

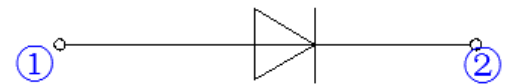
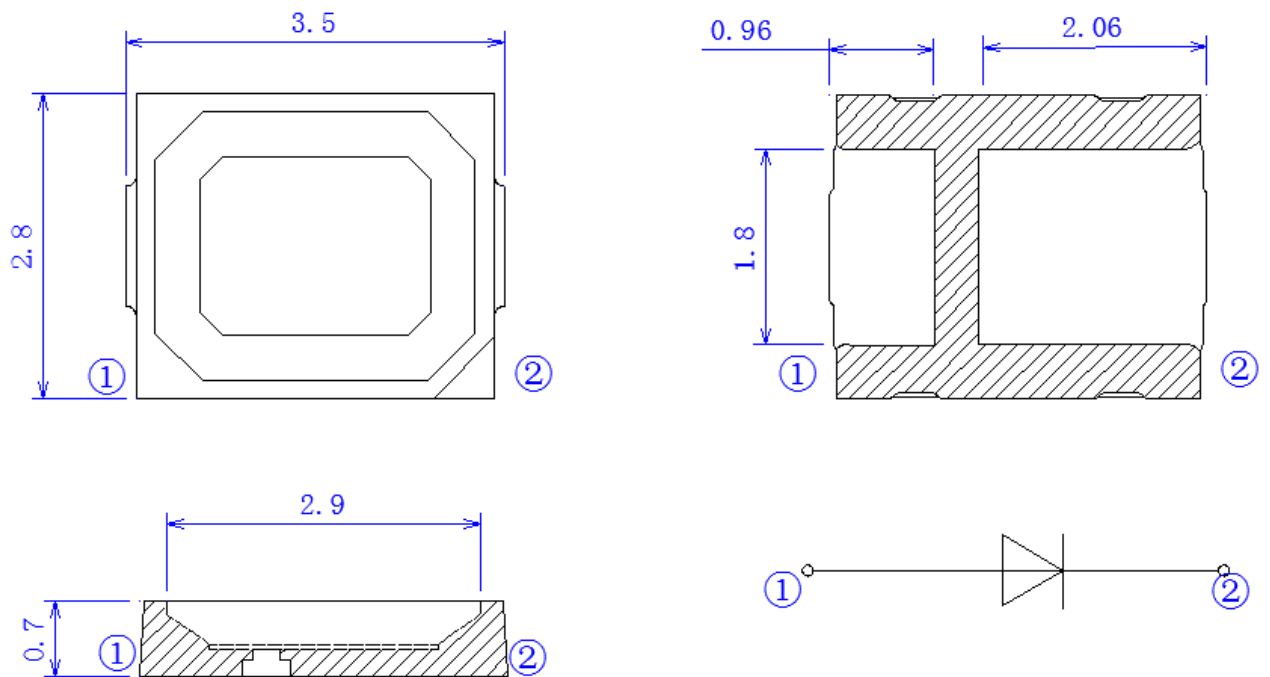


2835 LED chip manufactured for Turkey in compliance with high quality standards.

1. Feature :

- Viewing angle: 120 deg.
- The materials of the LED dice is InGaN.
- 3.5mm*2.8mm*0.75mm.
- RoHS compliant lead-free soldering compatible.

2. Package Structure :



Unit: mm Tolerance: +/-0.2mm

Figure: 0.2W medium power thin series circuit diagram

Tolerance: ± 0.2 mm unless otherwise noted

Electrodes: Ag Plating Copper Alloy

Encapsulating Resin: Silicon Resin

Package: Heat-Resistant Polymer

3. Electro-Optical Characteristics :

(Each LED @150mA, T_a 25°C)

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward voltage	V _F	I _F =150mA	3.0	3.2	3.4	V
CIE	X、Y	I _F =150mA	-	X=0.32	-	
		I _F =150mA	-	Y=0.34	-	
CCT		I _F =150mA	2000	4000	9000	K
Viewing Angle	2θ1/2	I _F =150mA	-	120	-	Deg
Luminous Intensity	I _V	I _F =150mA	55		80	LM
CRI	RA	I _F =150mA	80			RA
Reverse Current	I _r	V _r =5V	0		1	uA
Thermal resistance	R _{th(j-s)}	I _F =150mA		28		°C/W

※ The measuring tolerance :

1, 1/10 Duty cycle, pulse width 10ms.

2, The above forward voltage measurement allowance tolerance is 0.1V.

3.The above color coordinates measurement allowance tolerance is 0.003.

4.the above luminous flux measurement allowance tolerance ±10%.

5.Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.

6.When the LEDs are in operation the maximum current should be decided after measuring the package temperature,

junction temperature should not exceed the maximum rate

4. Product Specification:

Item	Specification	Material	Quantity
Chip	InGaN	InGaN	1 in 1
Reflector	White	PCT	
Frame	C2680	Silver-Plated Copper	
Gold wire	0.9mil	Alloy	
Phosphor	Yellow	YAG	
Encapsulant	MilkyWhite	Resin	
Carrier tape	According to EIA 481-1A specs	Conductive black tape	4000pcs per reel
Reel	According to EIA 481-1A specs	Conductive black	4000pcs per reel
Label	Repsn standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel one bag
Carton	Repsn standard	Paper	Non-specified

5. Absolute Maximum Ratings:

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	IF	150	mA
Reverse Voltage	Vr	5	V
Pulsed Forward Current	IFP*	180	mA
Power dissipation	PD	0.5	W
Operating Temperature	TOP	-40~85	°C
Storage Temperature	TST	-40~85	°C
Electrostatic Discharge	ESD	2000(HBM)	V
Junction Temperature	Tj	120	°C
LED Thermal resistance	Rth s-j	33	°C/W

6. Typical Electro-Optical characteristics curves :

Fig.1-Forward Voltage Vs. Forward Current

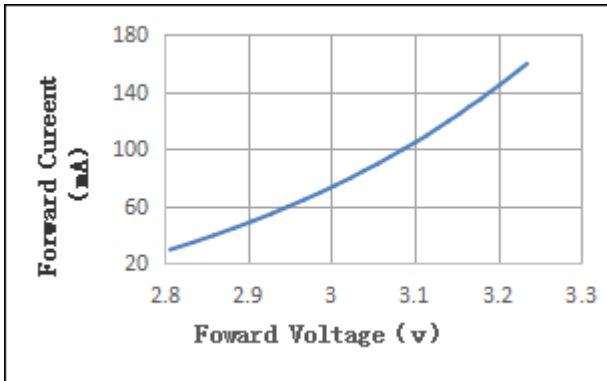


Fig.2-Forward Current Vs. Relative Intensity

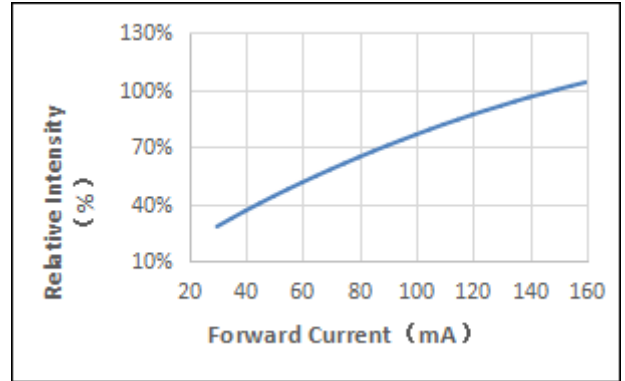


Fig.3-Ambient Temperature Vs. Relative Intensity

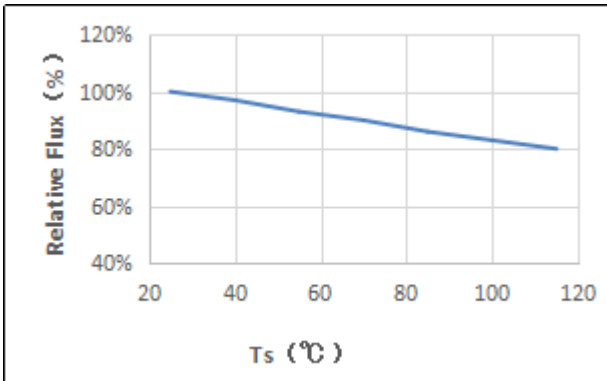


Fig.4-Ambient Temperature Vs. Forward Current

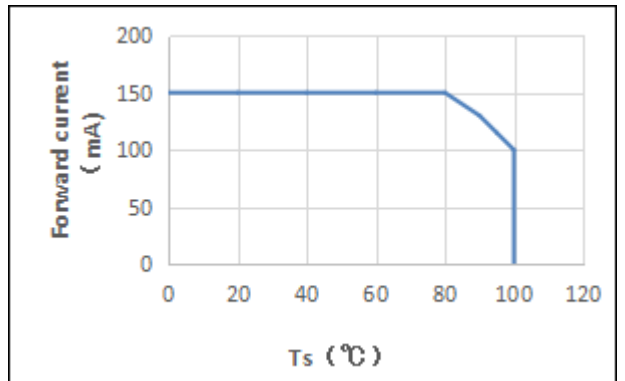


Fig.5-Forward Voltage Vs. Ambient Temperature

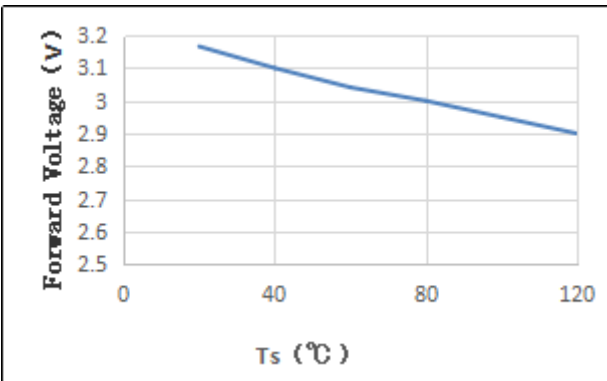


Fig.6-Radiation diagram

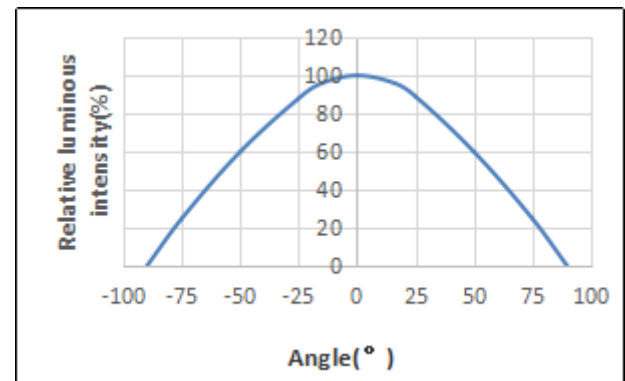
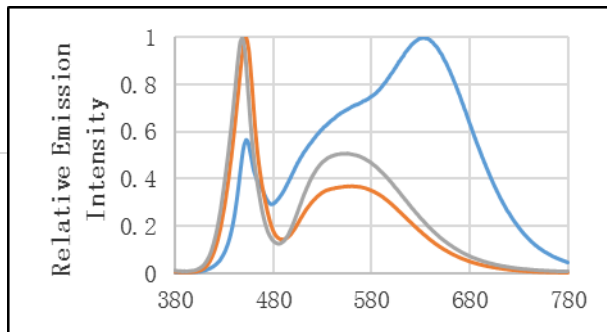


Fig.7 Spectrum Distribution



Note:

All the parameters and standards in

the specification are based on FNKS
standard test platform.

Luminous Intensity Bin Limits

Test Condition @150mA					
BIN Code	(lm) min	(lm) max	BIN Code	(lm) min	(lm) max
L50	50	55	L55	55	60
L60	60	65	L65	65	70
L70	70	75	L75	75	80

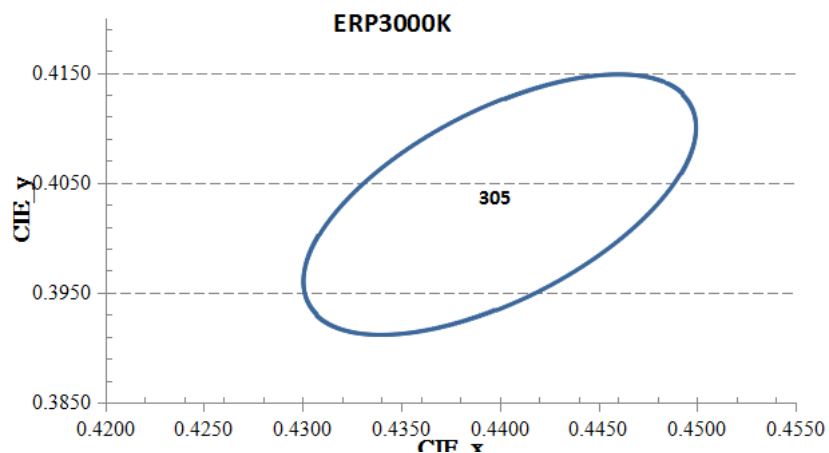
Forward Voltage Bin Limit

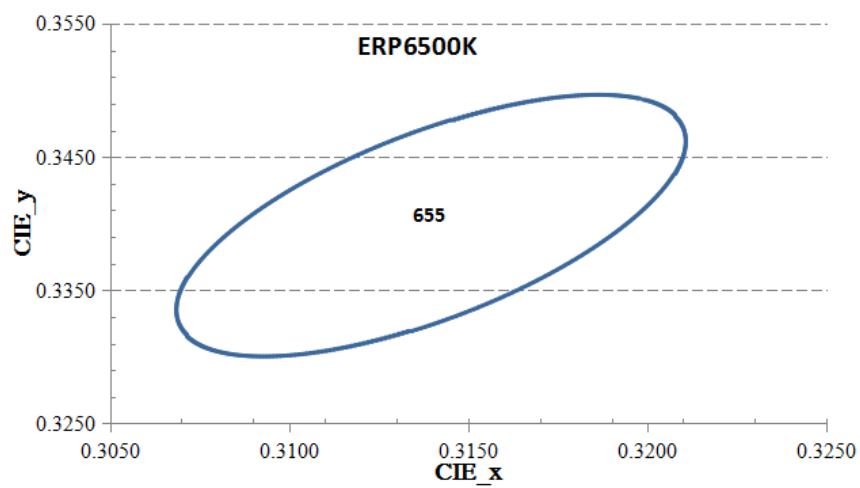
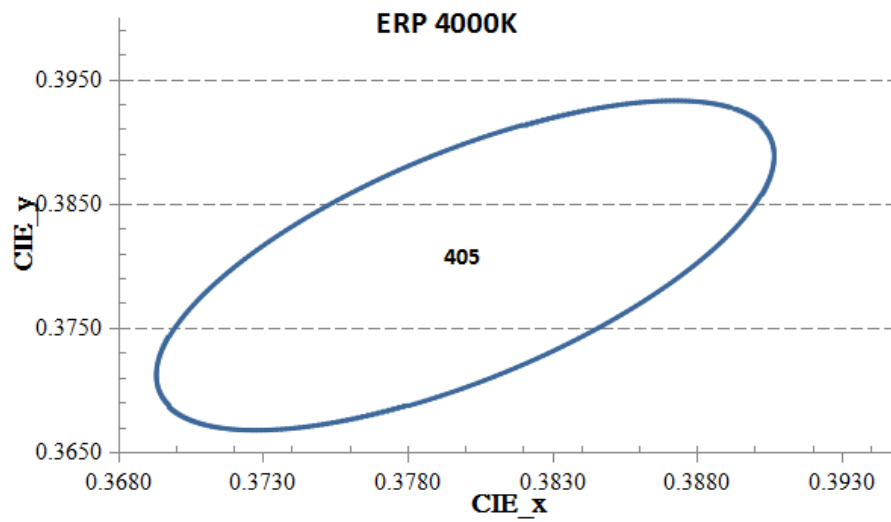
Test Condition: @150mA					
BIN Code	Vfmin(v)	Vfmax(v)	BIN Code	Vfmin(v)	Vfmax(v)
R4	2.6	2.8	R5	2.8	3.0
R6	3.0	3.2	R7	3.2	3.4
R8	3.4	3.6	R9	3.6	3.8

Optical/Electrical Characterization:

欧标						
色温	STEPS	x	y	a	b	θ
ERP F6500	1	0.313	0.337	0.00223	0.00095	58.383
ERP F5000	1	0.346	0.359	0.00274	0.00118	59.617
ERP F4000	1	0.38	0.38	0.00313	0.00134	54
ERP F3000	1	0.44	0.403	0.00278	0.00136	53.167
ERP P2700	1	0.463	0.42	0.00258	0.00137	57.283

美标						
CCT	STEPS	CX	CY	a	b	theta
2700K	1	0.4578	0.4101	0.0027	0.0014	53.7
3000K	1	0.4338	0.403	0.00278	0.00136	53.22
3500K	1	0.4073	0.3917	0.00309	0.00138	54
4000K	1	0.3818	0.3797	0.00313	0.00134	53.72
5000K	1	0.3447	0.3553	0.00274	0.00118	59.62
5700K	1	0.3287	0.3417	0.00249	0.00107	59.09
6500K	1	0.3123	0.3282	0.00223	0.00095	58.57



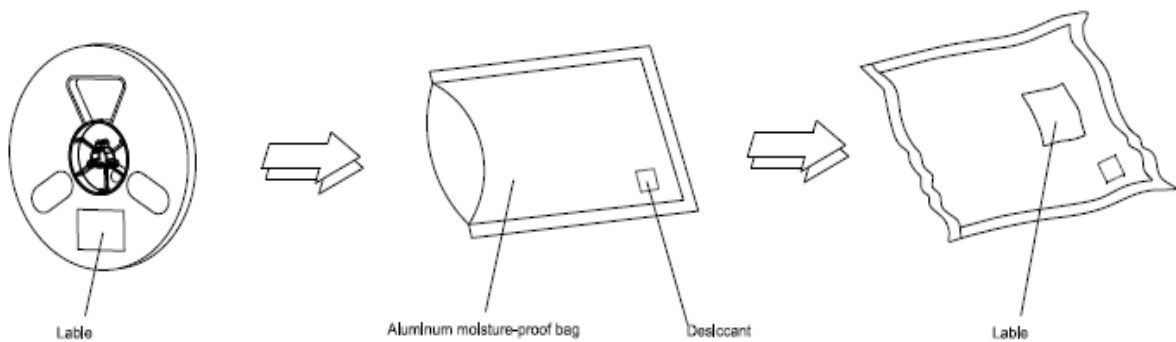
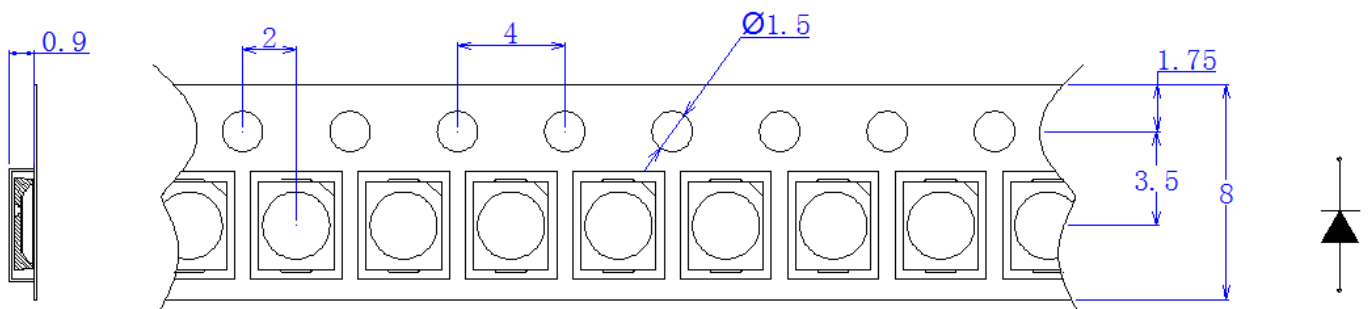


7. LED Reliability Test List :

Test Item	Test Conditions	Standard	Qty(Pcs)	Ac/Re
Life Test	25°C,1000Hrs@150mA	/	20	0/1
High Temperature	85°C,1000Hrs@150mA	/	20	0/1
Low Temperature	-40°C,1000Hrs@150mA	/	20	0/1
High Humidity Heat	85°C,85%RH, 1000Hrs@150mA	/	20	0/1
Low Temperature Storage	-40°C,1000Hrs	JEITA ED-4701 200 202	20	0/1
High Temperature Storage	100°C,1000Hrs	JEITA ED-4701 200 201	20	0/1
Temperature Cycle	(-40'C 30mins --25'C(5mins)--100'C(30mins) ,Temp changing rate:3+/-0.6'C/min)	JEITA ED-4701 100 105	20	0/1
Thermal Shock	-40'C(15mins) --100'C(15mins),changing time <5mins ,300C	MIL-STD-202G	20	0/1
Pulse Life Test	Tp=1ms,DC=0.1,D=Tp/T @ 3×150mA	/	20	0/1
ESD Test(HBM)	2000V,200V/Step, Forward & Reverse Test both 3times	AEC (Q101-001)	20	0/1
Soldering Resistance	260±5°C,10S,3times Pre-treatment 30°C,70%RH	JEITA ED-4701 300 302	20	0/1
Reflow IV Decay	260±5°C,10S,1time Pre-treatment 30°C,70%RH, 168Hrs	/	20	0/1
Judgment Criteria				
Forward Voltage V _F		V _F Max-Increase < 1.1x		
Reverse Current I _R		I _R Max-Increase < I _R max		

Luminous Intensity I_v	IV Decay < 30%
※Solder ability test criteria : coverage is not less than 95%	
Note : Measurement shall be taken after the tested samples have been returned to normal ambient conditions (generally after two hours)	

8. Packaging:



9. Cautions :

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 use the picking up nozzle, The pressure on the silicone resin should be proper.

10.1 : Soldering iron:

10.1.1 When hand soldering, the temperature of the iron must less than 300°C for 3 seconds.

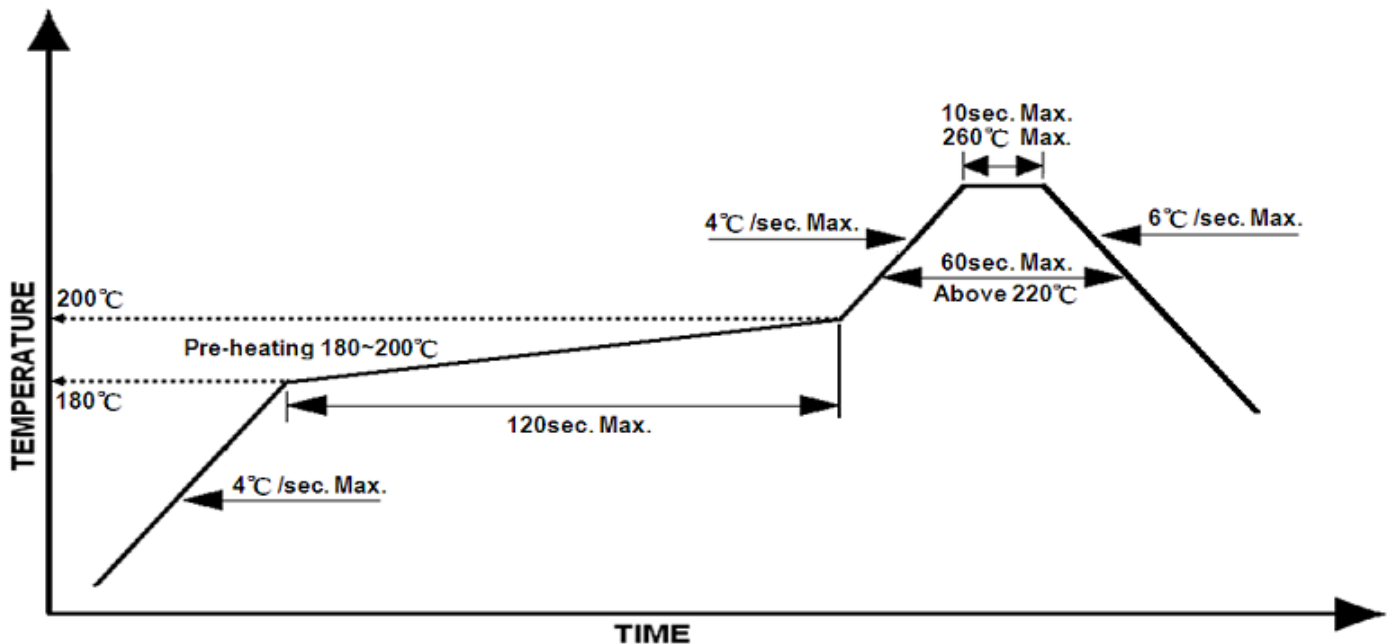
10.1.2 The hand solder should be done only one times

10.2 : SMT Reflow Soldering Instructions SMT:

10.2.1 Reflow soldering should not be done more than two times ;

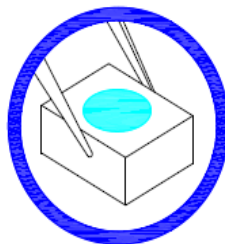
10.2.2 When soldering , do not put stress on the LEDs during heating ;

10.2.3 The recommended reflow soldering profile as following ;



10.3 Handling Precautions:

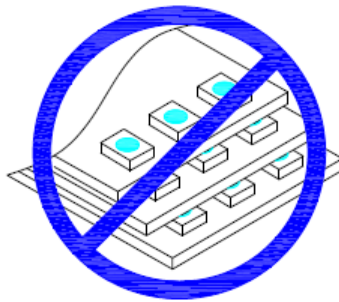
10.3.1 Handle the component along the side surface by using forceps or appropriate tools;



10.3.2 Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry;



10.3.3 Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



10.3.4 Not available in the situation of acidity for $\text{PH} < 7$.



10.3.5 Package and Storage

10.3.5.1 To avoid the moisture penetration, we recommend storing SMD LEDs in a dry box (or desiccator) with a desiccant. The recommended storage conditions are Temperature 5 to 30 degrees Centigrade. Humidity 50% maximum.

10.3.5.2 Precaution after opening packaging

However LED is correspond SMD, when LED be soldered dip, interfacial separation may affect the light transmission efficiency, causing the light intensity to drop.

Attention in followed

- Soldering should be done right after opening the package (within 12Hrs).
- Keeping of a fraction- Sealing Temperature : 5 ~ 30°C Humidity : less than 30%
- If the package has been opened more than three days or the humidity indicator color change from blue to pink (over 30%) , components should be dried for 12hrs at 70±5°C

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LMW ELEKTRONIK SANAYI VE TICARET LIMITED SİRKETİ

YESİLCE MAH. DEVİR SK. NO.2/5 KAGITHANE İSTANBUL TÜRKİYE

