Top View with Cool White LED

Features

M5630

- Top view cool white LED
- PLCC-4
- High luminous flux output/ high current capability
- Wide viewing angle
- LM-80 Certified
- ANSI binning
- RoHS

Description

This LED has high efficacy, high CRI, low power consumption, wide viewing angle and a compact form factor. These features make this package an ideal LED for all lighting application.

Applications

- Decorative and entertainment lighting
- Light pipe application
- Indicator and backlight in office and family equipment
- General use

Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
TSQJ-WF5630-217B-K50QAR3	InGaN	Cool White	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	**IF**	180	mA
Peak Forward Current (Duty 1/10@10ms)	**IFP**	300	mA
Power Dissipation	**Pd**	630	mW
Electrostatic Discharge(HBM)	**ESD**	2000	V
Operating Temperature	**Topr**	-40 ~ +85	°C
Storage Temperature	**Tstg**	-40 ~ +100	°C
Junction Temperature	**TJ**	115	°C
Thermal Resistance (Junction/Soldering point)	**R_{thJ-S}**	26	K/W
Soldering Temperature	**Tsol**	Reflow Soldering: 260°C for 10 seconds Hand Soldering: 350°C for 3 seconds	

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux	Φ_V	45	-----	65	lm	IF=150mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	
Forward Voltage	V_F	2.8	-----	3.5	V	
Color Temperature	CCT	-----	5000	-----	K	
Color Rending Index	CRI	80	-----	-----	-----	
Reverse Current	I_R	-----	-----	50	uA	V_R=5V

Note: Tolerance of Luminous Flux: ±10%

Tolerance of Forward Voltage: ±0.1V

Tolerance of Color Rendering Index: ±2

Typical Electro-Optical Characteristics Curves (Ta=25°C)

Fig.1 Spectrum Distribution

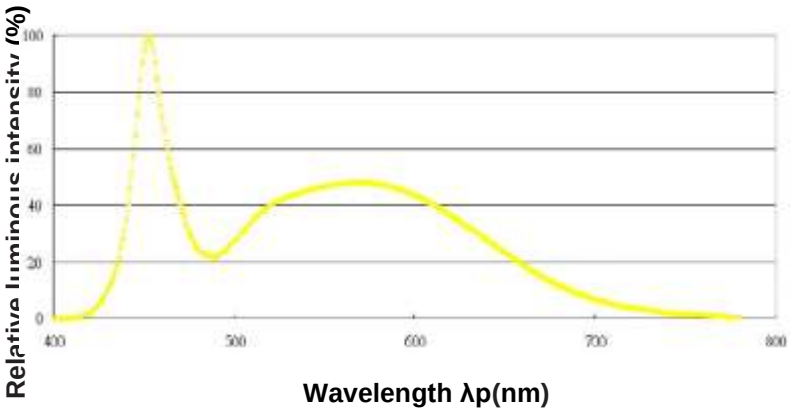


Fig.2 Forward Current vs. Forward Voltage

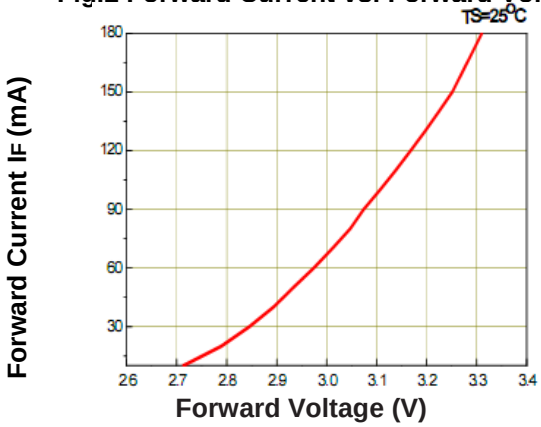


Fig.3 Luminous Flux vs. Soldering point Temperature

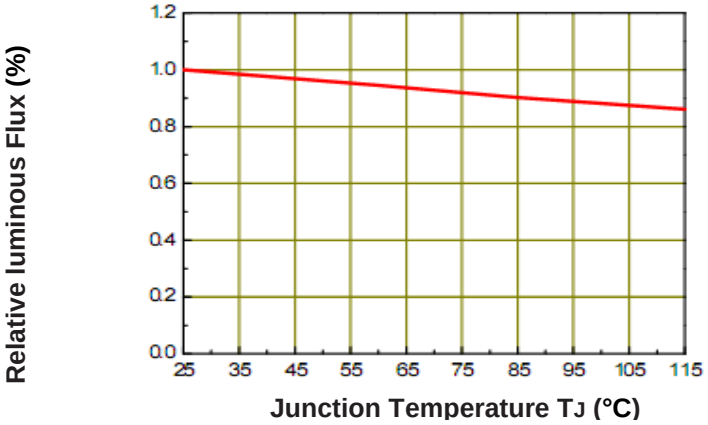


Fig.4 Luminous Flux vs. Forward Current

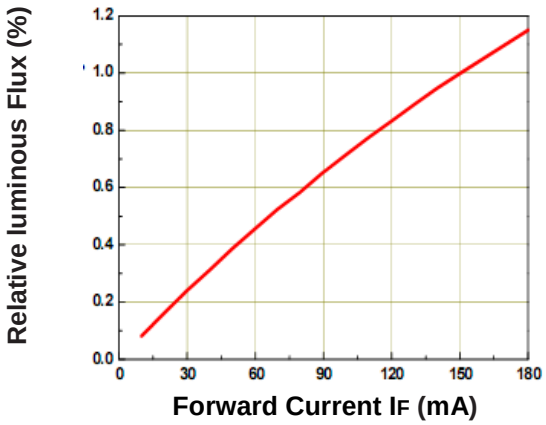


Fig.5 Forward Current Derating Curve

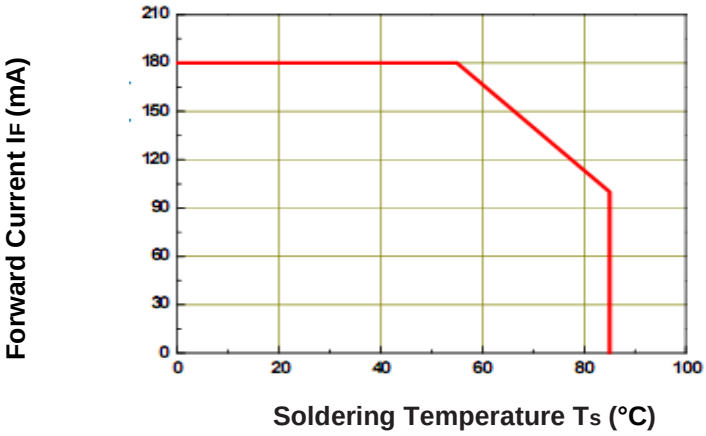
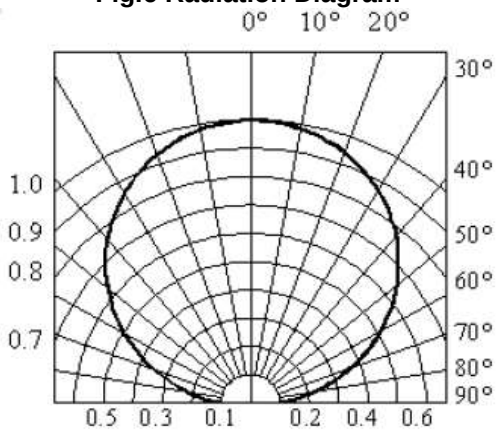
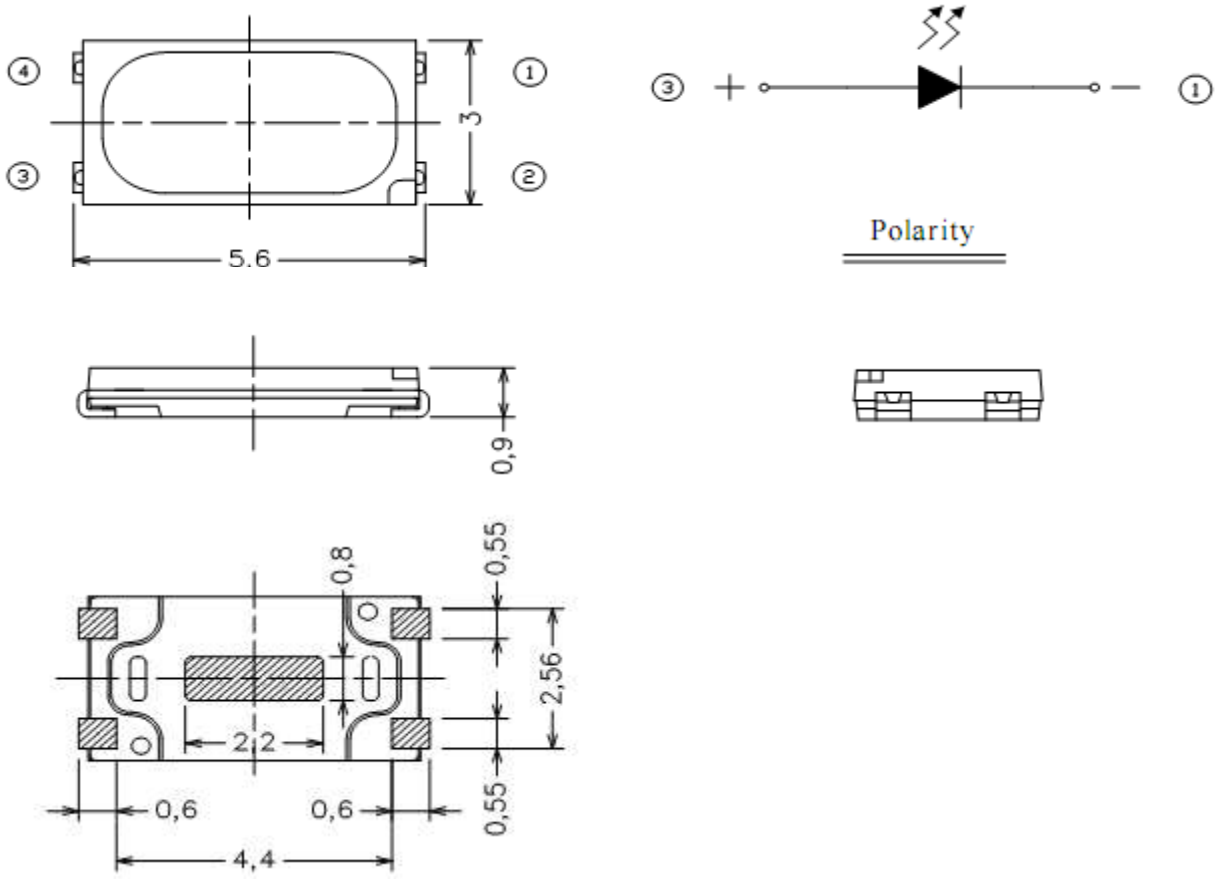


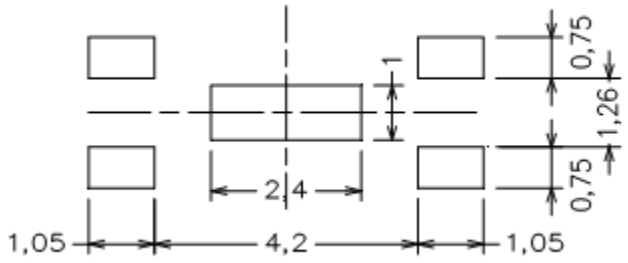
Fig.6 Radiation Diagram



Package Outline Dimensions (Unit=mm)

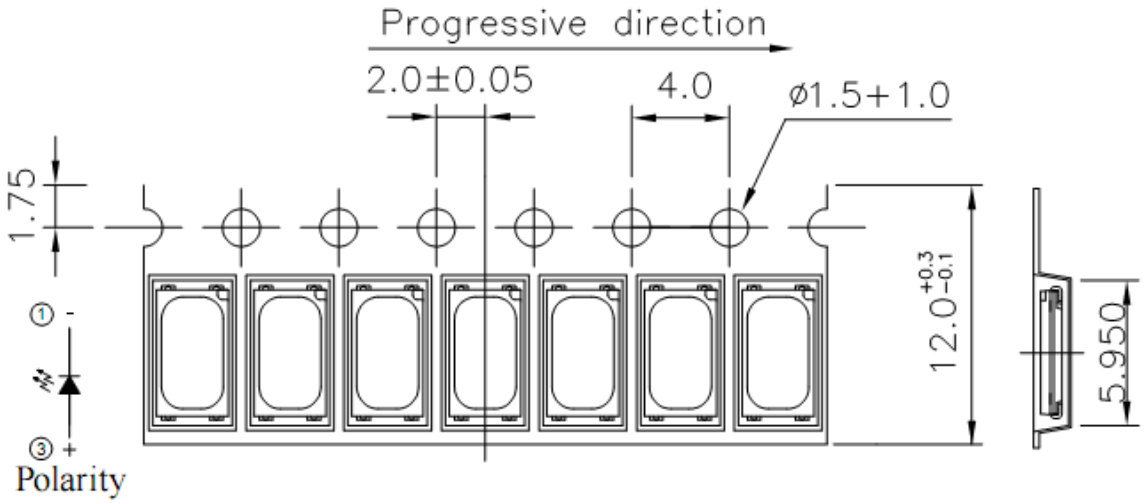


Recommended Soldering Pad (Unit=mm)



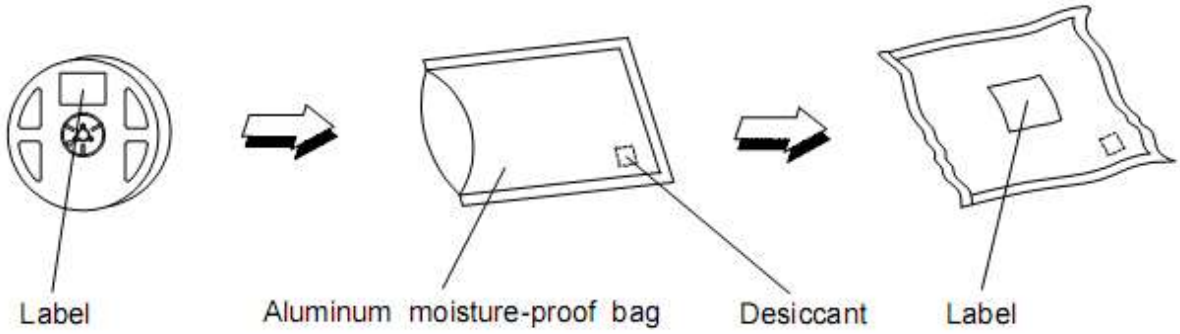
Note: The tolerances unless mentioned is ±0.1mm.

Carrier Tape Dimensions (Unit=mm): Loaded quantity 2000pcs per reel

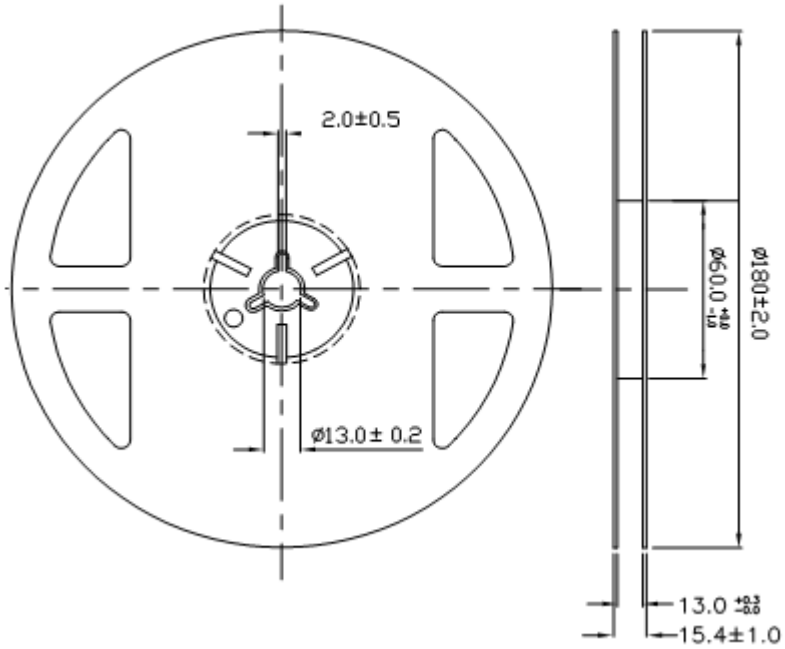


Note: The tolerances unless mentioned is ±0.1mm.

Moisture Resistant Packaging

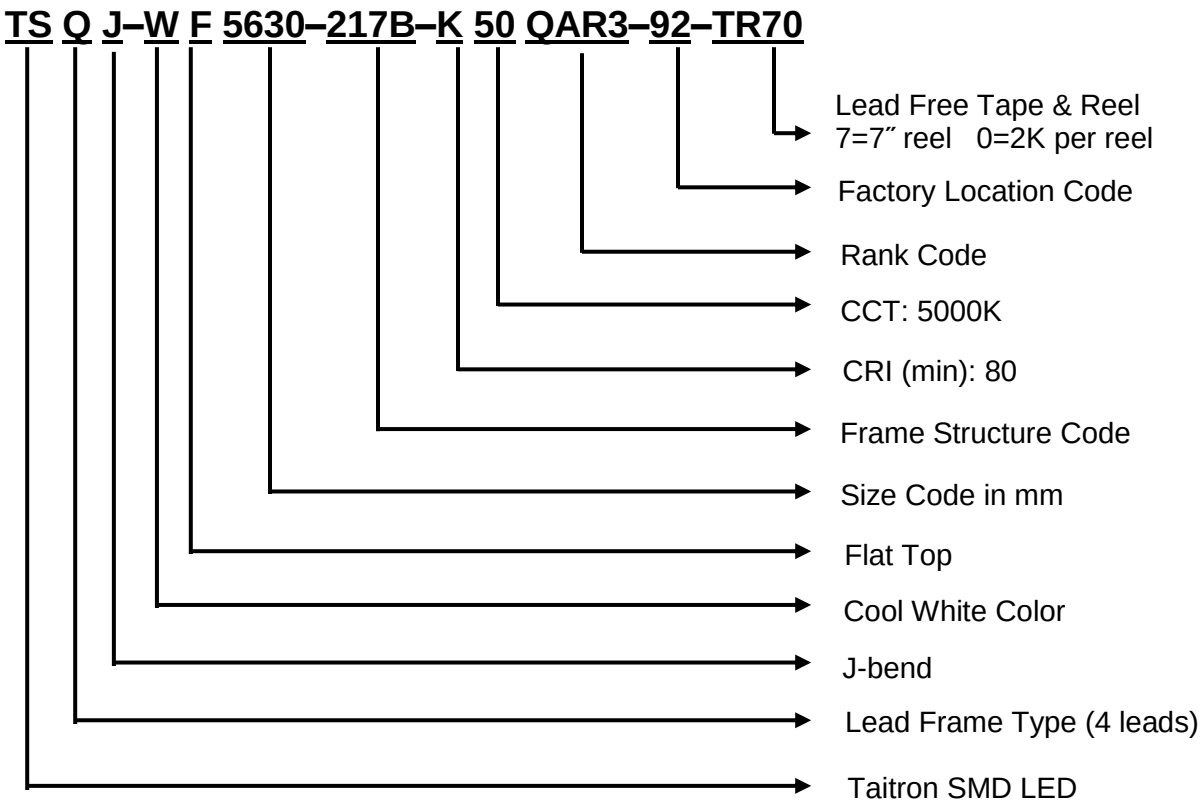


Reel Dimensions (Unit=mm):



Note: The tolerances unless mentioned is ±0.1mm.

Ordering Information



Rank Combinations

Bin Range of Luminous Flux

Bin Code	Min.	Max.	Unit	Condition
QA	45	50	lm	IF=150mA
R1	50	55		
R2	55	60		
R3	60	65		

Bin Range of Forward Voltage

Group Code	Bin Code	Min.	Max.	Unit	Condition
B42	35	2.8	2.9	V	IF=150mA
	36	2.9	3.0		
	37	3.0	3.1		
	38	3.1	3.2		
	39	3.2	3.3		
	40	3.3	3.4		
	41	3.4	3.5		

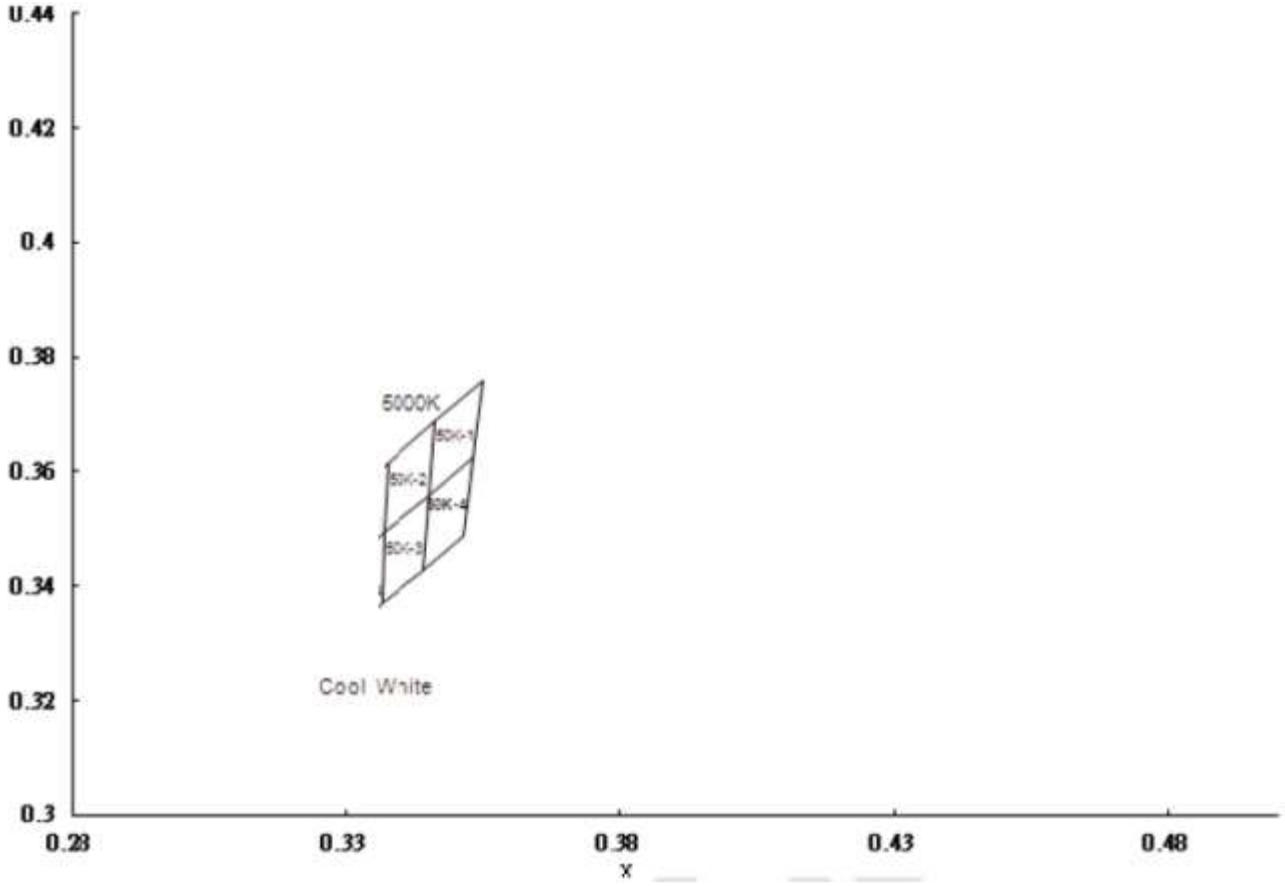
Note: Tolerance of Luminous Flux: ±10%

Tolerance of Forward Voltage: ±0.1V

Chromaticity Coordinate Specifications

CCT	CIE Rank Code	CIE_x	CIE_y	Condition
5000K	50K-1	0.3551	0.3760	IF=150mA
		0.3464	0.3688	
		0.3452	0.3558	
		0.3533	0.3624	
	50K-2	0.3464	0.3688	
		0.3376	0.3616	
		0.3371	0.3493	
		0.3452	0.3558	
	50K-3	0.3452	0.3558	
		0.3371	0.3493	
		0.3366	0.3369	
		0.3441	0.3428	
	50K-4	0.3533	0.3624	
		0.3452	0.3558	
		0.3441	0.3428	
		0.3515	0.3487	

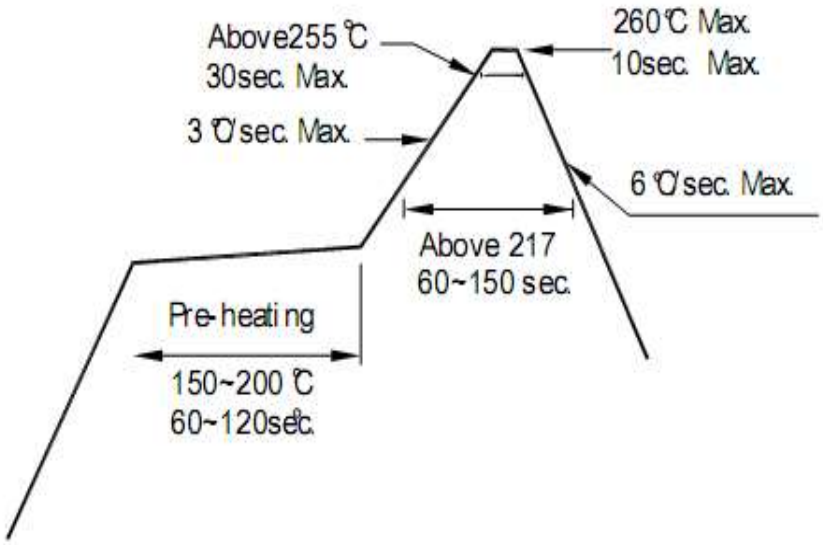
The C.I.E 1931 Chromaticity Diagram



Note: Measurement uncertainty of the chromatic coordinates: ±0.01

Precautions for use

1. Over-current-proof
   Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).
2. Storage
   2.1 Do not open moisture proof bag before the products are ready to use.
   2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.
   2.3 After opening the package: The LED's floor life is 168 Hrs under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.
   2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   Baking treatment: 60±5°C for 24 hours.
3. Soldering Condition
   3.1 Pb-free solder temperature profile



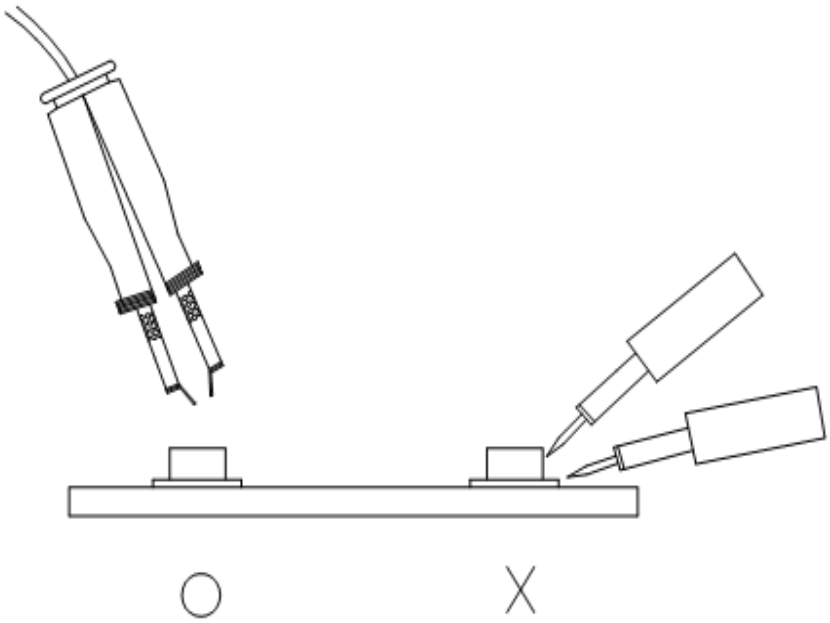
   3.2 Reflow soldering should not be done more than two times.
   3.3 When soldering, do not put stress on the LEDs during heating.
   3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

   Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

   Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



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