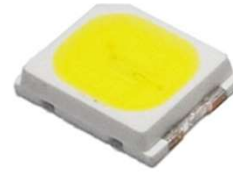


SR28PF Desk lamp LEDs datasheet

The table lamp LEDs were designed to reduce the blue hazard by decreasing high energy blue-violet to total light ratio. It is propitious to alleviate the visual fatigue and the physiological influence caused by the high color temperature to school children. The reading lamp LEDs with high CRI ($R_a=97\pm 2$, $R_f\geq 91$, $R_g=100\pm 2$) make people feel more comfortable, and get more out of life.



FEATURES

- Low high-energy blue light
- Promotes awareness and focus
- High CRI ≥ 95
- High R_f ; R_g (TM-30-15)
- Compatible with reflow soldering process
- Low thermal resistance
- Environmental friendly

APPLICATIONS

- Reading lamp
- Desk lamp
- Floor lamp

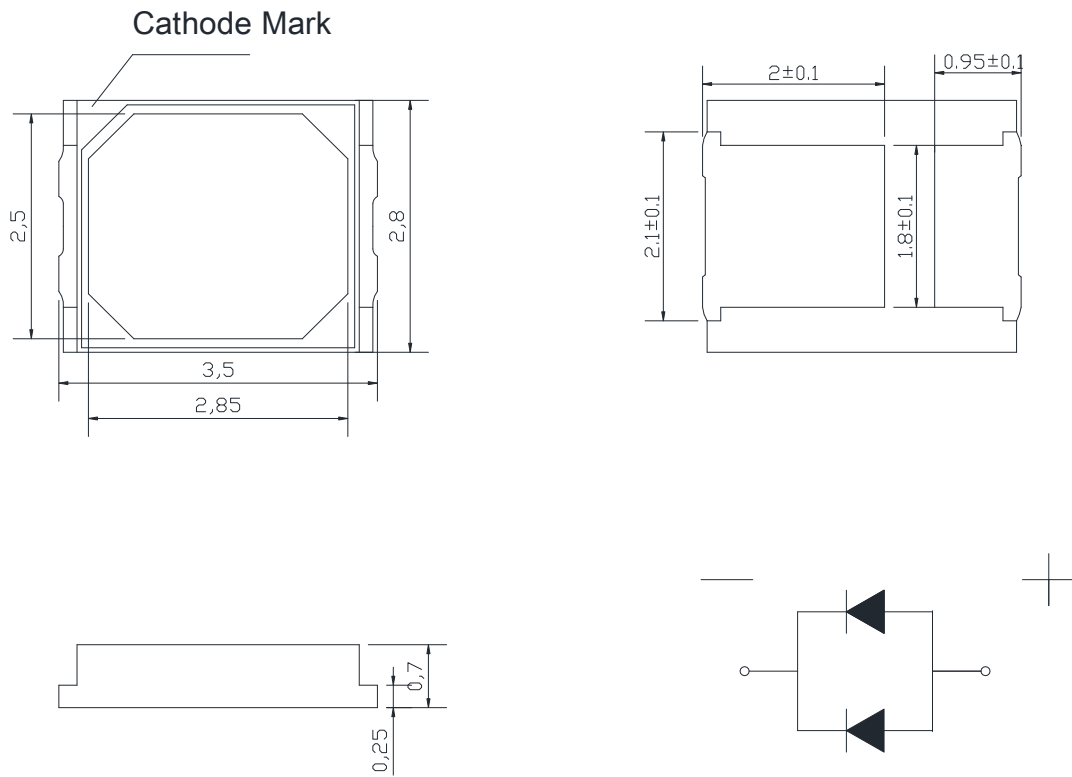
Naming Conventions

SOM2835 -40 - R - PF
(1) (2) (3) (4)

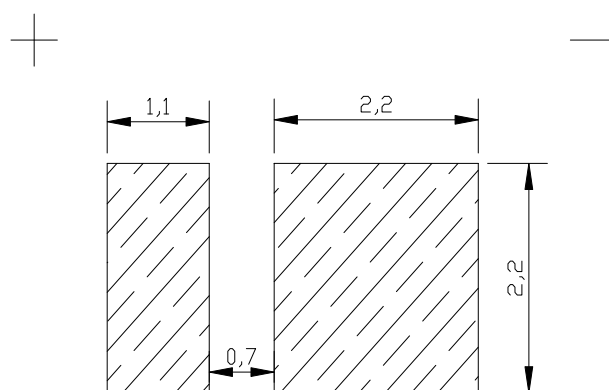
- (1) SMD Series
- (2) CCT Range:4000K
- (3) Product Series Code
- (4) Full spectrum product series

Note: The information in this document is subject to change without notice.

PACKAGE DIMENSIONS



Recommended Solder Pad Design



Notes:

1. All dimensions in millimeters.
2. Thickness tolerance of copper plate is ± 0.02 mm.
3. Thickness tolerance of product is ± 0.05 mm.
4. Tolerance is ± 0.1 mm unless otherwise noted.

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Absolute Maximum Rating	Unit
Forward current	I_F	150	mA
Peak Forward Current ^[1]	I_{FP}	200	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_d	450	mW
Operating Temperature	T_{opr}	-40~+85	°C
Storage Temperature	T_{stg}	-40~+100	°C
Soldering Temperature	T_{sld}	Reflow Soldering: 260°C for 10 seconds	
LED Junction Temperature	T_j	110	°C

Note:

I_{FP} Conditions: Pulse Width \leq 10msec. and Duty \leq 1/10.

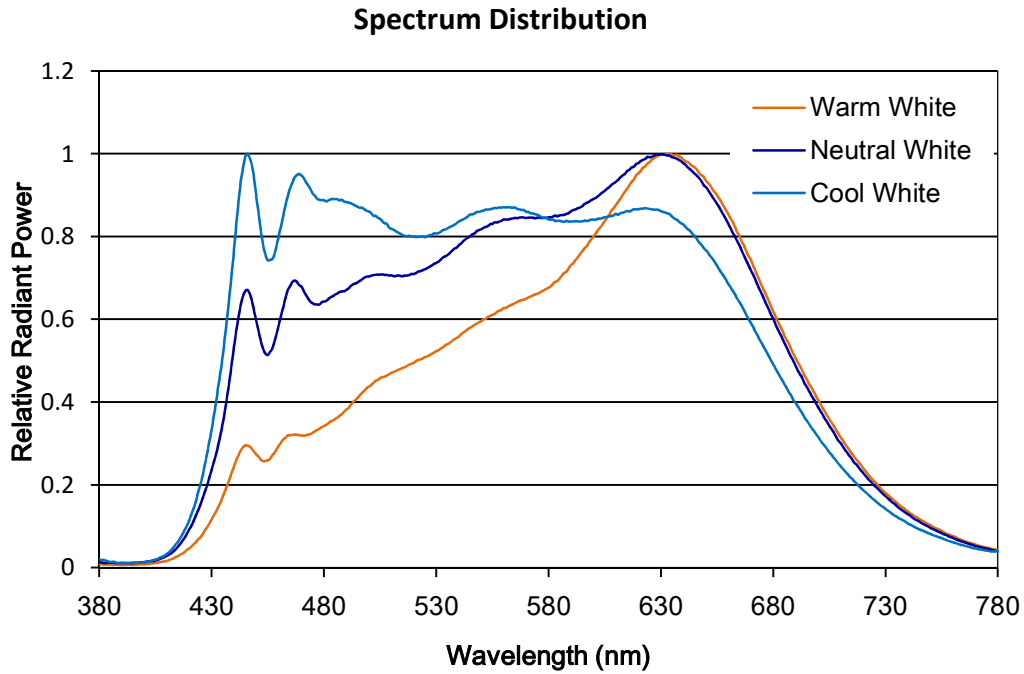
CHARACTERISTICS (T_j=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage ^[1]	V_F		2.7	2.8	3.0	V
Viewing Angle	$2\theta_{1/2}$		--	120	--	deg.
Luminous Flux	Φ_v		16	--	24	lm
Color Temperature	CCT	$I_F=60mA$	2600	--	7000	K
Color Rendering Index	CRI		95	97	--	--
Color Fidelity Index	R _f		--	92	--	--
Color Gamut Index	R _g		98	100	102	--
Thermal Resistance (Junction to Solder Point)	R_{th-js}		--	35	--	°C/W
Reverse Current	IR	V _r =5V	--	--	10	uA

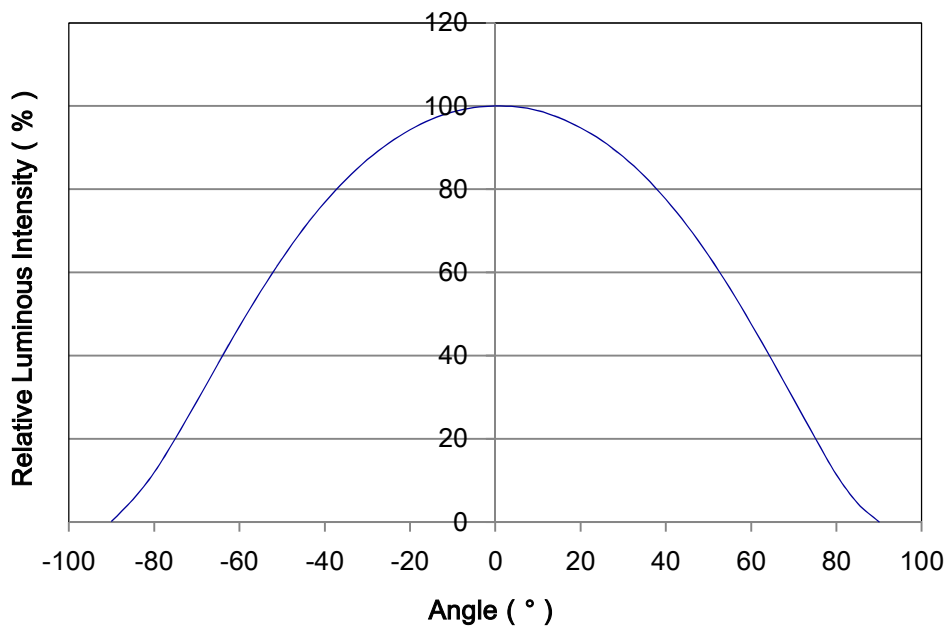
Notes:

- Luminous flux is measured with an accuracy of \pm 5%.
- Chromaticity coordinate bins are measured with an accuracy of \pm 0.005.
- CRI is measured with an accuracy of \pm 1.
- All measurements were made under the standardized environment of Shineon

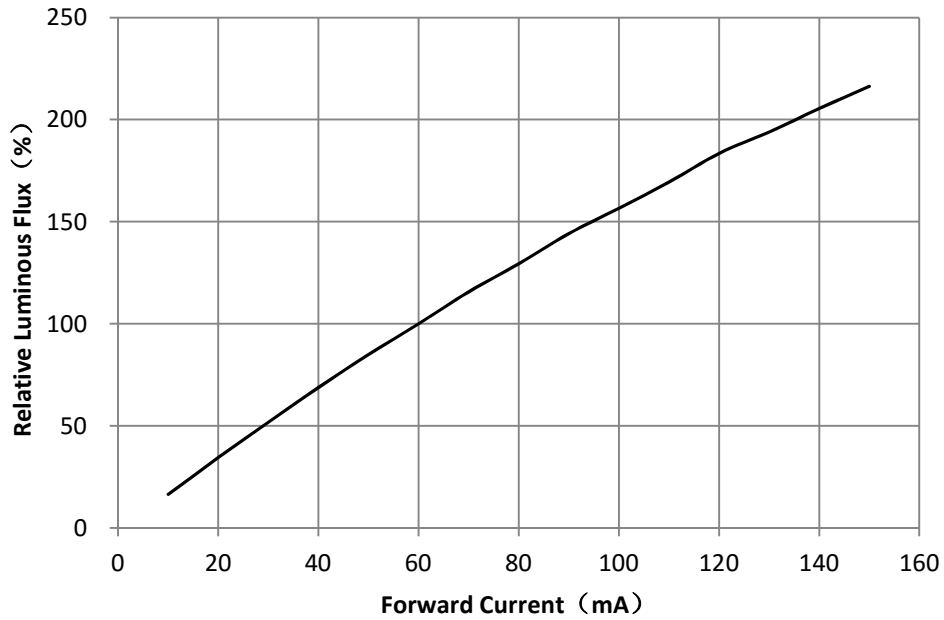
RELATIVE SPECTRAL POWER DISTRIBUTION ($T_j=25^{\circ}\text{C}$)



TYPICAL SPATIAL DISTRIBUTION

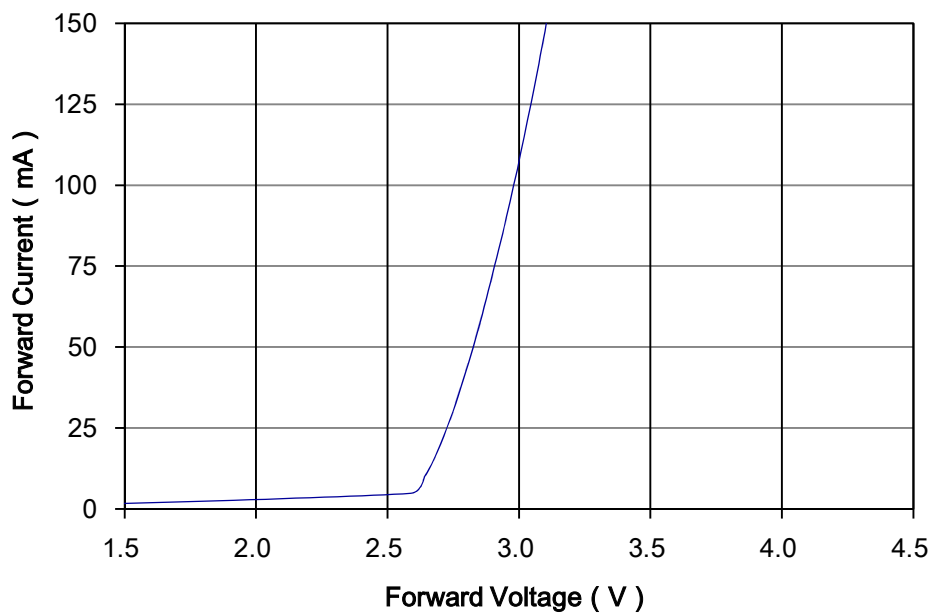


RELATIVE LUMINOUS FLUX VS. CURRENT ($T_j=25^{\circ}\text{C}$)

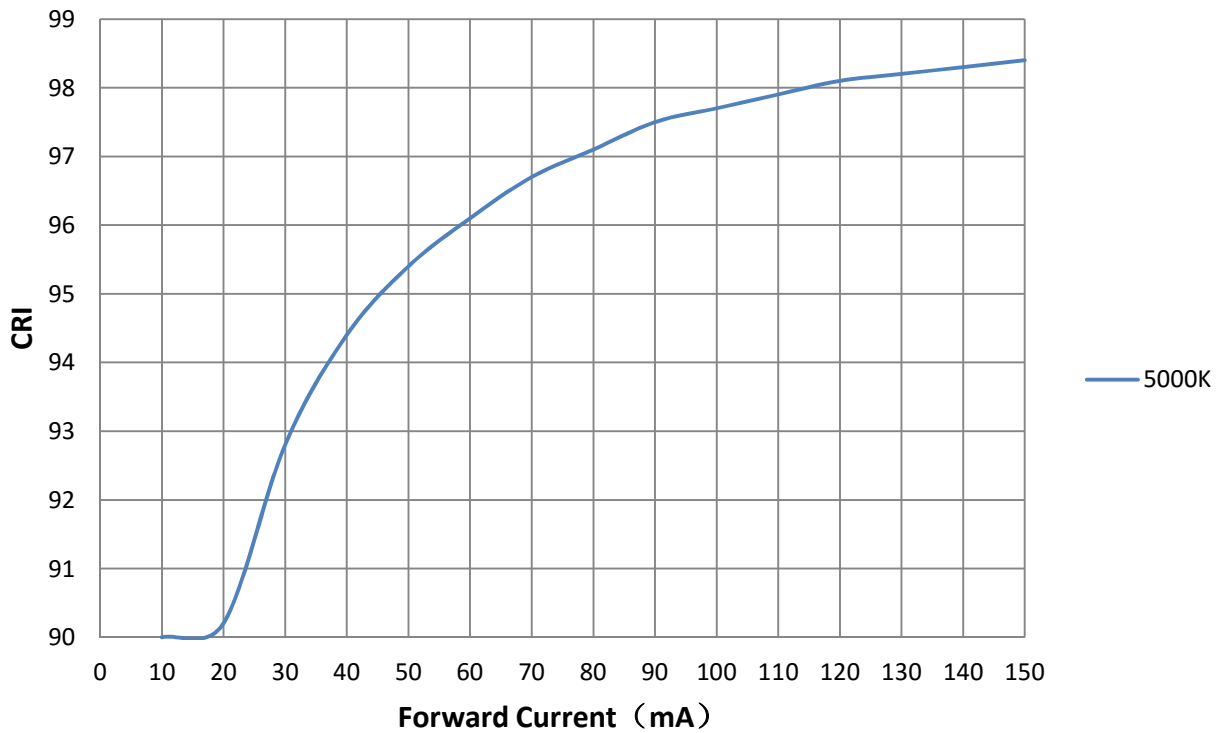
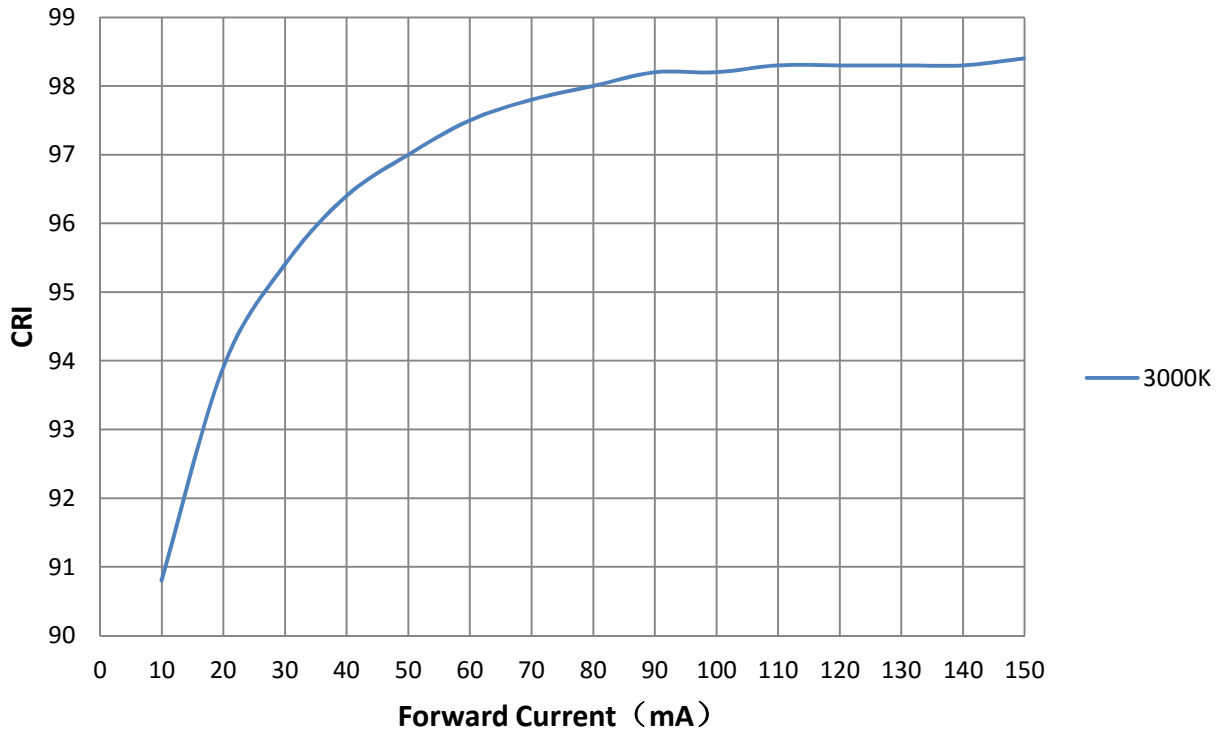


ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$)

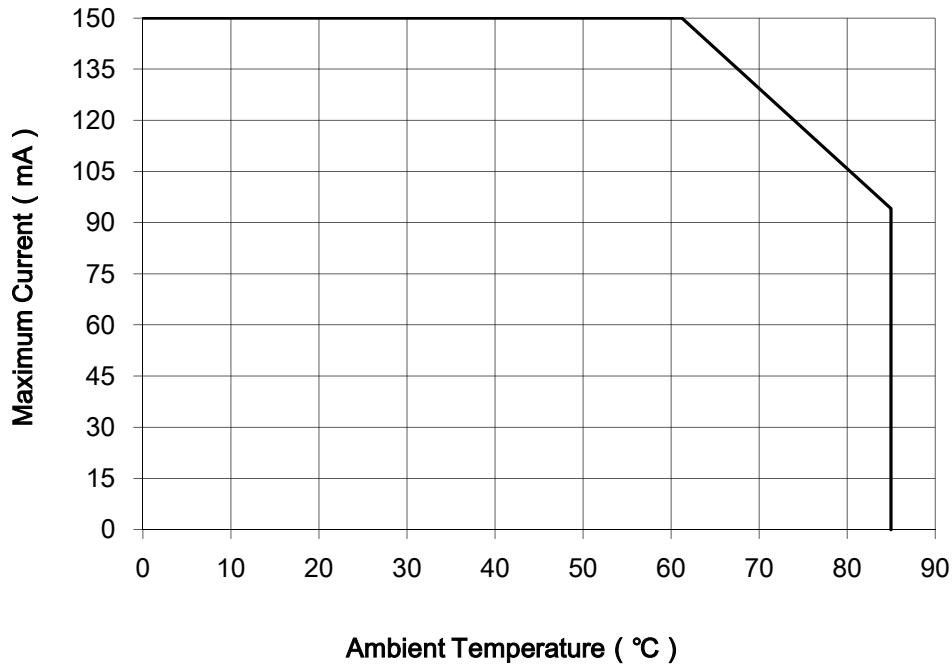
Forward Current vs. Forward Voltage



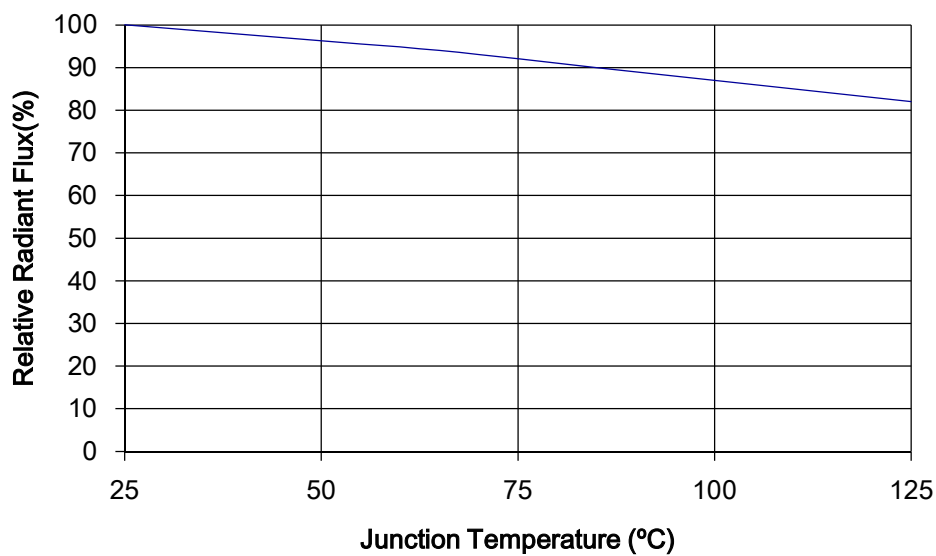
COLOR RENDERING INDEX VS. CURRENT ($T_j=25^{\circ}\text{C}$)



MAXIMUM CURRENT VS. AMBIENT TEMPERATURE



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE



SORTING RANKS
(1) Luminous Flux (Tj=25°C)

Part Number	Condition	Rank		Unit
SOM2835-27-R-PF	60mA	ME	NA	lm
		18-20	20-22	
SOM2835-30-R-PF		MB	MC	
		19-21	21-23	
SOM2835-40-R-PF		NA	NB	
		20-22	22-24	
SOM2835-50-R-PF		NA	NB	
		20-22	22-24	
SOM2835-57-R-PF		NA	NB	
		20-22	22-24	
SOM2835-65-R-PF	NA	NB		
	20-22	22-24		

(2) Forward Voltage (Tj=25°C)

Rank	Condition	Min.	Max.	Unit
A7	60mA	2.7	2.8	V
A8		2.8	2.9	
A9		2.9	3.0	

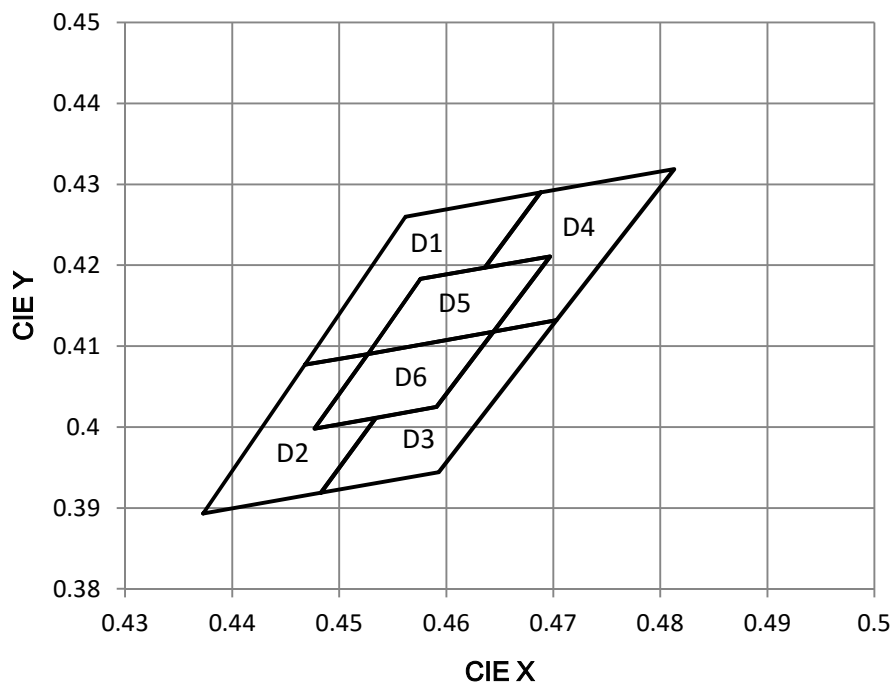
Notes:

1. 5% tolerance for luminous intensity may be caused by measurement inaccuracy.
2. Measurement Uncertainty of the Forward Voltage : $\pm 0.1V$

(3) Chromaticity Bins

Rank	X	Y	Rank	X	Y	Rank	X	Y
D1	1	0.4468	D3	1	0.4483	D5	1	0.4576
	2	0.4562		2	0.4534		2	0.4697
	3	0.4688		3	0.4591		3	0.4644
	4	0.4636		4	0.4644		4	0.4527
	5	0.4576		5	0.4703		5	--
	6	0.4527		6	0.4593		6	--
D2	1	0.4373	D4	1	0.4688	D6	1	0.4527
	2	0.4468		2	0.4813		2	0.4644
	3	0.4527		3	0.4703		3	0.4591
	4	0.4477		4	0.4644		4	0.4477
	5	0.4534		5	0.4697		5	--
	6	0.4483		6	0.4636		6	--

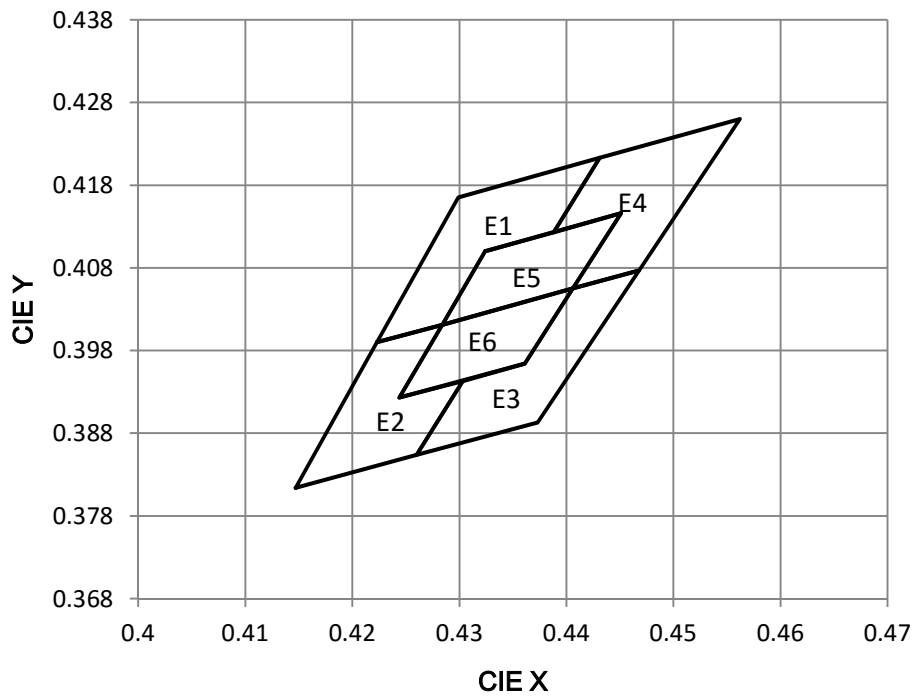
CCT 2700K BIN Structure



(3) Chromaticity Bins

Rank	X	Y	Rank	X	Y	Rank	X	Y
E1	1	0.4223	E3	1	0.4260	E5	1	0.4324
	2	0.4299		2	0.4303		2	0.4451
	3	0.4431		3	0.4361		3	0.4406
	4	0.4388		4	0.4406		4	0.4284
	5	0.4324		5	0.4468		5	--
	6	0.4284		6	0.4373		6	--
E2	1	0.4147	E4	1	0.4431	E6	1	0.4284
	2	0.4223		2	0.4562		2	0.4406
	3	0.4284		3	0.4468		3	0.4361
	4	0.4244		4	0.4406		4	0.4244
	5	0.4303		5	0.4451		5	--
	6	0.4260		6	0.4388		6	--

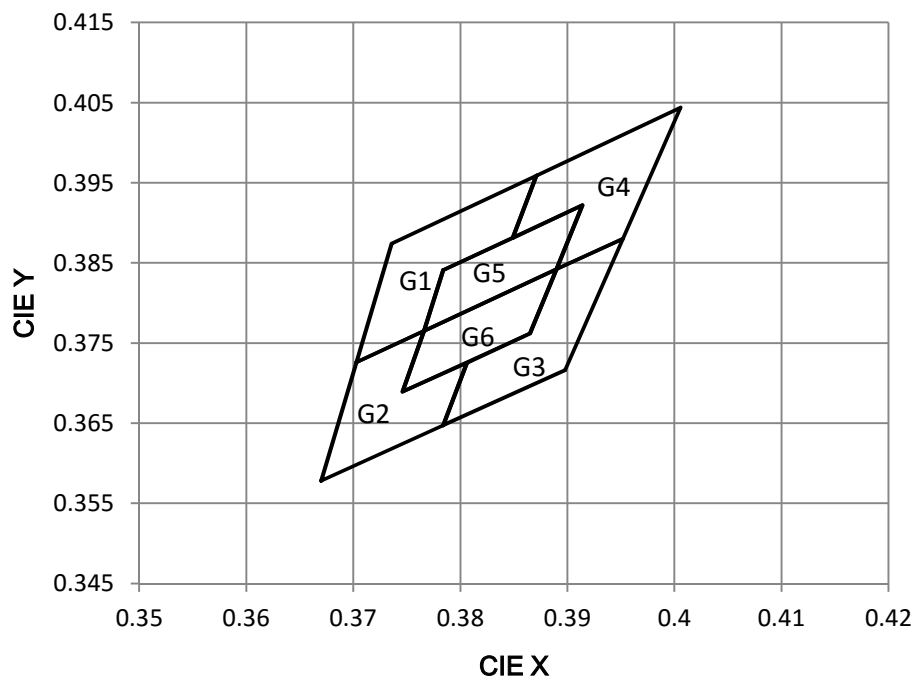
CCT 3000K BIN Structure



(3) Chromaticity Bins

Rank	X	Y	Rank	X	Y	Rank	X	Y
G1	1	0.3703	G3	1	0.3784	G5	1	0.3784
	2	0.3736		2	0.3806		2	0.3914
	3	0.3871		3	0.3865		3	0.3890
	4	0.3849		4	0.3890		4	0.3766
	5	0.3784		5	0.3952		5	--
	6	0.3766		6	0.3898		6	--
G2	1	0.3670	G4	1	0.3871	G6	1	0.3766
	2	0.3703		2	0.4006		2	0.3890
	3	0.3766		3	0.3952		3	0.3865
	4	0.3746		4	0.3890		4	0.3746
	5	0.3806		5	0.3914		5	--
	6	0.3784		6	0.3849		6	--

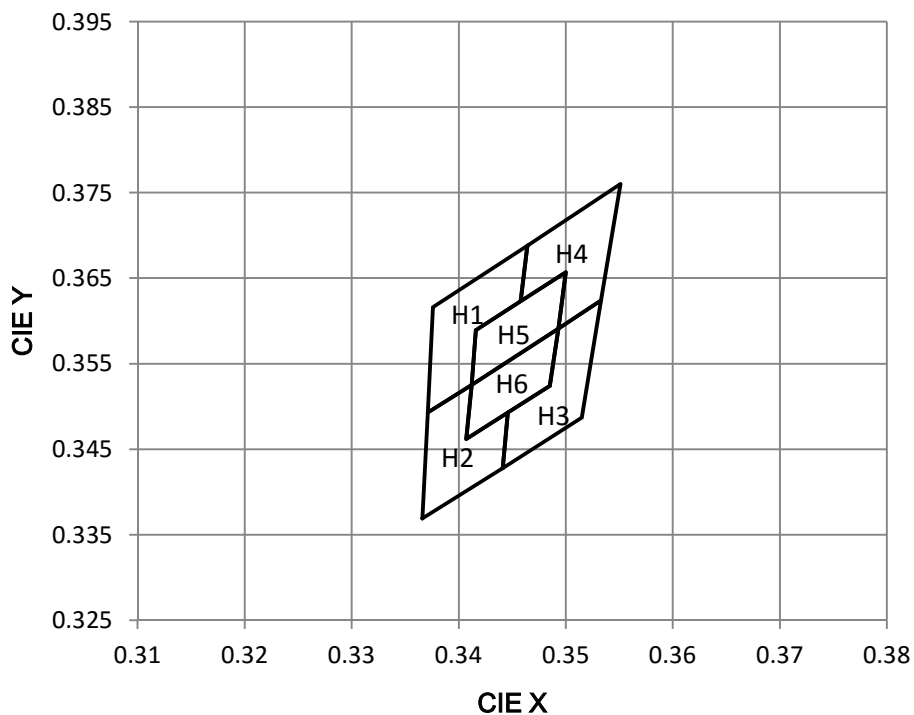
CCT 4000K BIN Structure



(3) Chromaticity Bins

Rank	X	Y	Rank	X	Y	Rank	X	Y
H1	1	0.3371	H3	1	0.3441	H5	1	0.3416
	2	0.3376		2	0.3446		2	0.35
	3	0.3464		3	0.3485		3	0.3493
	4	0.3458		4	0.3493		4	0.3412
	5	0.3416		5	0.3533		5	--
	6	0.3412		6	0.3515		6	--
H2	1	0.3366	H4	1	0.3464	H6	1	0.3412
	2	0.3371		2	0.3551		2	0.3493
	3	0.3412		3	0.3533		3	0.3485
	4	0.3407		4	0.3493		4	0.3407
	5	0.3446		5	0.35		5	--
	6	0.3441		6	0.3458		6	--

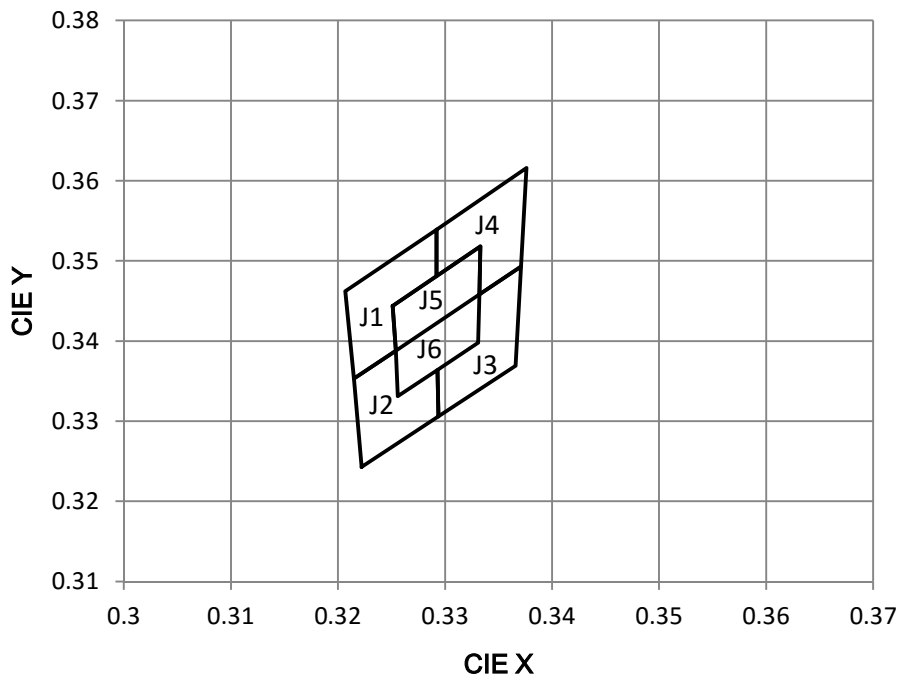
CCT 5000K BIN Structure



(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
J1	1	0.3215	0.3353	J3	1	0.3294	0.3306	J5	1	0.3251	0.3444
	2	0.3207	0.3462		2	0.3293	0.3364		2	0.3333	0.3518
	3	0.3292	0.3539		3	0.3331	0.3398		3	0.3332	0.3458
	4	0.3292	0.3481		4	0.3332	0.3458		4	0.3254	0.3388
	5	0.3251	0.3444		5	0.3371	0.3493		5	--	--
	6	0.3254	0.3388		6	0.3366	0.3369		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
J2	1	0.3222	0.3243	J4	1	0.3292	0.3539	J6	1	0.3254	0.3388
	2	0.3215	0.3353		2	0.3376	0.3616		2	0.3332	0.3458
	3	0.3254	0.3388		3	0.3371	0.3493		3	0.3331	0.3398
	4	0.3256	0.3331		4	0.3332	0.3458		4	0.3256	0.3331
	5	0.3293	0.3364		5	0.3333	0.3518		5	--	--
	6	0.3294	0.3306		6	0.3292	0.3481		6	--	--

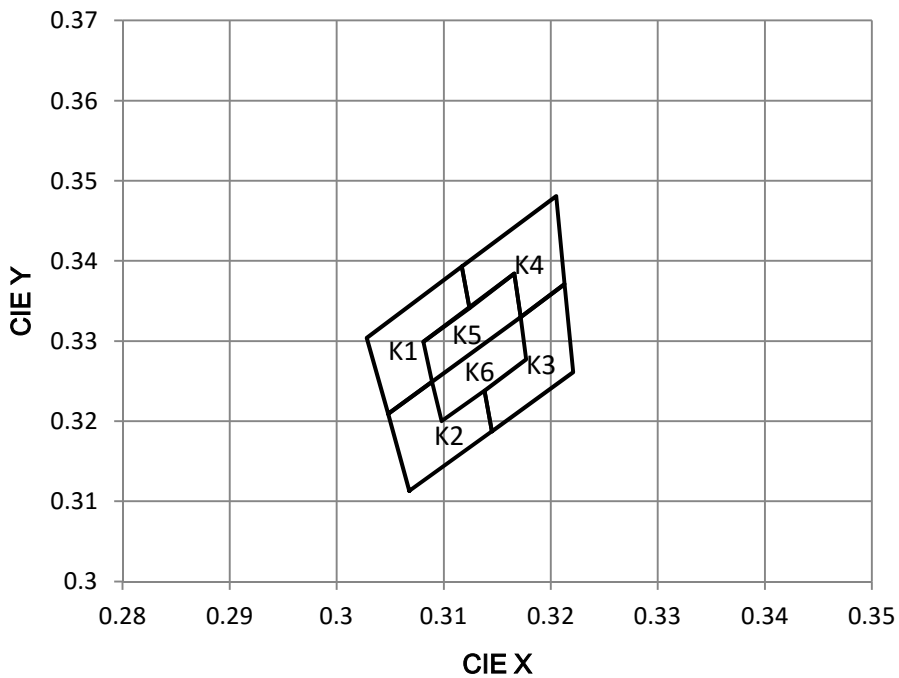
CCT 5700K BIN Structure



(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
K1	1	0.3048	0.3209	K3	1	0.3145	0.3187	K5	1	0.3081	0.3299
	2	0.3028	0.3304		2	0.3138	0.3238		2	0.3166	0.3384
	3	0.3117	0.3393		3	0.3177	0.3277		3	0.3172	0.333
	4	0.3124	0.3341		4	0.3172	0.333		4	0.3089	0.3249
	5	0.3081	0.3299		5	0.3213	0.3371		5	--	--
	6	0.3089	0.3249		6	0.3221	0.3261		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
K2	1	0.3068	0.3113	K4	1	0.3117	0.3393	K6	1	0.3089	0.3249
	2	0.3048	0.3209		2	0.3205	0.3481		2	0.3172	0.333
	3	0.3089	0.3249		3	0.3213	0.3371		3	0.3177	0.3277
	4	0.3098	0.32		4	0.3172	0.333		4	0.3098	0.32
	5	0.3138	0.3238		5	0.3166	0.3384		5	--	--
	6	0.3145	0.3187		6	0.3124	0.3341		6	--	--

CCT 6500K BIN Structure

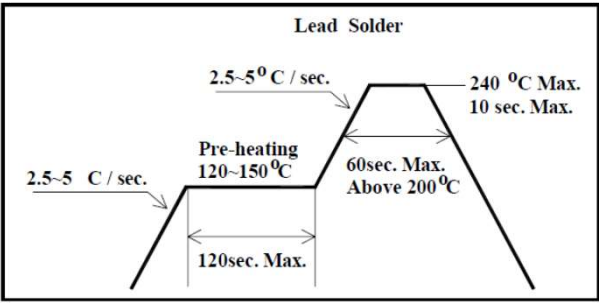
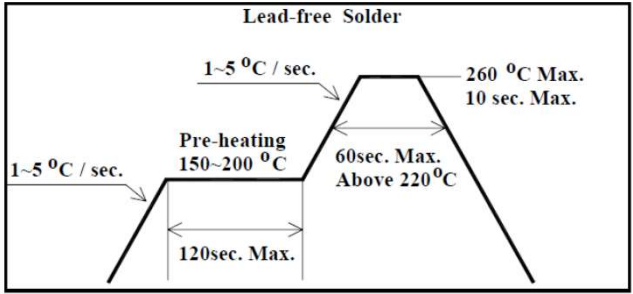


REFLOW SOLDERING CHARACTERISTICS

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).

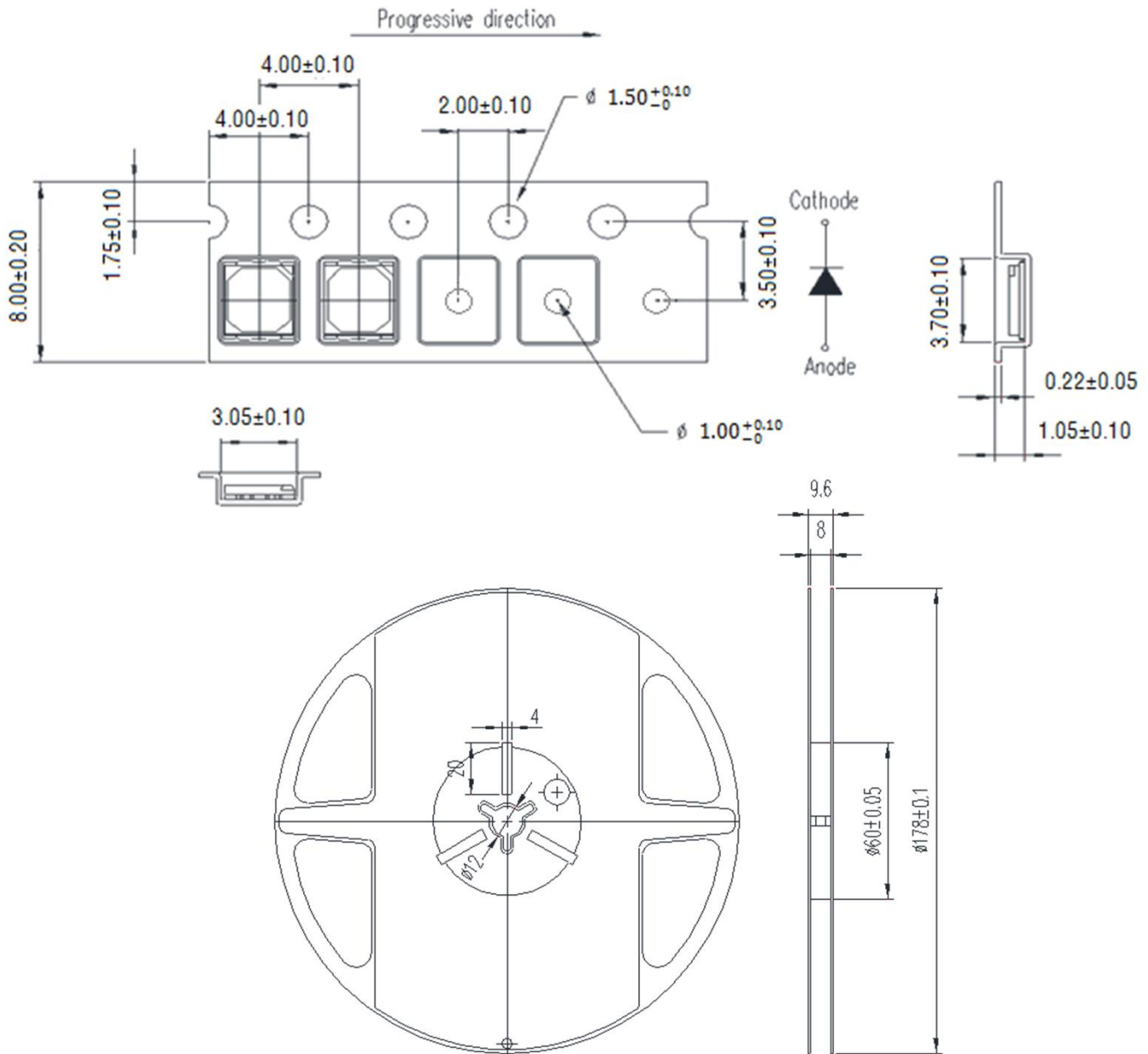
Lead solder		Lead-free solder	
Pre-heat	120-150°C	Pre-heat	150-200°C
Pre-heat time	120 sec. Max.	Pre-heat time	120 sec. Max.
Peak Temperature	240°C Max.	Peak Temperature	260°C Max.
Soldering time condition	10 sec. Max.	Soldering time condition	10 sec. Max.

 <p style="text-align: center;">Lead Solder</p>	 <p style="text-align: center;">Lead-free Solder</p>
--	--

Notes:

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

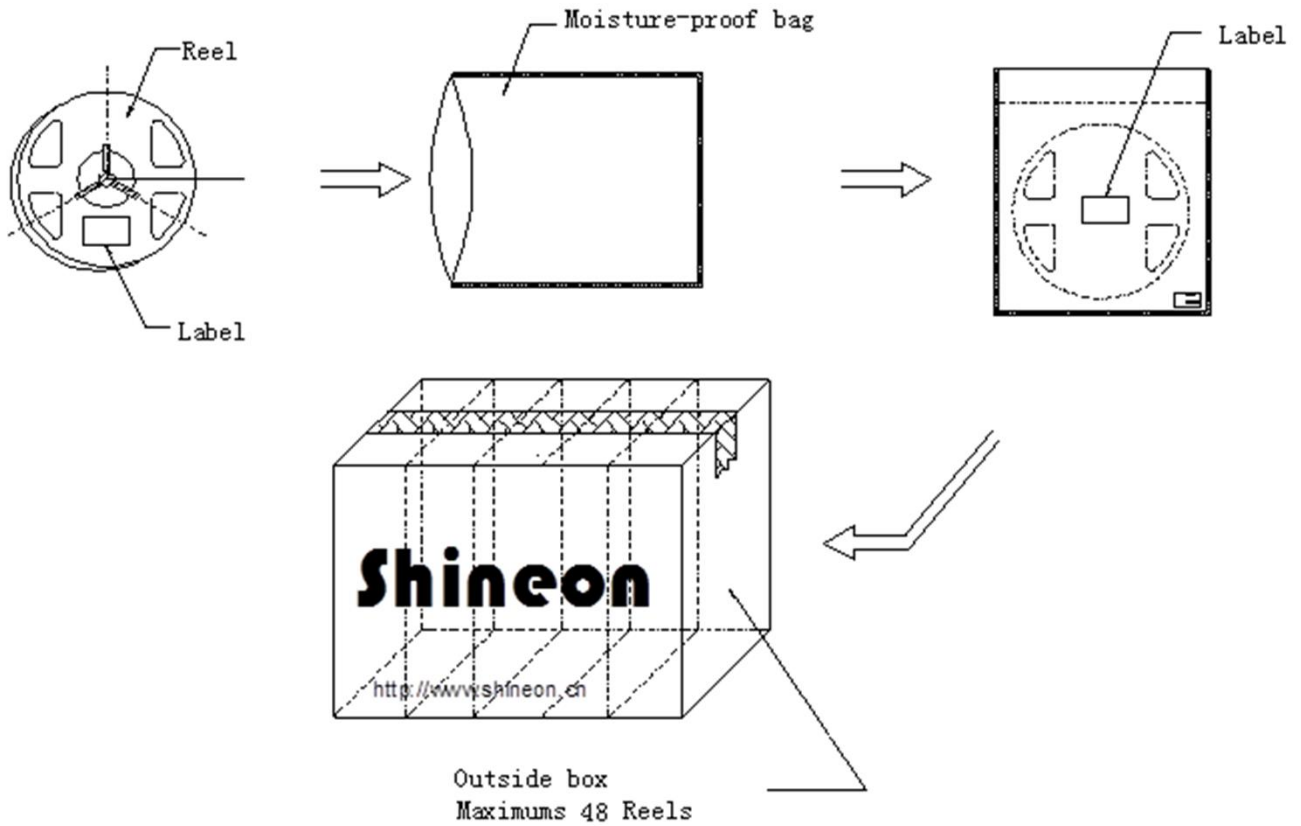


Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit=mm

Notes:

- (1) Quantity : 3,500pcs/Reel
- (2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2\text{mm}$
- (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° to the carrier tape
- (4) Package : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package.

PACKAGING



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 3 months or more after being shipped from ShineOn, a sealed container with a nitrogen atmosphere should be used for storage.
- (4) The LEDs must be used within four weeks 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.