



Pb Free

Specification

SSC-WH603R

SSC		Customer
Drawn	Approval	Approval

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SSC-WH603R

Descriptions

- Small size suitable for compact appliances.
- Surface-mounted chip LED device.
- Pb-free and RoHS complaint component.
- High brightness, wide variety of colors are available
- Tape and Reel packing.
- Increases the life time of battery.



SSC-WH603R

Features

- 1.8 X 0.3 X 1.0 mm
- Emitted Color : White
- CIE chromaticity: x : 0.30, y : 0.29
- Material : InGaN

Applications

- Cellular phone's keypad lightning
- Other decoration lighting
- Information Boards
- Lighting for Small Size Device.

SSC-WH603R

Revision 1.4

www.acriche.com

1. Absolute maximum ratings

(Ta=25℃)

Parameter	Symbol	Value	Unit
Power Dissipation	P _d	90	mW
Forward Current	I _F	30	mA
Peak Forward Current	I _{FM} *1	50	mA
Reverse Voltage	V _R	5	V
Operation Temperature	T _{opr.}	-30 ~ 85	℃
Storage Temperature	T _{stg.}	-40 ~ 100	℃

*1 I_{FM} conditions: Pulse width Tw≤0.1ms and Duty ratio≤1/10.

2. Electro-Optical Characteristics

(Ta=25℃)

Parameter-	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V _F	I _F =5 mA	2.6	-	3.0	V
Reverse Current	I _R	V _R =5V	-	-	10	μA
Luminous Intensity*2	I _V	I _F =5 mA	45	70	112	mcd
Chromaticity Coordination	X	I _F =5 mA	-	0.30	-	-
	y		-	0.29	-	
Viewing Angle*3	2θ _{1/2}	I _F =5 mA	-	130	-	°

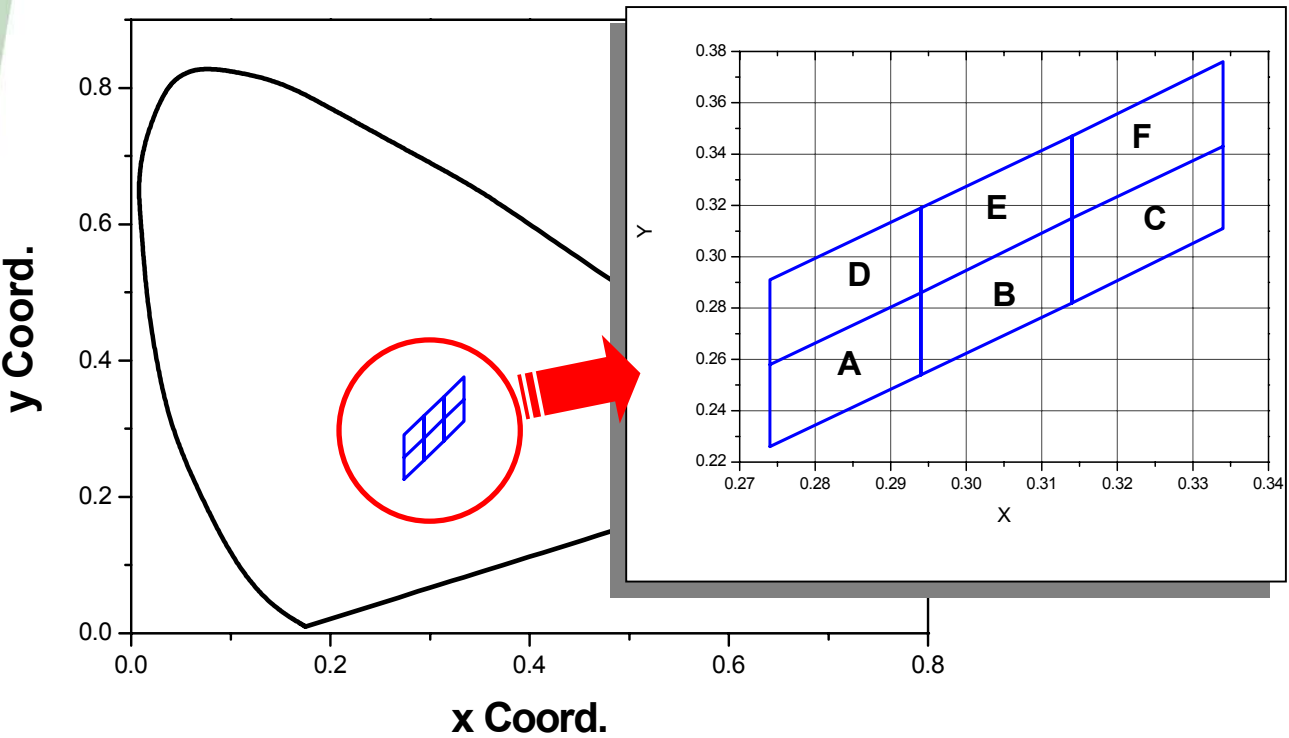
*2 The luminous intensity IV is measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.

*3 θ_{1/2} is the off-axis where the luminous intensity is 1/2 the peak intensity.

[Note] All products confirm to the listed minimum and maximum specifications for electric and optical characteristics, when operated at 20mA within the maximum ratings shown above. All measurements were made under the standardized environment of SSC.

(Tolerance : I_v ±10 %, λ_D ±2 nm, V_F ±0.1 V)

3. CIE Chromaticity Diagram and Color Rank

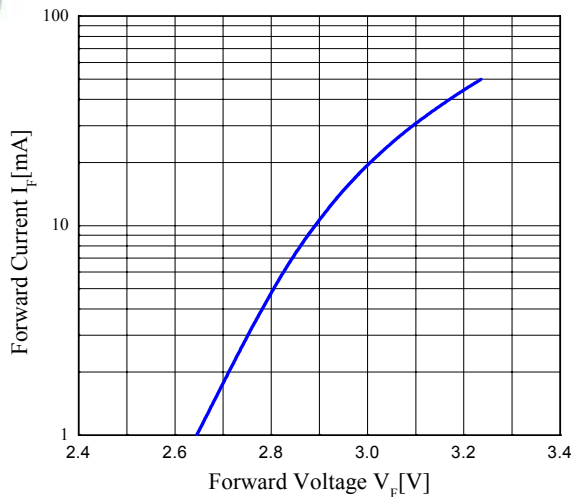


※ Color Rank

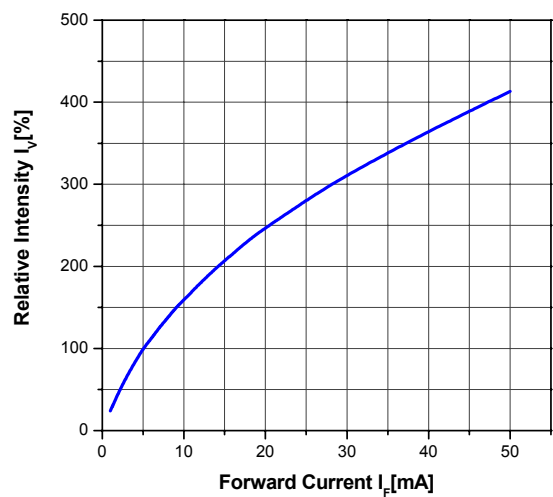
Bin	CIE x	CIE y	Bin	CIE x	CIE y	Bin	CIE x	CIE y
A	0.274	0.226	B	0.294	0.254	C	0.314	0.282
	0.274	0.258		0.294	0.286		0.314	0.315
	0.294	0.286		0.314	0.315		0.334	0.343
	0.294	0.254		0.314	0.282		0.334	0.311
D	0.274	0.258	E	0.294	0.286	F	0.314	0.315
	0.274	0.291		0.294	0.319		0.314	0.347
	0.294	0.319		0.314	0.347		0.334	0.376
	0.294	0.286		0.314	0.315		0.334	0.343

4. Electro-Optical Characteristic Diagram

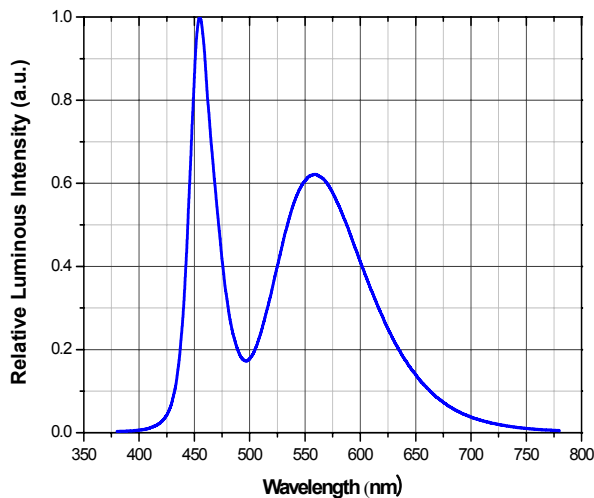
Forward Current vs. Forward Voltage



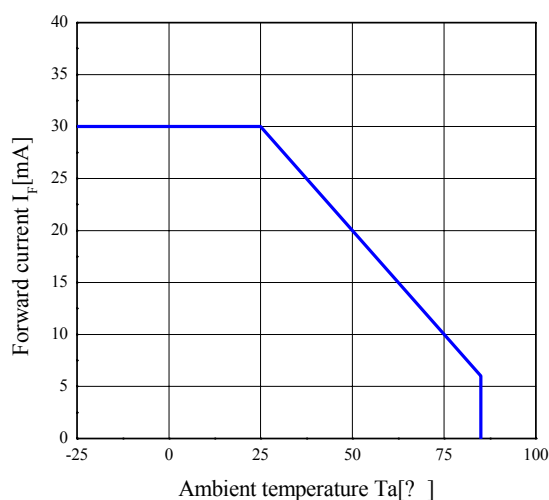
Relative Intensity vs. Forward Current



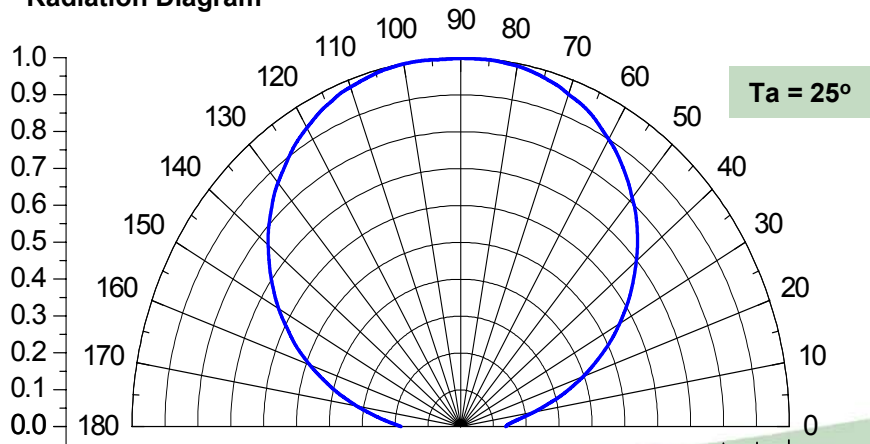
Spectrum Distribution



Forward Current vs. De-rating Curve

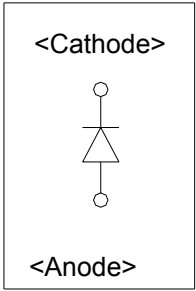
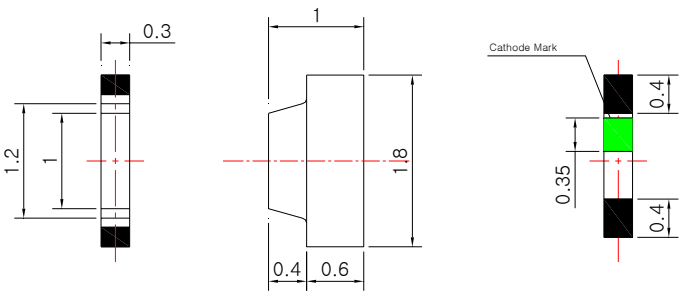


Radiation Diagram

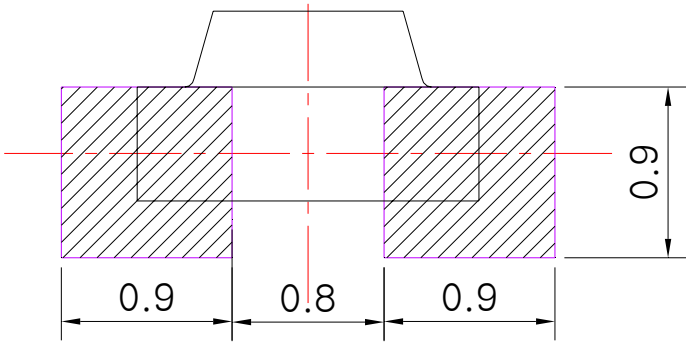


5. Outline Dimension

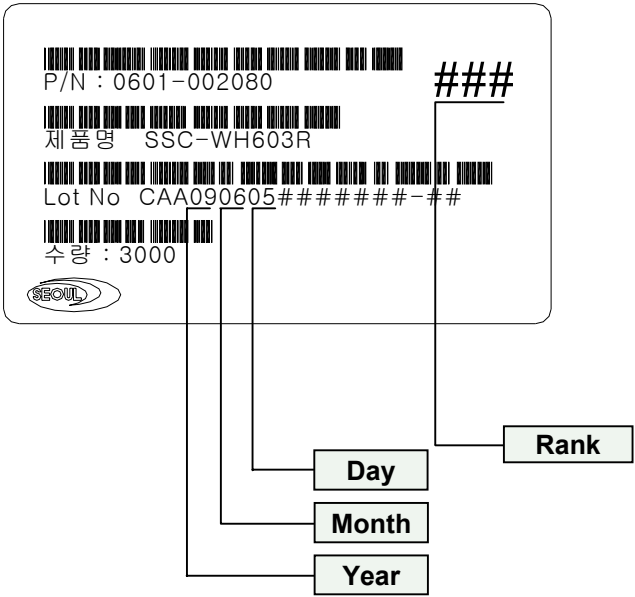
Tolerance: ± 0.1 , Unit: mm



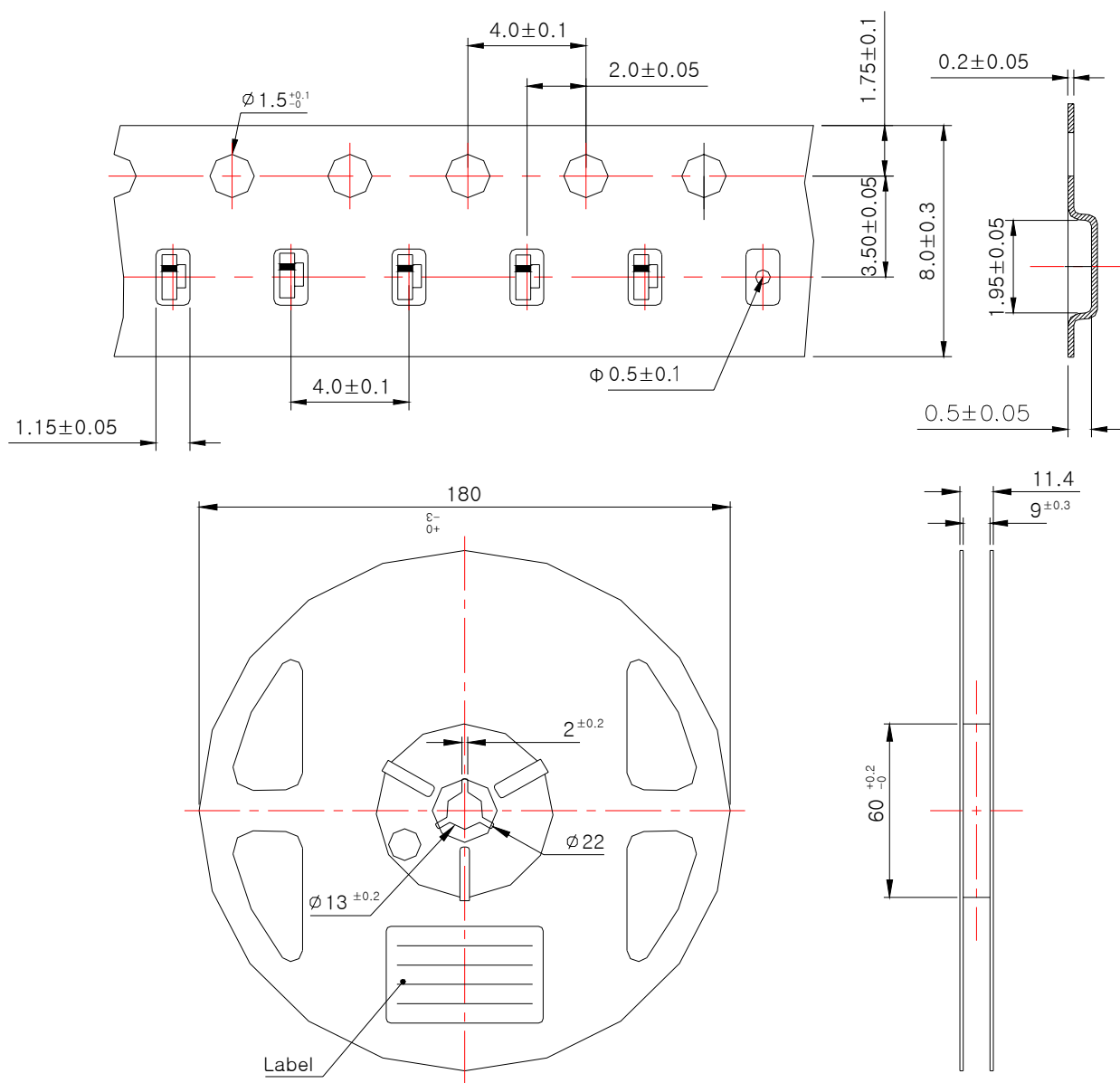
6. Recommended Soldering Design



7. Labeling



8. Packing

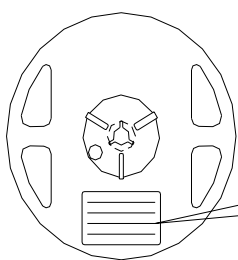


Tolerance: ± 0.2 , Unit: mm

- (1) Quantity: 3,000pcs./Reel
- (2) Cumulative Tolerance: Cumulative Tolerance/10pitches to be ± 0.2 mm
- (3) Adhesion Strength of Cover Tape: Adhesion strength to be 0.1-0.7N when the over tape is turned off from the carrier tape at 10° angle to be the carrier tape.
- (4) Package: P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package.

9. Reel Packing Structure

Reel



###

P/N : #####

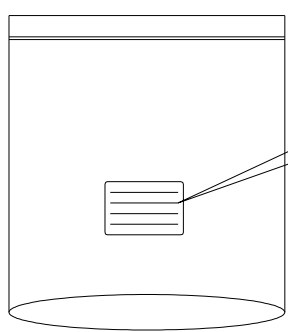
제품명: SSC-WH603R

Lot No #####

수량: 3000



Aluminum Vinyl Bag



###

P/N : #####

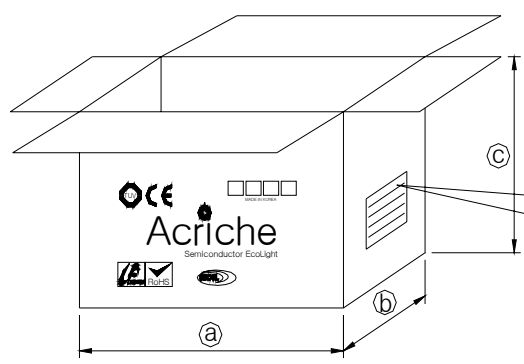
제품명: SSC-WH603R

Lot No #####

수량: 3000



Outer Box



*Material: Paper(SW3B(B))

TYPE	SIZE(mm)		
	①	②	③
7inch	245	220	142

CHIP LED

PART : SSC-WH603R

CODE :

Q'YT : 30,000EA

LOT NO :

DATE :

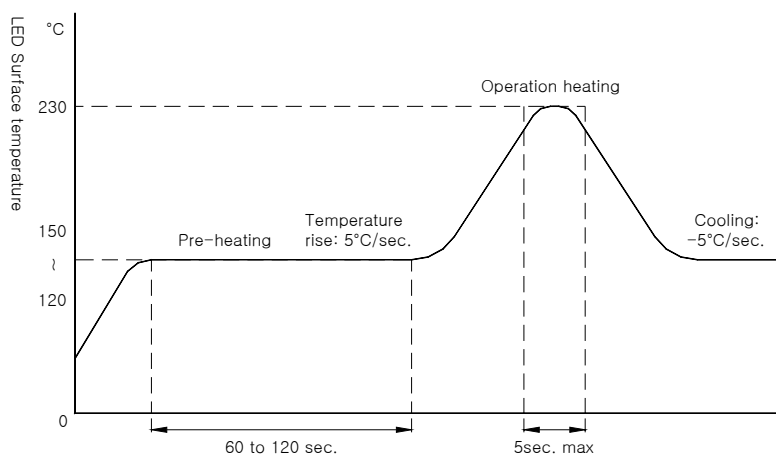
SEOUL SEMICONDUCTOR CO.,LTD

10. Soldering profile

Reflow Soldering Conditions/ Profile

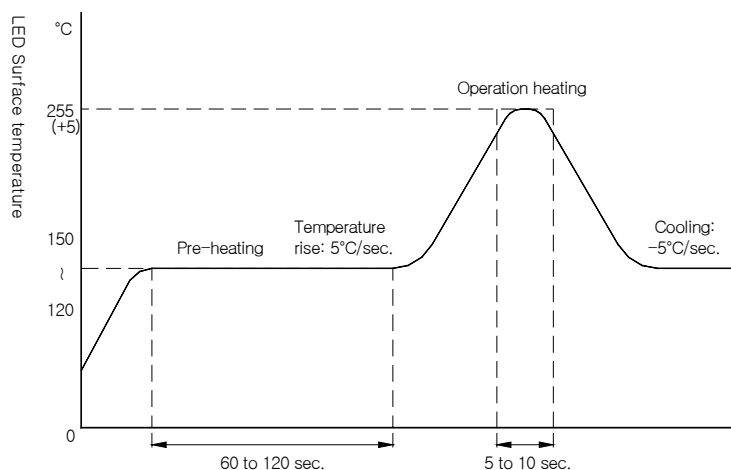
(1) Lead Solder

- Preliminary heating to be at 150°C max. for 2 minutes max.
- Soldering heat to be at $230 \pm 5^\circ\text{C}$ max. for 5 seconds max.



(2) Lead-Free Solder

- Preliminary heating to be at 150°C max. for 2 minutes max.
- Soldering heat to be at $255^\circ\text{C} (+5/-0)^\circ\text{C}$ max. for 10 seconds max.



(3) Hand Soldering Condition

- Not more than 3 seconds @MAX280°C, under Soldering iron.

[Note] In case the soldered products are reused in soldering process, we don't guarantee the products.

11. Precaution for Use

1. Storage

To avoid absorption of moisture, it is recommended to store parts in a dry box (or desiccator) with a desiccant. Otherwise, storage in the following environment is recommended.

※ Temperature : $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$ Humidity : 60%HR max.

2. Parts stored more than one week after opening or if desiccant indicator shower color changes, it is highly recommended that LED's should be baked for 10 ~ 12 hours at $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$
3. LEDs must be stored at clean atmosphere. If the LEDs are stored for 3 months or more after shipment from SSC, storage in a sealed container with a nitrogen is recommended.
4. If the LED is considered to be wet, it is highly recommended that the LED should be dried for 100Hr at $80 \pm 5^{\circ}\text{C}$ or 12Hr at $100 \pm 5^{\circ}\text{C}$.
5. Any mechanical force or excess vibration should be avoided during temperature cooling process to normal temperature after reflow.
6. Rapid cooling should be avoided
7. LED should not be placed on a flexible area of the PCB
8. This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When washing is required, IPA should be used.
9. When the LED is operating in DC mode, the driving current should be determined after considering the thermal properties of the application and maximum ambient temperature requirements.
10. Damage prevention from ESD or Surge.
 - ☞ It is highly recommended to use the wrist-band or anti electrostatic gloves when handling the LED's
 - ☞ All devices, equipments and machines must be properly grounded

12. Ranks

(1) Luminous Intensity: I_v [mcd]

Rank	I_v [mcd]	Condition
A	45~57	$I_F = 5\text{mA}$
B	57~72	
C	72~90	
D	90~112	

(2) Color Coordinates: x, y

Bin	CIE x	CIE y	Bin	CIE x	CIE y	Bin	CIE x	CIE y
A	0.274	0.226	B	0.294	0.254	C	0.314	0.282
	0.274	0.258		0.294	0.286		0.314	0.315
	0.294	0.286		0.314	0.315		0.334	0.343
	0.294	0.254		0.314	0.282		0.334	0.311
D	0.274	0.258	E	0.294	0.286	F	0.314	0.315
	0.274	0.291		0.294	0.319		0.314	0.347
	0.294	0.319		0.314	0.347		0.334	0.376
	0.294	0.286		0.314	0.315		0.334	0.343

(3) Forward Voltage: V_F [V]

Rank	V_F [V]	Condition
A	2.6 ~ 2.7	$I_F = 5\text{mA}$
B	2.7 ~ 2.8	
C	2.8 ~ 2.9	
D	2.9 ~ 3.0	



13. Rank Division

Bin	IV	CIE	VF	Bin	IV	VF	CIE
AAA	A	A	A	BAA	B	A	A
AAB			B	BAB			B
AAC			C	BAC			C
AAD			D	BAD			D
ABA		B	A	BBA		B	A
ABB			B	BBB			B
ABC			C	BBC			C
ABD			D	BBD			D
ACA		C	A	BCA		C	A
ACB			B	BCB			B
ACC			C	BCC			C
ACD			D	BCD			D
ADA		D	A	BDA		D	A
ADB			B	BDB			B
ADC			C	BDC			C
ADD			D	BDD			D
AEA		E	A	BEA		E	A
AEB			B	BEB			B
AEC			C	BEC			C
AED			D	BED			D
AFA		F	A	BFA		F	A
AFB			B	BFB			B
AFC			C	BFC			C
AFD			D	BFD			D



Bin	IV	CIE	VF	Bin	IV	VF	CIE
CAA	C	A	A	DAA	D	A	A
CAB			B	DAB			B
CAC			C	DAC			C
CAD			D	DAD			D
CBA		B	A	DBA		B	A
CBB			B	DBB			B
CBC			C	DBC			C
CBD			D	DBD			D
CCA		C	A	DCA		C	A
CCB			B	DCB			B
CCC			C	DCC			C
CCD			D	DCD			D
CDA		D	A	DDA		D	A
CDB			B	ddb			B
CDC			C	DDC			C
CDD			D	DDD			D
CEA		E	A	DEA		E	A
CEB			B	DEB			B
CEC			C	DEC			C
CED			D	DED			D
CFA		F	A	DFA		F	A
CFB			B	DFB			B
CFC			C	DFC			C
CFD			D	DFD			D