SF28V Datasheet

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.

Meanwhile, this full spectrum LED lighting product emulates similar natural light in a continuous spectral power distribution (SPD), which is equipped with the superior properties of high fidelity, wide color gamut and high saturated color.

The White Power LED is available in the range of color temperature from 2700K to 6500K.

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

FEATURES

- Available in Cool White, Neutral White and Warm White color
- High R9/ CRI; R9≥90, Typical CRI≥97
- High Rf； Rg (TM-30-18)
- 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 encapsulation
- Environmental friendly, RoHS compliance

APPLICATIONS

- Flat panel light
- LED tube light
- LED bulb light
- Interior & exterior automotive lighting
- Decorative and landscape lighting
- Reading lamp
- Decorating and entertainment lighting
- Architectural lighting

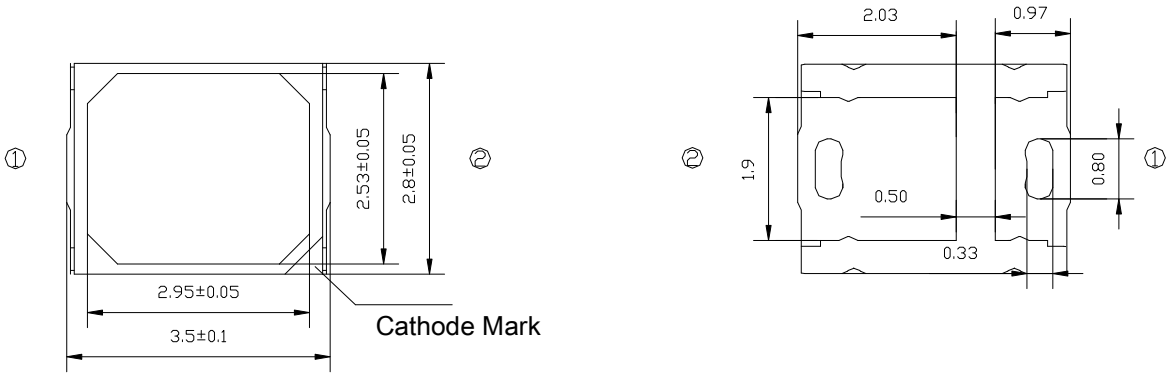
Naming Conventions

SOM2835 -30 - V - A
(1) (2) (3) (4)

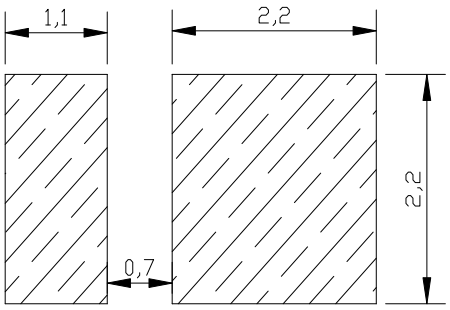
(1) SMD Series
(2) CCT Range:3000K
(3) Full spectrum product series
(4) Product Series Code

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 ±0.02mm.
3. Thickness tolerance of product is ±0.05mm.
4. Tolerance is ±0.1mm unless otherwise noted.

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Absolute Maximum Rating	Unit
Forward current	I_F	150	mA
Peak Forward Current[1]	I_{FP}	400	mA
Reverse Voltage	V_R	5	V
Power Dissipation	Pd	495	mW
Operating Temperature	T_{opr}	-40~+85	℃
Storage Temperature	T_{stg}	-40~+100	℃
Soldering Temperature	T_{sld}	Reflow Soldering: 260℃ for 10 seconds	
LED Junction Temperature	T_j	110	℃

Note:
I_{FP} Conditions: Pulse Width≦10msec. and Duty ≦1/10.

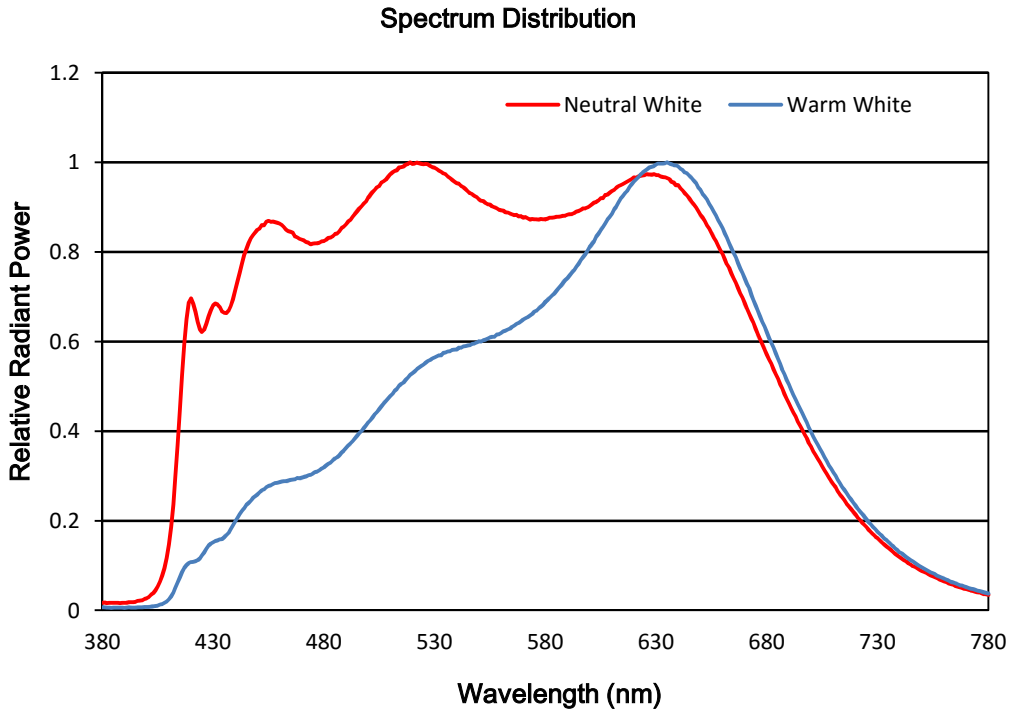
CHARACTERISTICS (Tj=25℃)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage[1]	V_F	I_F=65mA	2.9	3.1	3.3	V
Viewing Angle	$2\theta_{1/2}$		--	120	--	deg.
CCT	Φv		2700	--	6500	K
Luminous Flux	Φv		16	--	26	lm
Color Rendering Index	CRI		96	98	--	--
Color Fidelity Index	Rf		93	--	--	--
Color Gamut Index	Rg		98	100	102	--
Thermal Resistance (Junction to Solder Point)	R_{th-js}		--	30	--	℃/W
Reverse Current	IR	Vr=-5V	--	--	10	uA

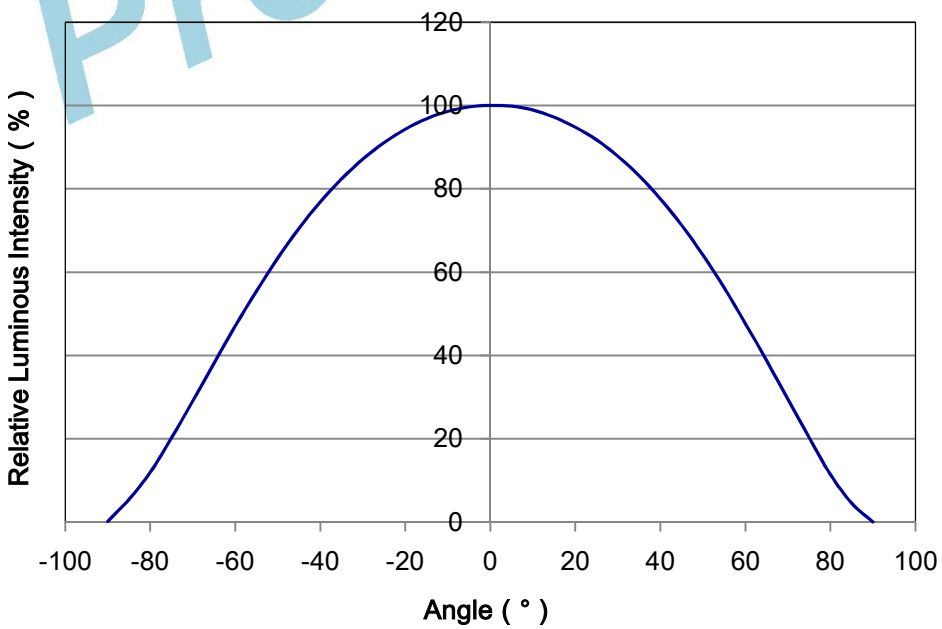
Notes:

1. Luminous flux is measured with an accuracy of ± 5%.
2. Chromaticity coordinate bins are measured with an accuracy of ± 0.005.
3. CRI is measured with an accuracy of ± 1.
4. All measurements were made under the standardized environment of Shineon

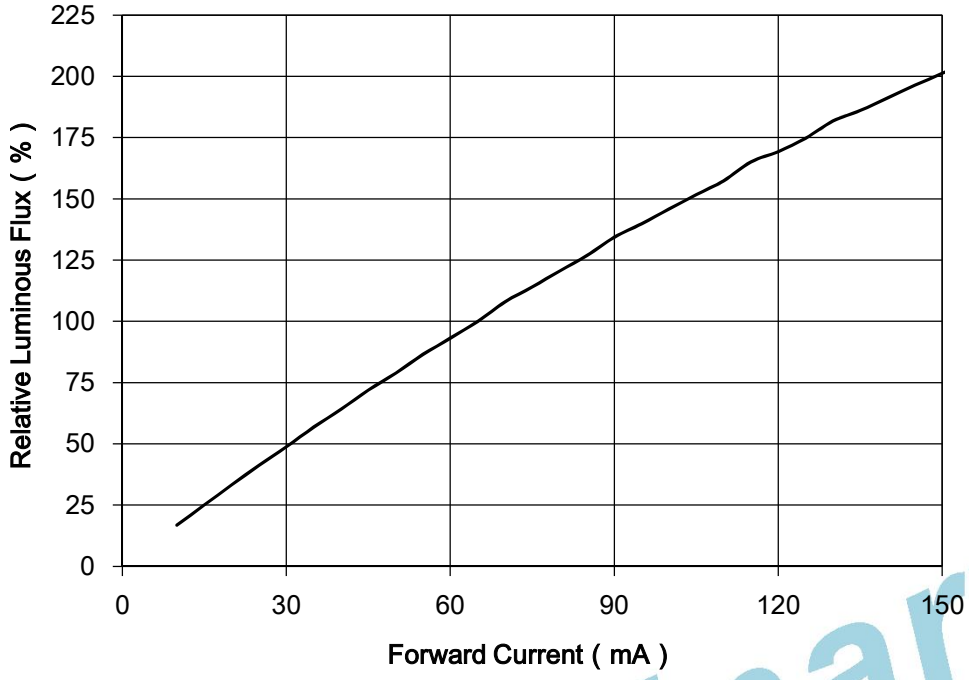
RELATIVE SPECTRAL POWER DISTRIBUTION (T_j=25℃)



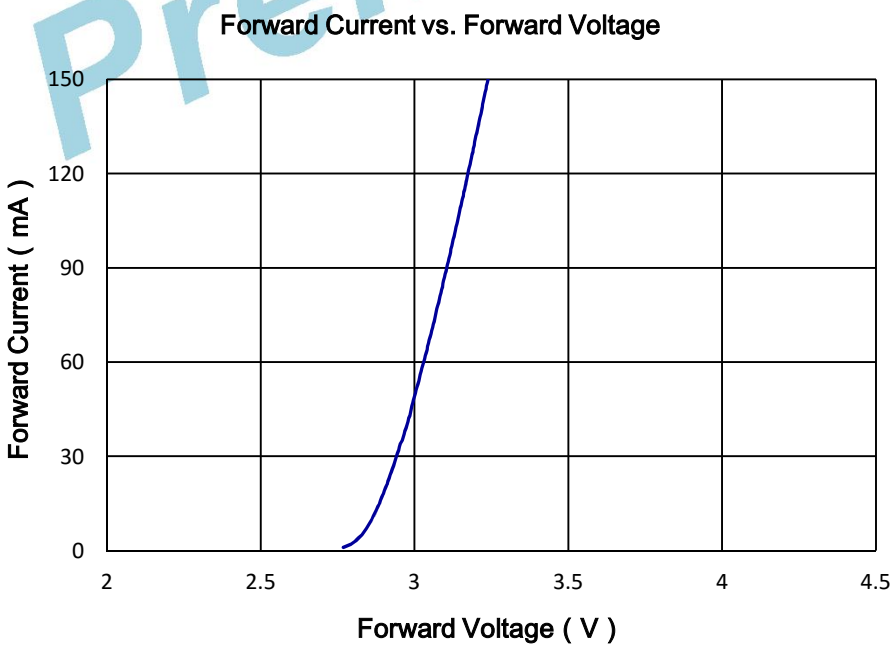
TYPICAL SPATIAL DISTRIBUTION



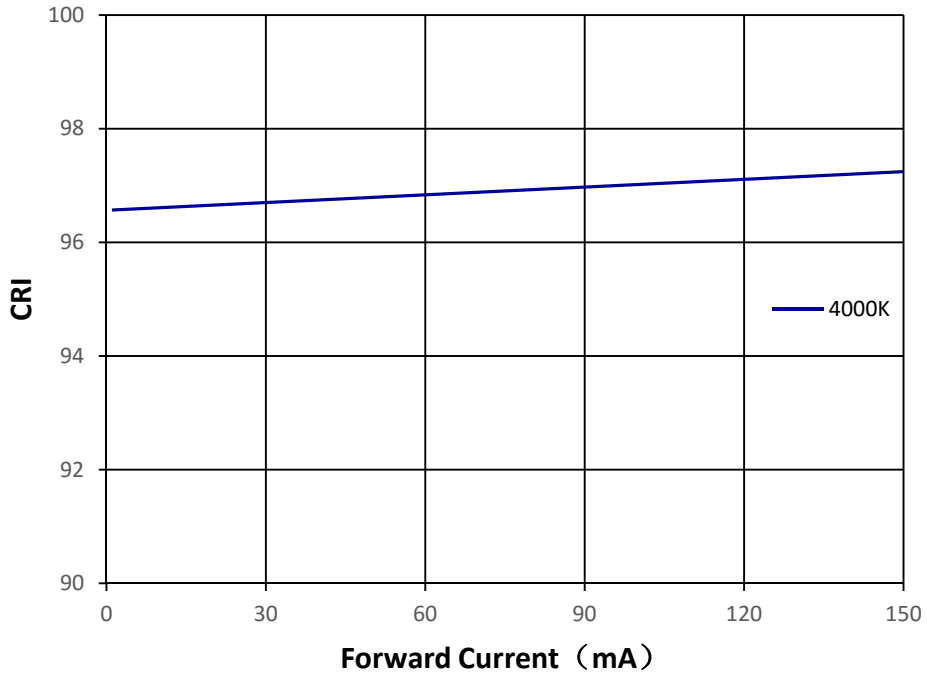
RELATIVE LUMINOUS FLUX VS. CURRENT (T_j=25℃)



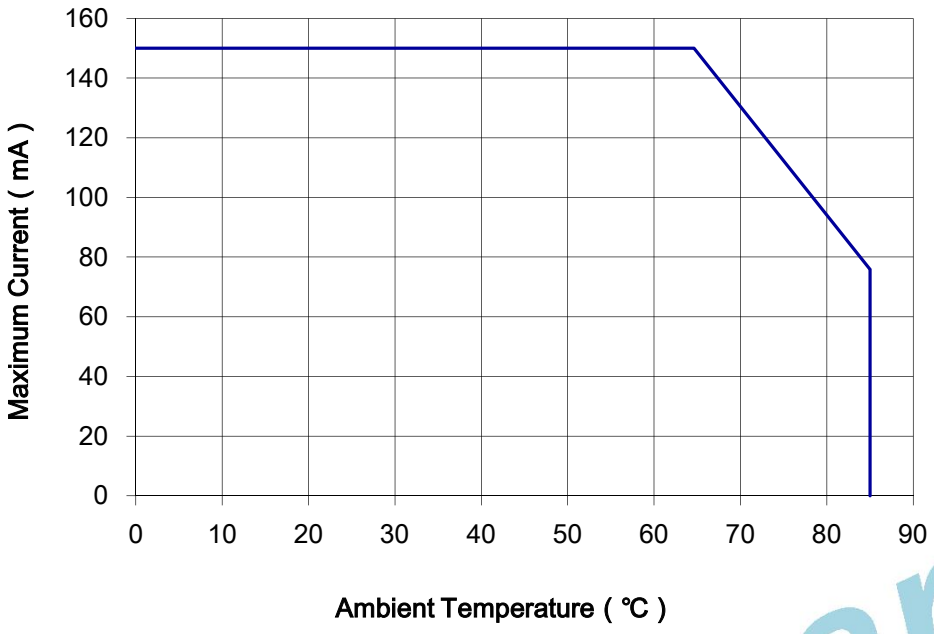
ELECTRICAL CHARACTERISTICS (Tj=25℃)



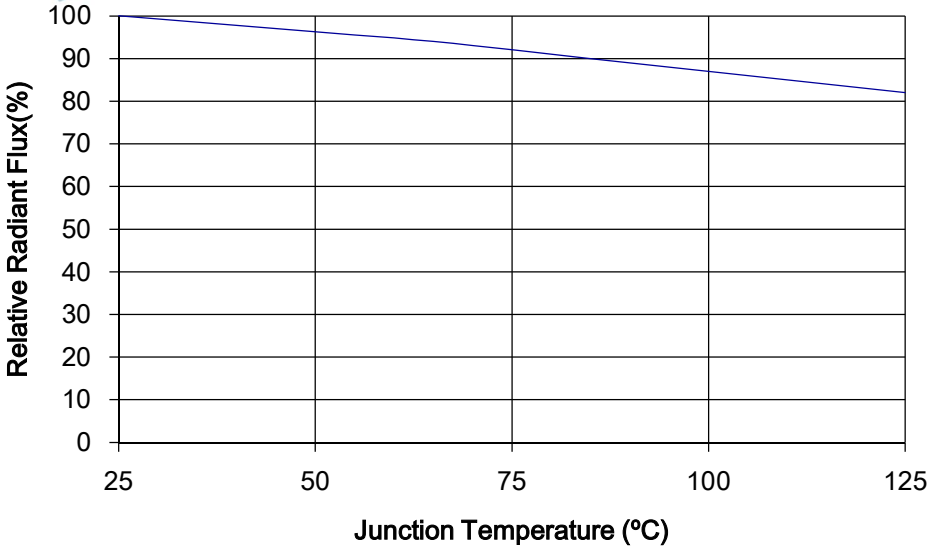
COLOR RENDERING INDEX VS. CURRENT (T_j=25℃)



MAXIUM CURRENT VS. AMBIENT TEMPERATURE



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE



SORTING RANKS

(1) Luminous Flux (Tj=25℃)

Part Number	Condition	Rank		Unit
SOM2835-27-V-A	65mA	MD	ME	lm
		16-18	18-20	
SOM2835-30-V-A		MA	MB	
		17-19	19-21	
SOM2835-40-V-A		ME	NA	
		18-20	20-22	
SOM2835-50-V-A		ME	NA	
		18-20	20-22	
SOM2835-57-V-A		ME	NA	
		18-20	20-22	
SOM2835-65-V-A		ME	NA	
		18-20	20-22	

(2) Forward Voltage (Tj=25℃)

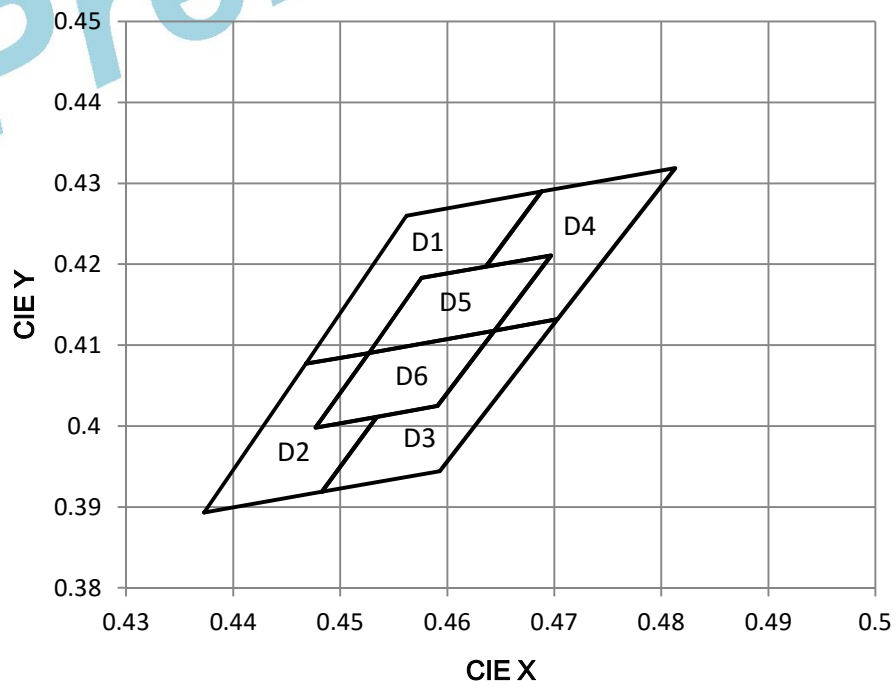
Rank	Condition	Min.	Max.	Unit
A9	65mA	2.9	3.0	V
B0		3.0	3.1	
B1		3.1	3.2	
B2		3.2	3.3	

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

(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
D1	1	0.4468	0.4077	D3	1	0.4483	0.3919	D5	1	0.4576	0.4183
	2	0.4562	0.4260		2	0.4534	0.4011		2	0.4697	0.4211
	3	0.4688	0.4290		3	0.4591	0.4025		3	0.4644	0.4118
	4	0.4636	0.4197		4	0.4644	0.4118		4	0.4527	0.4090
	5	0.4576	0.4183		5	0.4703	0.4132		5	--	--
	6	0.4527	0.4090		6	0.4593	0.3944		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
D2	1	0.4373	0.3893	D4	1	0.4688	0.4290	D6	1	0.4527	0.4090
	2	0.4468	0.4077		2	0.4813	0.4319		2	0.4644	0.4118
	3	0.4527	0.4090		3	0.4703	0.4132		3	0.4591	0.4025
	4	0.4477	0.3998		4	0.4644	0.4118		4	0.4477	0.3998
	5	0.4534	0.4011		5	0.4697	0.4211		5	--	--
	6	0.4483	0.3919		6	0.4636	0.4197		6	--	--

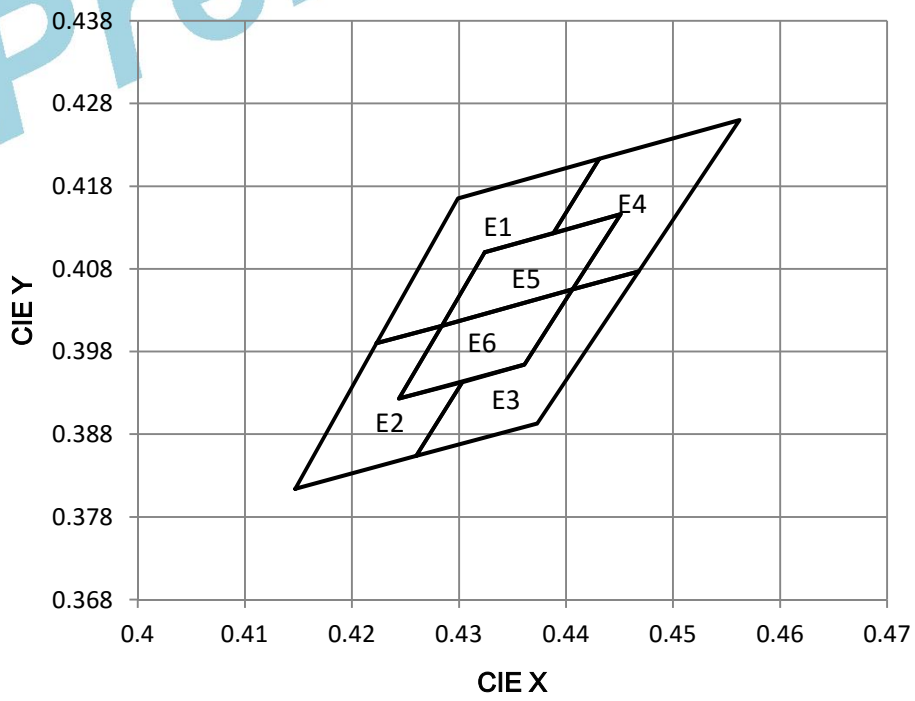
CCT 2700K BIN Structure



(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
E1	1	0.4223	0.3990	E3	1	0.4260	0.3854	E5	1	0.4324	0.4100
	2	0.4299	0.4165		2	0.4303	0.3943		2	0.4451	0.4146
	3	0.4431	0.4213		3	0.4361	0.3964		3	0.4406	0.4055
	4	0.4388	0.4123		4	0.4406	0.4055		4	0.4284	0.4011
	5	0.4324	0.4100		5	0.4468	0.4077		5	--	--
	6	0.4284	0.4011		6	0.4373	0.3893		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
E2	1	0.4147	0.3814	E4	1	0.4431	0.4213	E6	1	0.4284	0.4011
	2	0.4223	0.3990		2	0.4562	0.4260		2	0.4406	0.4055
	3	0.4284	0.4011		3	0.4468	0.4077		3	0.4361	0.3964
	4	0.4244	0.3923		4	0.4406	0.4055		4	0.4244	0.3923
	5	0.4303	0.3943		5	0.4451	0.4146		5	--	--
	6	0.4260	0.3854		6	0.4388	0.4123		6	--	--

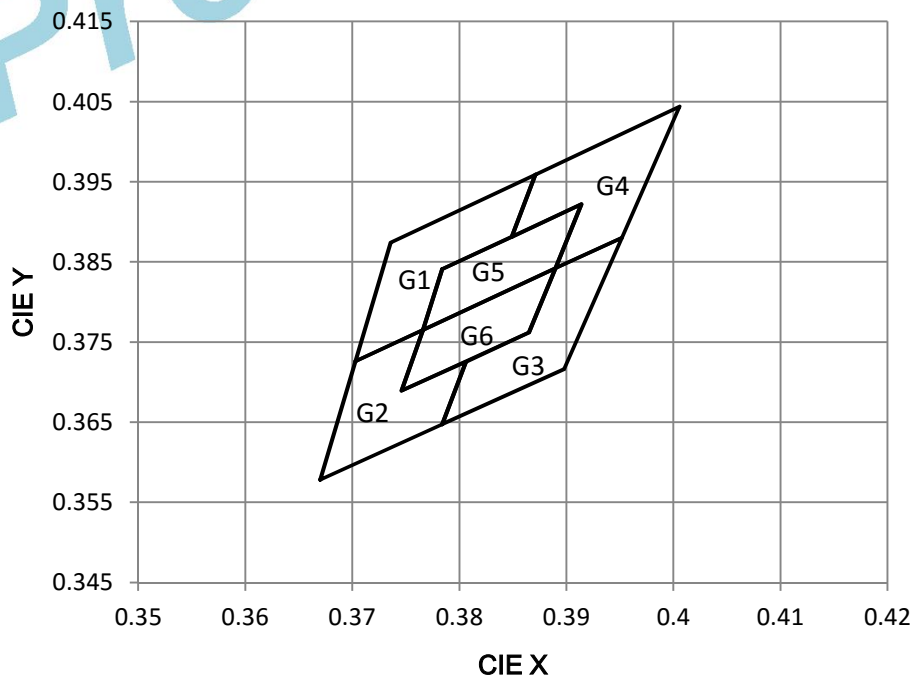
CCT 3000K BIN Structure



(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
G1	1	0.3703	0.3726	G3	1	0.3784	0.3647	G5	1	0.3784	0.3841
	2	0.3736	0.3874		2	0.3806	0.3725		2	0.3914	0.3922
	3	0.3871	0.3959		3	0.3865	0.3762		3	0.3890	0.3842
	4	0.3849	0.3881		4	0.3890	0.3842		4	0.3766	0.3765
	5	0.3784	0.3841		5	0.3952	0.3880		5	--	--
	6	0.3766	0.3765		6	0.3898	0.3716		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
G2	1	0.3670	0.3578	G4	1	0.3871	0.3959	G6	1	0.3766	0.3765
	2	0.3703	0.3726		2	0.4006	0.4044		2	0.3890	0.3842
	3	0.3766	0.3765		3	0.3952	0.3880		3	0.3865	0.3762
	4	0.3746	0.3689		4	0.3890	0.3842		4	0.3746	0.3689
	5	0.3806	0.3725		5	0.3914	0.3922		5	--	--
	6	0.3784	0.3647		6	0.3849	0.3881		6	--	--

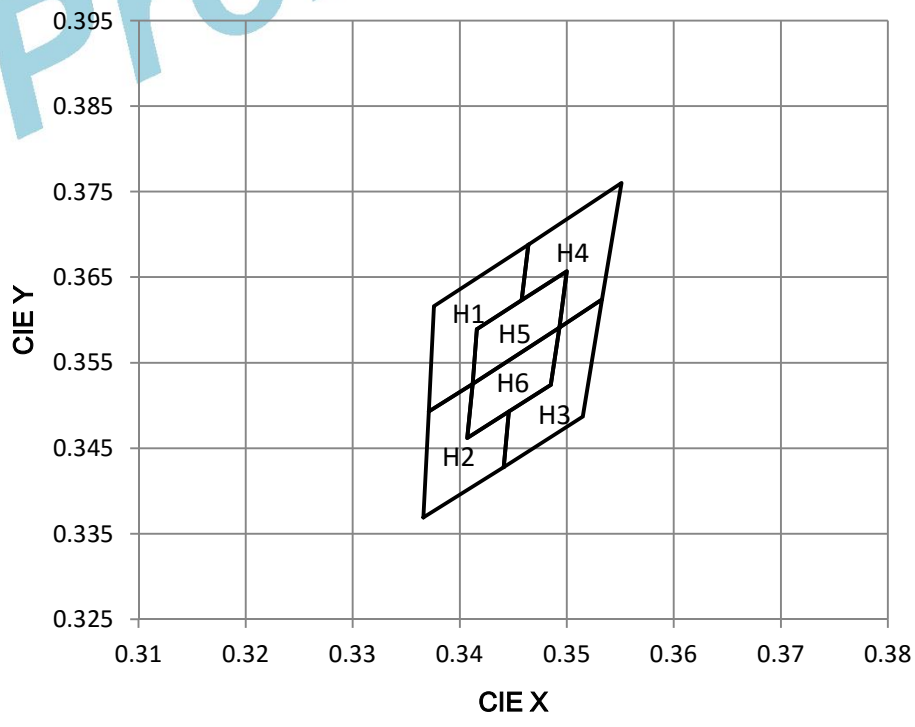
CCT 4000K BIN Structure



(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
H1	1	0.3371	0.3493	H3	1	0.3441	0.3428	H5	1	0.3416	0.3589
	2	0.3376	0.3616		2	0.3446	0.3493		2	0.35	0.3657
	3	0.3464	0.3688		3	0.3485	0.3524		3	0.3493	0.3591
	4	0.3458	0.3623		4	0.3493	0.3591		4	0.3412	0.3525
	5	0.3416	0.3589		5	0.3533	0.3624		5	--	--
	6	0.3412	0.3525		6	0.3515	0.3487		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
H2	1	0.3366	0.3369	H4	1	0.3464	0.3688	H6	1	0.3412	0.3525
	2	0.3371	0.3493		2	0.3551	0.376		2	0.3493	0.3591
	3	0.3412	0.3525		3	0.3533	0.3624		3	0.3485	0.3524
	4	0.3407	0.3462		4	0.3493	0.3591		4	0.3407	0.3462
	5	0.3446	0.3493		5	0.35	0.3657		5	--	--
	6	0.3441	0.3428		6	0.3458	0.3623		6	--	--

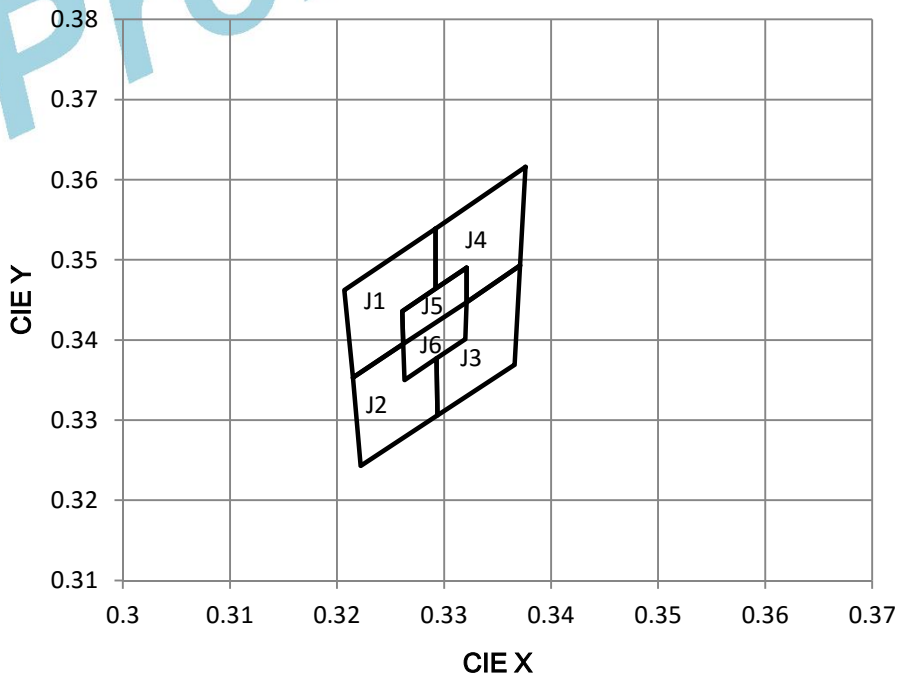
CCT 5000K BIN Structure



(3) Chromaticity Bins

Rank		X	Y	Rank		X	Y	Rank		X	Y
J1	1	0.3292	0.3539	J3	1	0.3371	0.3493	J5	1	0.3321	0.349
	2	0.3207	0.3462		2	0.3321	0.3447		2	0.3261	0.3436
	3	0.3215	0.3353		3	0.332	0.3401		3	0.3262	0.3395
	4	0.3262	0.3395		4	0.3293	0.3377		4	0.3321	0.3447
	5	0.3261	0.3436		5	0.3294	0.3306		5		
	6	0.3292	0.3464		6	0.3366	0.3369		6		
Rank		X	Y	Rank		X	Y	Rank		X	Y
J2	1	0.3215	0.3353	J4	1	0.3376	0.3616	J6	1	0.3321	0.3447
	2	0.3222	0.3243		2	0.3292	0.3539		2	0.3262	0.3395
	3	0.3294	0.3306		3	0.3292	0.3464		3	0.3263	0.335
	4	0.3293	0.3377		4	0.3321	0.349		4	0.332	0.3401
	5	0.3263	0.335		5	0.3321	0.3447		5		
	6	0.3262	0.3395		6	0.3371	0.3493		6		

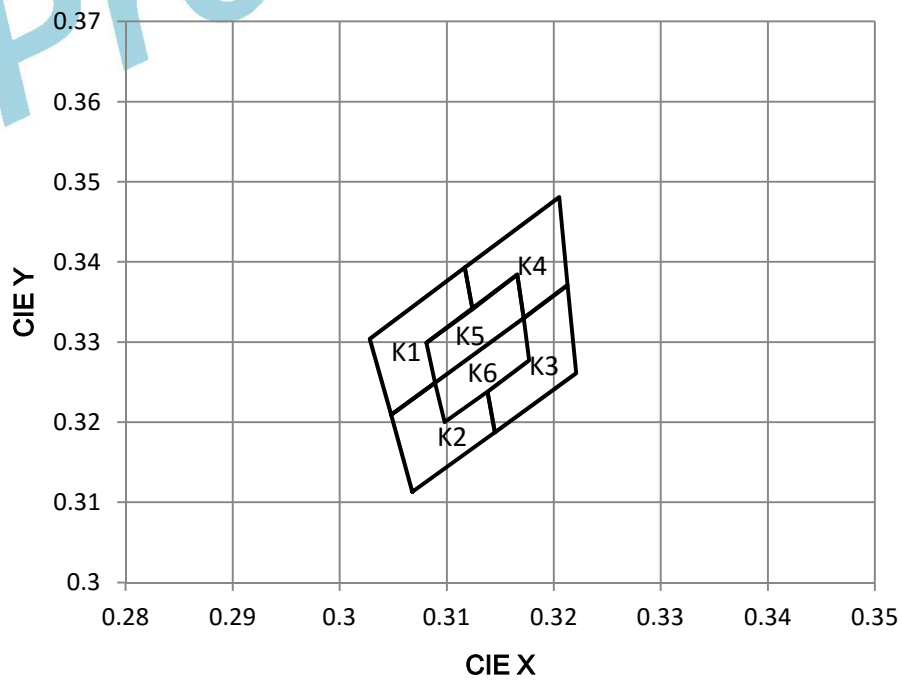
CCT 5700K BIN Structure



(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

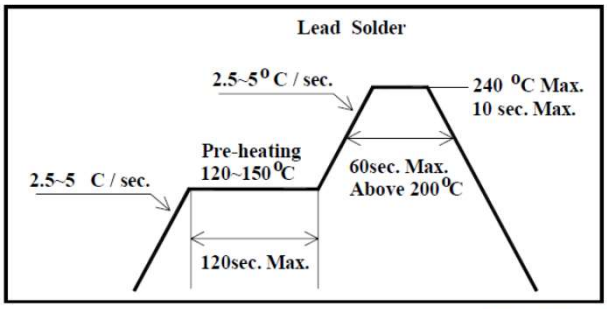


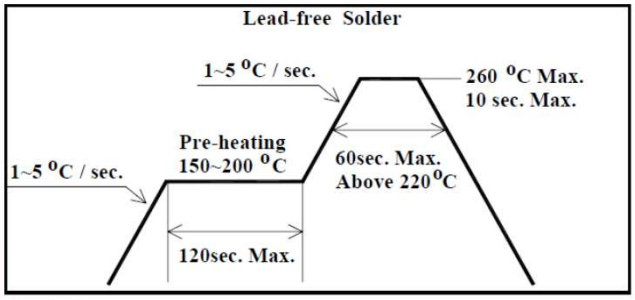
REFLOW SOLDERING CHARACTERISTICS

For Reflow Process:

Preheating : 140℃~160℃±5℃,within 2 minutes.
Operation heating : 260℃(Max.) within 10 seconds.(Max)
Gradual Cooling (Avoid quenching).

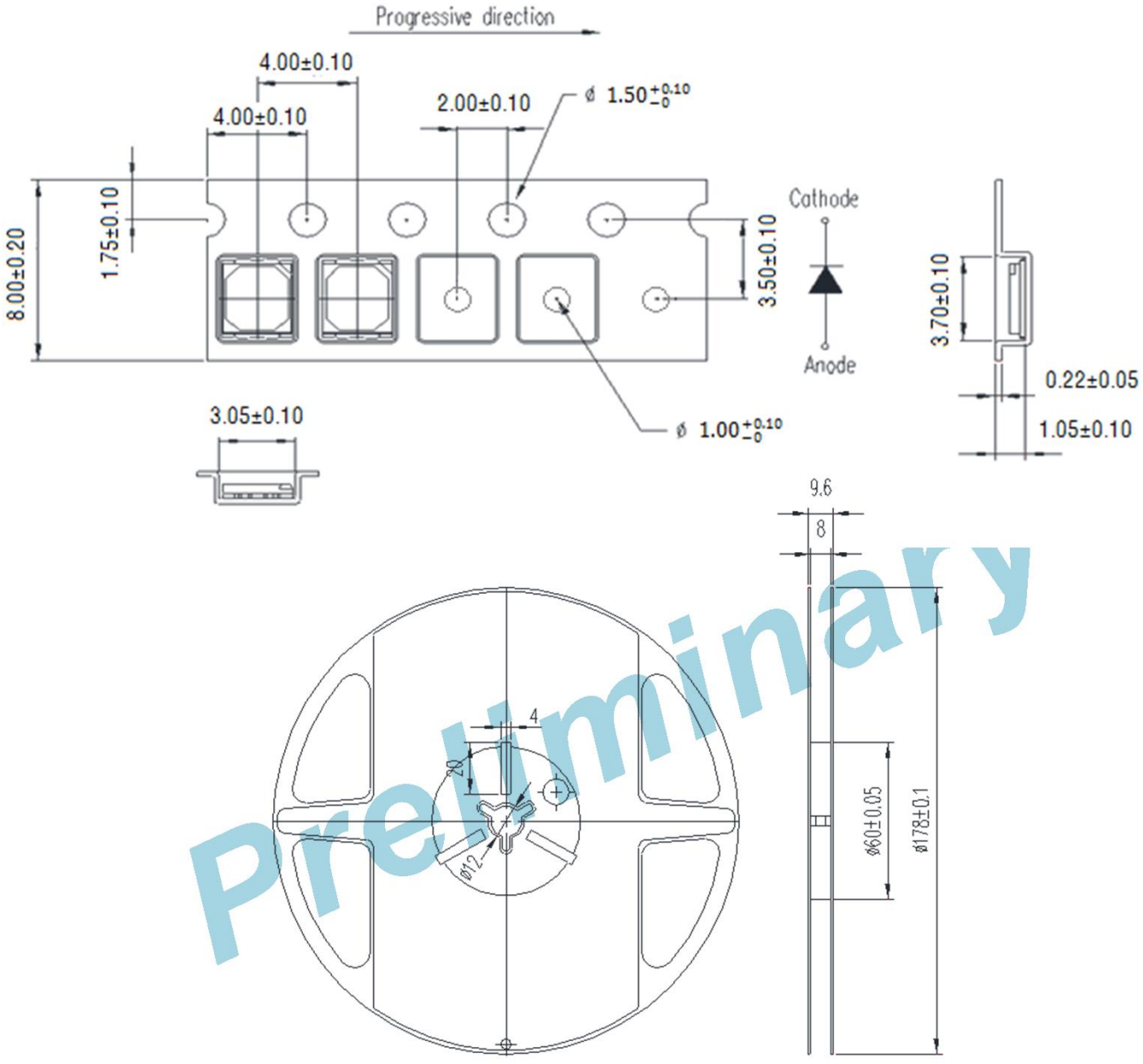
Lead solder		Lead-free solder	
Pre-heat	120-150℃	Pre-heat	150-200℃
Pre-heat time	120 sec.Max.	Pre-heat time	120 sec.Max.
Peak Temperature	240℃ Max.	Peak Temperature	260℃ Max.
Soldering time condition	10 sec.Max.	Soldering time condition	10 sec.Max.





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.

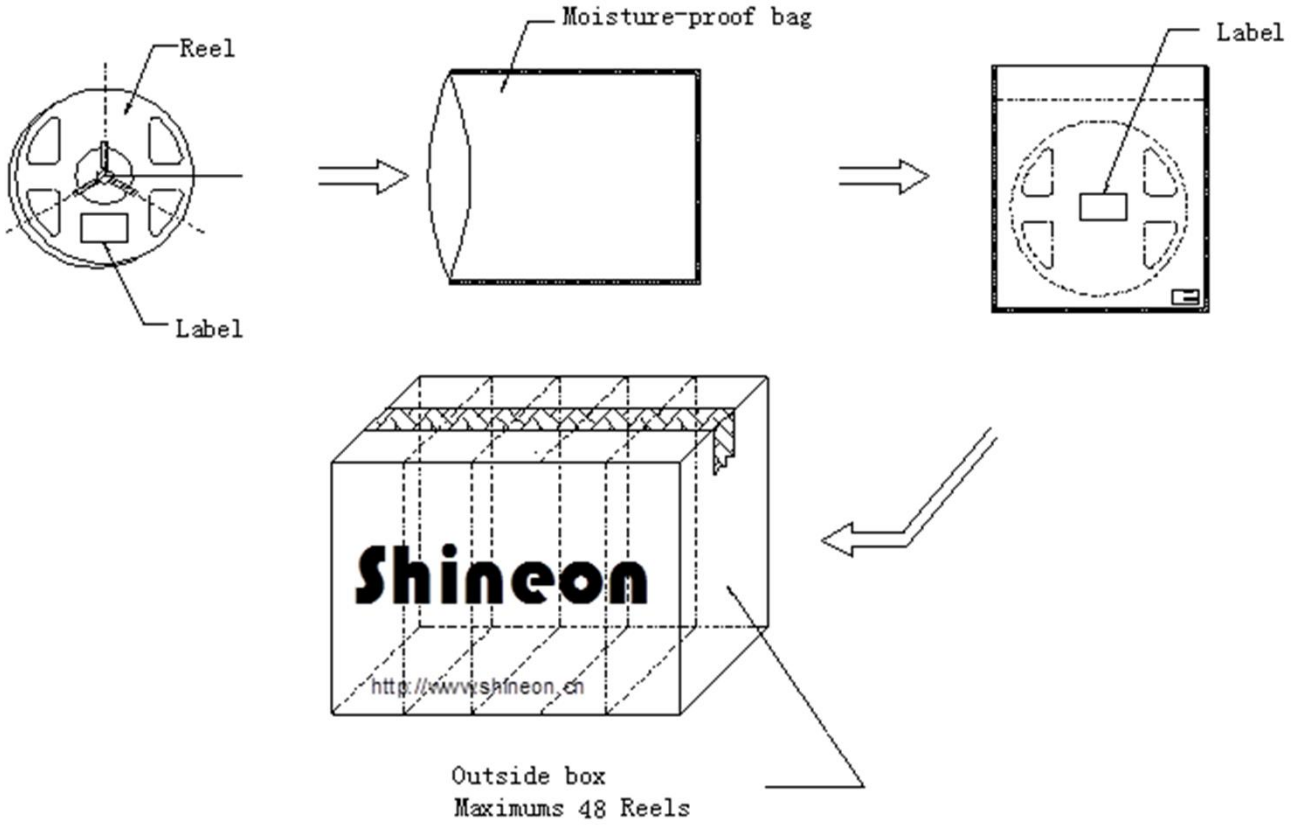
TAPE AND REEL



Note: The tolerances unless mentioned is ±0.1mm, Unit=mm

Notes:
(1) Quantity : 4,000pcs/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 10º 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 3months 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.