



深圳市锐硕光电有限公司

Shenzhen Ruishuo Optoelectronic Co.,Ltd

**SPECIFICATIONS FOR T3C SERIES
MONOCHROMATIC LIGHT LED**

Model: 3030

Part No: T3C011F-*******

Features:

- * Top view white LED
- * Thermally Enhanced Package Design
- * High luminous flux output
- * High current capability
- * Compact Package Size
- * Wide viewing angle
- * Pb-free Reflow Soldering Application
- * The product itself will remain within RoHS compliant version

Applications

- * Interior lighting
- * Retrofits (replacement)
- * General lighting
- * Architectural / Decorative lighting

Part Numbering System

T

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10

Item Number Code	Description	Content
X1	Type code	1S:1010; 1A:1919; 20:2016; 3B:3014; 28:2835 34:3020; 3C:3030; 5C:5050; 7C:7070; 1D:100100; 19:Ceramic 3535; 15:Ceramic 5050; 11:Ceramic 1616.
X2	CCT code	2700K:27; 3000K:30; 4000K:40; 5000K:50; 5700K:57; 6500K:65.
X3	Color Rendering	Ra70:7; Ra80:8; Ra90:9.
X4	No. of serial chip	1-Z.
X5	No. of parallel chip	1-Z.
X6	Component code	A-Z.
X7	Color Code	M:ANSI; F:ERP; R:85°C ANSI; T:105°C ANSI; B:Backlighting; Q:Others;AT:Tospo
X8	Internal code1	\
X9	Internal code2	\
X10	Spare code	\

Electro Optical Characteristics, IF = 350mA

CCT	Luminous Flux	
	Typ	Min
BLUE	20	18
GREEN	82	72
RED	44	37
YELLOW	44	37

* Tolerance of measurements of the Luminous Flux is $\pm 7\%$.

Absolute Maximum Ratings at Tj=25°C

Item	Symbol	Absolute Maximum Ratings		Unit
Forward Current	IF	400		mA
Pulse Forward Current	IFP	600		mA
Power Dissipation	PD	BLUE	1440	mW
		GREEN	1360	
		RED	1040	
		YELLOW	1040	
Reverse Voltage	VR	5		V
Operating Temperature	Topr	-40~+105		°C
Storage Temperature	Tstg	-40~+85		°C
Junction Temperature	Tj	110		°C
Soldering Temperature	Tsld	Reflow Soldering: 230°C or 260°C for 10sec		

* IFP condition with Pulse: Width≤100μs, Duty cycle≤1/10.

* LED's properties might be different from suggested values like above and below tables if operation condition will be exceeded our parameter range. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.

* All measurements were made under the standardized environment of Ruishuo LED.

Electrical/Optical Characteristics at Tj=25°C

Item	Symbol	Colour	Value			Unit	Test Condition
			Min	Typ	Max		
Forward Voltage	VF	BLUE	3.0	3.4	3.6	V	IF=350mA
		GREEN	2.8	3.0	3.4		
		RED	1.8	2.2	2.6		
		YELLOW	1.8	2.2	2.6		
Reverse Current	IR	BLUE	-	-	10	μA	VR=5V
		GREEN					
		RED					
		YELLOW					
Viewing Angle	2θ1/2	BLUE	-	120	-	°	IF=350mA
		GREEN					
		RED					
		YELLOW					
Thermal Resistance	(Rth j-sp)	BLUE	-	17	-	°C/W	IF=350mA
		GREEN	-	15	-		
		RED	-	10	-		
		YELLOW	-	10	-		
Electrostatic Discharge	ESD	BLUE	1000	-	-	V	HBM
		GREEN	1000	-	-		
		RED	1000	-	-		
		YELLOW	1000	-	-		

* Tolerance of measurements of the Forward Voltage is $\pm 0.1V$.

* Tolerance of measurements of the Luminous Flux is $\pm 7\%$.

* 2θ1/2 is the off-axis where the luminous intensity is 1/2 of the peak intensity.

* Rth j-sp is the thermal resistance from LED junction to solder point on MCPCB with electrical power.

The main wavelength standard grading, IF = 350mA , Tj = 25℃

Color	Min	Max	Unit
BLUE	455	460	nm
	460	465	nm
	465	470	nm
GREEN	520	525	nm
	525	530	nm
	530	535	nm
RED	615	620	nm
	620	625	nm
	625	630	nm
YELLOW	585	590	nm
	590	595	nm
	595	600	nm

*Tolerance of measurements of the WD is $\pm 1\text{nm}$.

Luminous Flux Ranks, IF = 350mA, Tj =25℃

Luminous Flux				
Color	Code	Min	Max	Unit
BLUE	AH	18	22	lm
	AJ	22	26	lm
	AK	26	30	lm
GREEN	AS	72	80	lm
	AT	80	88	lm
	AW	88	96	lm
	AX	96	104	lm
RED/ YELLOW	AM	37	44	lm
	AN	44	51	lm
	AP	51	58	lm

* Tolerance of measurements of the Luminous Flux is $\pm 7\%$.

Forward Voltage Ranks, IF = 350mA, Tj =25°C

Color	Code	Min	Max	Unit
BLUE/ GREEN	H3	2.8	3.0	V
	J3	3.0	3.2	V
	K3	3.2	3.4	V
	L3	3.4	3.6	V
RED/ YELLOW	C3	1.8	2.0	V
	D3	2.0	2.2	V
	E3	2.2	2.4	V
	F3	2.4	2.6	V

* Tolerance of measurements of the Forward Voltage is $\pm 0.1V$.

Fig 1. Color Spectrum, $T_j = 25^\circ\text{C}$

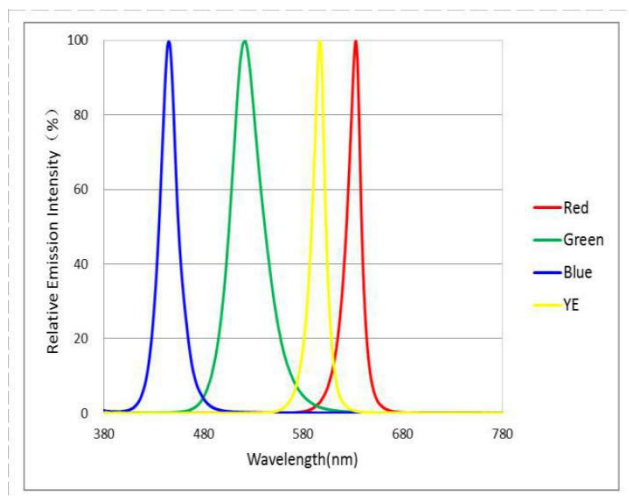


Fig 2. Viewing Angle Distribution, $T_j = 25^\circ\text{C}$

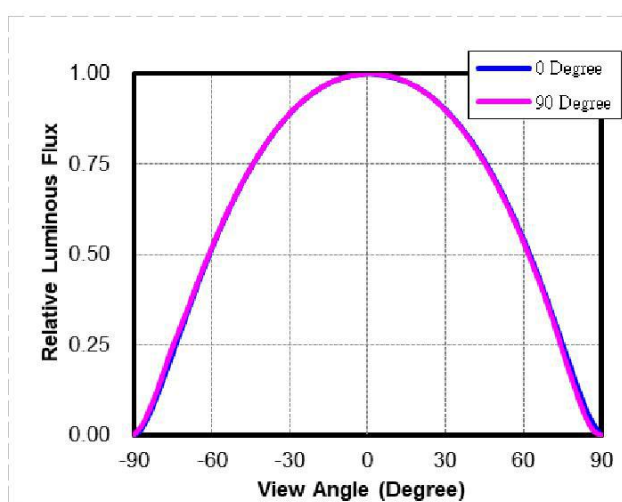


Fig 3. Forward Current vs. Relative Intensity, $T_j = 25^\circ\text{C}$

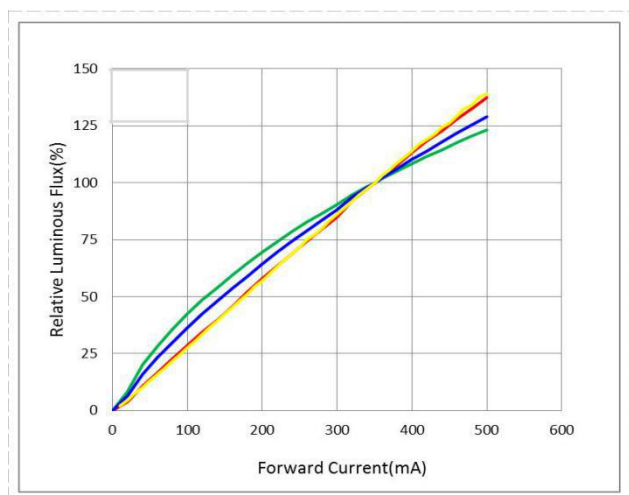


Fig 4. Forward Current vs. Forward Voltage, $T_j = 25^\circ\text{C}$

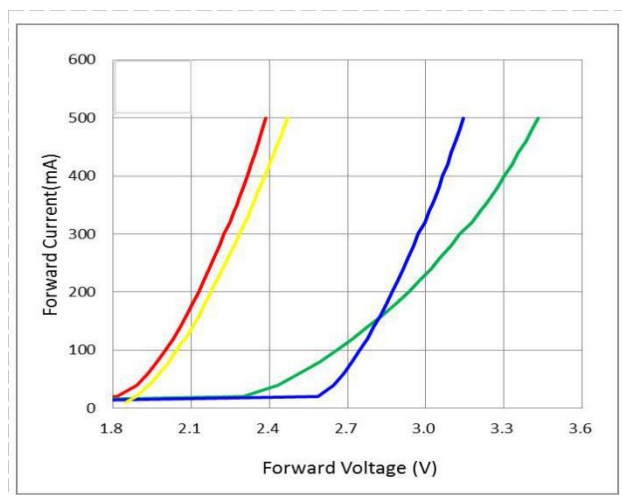


Fig 5. Ambient Temperature vs. Relative Luminous flux ($I_F=350\text{mA}$)

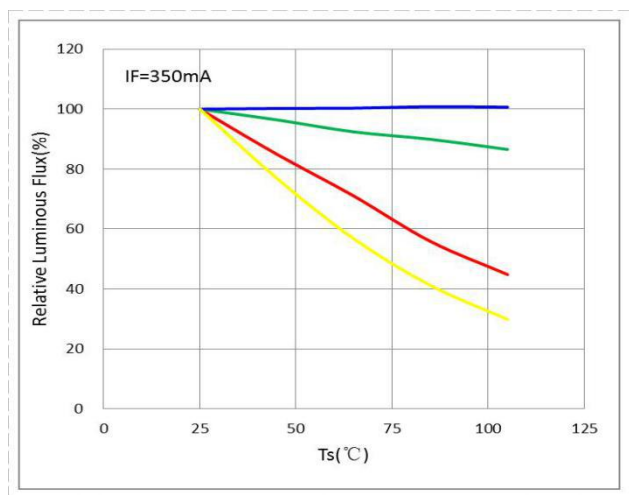


Fig 6. Ambient Temperature vs. Relative Forward Voltage ($I_F=350\text{mA}$)

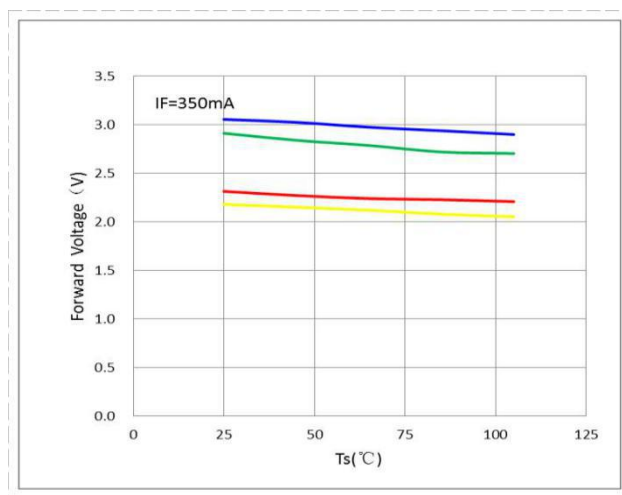
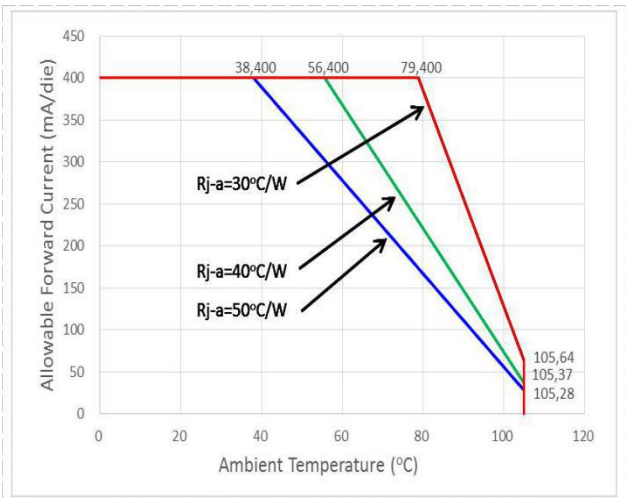
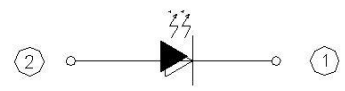
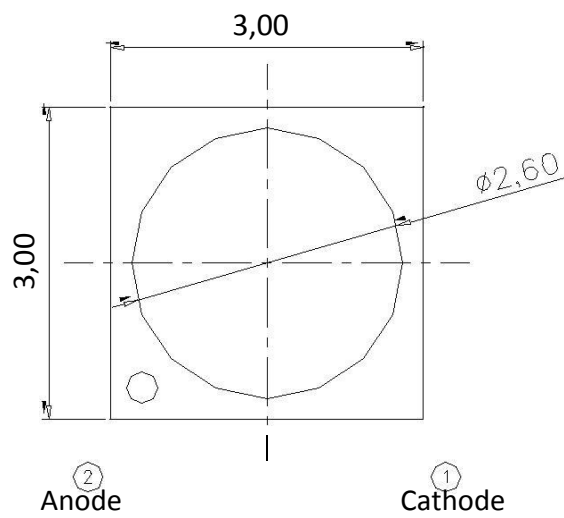


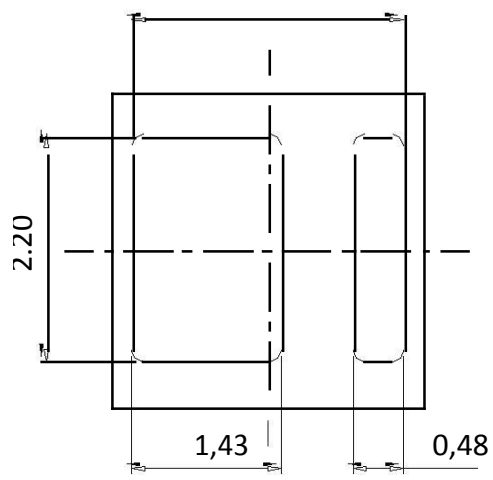
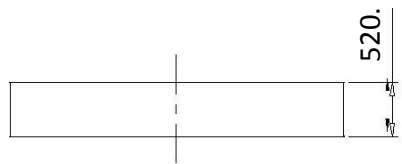
Fig7, Maximum Forward Current vs. Ambient Temperature



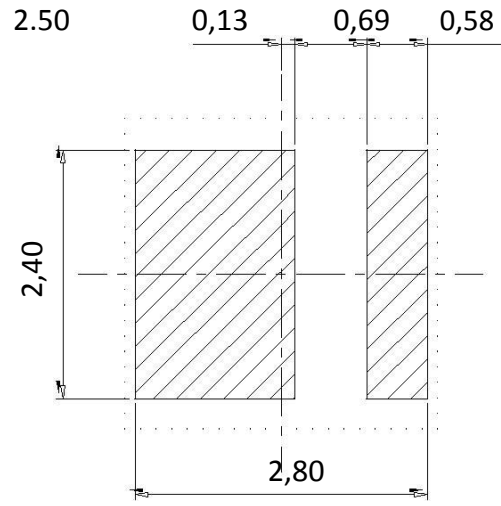
Package Dimensions



Polarity



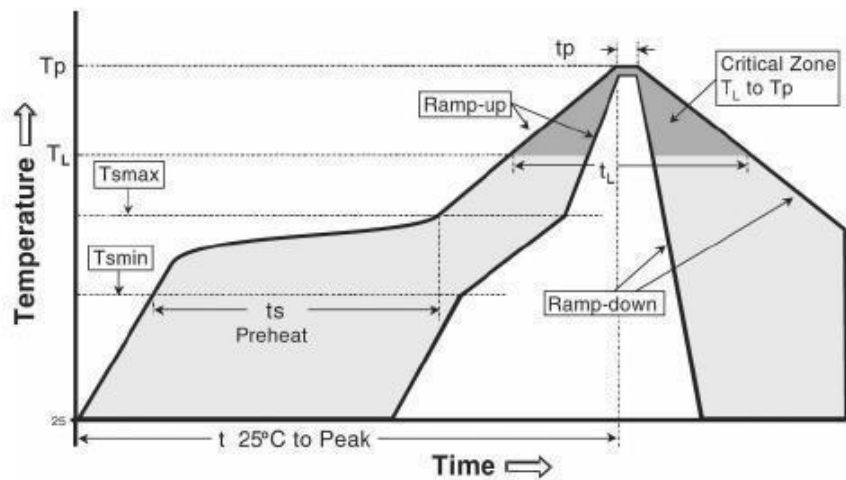
Bot. view



Soldering patterns

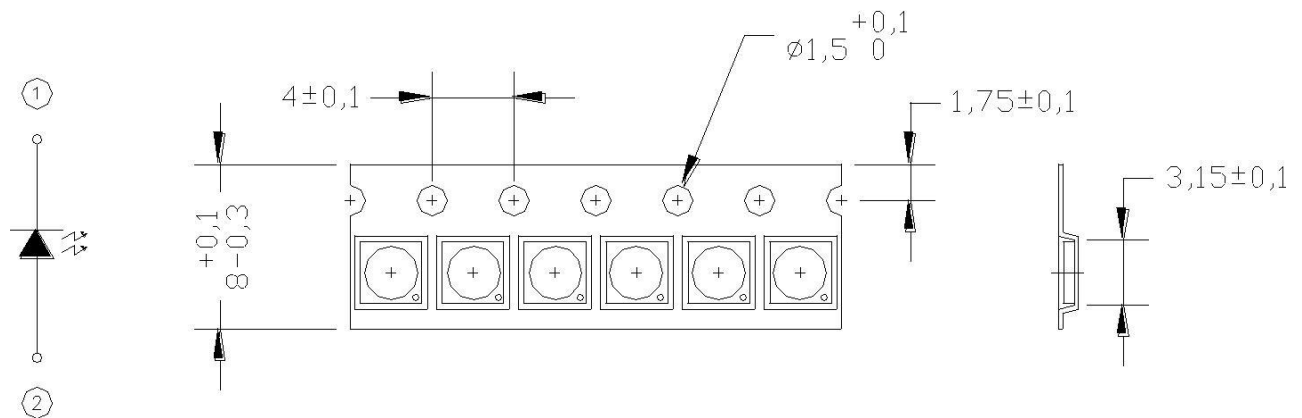
* The tolerance unless mentioned is $\pm 0.1\text{mm}$, unit = mm.

Reflow Soldering Characteristics



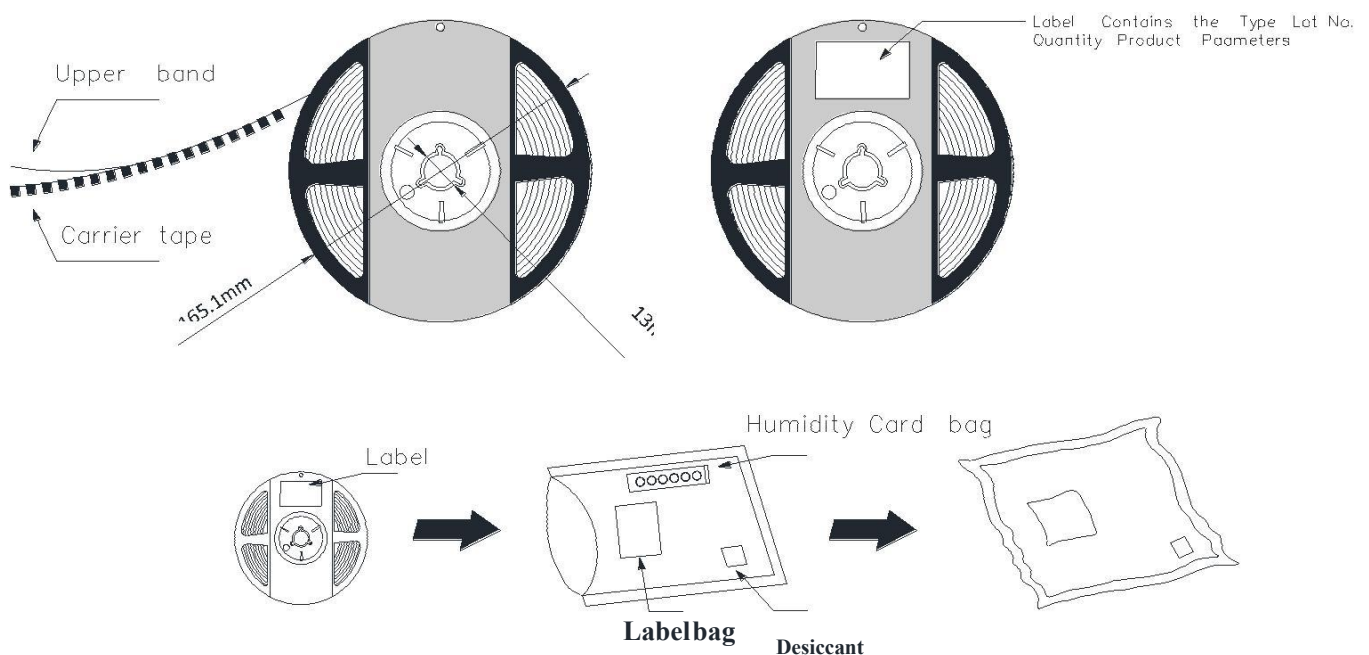
Reflow soldering	
Temperature Min (T _{smin})	150° C
Temperature Max (T _{smax})	200° C
Time(ts)from (T _{smin} to T _{smax})	60-120 seconds.
Ramp-up rate (T _L to T _p)	3° C/seconds max.
Liquidous temperature(T _L)	217° C
Time(t _L) maintained above T _L	60-150 seconds
Peak package body temperature(T _p)	260° C max
Time (t _p) within 5° C of the specified classification temperature (T _c).	30 seconds max
Ramp-down rate (T _p to T _L)	6° C/second max
Time 25 ° C to peak temperature	8 min max

Package Dimensions of Tape

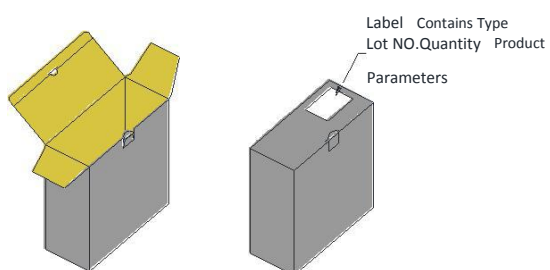


- * Quantity : Max 5000pcs/Reel.
- * Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2\text{mm}$.
- * Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.
- * unit = mm.

Package Dimensions of Reel

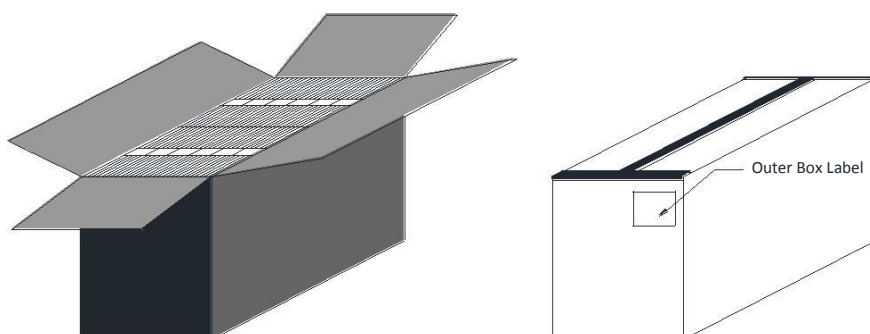


Package Box



* Capacity 10 reels per box.

Outer Box



* Capacity 30 or 60 reels per box.

Label :

Caution

1. Reflow soldering is recommended not to be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged.
2. Repairs should not be done after the LEDs have been soldered. When repair is unavoidable, suitable tools must be used.
3. Die slug is to be soldered.
4. When soldering, do not put stress on the LEDs during heating.
5. After soldering, do not warp the circuit board.

Notes on Ruishuo EMC Series soldering:

1. Recommend to use reflow machine.
2. Recommend to use heating plate soldering.
3. Manual soldering is not recommended.

Notes on reflow process:

1. To confirm whether the actual temperature curve in the reflow soldering conditions comply with recommended conditions. LEDs are guaranteed for one time reflow.
2. During reflow process do not apply force on LED active area.
3. After reflow process, PCB board should be cooled down before packing or storage.

Precaution for use

Storage

1. Before opening the package: The LED should be kept at 30°C or less and 90%RH or less.
2. After opening the package: The LED's floor life is 168Hrs under 30°C or less and 60%RH or less. If unused LED remain, it should be stored in moisture proof packages JEDEC (MSL 3).
3. 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.