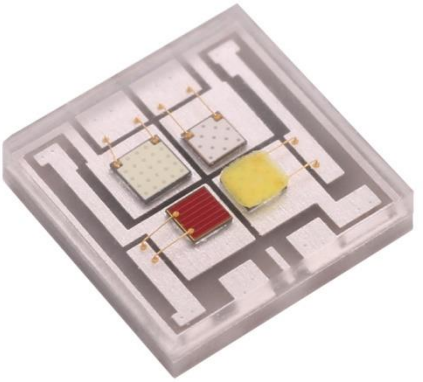
LumiS

LUMIS



. One of the best Lm/W, Lm/$ in High-Power LED
. High-Power Ceramic Packaging LED – 5050 8W Series
L5HC-RGB***14C2F-LSRV (Red, Green, Blue, White)

RoHS

Product Brief

Description

. This RGBW 4in1 surface-mount LED size in standard package: 5.0x5.0mm
. The L5HC series is designed for high flux output applications with high current operation capability.
. Low thermal resistance and high reliability characteristics.

Features And Benefits

. Designed for high current operation
. Low thermal resistance
. RGBW 4in1 LED, High Power
. Pb-free reflow soldering application

Key Applications

- Indoor lighting
- Outdoor lighting
- Automotive
- Architectural lighting
- Industrial lighting
- Portable torch

Table 1. Product Selection Table

Model No.	Wavelength/CCT (Typ.)			
	Red	Green	Blue	White
L5HC-RGB21814C2F-LSRV	620-625	520-525	455-460	2100K
L5HC-RGB27814C2F-LSRV	620-625	520-525	455-460	2700K
L5HC-RGB30814C2F-LSRV	620-625	520-525	455-460	3000K
L5HC-RGB40814C2F-LSRV	620-625	520-525	455-460	4000K
L5HC-RGB50814C2F-LSRV	620-625	520-525	455-460	5000K
L5HC-RGB57814C2F-LSRV	620-625	520-525	455-460	5700K
L5HC-RGB65814C2F-LSRV	620-625	520-525	455-460	6500K

LumiS

Table of Contents

LumiS

Performance

Table 2. Electro Optical Characteristics , IF=350mA Ta = 25℃, RH60%

Color/CCT	Wavelength (nm)	Voltage (V)	Typical Luminous Flux (lm)
	Min.-Max.	Min.-Max.	Min.-Max.
Red	620-625	2.0-2.2	60-65
Green	520-525	2.8-3.0	130-140
Blue	455-460	2.8-3.0	20-22
2100-6500K Ra80	-	2.8-3.0	80-120

• Tolerance of measurements of the Luminous Flux is ±7%.
•Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.
• The luminous intensity was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.
• The lumen table is only for reference.

- Tolerance : VF :±0.08V,
- 2Θ1/2 is the off-axis where the luminous intensity is 1/2 of the peak intensity
- Thermal resistance : RthJS (Junction / solder)

LumiS

Performance

Table 3. Absolute Maximum Ratings, Ta = 25℃, RH60%

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	IF	600	mA
Power Dissipation	PD	6	W
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40～+85	℃
Storage Temperature	Tstg	-40～+100	℃
Electrostatic Discharge	ESD	2000	V

• 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 LumiS LED.

LumiS

Relative Spectral Distribution

Fig 2. Color Spectrum, Ta = 25℃, RH60%

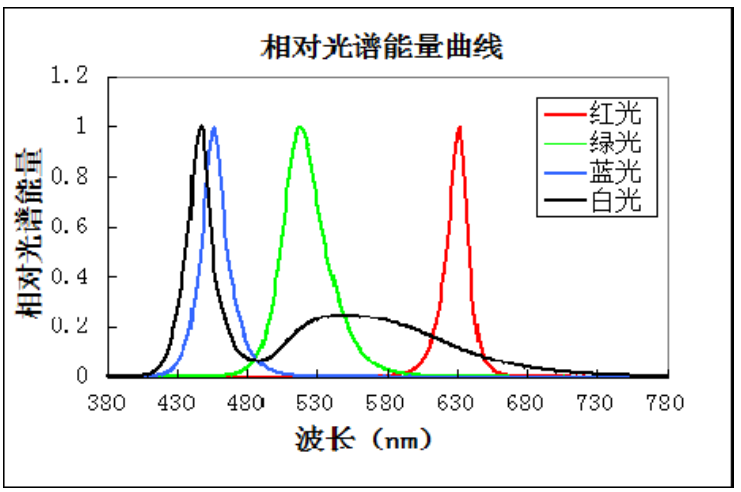


Fig 3. IF-Lm/W, Ta = 25℃, RH60%

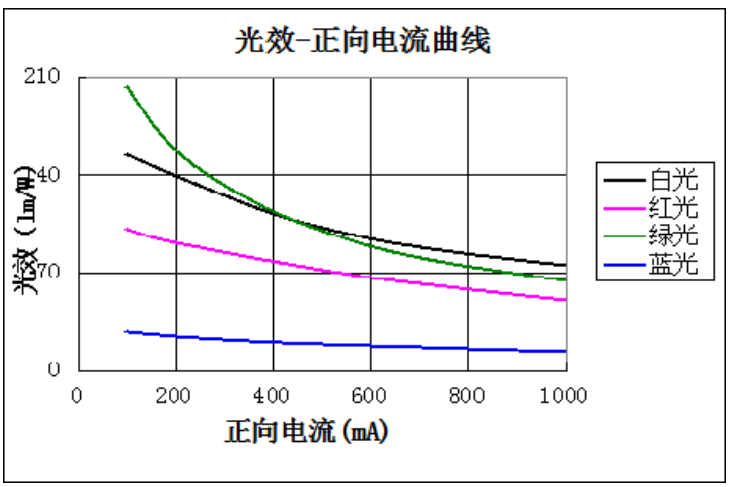


Fig 4. IF--- Luminous flux, Ta = 25℃

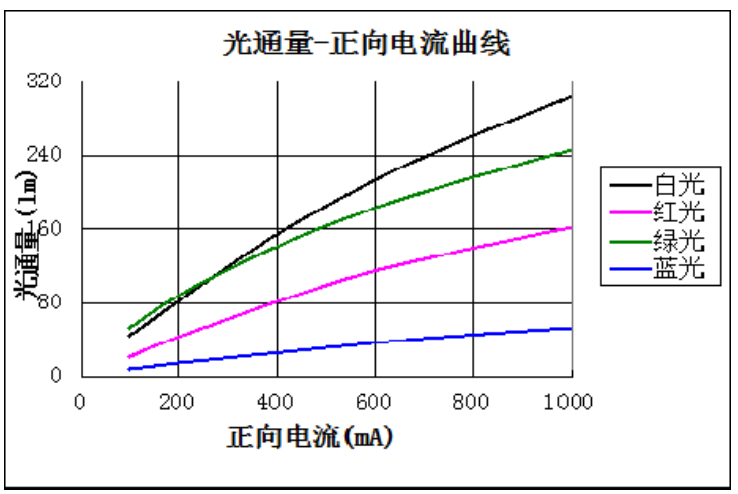
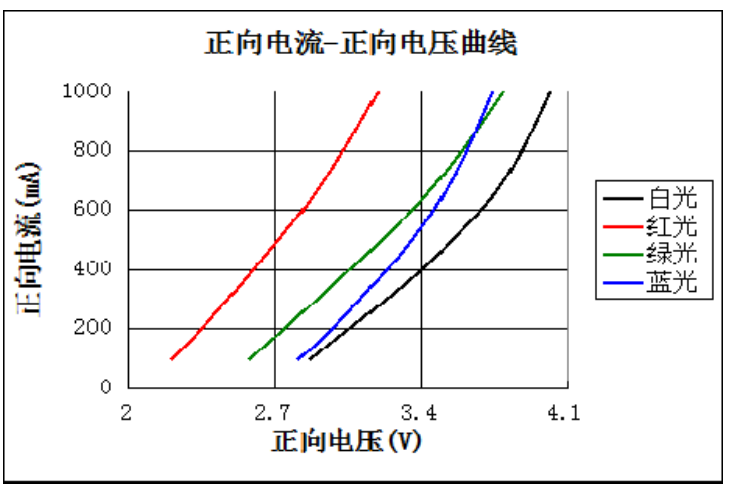
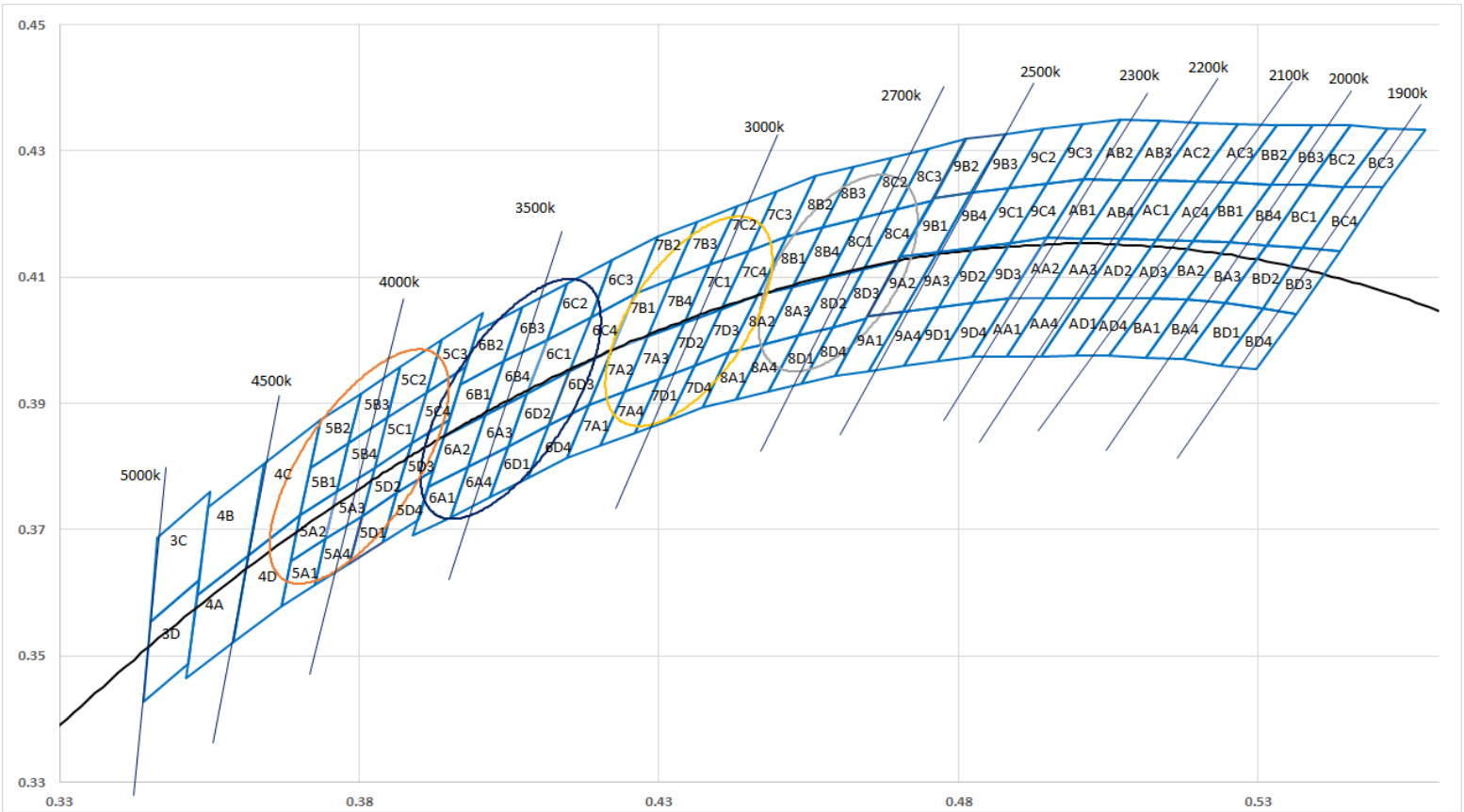


Fig 5. Forward Voltage vs. Forward Current , Ta = 25℃



White Color Bin Structure

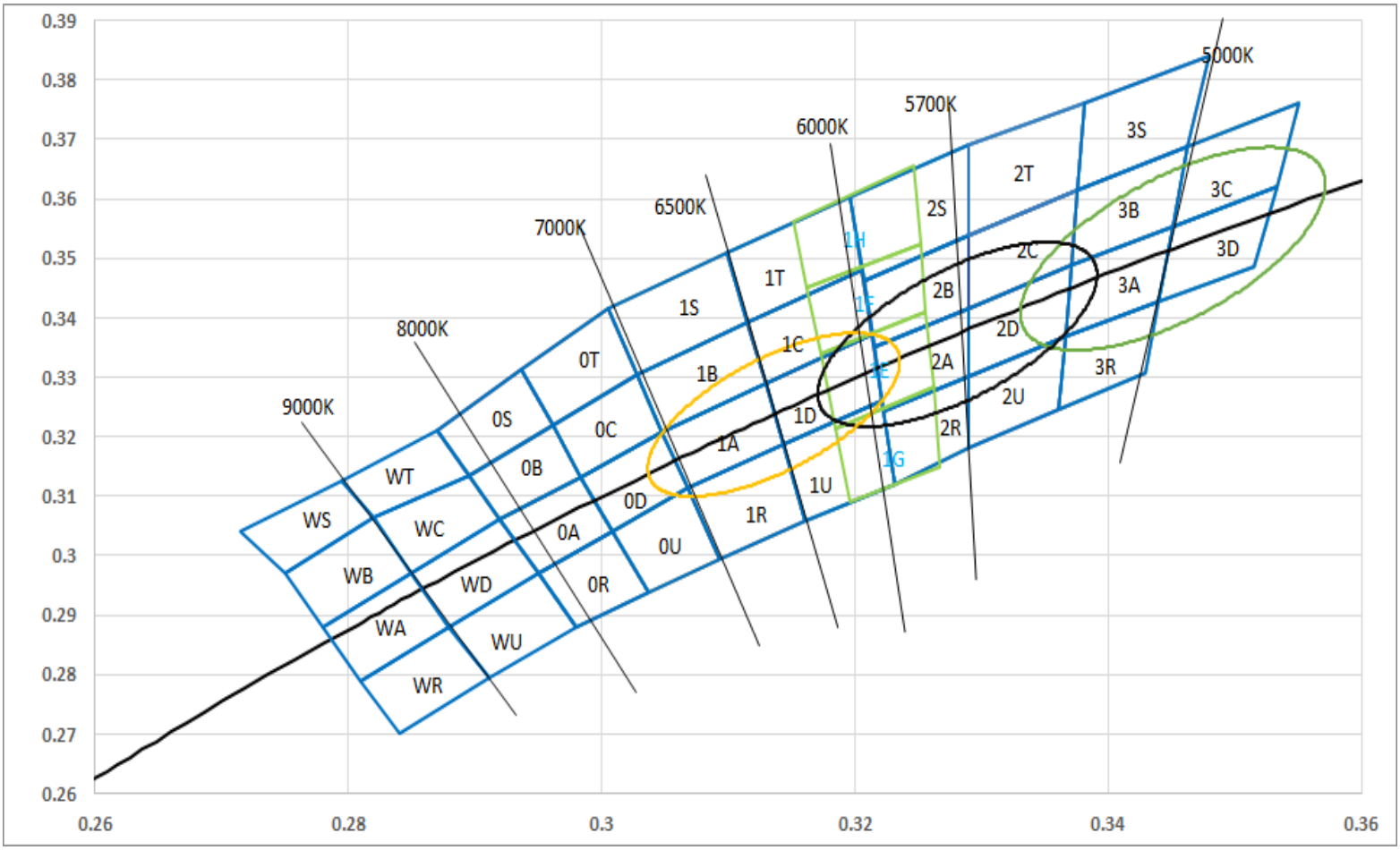
Fig 6, CIE Chromaticity Diagram（CIE色区图）, IF = 350mA, Ta = 25℃



•All measurements were made under the standardized environment of LumiS LED.
• In order to ensure availability, single color rank will not be orderable.

White Color Bin Structure

Fig 7, CIE Chromaticity Diagram（CIE色区图）, IF = 350mA, Ta = 25℃



- All measurements were made under the standardized environment of LumiS LED.
- In order to ensure availability, single color rank will not be orderable.

Click Here To Download the Full CIE Chromaticity Diagram

LumiS

White Luminous Flux Bin Structure

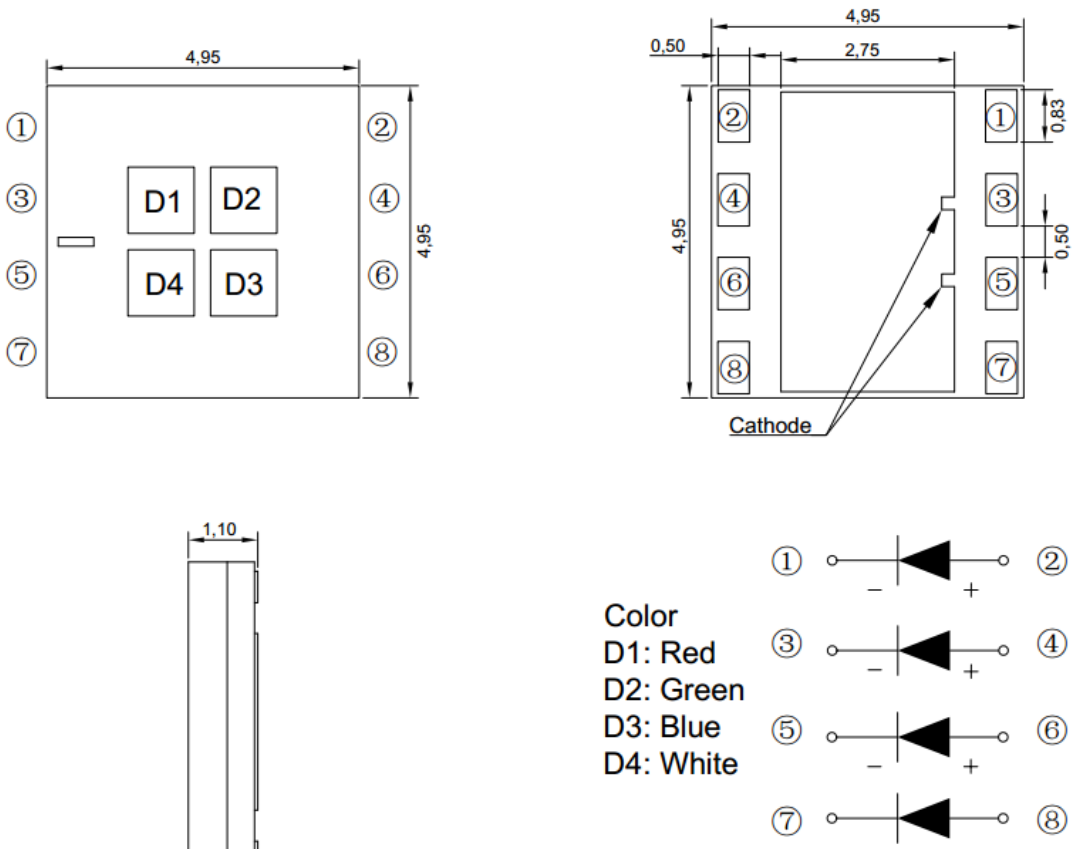
Table 4. Luminous Flux Ranks（光通量分档）, IF = 350mA , Ta = 25℃, RH60%

Color Temperature	Color Rendering		Luminous Flux（IF=350mA）		
	Min	Typ.	Code	Min	Max
2100±100K	80	82	2A	80	90
			2B	90	100
			2C	100	110
2725±145K	80	82	2A	80	90
			2B	90	100
			2C	100	110
3045±175K	80	82	2B	90	100
			2C	100	110
			2D	110	120
3985±275K	80	82	2B	90	100
			2C	100	110
			2D	110	120
5028±283K	80	82	2C	100	110
			2D	110	120
			2E	120	130
5665±355K	80	82	2C	100	110
			2D	110	120
			2E	120	130
6530±510K	80	82	2C	100	110
			2D	110	120
			2E	120	130

- Tolerance of measurements of the Luminous Flux is ±7%.
- Ra measurement tolerance is ±2.
- Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.

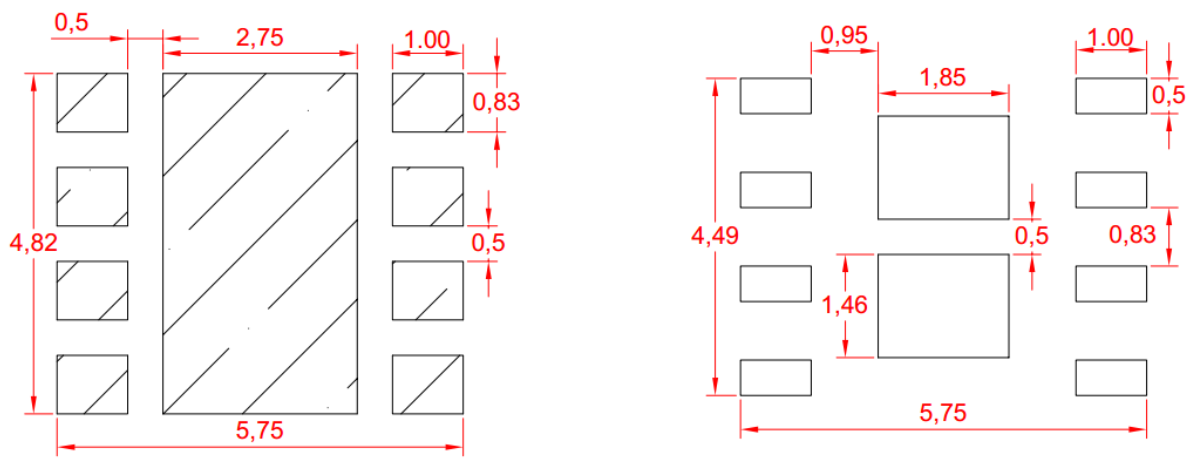
Dimensions and Pad

Fig 8. Mechanical Dimensions



- All dimensions are in millimeters.
- Scale : none
- Undefined tolerance: ±0.05mm.

Fig 9. Recommended Solder Pad

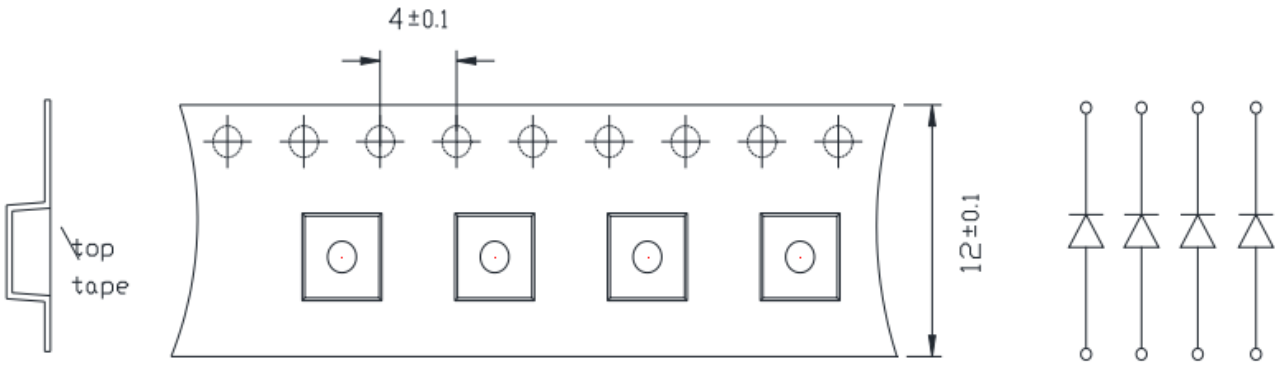


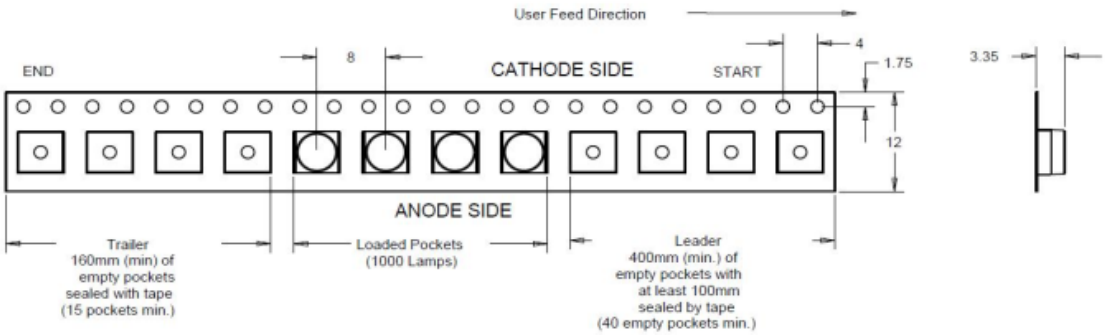
Recommended PCB Solder Pad

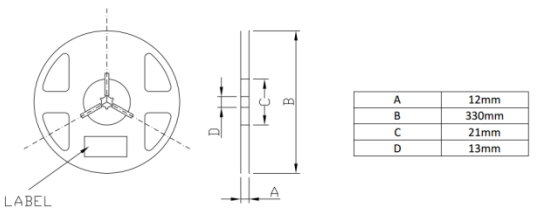
Stencil: 0.12mm
Recommended Stencil Pattern

Packaging Information

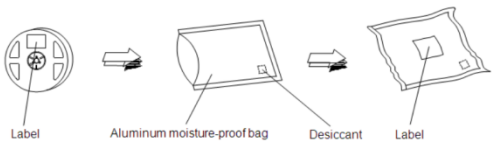
Fig 10. Reel Packaging 500pcs/Reel （卷带包装, 500pcs/卷）

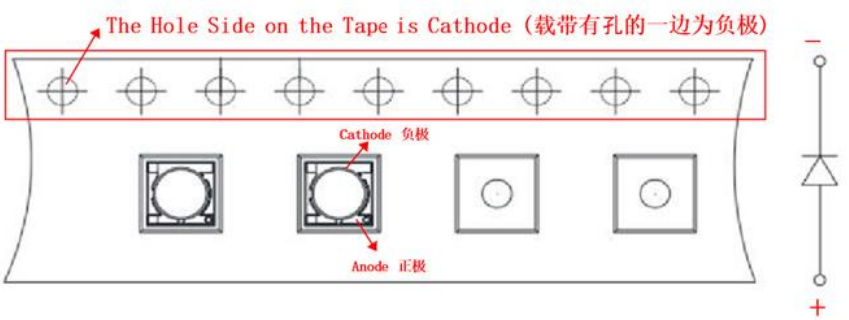






A	12mm
B	330mm
C	21mm
D	13mm

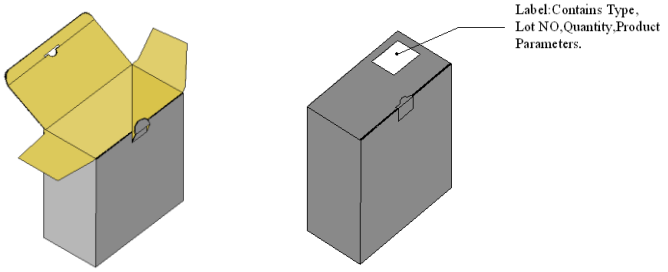




- Quantity : Max 500pcs/Reel
- Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.25mm
- Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10˚ to the carrier tape.
- Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.

Packaging Information

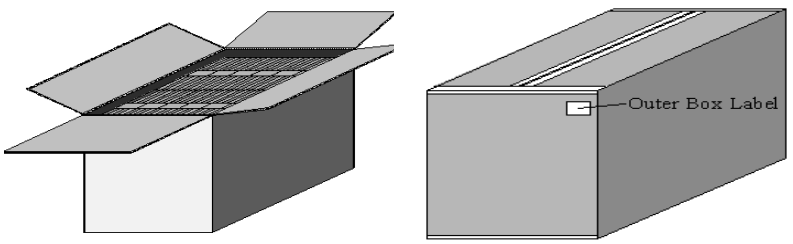
Inner Box



* Capacity 5 or 10 reels per box

Label

Outer Box



* Capacity 30 or 60 reels per box

Table 5. Part Numbering System : L □□ □ — □□□□□□ □ □ □ □ - □□□□

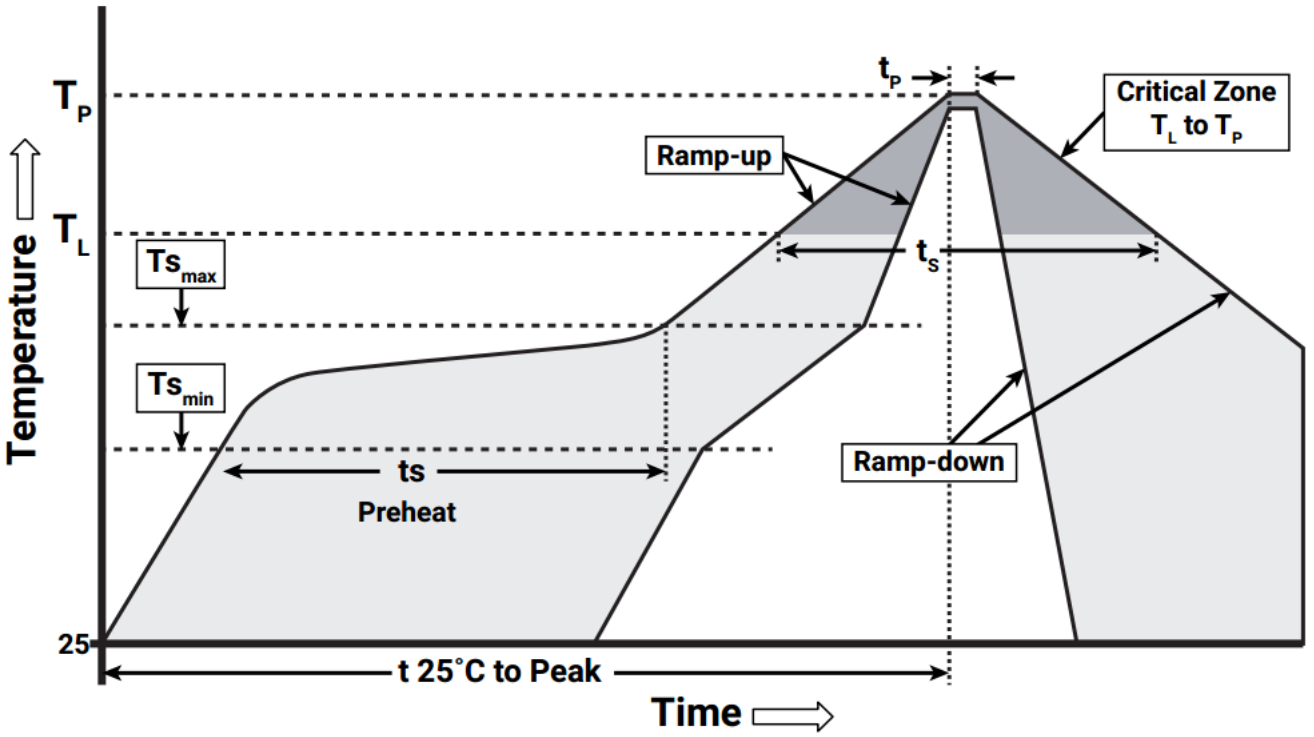
	X1	X2	X3	X4	X5	X6	X7	X8
L	5H	C -	RGB508	1	4	C2	F	- LSRV

Item Number Code	Description	Item Number
X1	LED Type Code 产品代码	60: 6060; 30: 3030; 35: 3535; 5HC: Ceramic 5050
X2	Light Color 发光颜色	W: White Color; C: Colored; I: IR; U: UV
X3	Wavelength 波长	RGB508: RGB 5000K Ra80 4 Colors in 1
X4	No. of Serial Chip 晶片串联数量	1-Z.
X5	No. of Parallel Chip 晶片并联数量	1-Z.
X6	Lead Frame Code 支架代码	E1: EMC; E2: SMC; C1: Al_2O_3 Ceramic; C2: AlN Ceramic
X7	Viewing Angle 发光角度	A: 120 Deg. ; B: 30 Deg. ; C: 60 Deg. ; D: 90 Deg.
X8	Material Code 物料代码	LumiS Material Code

LumiS

Reflow Soldering

Recommended Mid-Temperature Solder Paste
建议使用中温锡膏



Profile Feature	Lead-Free Solder
Average Ramp-Up Rate (Ts_{max} to Tp)	1.2 °C/second
Preheat: Temperature Min (Ts_{min})	120 °C
Preheat: Temperature Max (Ts_{max})	170 °C
Preheat: Time (ts_{min} to ts_{max})	65-150 seconds
Time Maintained Above: Temperature (T_L)	217 °C
Time Maintained Above: Time (t_L)	45-90 seconds
Peak/Classification Temperature (Tp)	235 - 245 °C
Time Within 5 °C of Actual Peak Temperature (tp)	20-40 seconds
Ramp-Down Rate	1 - 6 °C/second
Time 25 °C to Peak Temperature	4 minutes max.

Precaution

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 LumiS 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.

LumiS

Published by

Published By:

Company Information
LumiS Technology Co., Ltd is located in ShenZhen, China, which is a professional manufacturer of LED products that integrates research, production and sales. LumiS is a team focusing on LEDs, LED Modules and LED luminaries. To serve client better, we also provide other led lamp‘s accessories. Our experienced R&D team and sales team are young but professional. All of us have been serving customers over 4 years. We are aiming to provide full service on led luminaries solution from LEDs, driver to final production. Our engineers can offer the best solution when you design luminaries from the beginning. To be specific, when you design one luminary, LumiS can provide the LEDs with high quality and best price based on our professional knowledge. "Save Your Time, Improve Your Products".

Legal Disclaimer
Information in this document is provided in connection with LumiS technology products. With respect to any examples or hints given herein, LumiS hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of the product can be changed to improve the quality and/or performance without notice.