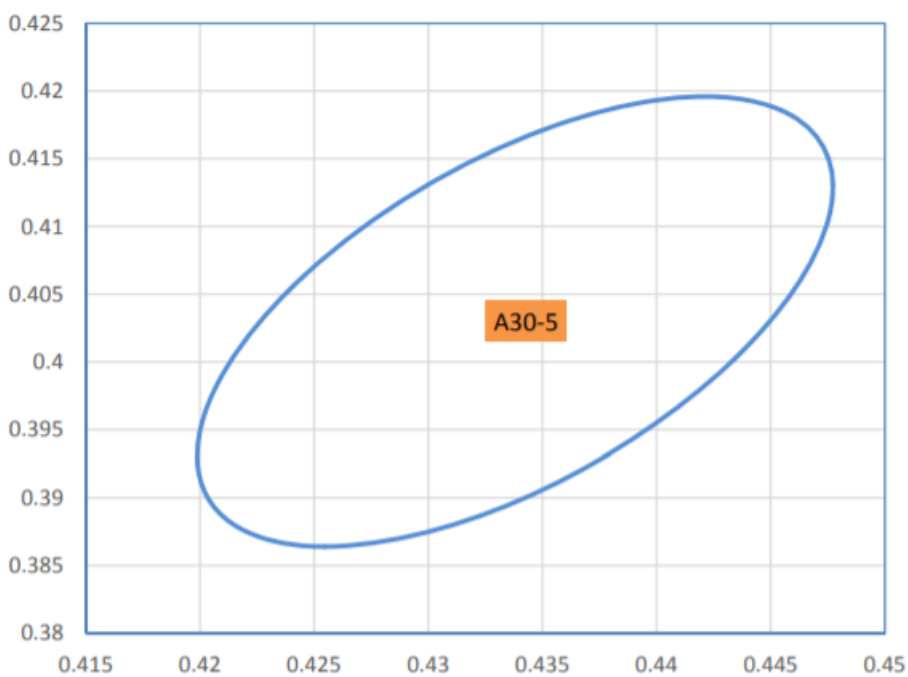
2. Measurement Uncertainty of the Forward Voltage : ± 3%

CHROMATICITY BINS

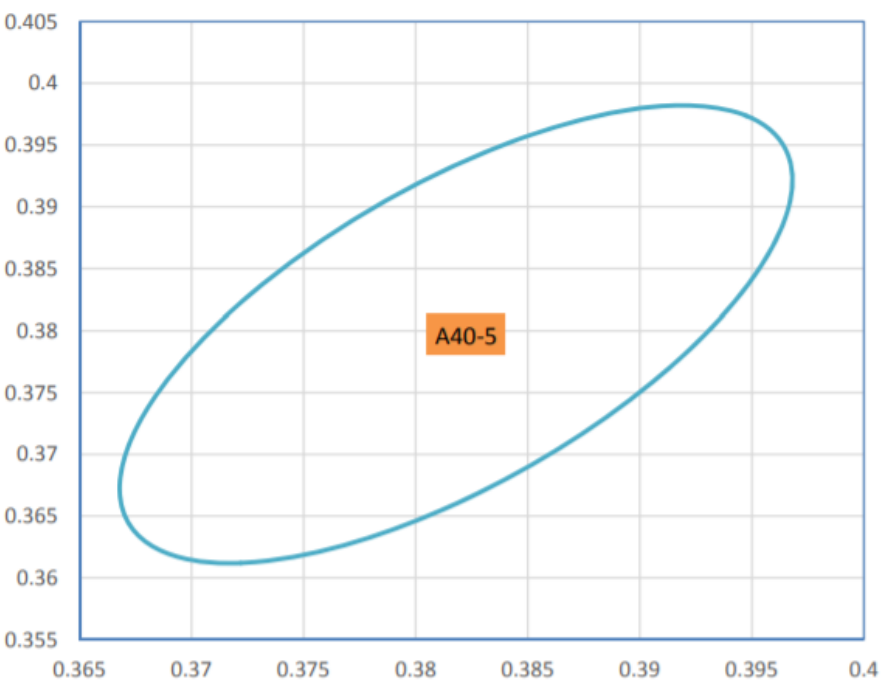
Part Number	ES-2835-1018V-XX-827			CCT	2700K
Bin Code	Color Coordinates(x,y)				
A27-5	x	y	a	b	Theta°
	0.4578	0.4101	0.01350	0.007	53.7



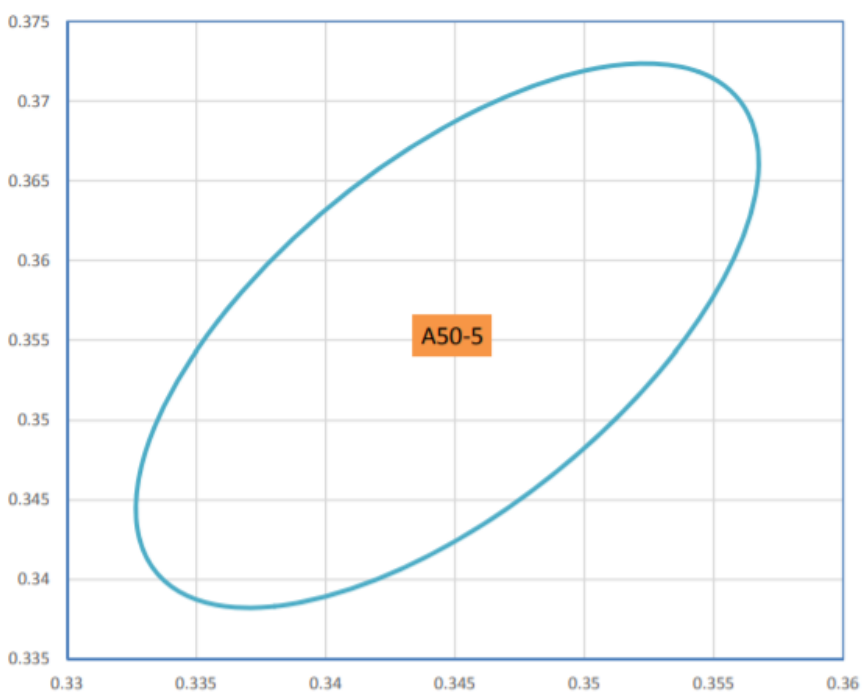
Part Number	ES-2835-1018V-XX-830			CCT	3000K
Bin Code	Color Coordinates(x,y)				
A30-5	x	y	a	b	Theta°
	0.4338	0.4030	0.0139	0.0068	53.22



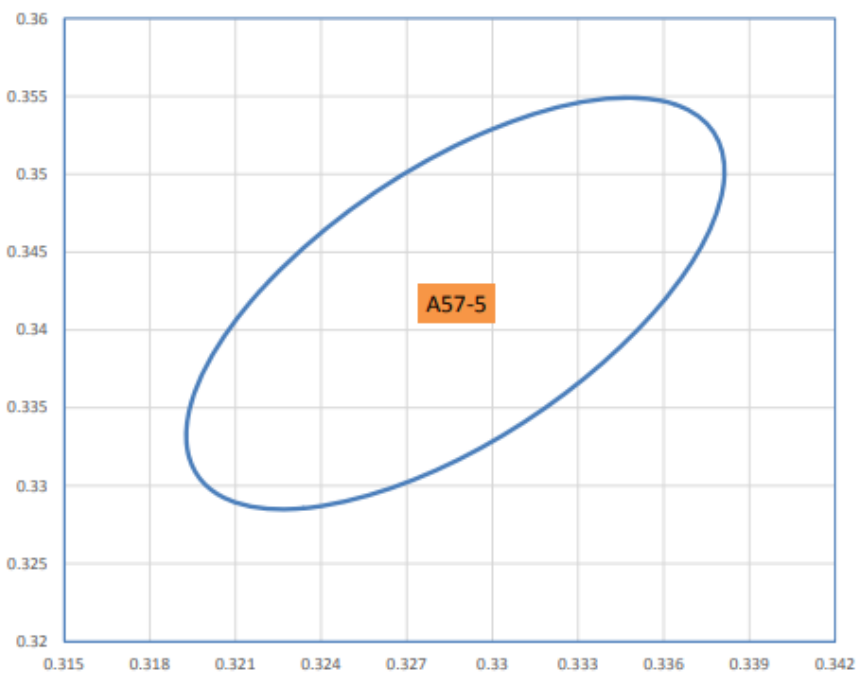
Part Number	ES-2835-1018V-XX-840			CCT	4000K
Bin Code	Color Coordinates(x,y)				
A40-5	x	y	a	b	Theta°
	0.3818	0.3797	0.01565	0.0067	53.72



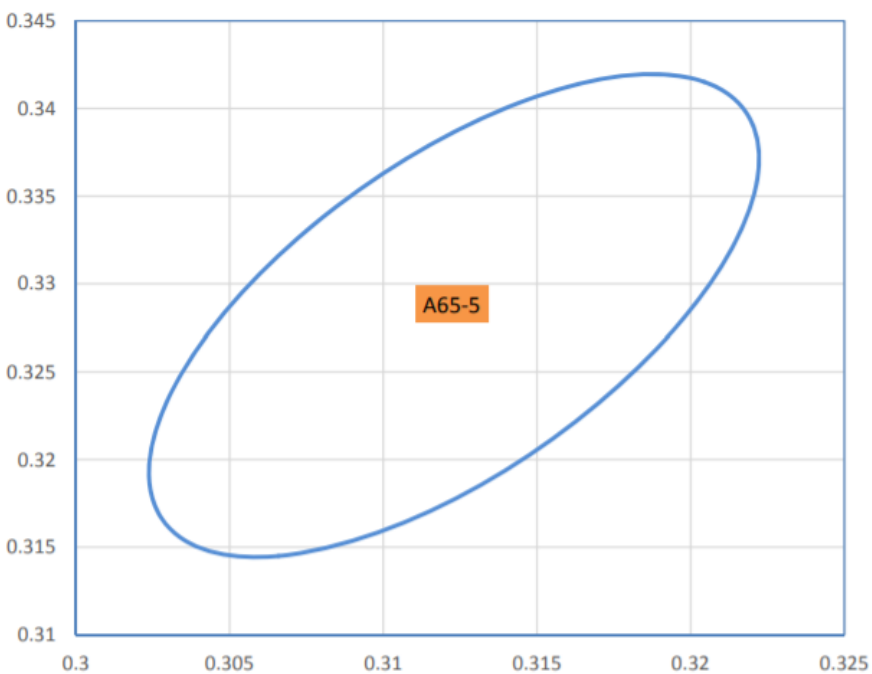
Part Number	ES-2835-1018V-XX-850			CCT	5000K
Bin Code	Color Coordinates(x,y)				
A50-5	x	y	a	b	Theta°
	0.3447	0.3553	0.0137	0.0059	59.62



Part Number	ES-2835-1018V-XX-857			CCT	5700K
Bin Code	Color Coordinates(x,y)				
A57-5	x	y	a	b	Theta°
	0.3287	0.3417	0.01243	0.00533	59.09



Part Number	ES-2835-1018V-XX-865			CCT	6500K
Bin Code	Color Coordinates(x,y)				
A60-5	x	y	a	b	Theta°
	0.3123	0.3282	0.01115	0.00475	58.57



REFLOW SOLDERING CHARACTERISTICS

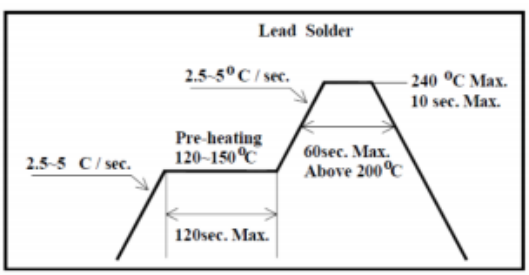
For Reflow Process

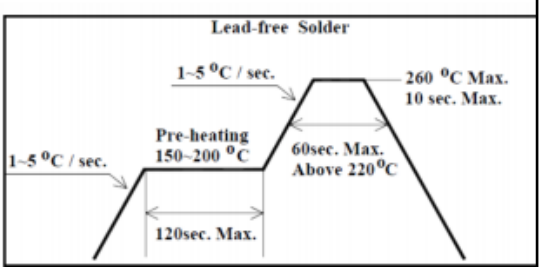
Preheating : 140°C~160°C±5°C,within 2 minutes.

Operation heating : 260°C(Max.) within 10 seconds.(Max)

Gradual Cooling (Avoid quenching).

Lead solder		Lead-free solder	
Pre-heat	120-150℃	Pre-heat	150-200℃
Pre-heat time	120 sec.Max.	Pre-heat time	120 sec.Max.
Peak Temperature	240℃ Max.	Peak Temperature	260℃ Max.
Soldering time condition	10 sec.Max.	Soldering time condition	10 sec.Max.

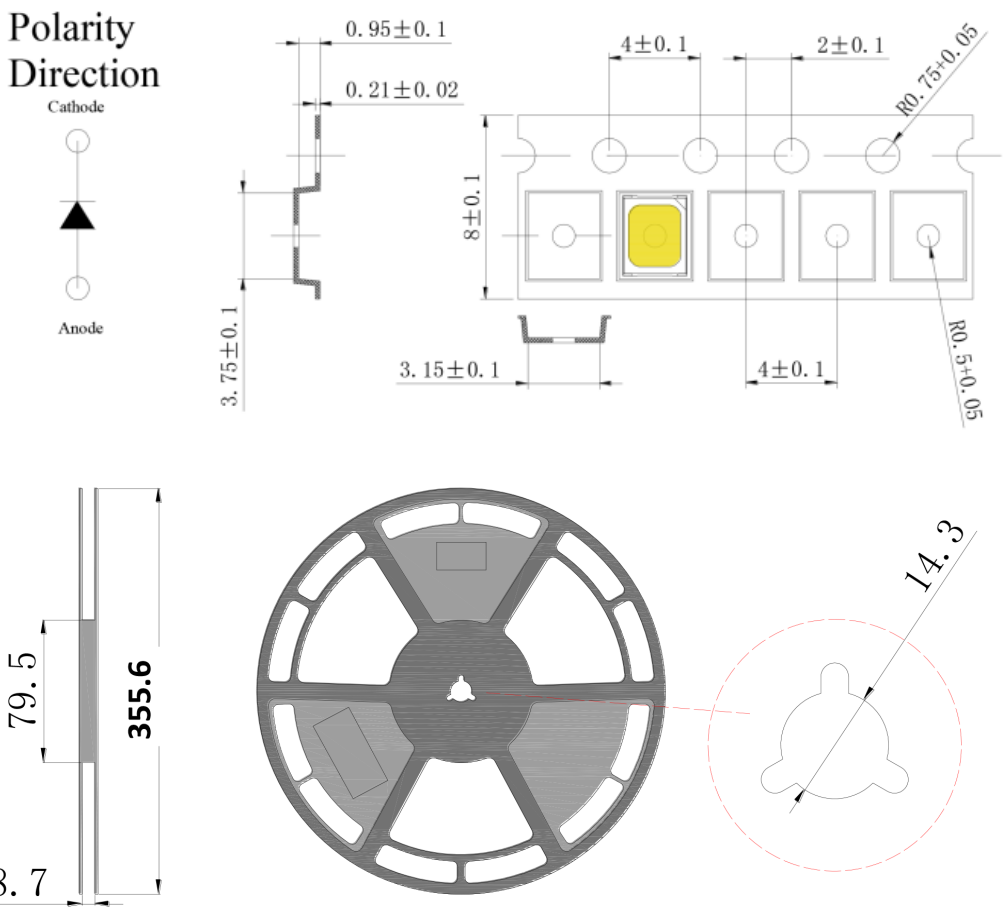




Note:

The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

TAPE AND REEL



Notes:

(1) Quantity : 20,000pcs/Reel

(2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.2mm

(3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10°C to the carrier tape

(4) Package : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package.

RELIABILITY TEST ITEMS

Test Items	Test Duration	Number of Damaged
Steady State Operating Life of High Temperature (HTOL) Ts=85°C, IF=Max	1000hrs	0/20
Steady State Operating Life of Low Temperature (LTOL) Ta=-40°C, IF=Max	1000hrs	0/20
Pulse Wet Operating Life of High Temperature (PWHTOL) 60°C/90%RH, IF30mins ON/30min OFF	500hrs	0/20
High Temperature Storage (HTS) °C 80 °C	1000hrs	0/20
Low Temperature Storage (LTS) -40°C	1000hrs	0/20
Thermal Shock (TS) -45°C~125°C 30min dwell 20sec transfer	100cycles	0/20
Solder Resistance (SR) 265°C, 3X MSL	5sec	0/20
Solder Ability (SA) 245°C 5sec, 95% coverage	5sec	0/11
Mechanical Shock (MS) 1500G 0.5msec pulse shock	Each6 axis	0/6
Random Vibration (RV) 6G RMS, 10-2000Hz, 10min	Per axis	0/6
Variable Vibration Frequency (VVF) 10-2000-10Hz, log or linear sweep rate, 20G for 1 min, 1.5mm each apply 3x per axis over	6hrs	0/6
Salt Spread (SS) 35 °C, 30g/m2/day	48hrs	0/11

Item	Symbol	Test Condition	Criteria for Judgment Min.	Max.
Forward	VF	IF=Typical Current		U.S.L x1.1
Luminous Flux	Im	IF=Typical Current	L.S.L x0.7	
CCX&CCY	x,y	IF=Typical Current		Shift<0.02

PRECAUTION FOR USE

(1) This device should not be used in any type of fluid such as water, oil, organic solvent, etc. When washing is required, IPA should be used.

(2) When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

(3) LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3months or more after being shipped from Everstar, a sealed container with a nitrogen atmosphere should be used for storage.

(4) The LEDs must be used within seven days after opening the moisture proof packing. Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.

(5) The appearance and specifications of the product may be modified for improvement without notice.

(6) This LED is sensitive to the static electricity and surge. It is recommended to use a wrist Band or anti-electrostatic glove when handling the LEDs.

(7) On manual soldering, a solder tip must be needed as grounded for usage. If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as leak current remarkably increase ,turn-on voltage becomes lower and the LEDs get unlighted at low current.