

CUSTOMER : _____

NO. : MK-2835CW15
EDIT :
DATE : 2018. 08. 10

SPECIFICATION FOR APPROVAL

PRODUCT : MIKWANG 2835 Cool White LED 150mA
PART NO. : MK-2835CW15

APPROVAL			REVISION
CHK	CHK	APPD.	
REMARKS			



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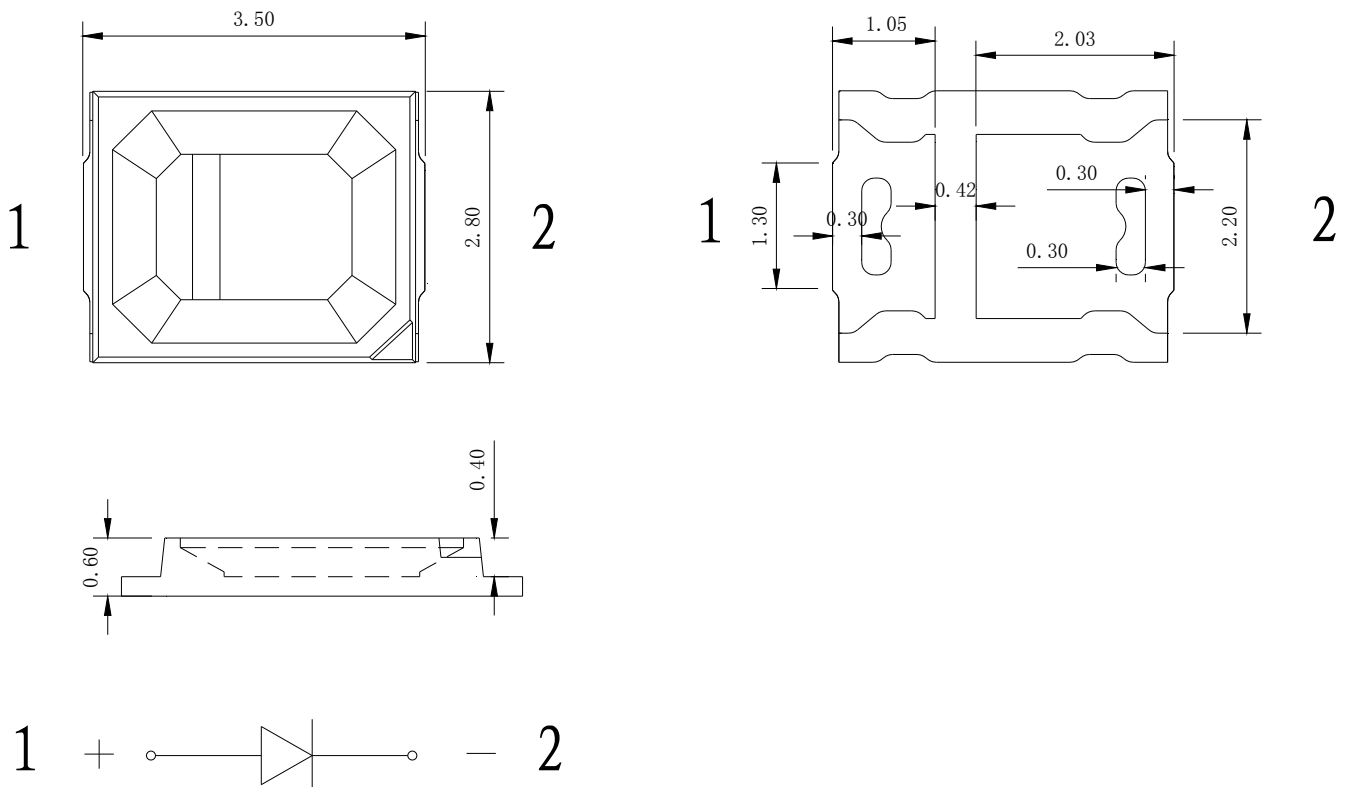
◆Features :

- * Small package with high efficiency
- * Low voltage operation, Instant light
- * Long operation life
- * Lead free product
- * RoHS compliant

◆Applications :

- * Mobile phone flash
- * Automotive interior lighting
- * Automotive forward lighting
- * Architectural lighting
- * LCD TV / Monitor backlight
- * Traffic signals
- * Task lighting
- * Decorative/ Pathway lighting
- * Remote / Solar powered lighting
- * Household appliances

◆Package Dimensions



Notes:

1. All dimensions are in mm
2. Tolerance is ± 0.2 mm unless otherwise noted.



◆ Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	0.5	W
Forward Current	I_F	150	mA
Peak Forward Current	I_{FP}	200	mA
Operation Temperature Range	T_{opr}	-35 to +60	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-40 to +70	$^{\circ}\text{C}$
ESD Sensitivity (HBM)	--	2000	V
Soldering Temperature	300 \pm 20 $^{\circ}\text{C}$ /3~5sec		

NOTE: * Pulse width $\leq 0.1\text{msec}$ Duty Ratio $\leq 1/10$

◆ Electrical-Optical Characteristics ($T_A=25^{\circ}\text{C}$)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Forward Voltage	$I_F=150\text{mA}$	V_F	---	3.2	---	V
Reverse Current	$V_R=-5\text{V}$	I_R	---	---	5	μA
View Angle	$I_F=150\text{mA}$	$2\theta_{1/2}$	---	120	---	deg.
Luminous flux	$I_F=150\text{mA}$	Φ_v	60	---	65	lm
Color Coordinates	$I_F=150\text{mA}$	X	---	0.31	---	
		Y	---	0.33	---	
Color Temperature	$I_F=150\text{mA}$	CCT	---	6500	---	K
Color Rendering index	$I_F=150\text{mA}$	R_a	80	---	---	---
Color tolerance	$I_F=150\text{mA}$	SDCM	---	---	5	---

Note: the test tolerance

V_F : $\pm 0.05\text{V}$

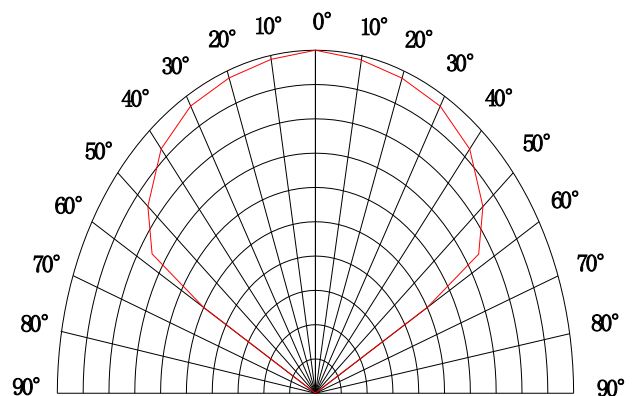
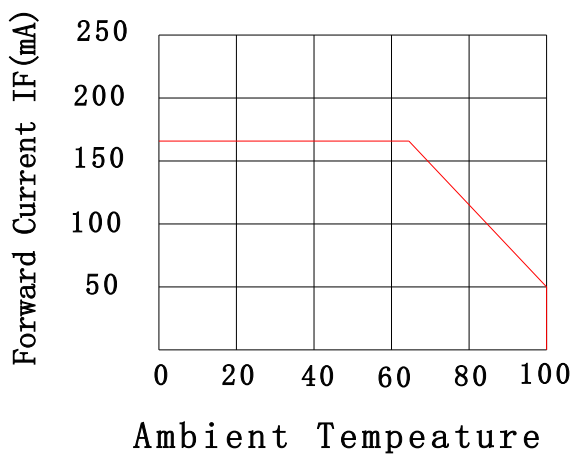
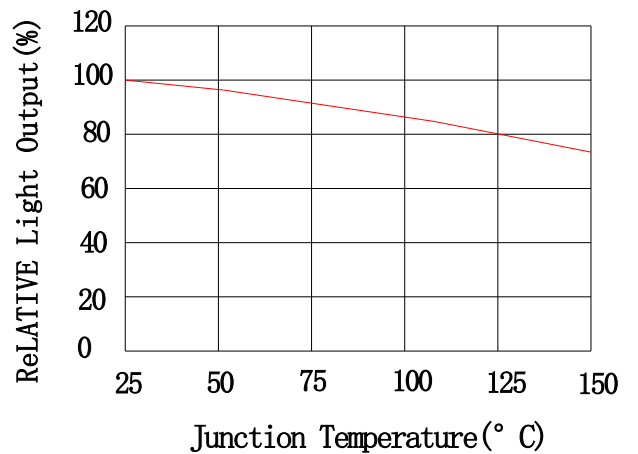
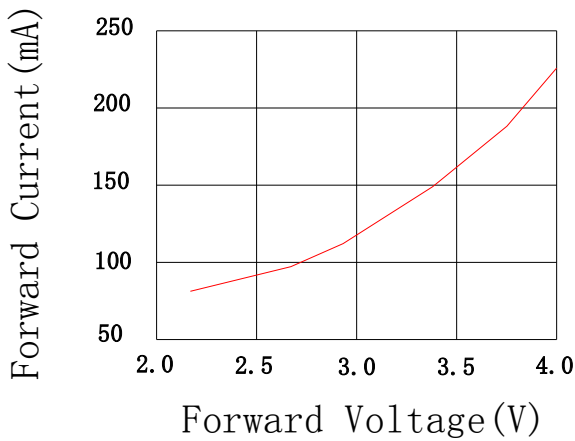
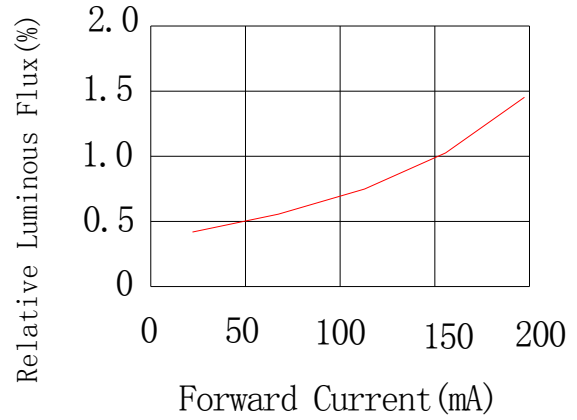
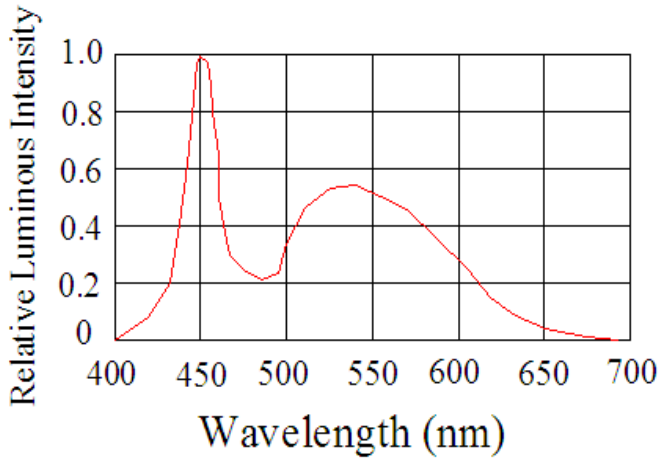
CCT : $\pm 5\%$

XY : ± 0.005

Φ_v : $\pm 10\%$

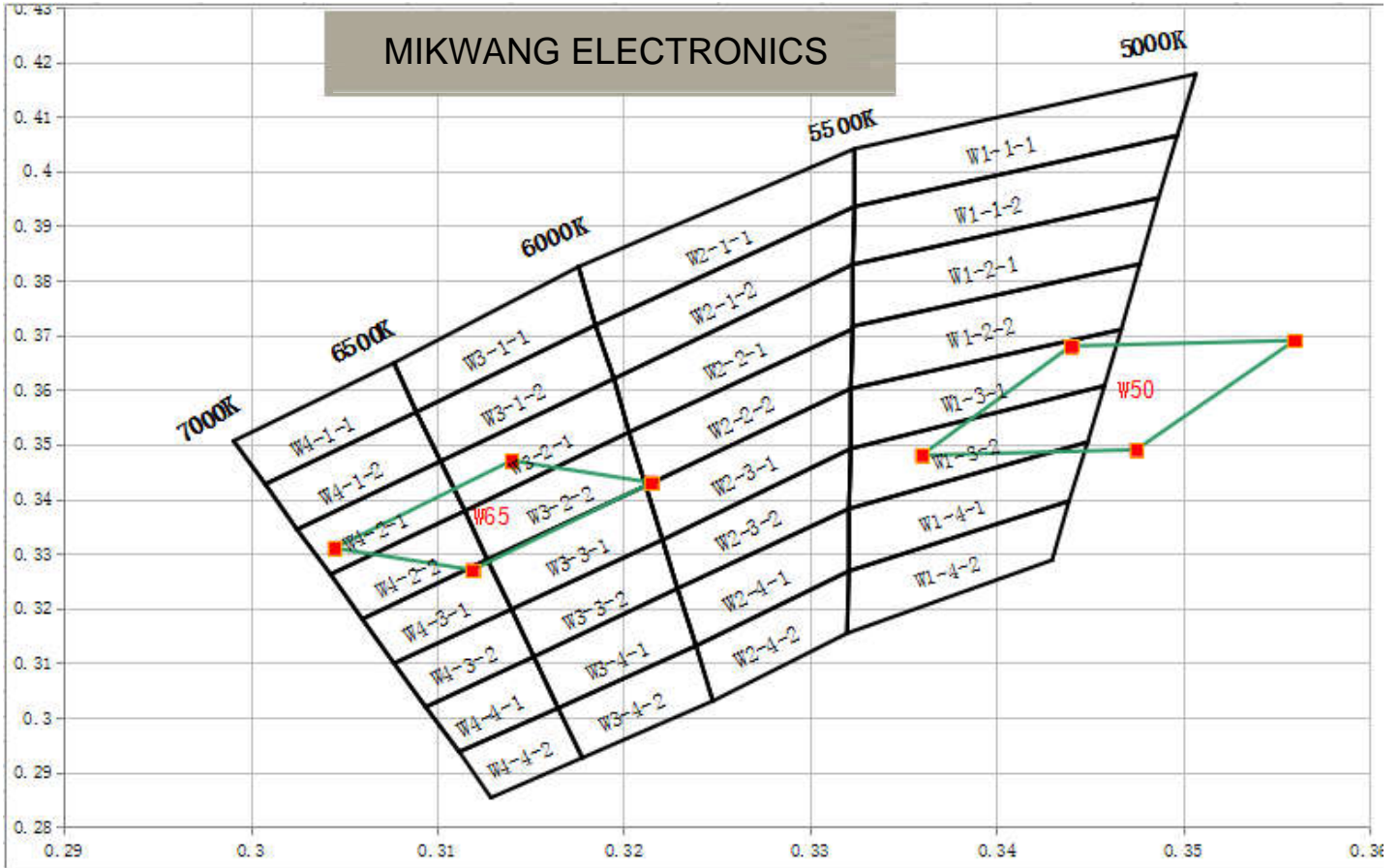


◆ Typical Electrical/Optical Characteristic Curves ($I_f=150\text{mA}; T_A=25^\circ\text{C}$)





◆CIE Chromaticity Diagram:(If=150mA;TA=25°C)





Color RANK : (If=150mA; TA=25°C)

CODE	CCT	X	Y
W1-1-1	5000 - 5500K	0.3324	0.3935
		0.3497	0.4065
		0.3507	0.4178
		0.3324	0.4041
W1-1-2		0.3323	0.3829
		0.3487	0.3951
		0.3497	0.4065
		0.3324	0.3935
W1-2-1		0.3323	0.3716
		0.3477	0.383
		0.3487	0.3951
		0.3323	0.3829
W1-2-2	0.3322	0.3602	
	0.3467	0.371	
	0.3477	0.383	
	0.3323	0.3716	

CODE	CCT	X	Y
W1-3-1	5000 - 5500K	0.3322	0.3492
		0.3458	0.3607
		0.3467	0.371
		0.3322	0.3602
W1-3-2		0.3321	0.3382
		0.3449	0.3504
		0.3458	0.3607
		0.3322	0.3492
W1-4-1		0.3321	0.3268
		0.3439	0.3396
		0.3449	0.3504
		0.3321	0.3382
W1-4-2	0.332	0.3154	
	0.343	0.3288	
	0.3439	0.3396	
	0.3321	0.3268	

CODE	CCT	X	Y
W2-1-1	5500 - 6000K	0.3223	0.3778
		0.3324	0.3935
		0.3324	0.4041
		0.322	0.3904
W2-1-2		0.3225	0.3669
		0.3323	0.3829
		0.3324	0.3935
		0.3223	0.3778
W2-2-1		0.3227	0.3559
		0.3323	0.3716
		0.3323	0.3829
		0.3225	0.3669
W2-2-2	0.323	0.3453	
	0.3322	0.3602	
	0.3323	0.3716	
	0.3227	0.3559	

CODE	CCT	X	Y
W2-3-1	5500 - 6000K	0.3232	0.3344
		0.3322	0.3492
		0.3322	0.3602
		0.323	0.3453
W2-3-2		0.3234	0.3242
		0.3321	0.3382
		0.3322	0.3492
		0.3232	0.3344
W2-4-1		0.3237	0.3129
		0.3321	0.3268
		0.3321	0.3382
		0.3234	0.3242
W2-4-2	0.3239	0.3015	
	0.332	0.3154	
	0.3321	0.3268	
	0.3237	0.3129	



CODE	CCT	X	Y
W3-1-1	6000 - 6500K	0.3089	0.3559
		0.3223	0.3778
		0.322	0.3904
		0.3077	0.3649
W3-1-2		0.3102	0.3469
		0.3225	0.3669
		0.3223	0.3778
W3-2-1		0.3089	0.3559
		0.3115	0.3378
		0.3227	0.3559
		0.3225	0.3669
W3-2-2		0.3102	0.3469
	0.3127	0.3289	
	0.323	0.3453	
	0.3227	0.3559	
		0.3115	0.3378

CODE	CCT	X	Y
W3-3-1	6000 - 6500K	0.314	0.3198
		0.3232	0.3344
		0.323	0.3453
		0.3127	0.3289
W3-3-2		0.3152	0.3111
		0.3234	0.3242
		0.3232	0.3344
W3-4-1		0.314	0.3198
		0.3165	0.3017
		0.3237	0.3122
		0.3234	0.3242
W3-4-2		0.3152	0.3111
	0.3178	0.2926	
	0.3239	0.3015	
	0.3237	0.3122	
		0.3165	0.3017

CODE	CCT	X	Y
W4-1-1	6500 - 7000K	0.2996	0.3406
		0.3089	0.3559
		0.3077	0.3649
		0.2979	0.3487
W4-1-2		0.3013	0.3324
		0.3102	0.3469
		0.3089	0.3559
W4-2-1		0.2996	0.3406
		0.303	0.3243
		0.3115	0.3378
		0.3102	0.3469
W4-2-2		0.3013	0.3324
	0.3048	0.316	
	0.3127	0.3289	
	0.3115	0.3378	
		0.303	0.3243

CODE	CCT	X	Y
W4-3-1	6500 - 7000K	0.3065	0.308
		0.314	0.3198
		0.3127	0.3289
		0.3048	0.3161
W4-3-2		0.3082	0.2998
		0.3152	0.3111
		0.314	0.3198
W4-4-1		0.3065	0.308
		0.3099	0.2917
		0.3165	0.3017
		0.3152	0.3111
W4-4-2		0.3082	0.2998
	0.3116	0.2835	
	0.3178	0.2926	
	0.3165	0.3017	
		0.3099	0.2917

CODE	CCT	X	Y
W50	5000K	0.344	0.368
		0.336	0.348
		0.3475	0.349
		0.356	0.369

CODE	CCT	X	Y
W65	6500K	0.314	0.347
		0.3045	0.331
		0.3119	0.327
		0.3215	0.343



Reliability

1. Test Items And Results

Item	Test conditions	Note	Number of Damaged
Reflow	Temp:260°Cmax T=10 sec	2 time	0/30
Thermal Shock	-40~100°C 30min, 10s, 30min	100cycles	0/30
High Temperature High Humidity Storage	Ta=60°C,RH=90%	300hrs	0/30
Steady State Operating life	Ta=25°C,IF=150mA	1000hrs	0/30
Steady State Operating life of High Humidity Heat	Ta=60°C RH=90%,IF=150mA	1000hrs	0/30
High Temperature Storage	Ta=100°C	1000HRS	0/30
Low Temperature Storage	Ta=-40°C	1000HRS	0/30

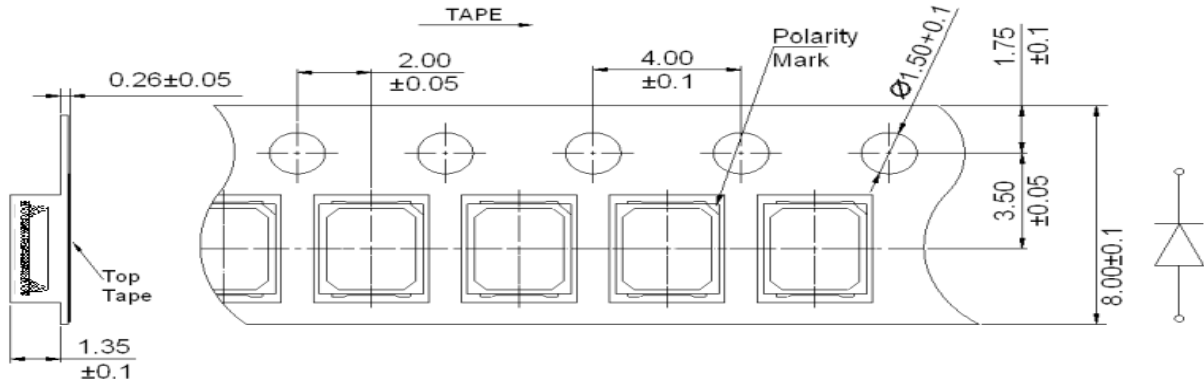
2. Criteria for Judging The Damage

Item	Symbol	Test Conditions	Criteria for Judgment	
			Min.	Max.
Forward Voltage	V_F	$I_F = 150 \text{ mA}$	---	Initial Data $\times 1.1$
Luminous Intensity	I_V	$I_F = 150 \text{ mA}$	Initial Data $\times 0.9$	---
Reverse Current	I_R	$V_R = 5V$	---	Initial Data $\times 2.0$

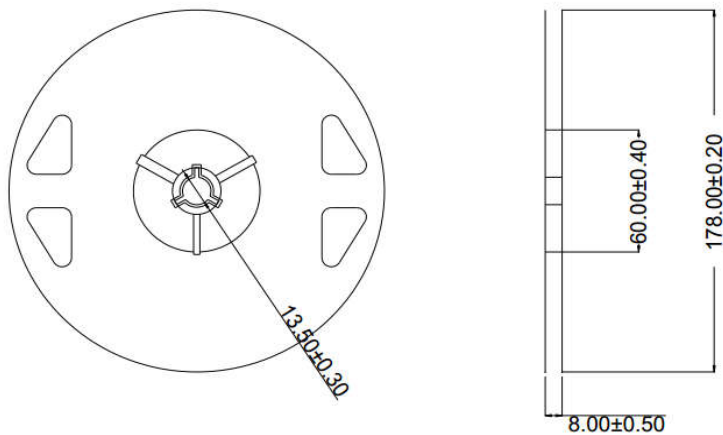


◆ Packaging Specifications

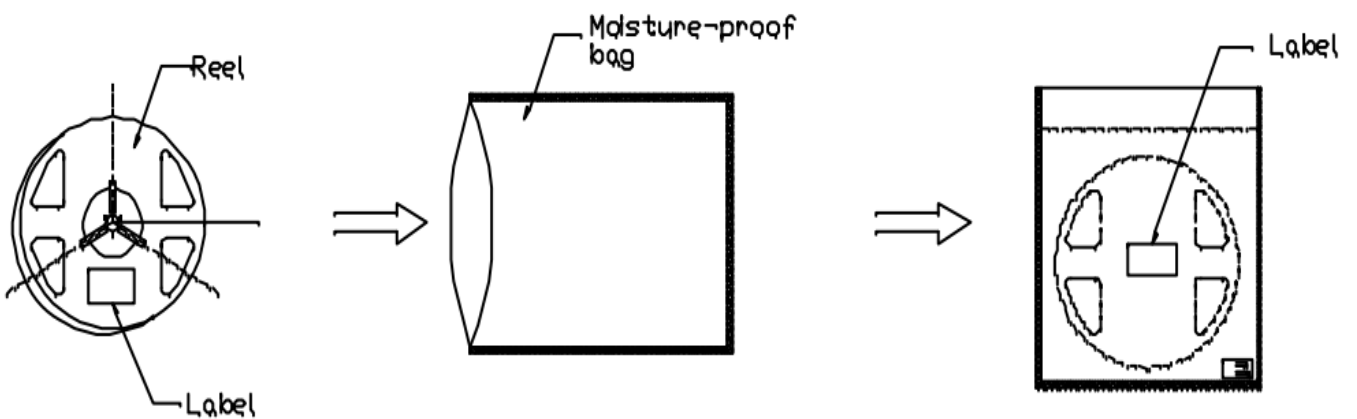
Dimensions of Tape



Dimensions of Reel



Packaging specifications





Label:

Φ(LM): Luminous flux rank

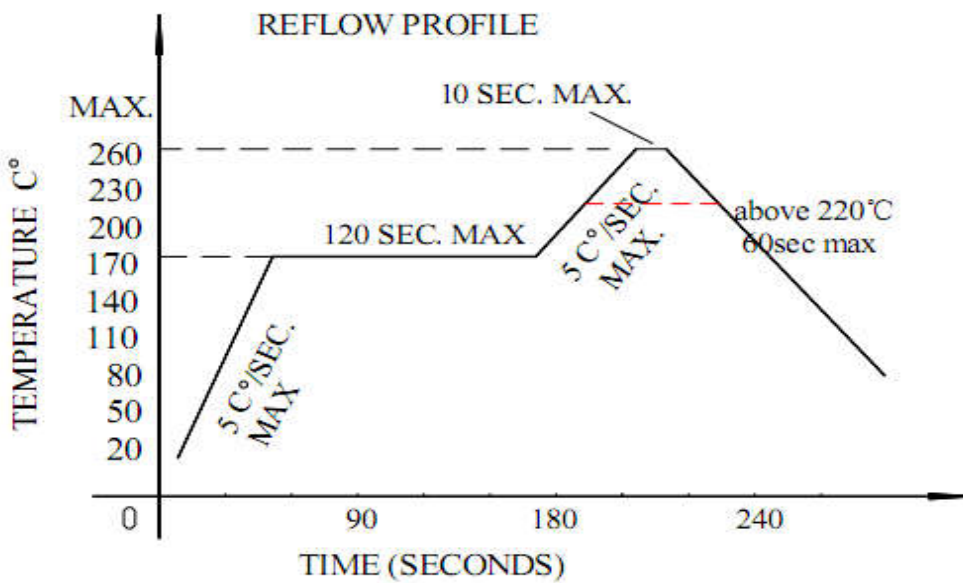
XY: Color Coordinates

VF: Forward Voltage

RA: Color Rendering index

MIKWANG ELECTRONICS CO., LTD				
Part NO. : XY-XXXXXXXX		Lot NO. : XX-XXX		Q'ty: XXXX pcs
	Code	Min	Typ	Max
XY :	XX	TC :	XXXX	XXXX
PO :	XX	Φ (LM) :	XX	XX
IF :	XX	VF (V) :	XX	XX
SDCM :	X	RA :	XX	
BIN NO. :	X-X-X	Rθ :	X	DATE: XXXX/XX/XX
备注: XXXXXXXX XX (XX)				

◆ **SMT Reflow Soldering Instructions**



1. Reflow soldering should not be done more than two times

2. When soldering, do not put stress on the LEDs during heating

◆ **Soldering iron**

1. When hand soldering, keep the temperature of the iron under 300°C, and at that temperature keep the time under 3 sec.



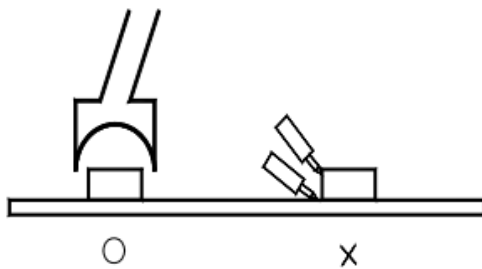
2. The hand soldering should be done only one time,

◆ Rework

1. Customer must finish rework within 3 sec under 300°C

2. The head of iron can not touch the resin

3. Twin-head type is preferred.



◆ CARTIONS

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