

- High efficacy of up to 161 lm/W @ 5000 K
- Lumen Output up to 5600 lm in a single LED package
- Design choice with colour temperatures from 2700K to 5000K
- Guaranteed colour rendering @ CRI >80
- Easy assembly & small footprint (21.5 mm²) for design freedom

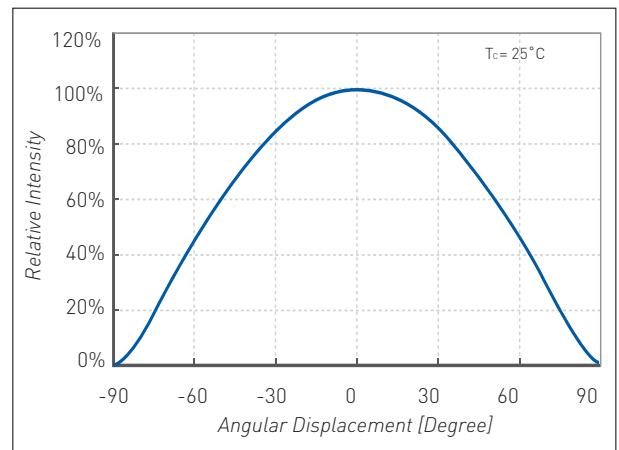
1080 mA, 35.5 V



COB-4021



	Colour bin (K)	Flux (1F)* (lm)	Luminous flux Φ _v (lm)		Efficacy (lm/W)		Colour Rank (Bin)
			Min.	Max	Min.	Max	
COB-4021-827-040	2700	41	3695	4050	105	115	W3 (WA)
		42	4050	4400	115	125	
		43	4400	4750	125	134	
		44	4750	5100	134	144	
COB-4021-830-040	3000	41	3810	4175	108	118	V3 (VA)
		42	4175	4535	118	128	
		43	4535	4895	128	139	
		44	4895	5255	139	149	
COB-4021-835-040	3500	41	3960	4340	103	113	U3 (UA)
		42	4340	4720	113	123	
		43	4720	5100	123	133	
		44	5100	5480	133	143	
COB-4021-840-040	4000	41	4075	4465	115	126	T3 (TA)
		42	4465	4855	126	137	
		43	4855	5245	137	148	
		44	5245	5635	148	159	
COB-4021-850-050	5000	41	4115	4505	116	127	RT (RW, RX, RY, RZ)
		42	4505	4900	127	139	
		43	4900	5295	139	150	
		44	5295	5690	150	161	



Beam distribution: view angle 115°

Note: All values with $I_v = 1080$ mA at $T_c = 25$ °C

* Flux rank 1F

Electrical specifications

at $T_c = 25$ °C	Min.	Nom.	Max
Forward Current (mA)	-	1080	1620
Forward Voltage (V)	32.5	35.5	38.5
Power Consumption (W)	-	38.3	60

Mechanical and Thermal Data

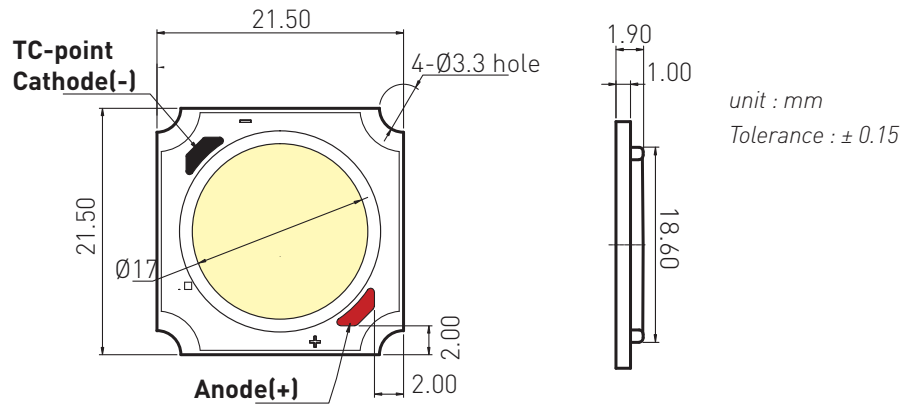
Dimensions	21.5 x 21.5 x t 1.9 (mm)
Thermal Resistance	0.8°C /W

Colour Rendering Index

CRI > 80

Operating Conditions and Characteristics

Max LED junction temperature	150 °C
Operating temperature range	-40...+105 °C
Storage temperature range	-40...+120 °C



Footprint	21.50 x 21.50 ± 0.15 mm
Thickness of PCB	0.9 ± 0.2 mm
Height	1.9 ± 0.2 mm

MOQ = 180 pcs.

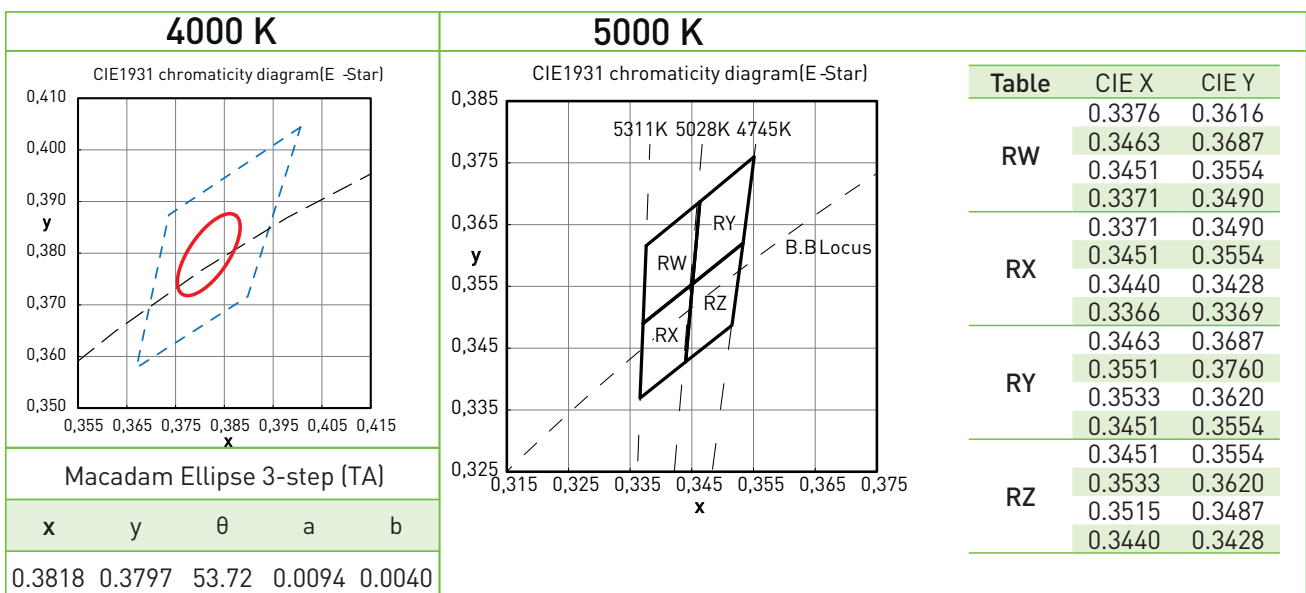
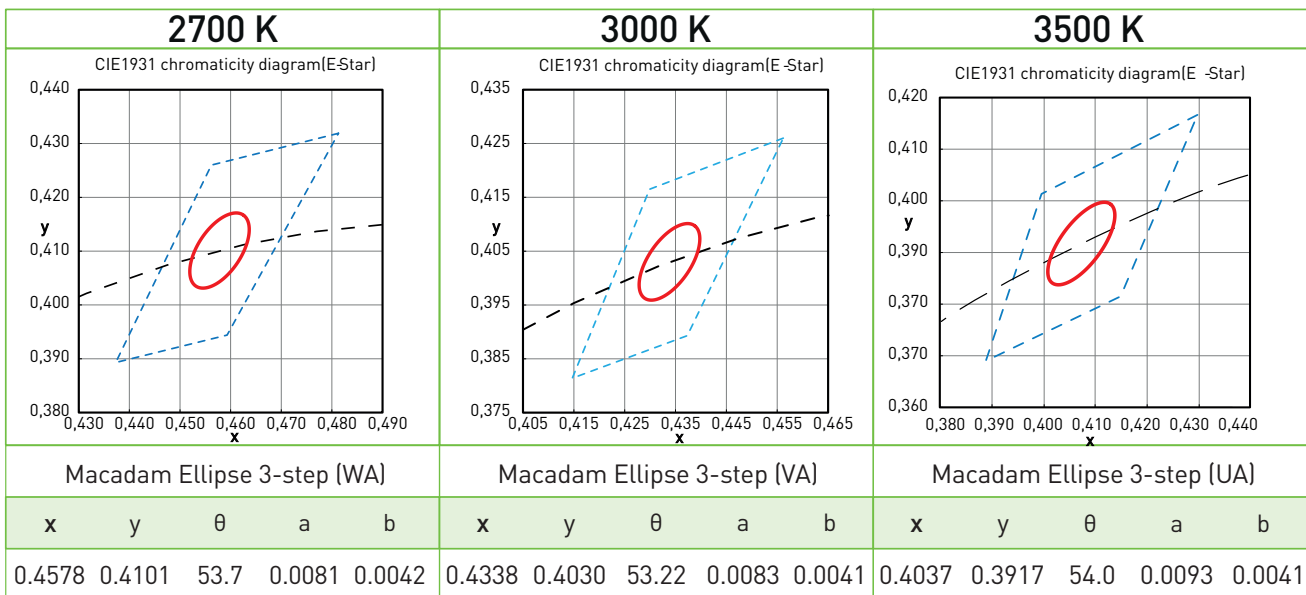
Packing details	1 Tray	1 AL bag = Box
Num. of modules	60	180

Box : 338(L) x 148(W) x 60(h) (Tolerance : ±2 mm)

Chromaticity Co-ordinates

Condition : IF = 720 mA, Ta : 25°C

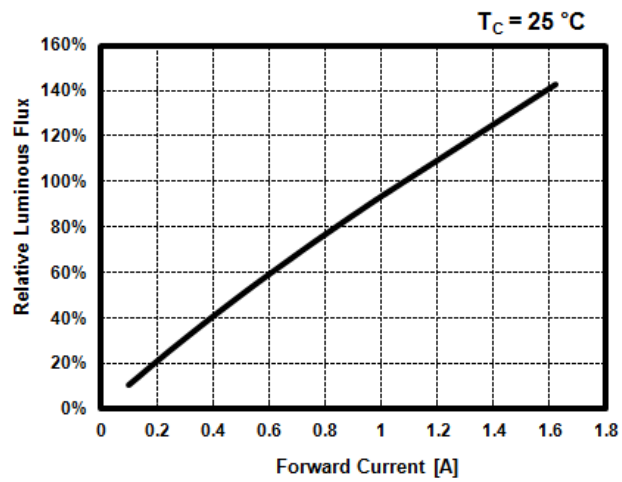
1) The Chromaticity Coordinates refers to ANSI C78.377-2008



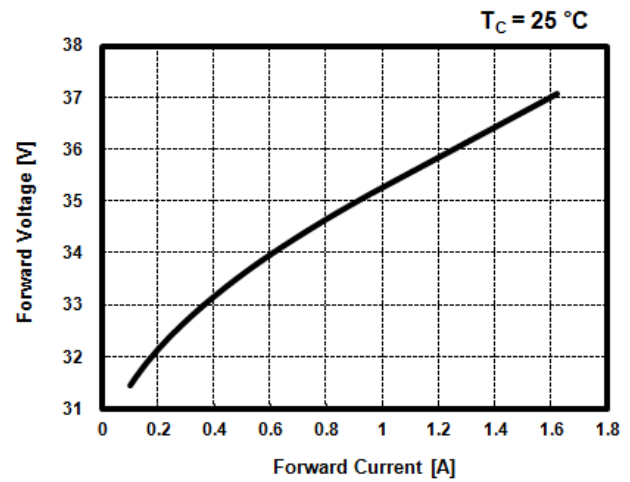
Typical Characteristics

Condition : $T_a : 25^\circ\text{C}$

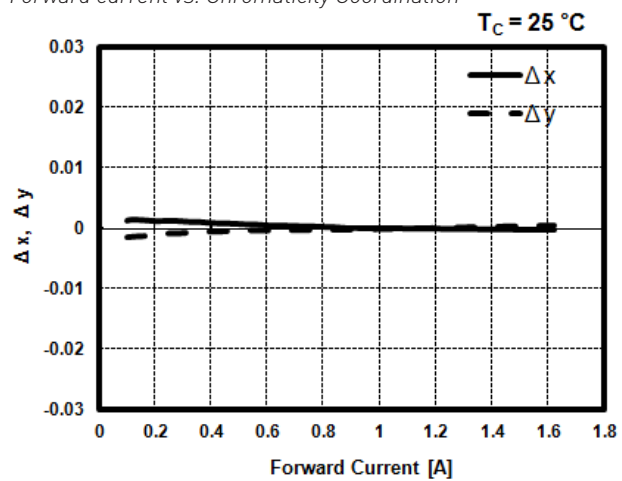
Relative luminous flux versus forward current



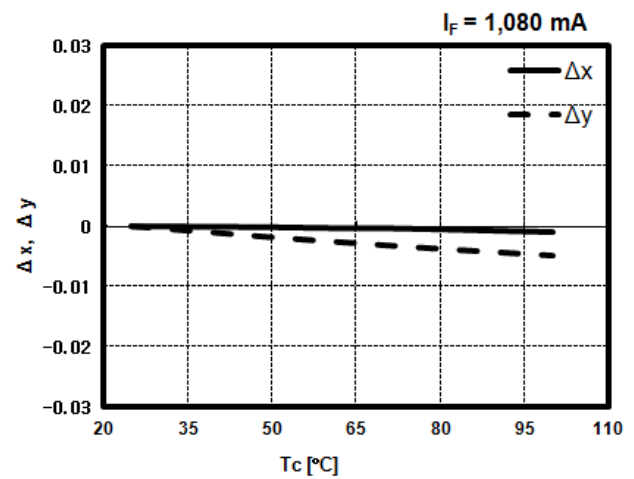
Forward Current vs. Forward Voltage



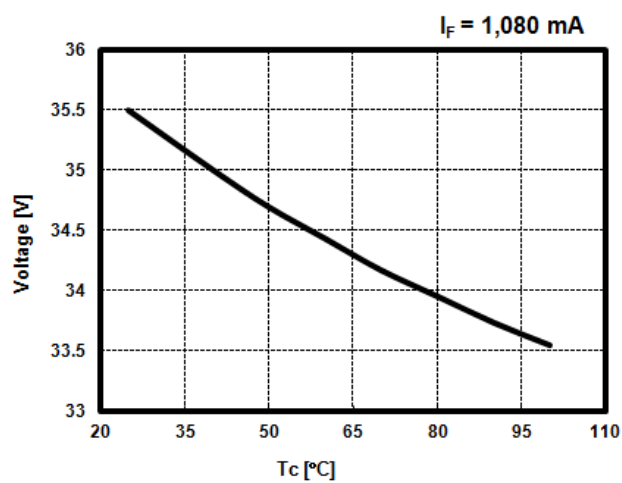
Forward current vs. Chromaticity Coordination



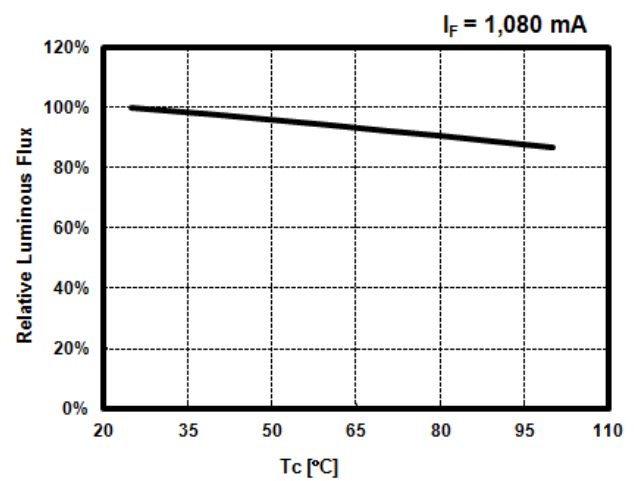
Temperature vs. Chromaticity Coordination



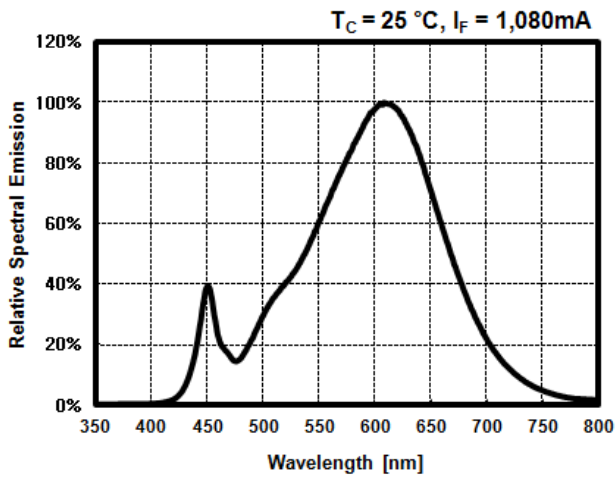
Temperature vs. Voltage



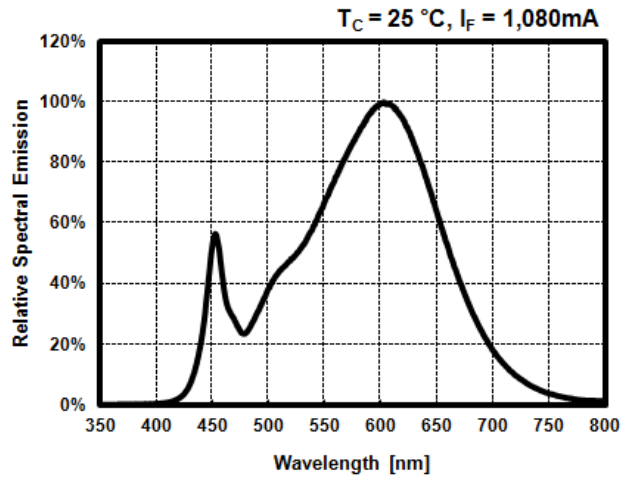
Temperature vs. Relative Luminous Flux



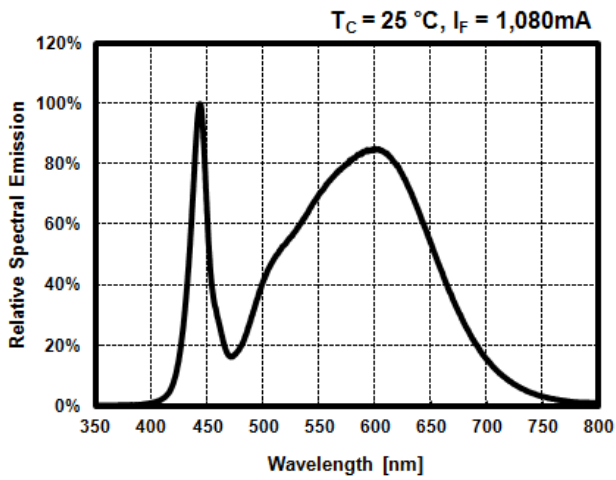
2700K



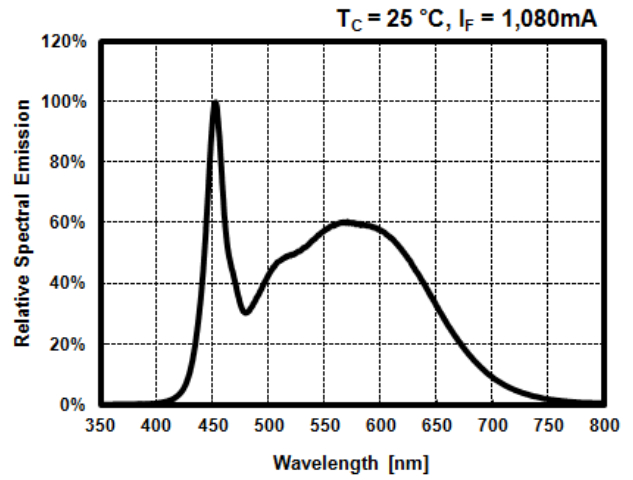
3000K



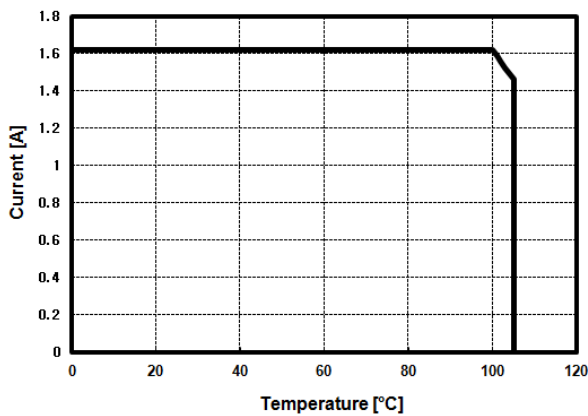
4000K



5000K



Derating Curve



Test Items

Test Items	Test Conditions	Test Hours/Cycles
Room Temperature life test	25°C, $I_F = \text{Max}$	1,000 h
High Temperature humidity life test	85°C, 85% RH, DC Derating $I_F = \text{Max}$	1,000 h
High Temperature life test	105°C, DC Derating $I_F = \text{Max}$	1,000 h
Low Temperature life test	-40°C, DC 1620 mA	1,000 h
High Temperature Storage	120°C	1,000 h
Low Temperature Storage	-40°C	1,000 h
Thermal Shock	-45°C/15min → 125°C/15min	200 cycles
	Temperature changes in 5min.	
Temperature Cycle On/Off test	-40 / 85°C, each 20min, 100min transfer	100 cycles
	Power On/off each 5min, DC 1620 mA	
Temperature humidity Cycle Storage	-10°C ↔ 25°C, 95%RH ↔ 85°C, 95%RH [24h/1Cycle]	100 cycles
ESD(HBM)	R1 : 10 MΩ, R2 : 1.5 kΩ, C : 100 pF	5 times (± 5 kV)
ESD(MM)	R1 : 10 MΩ, R2 : 0 kΩ, C : 200 pF	5 times (± 0.5 kV)
Vibration	20~80 Hz (Displacement:0.06 inch, Max 20 G)	4 times
	80~2kHz (Max 20 G)	
Shock	Min. Frequency ↔ Max. Frequency 4min transfer	5 times
	1500G, 0.5ms, Every 6faces (3axis X 2faces)	
Salt Spray	35°C, salt water 5% 8h spray → 16h leaving alone	2 cycles

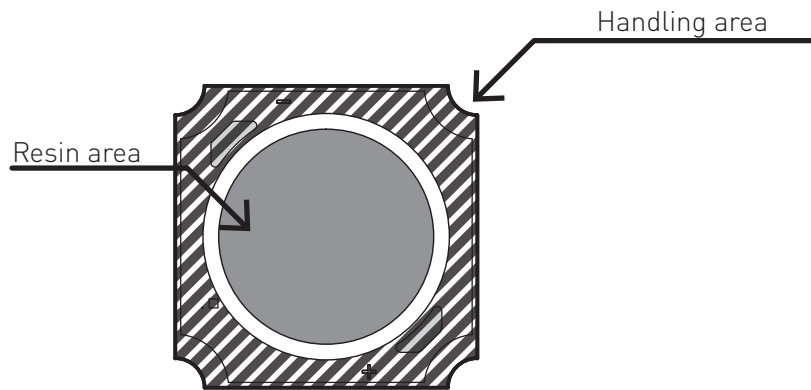
Criteria for Failure

Item	Symbol	Test Condition [$T_a = 25^\circ\text{C}$]	Limit	
			Min.	Max.
Forward Voltage	VF	1620 mA	L.S.L. × 0.9	U.S.L. × 1.1
Luminous flux	lm	1620 mA	L.S.L. × 0.7	U.S.L. × 1.3

* U.S.L. : Upper Standard Level

L.S.L. : Lower Standard Level

- 1) Shelf life in sealed bag : 12 months at < 40°C and < 90% relative humidity(RH)
- 2) Peak package body temperature : 240°C.
- 3) After this bag is opened, devices that will be subjected to reflow solder or other high temperature processes must be :
 - a. Mounted within 672 hours at factory conditions of equal to or less than 30°C / 60% RH, or
 - b. Stored at < 10% RH
- 4) Devices require bake, before mounting, if :
 - a. Humidity Indicator Card is > 65% when read at 23 ± 5°C, or
 - b. 3a is not met.
- 5) If baking is required, devices must be baked for 1 hours at 60 ± 5°C
Note : If device containers cannot be subjected to high temperature or shorter bake times are desired, reference IPC / JEDEC J-STD-033 for bake procedure.
- 6) The LEDs are sensitive to the static electricity and surge current. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. If voltage exceeding the absolute maximum rating is applied to LEDs, it may cause damage or even destruction to LED devices. Damaged LEDs may show some unusual characteristics such as increase in leakage current, lowered turn-on voltage, or abnormal lighting of LEDs at low current.
- 7) Please do not following behavior in resin area.(Handling, Pressing, Touching, Rubbing, Contacting tweezers, Cleaning) But it's ok in handling area.



- 8) VOCs (volatile organic compounds) may be occurred by adhesives, flux, hardener or organic additives which is used in luminaires (fixture) and LED silicone bags are permeable to it. It may lead a discoloration when LED expose to heat or light. This phenomenon can give a significant loss of light emitted(output) from the luminaires (fixtures). In order to prevent these problems, we recommend you to know the physical properties for the materials used in luminaires, It requires to select carefully.