



RUI SHUO

深圳市锐硕光电有限公司

Shenzhen Ruishuo Optoelectronic Co.,Ltd

SPECIFICATIONS FOR T19 SERIES

UVA LED-120°

Model : Ceramic 3535

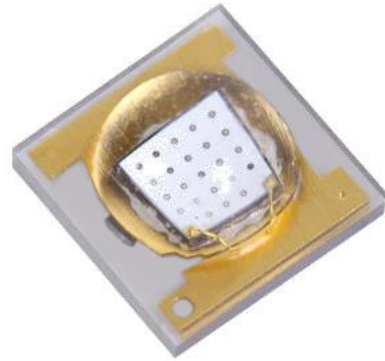
Part No : T19UV011A-xxxxxx



Introduction

Features

- * Top view UVA LED
- * AlN High Thermal Design
- * Gold-plated Package Design
- * Dimension: 3.5*3.5*1.93
- * Viewing angle 120°
- * ESD protection up to 6KV
- * Pb-free Reflow Soldering Application
- * RoHS compliant



Applications

- * UV Photo-catalyst
- * UV Sensor Light
- * Security banknote
- * Lithography
- * 3D Printing
- * Air Purge



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	BL: blue ; GR : green; YE : yellow; RE : red; PA: PC Amber ;IR :Infrared; UV : ultra violet;CW:RGB; FW: RGBW
X3	Color Rendering	Color : 0
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	Chip Code	\
X9	Internal code	\
X10	Spare code	\



Electro Optical Characteristics, Ta =25°C

Parameter	Symbol	Package Type					Unit
		365nm	385nm	395nm	405nm	415nm	
Forward Current	IF	500	500	500	500	500	mA
Radiant Flux	Φe (Typ.)	860	960	960	930	860	mW
Forward Voltage	VF (Min.)	3.0	3.0	3.0	3.0	3.0	V
	VF (Typ.)	3.6	3.4	3.4	3.4	3.4	V
	VF (Max.)	4.0	4.0	4.0	4.0	3.8	V
Peak Wavelength	λp (Typ.)	367	387	397	405	415	nm
FWHM at 50% of Φ	Δλ 1/2	10	10	10	10	10	nm
Thermal Res.	R _{th}	2.3	2.3	2.3	2.3	2.3	K/W
Viewing Angle	2θ 1/2	120	120	120	120	120	°

- * Tolerance of measurements of Radiant flux measurement is ±10%;
- * Tolerance of measurements of Peak Wavelength is ±2.0nm;
- * Tolerance of measurements of Forward Voltage is 0.1V.



Absolute Maximum Ratings at Ta=25°C

Item	Symbol	Absolute Maximum Rating	Unit
DC Forward current	IF	700	mA
Pulse Forward current	IFP	1000	mA
Power Dissipation	PD	2800	mW
Reverse Voltage	VR	5	V
ESD Resistance (Typ)	VB	6000	V
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+105	°C
Junction Temperature	Tj	≤115	°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.

Bin Structure

Radiant Flux Bin, IF = 500mA, Ta =25°C

Code	Min.	Max.	Unit
JQ2	550	610	mW
JR1	610	690	mW
JR2	690	770	mW
JS1	770	860	mW
JS2	860	960	mW
JT1	960	1080	mW
JT2	1080	1200	mW

* Tolerance of measurements of the Radiant Flux is $\pm 10\%$.

Peak wavelength Bins, IF = 500mA, Ta =25°C

Code	Min.	Max.	Unit
PY2	360	365	nm
PY1	365	370	nm
QA1	370	375	nm
QA2	375	380	nm
QB1	380	385	nm
QB2	385	390	nm
QC1	390	395	nm
QG2	395	400	nm
QH1	400	405	nm
QH2	405	410	nm
RA1	410	415	nm

* Peak Wavelength ± 2.0 nm.

Forward Voltage Ranks, IF = 500mA, Ta =25°C

Code	Min.	Max.	Unit
AC3	2.8	3.0	V
AC4	3.0	3.2	V
AC5	3.2	3.4	V
AC6	3.4	3.6	V
AD3	3.6	3.8	V
AD4	3.8	4.0	V
AD5	4.0	4.2	V

* Tolerance of measurements of the Forward Voltage is ± 0.1 V.



Typical Characteristics Curves

Fig 1. Spectrum Power Distribution, $T_s = 25^\circ\text{C}$

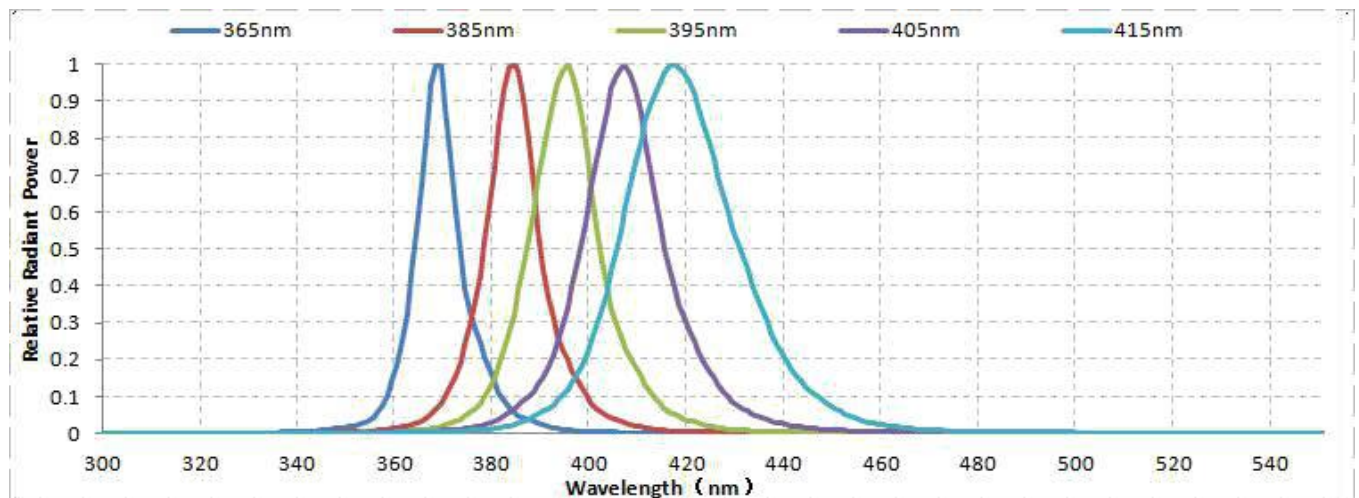


Fig 2. Typical Viewing Angle $=120^\circ$, $T_a = 25^\circ\text{C}$

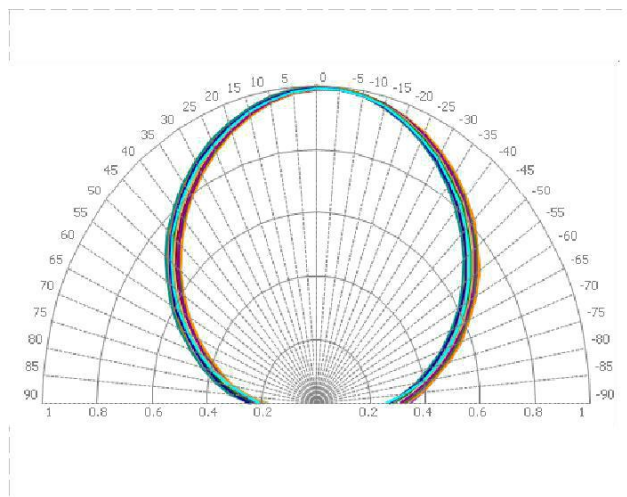


Fig 3. Forward Current vs. Forward Voltage, $T_s = 25^\circ\text{C}$

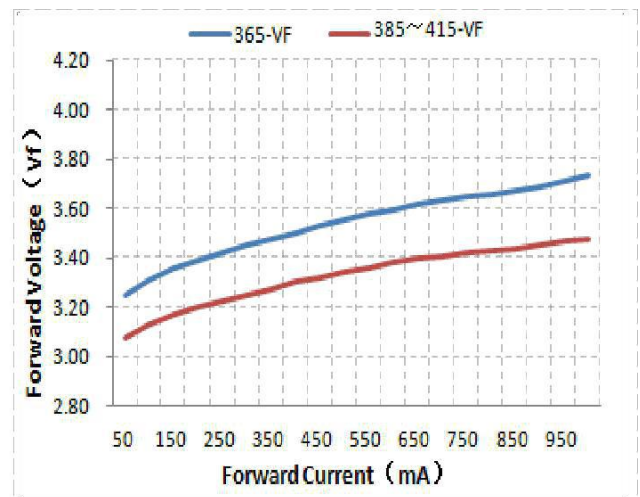


Fig 4. Forward Current vs. Relative Radiant Flux, $T_s = 25^\circ\text{C}$

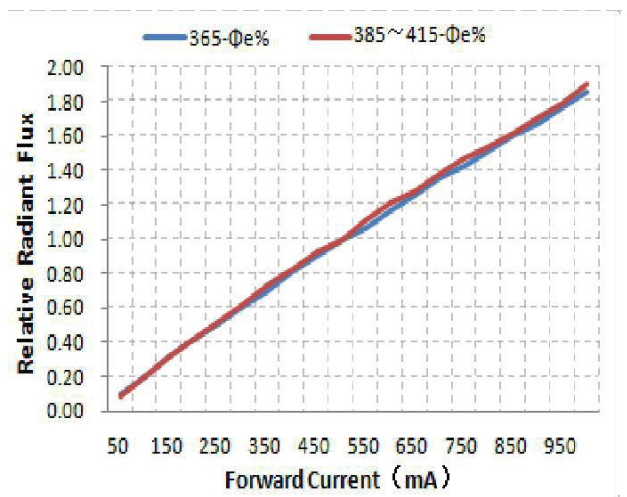


Fig 5. Forward Current vs. Peak Wavelength, $T_s = 25^\circ\text{C}$

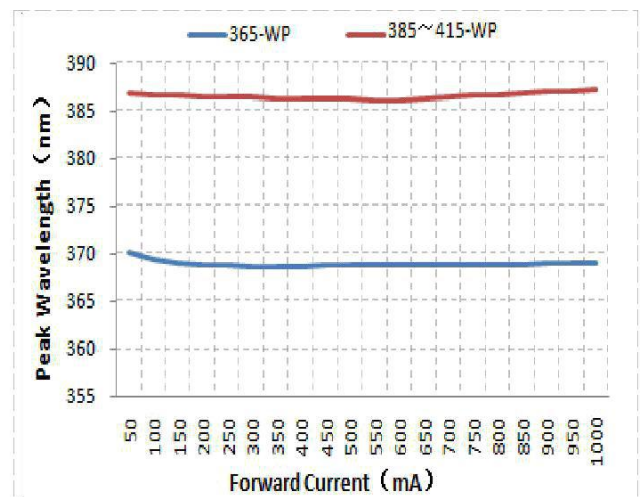


Fig 6. Ambient Temperature vs. Peak Wavelength (IF=500mA)

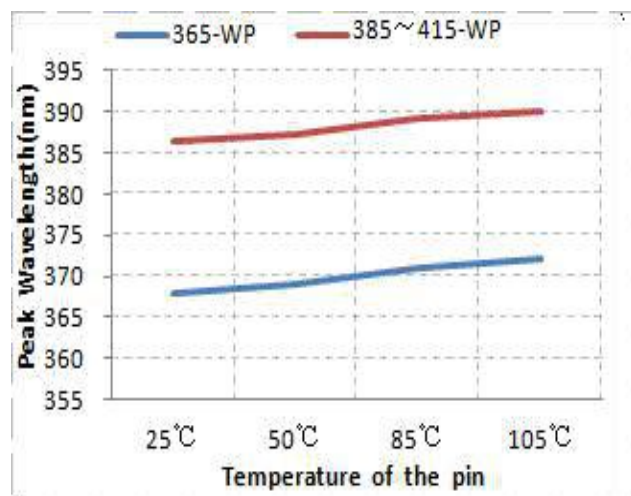


Fig 7. Ambient Temperature vs. Relative Radiant Flux (IF=500mA)

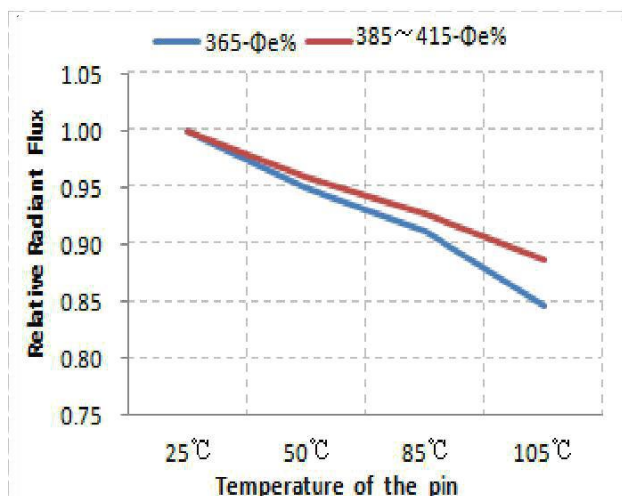


Fig 8. Ambient Temperature vs. Relative Forward Voltage (IF=500mA)

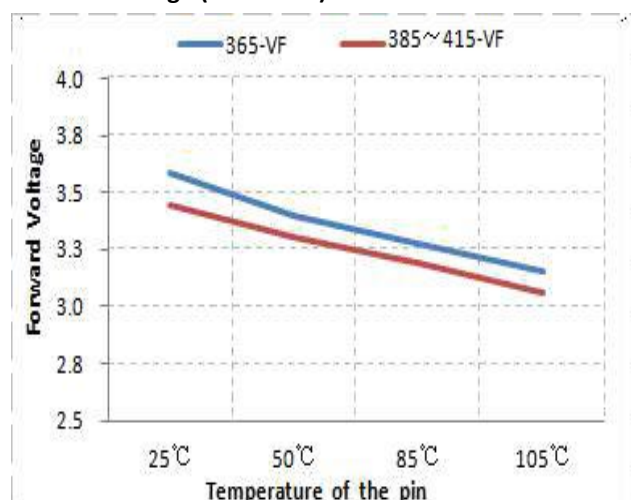
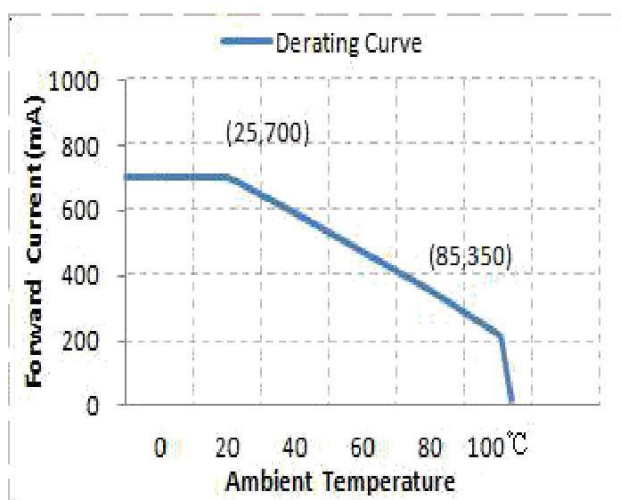
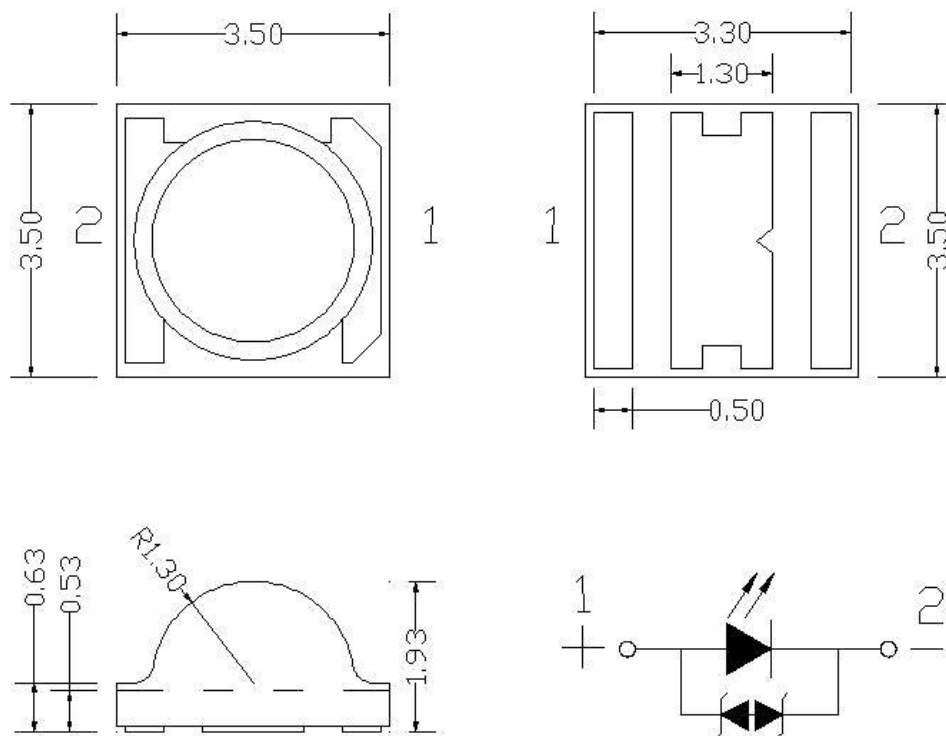


Fig 9. Ambient Temperature vs. Maximum Forward Current

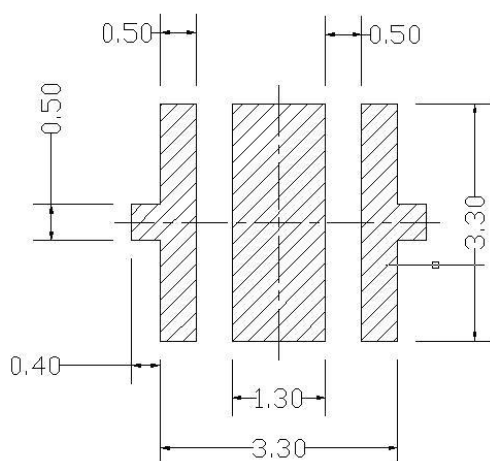


Package Dimensions

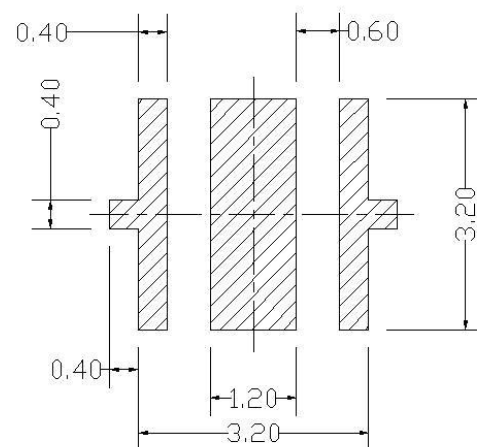


* The tolerance unless mentioned is $\pm 0.2\text{mm}$, unit = mm

Recommended Solder Pad



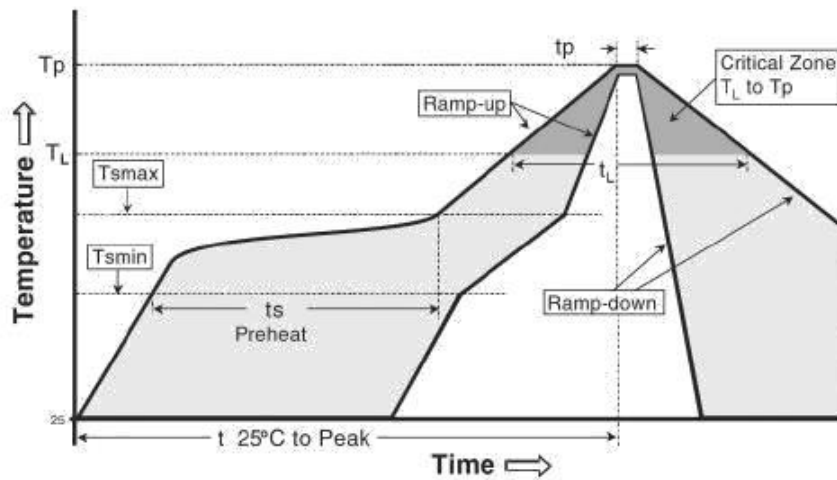
Recommended PCB Solder Pad



Recommended Stencil Pattern

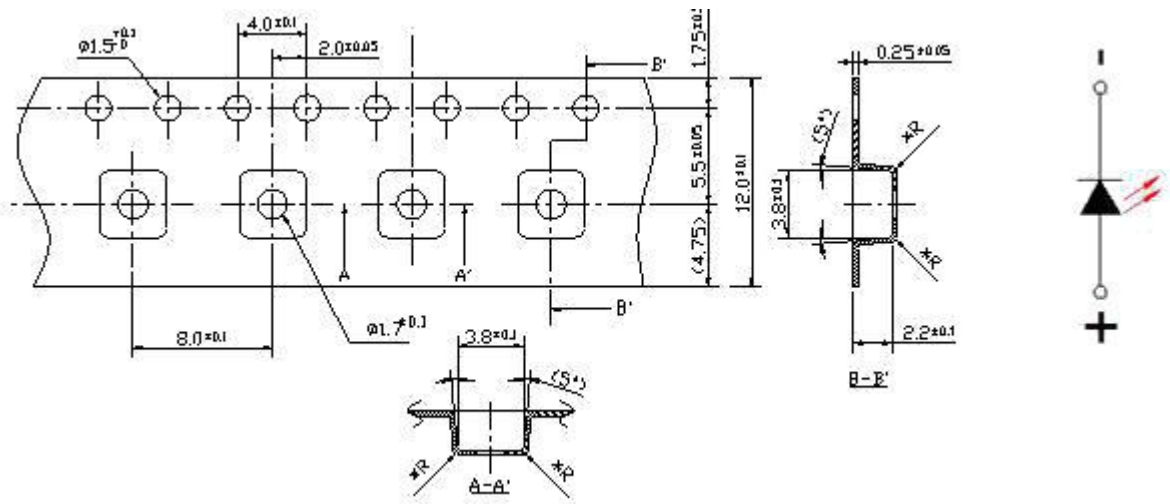
* The tolerance unless mentioned is $\pm 0.1\text{mm}$, unit = mm

Reflow Soldering Characteristics



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

Package Dimensions of Tape



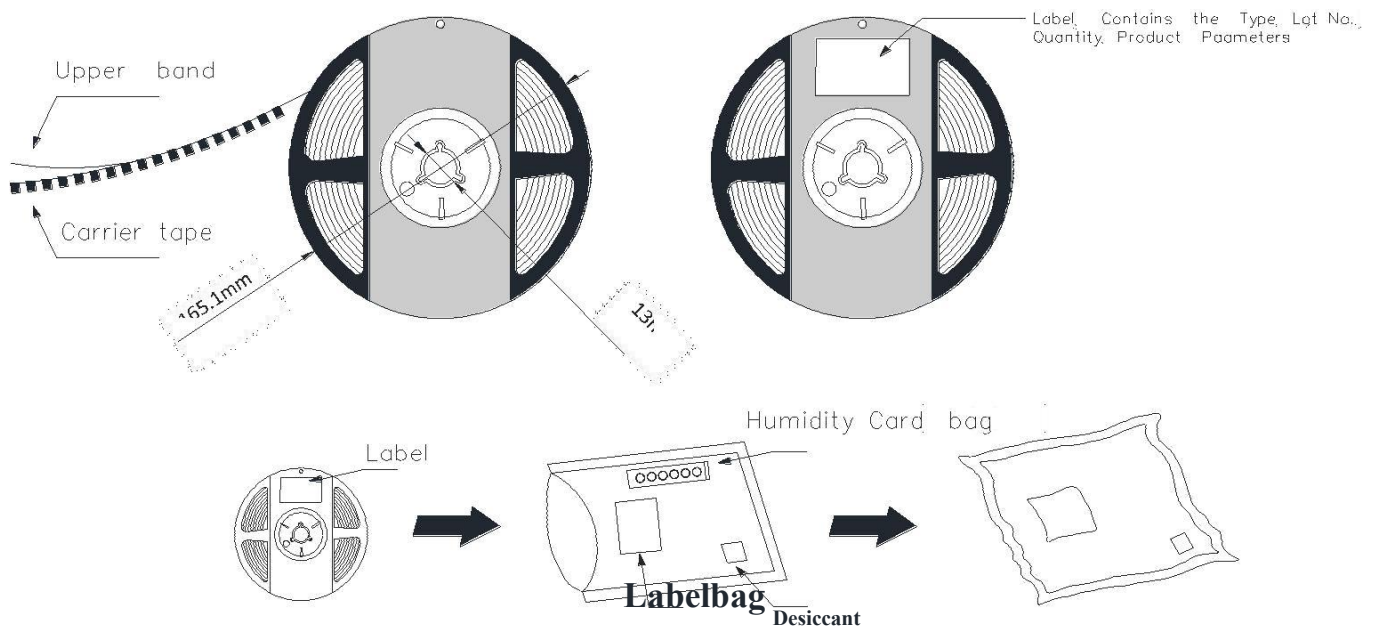
* Quantity : Max 1000pcs/Reel

* Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ± 0.25 mm

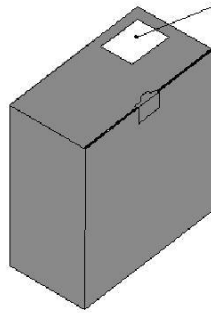
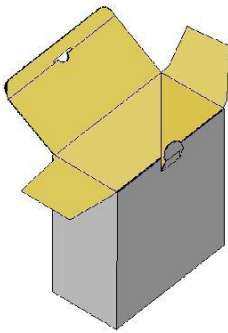
* Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.

* unit = mm

Package Dimensions of Reel

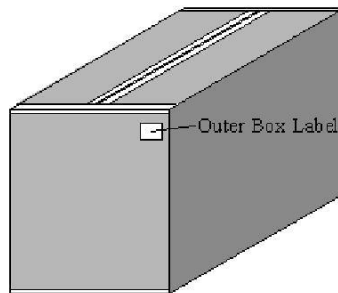
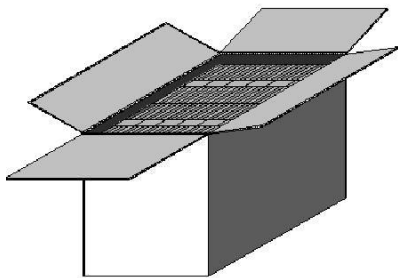


Package Box



Label: Contains Type,
Lot NO, Quantity, Product
Parameters.

* Capacity 4 or 8 reels per box.



Outer Box Label

* Capacity 48 or 64 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 Ceramic 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.