



Surface Mounted Chip LED

Model No. : LS-SP195UHRUYG4

■ Features :

- Compatible with automatic placement equipment
- Compatible with reflow solder process

■ Applications :

- Automotive_Telecommunication
- Indicators
- LCD Back-lights
- Illuminations

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Maximum	Unit
Peak Forward Current (1/10Duty Cycle 0.1ms Pulse Width)	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Derating Linear From 25°C		0.4	mA/°C
Operating Temperature Range	Topr	-30 to +80	°C
Storage Temperature Range	Tstg	-40 to +85	°C

Electrical / Optical Characteristics

(Ta=25°C)

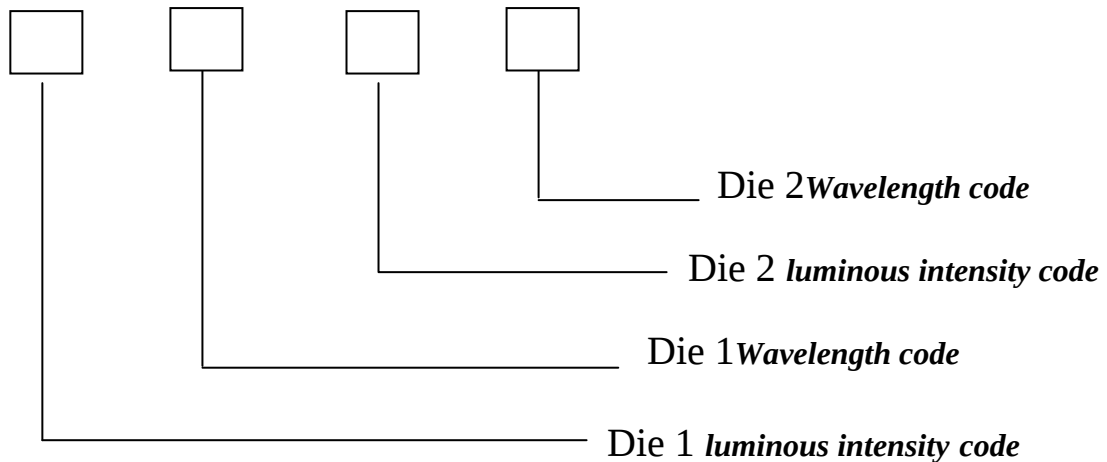
Chip			Lens Appearance	Absolute Maximun Rating			Electro-optical Data (At 20mA)				Viewing Angle 2 θ 1/2 (deg)
Emitted Color	λ P (nm)	λ D (nm)		△ λ (nm)	Pd (mW)	If (mA)	Vf(V)		Iv(mcd)		
							Typ.	Max.	Min.	Typ.	
Ultra High Red (Die1)	645	631	Water Clear	20	78	30	2.1	2.6	45	72	120°
Ultra Yellow Green (Die2)	575	574		15	78	30	2.2	2.6	18	28.5	

ISSUE	DIMENSION NO :	VERSION :	DATE :
		A	2015/10/29
	APPROVAL :	CHECK :	EDIT :



● **Packing coding principle**

Notice: Bin code: *luminous intensity / wavelength.*



◆ **The Luminous Intensity Grade of Ultra High Red Chip-LED Products**

● **Test Condition : @ 20mA**

<i>Range,mcd</i>	<i>Bin code</i>
<i>45/72</i>	<i>J</i>
<i>72/115</i>	<i>K</i>

◆ **Dominant Wavelength Grade of Ultra High Red Chip-LED Products**

● **I type @ 20mA**

<i>BIN</i>	<i>Range</i>
<i>1</i>	<i>624/640</i>

◆ **The Luminous Intensity Grade of Ultra Yellow Green Chip-LED Products**

● **Test Condition : @ 20mA**

<i>Range,mcd</i>	<i>Bin code</i>
<i>18/28.5</i>	<i>G</i>
<i>28.5/45</i>	<i>H</i>
<i>45/72</i>	<i>J</i>

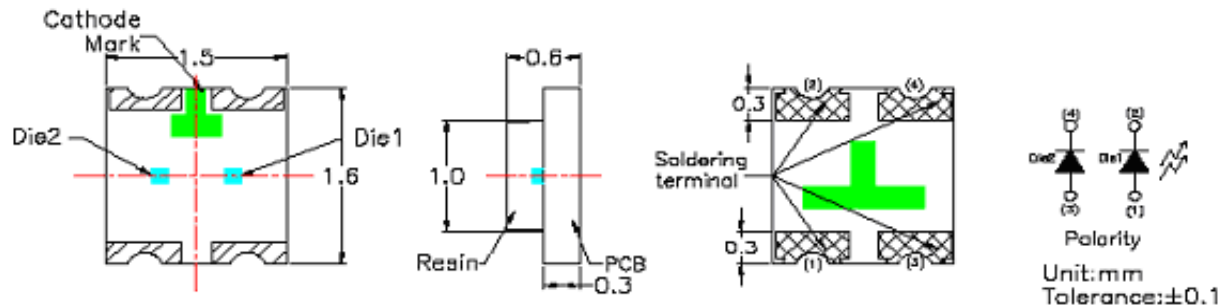
◆ **Dominant Wavelength Grade of Ultra Yellow Green Chip-LED Products**

● **I type @ 20mA**

<i>BIN</i>	<i>Range</i>
<i>2</i>	<i>570/572</i>
<i>3</i>	<i>572/574</i>
<i>4</i>	<i>574/576</i>

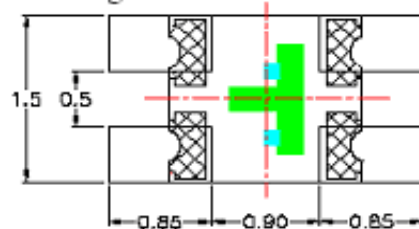


● Package Dimensions of Device (LS-SP195 Die1 Die2 Series)



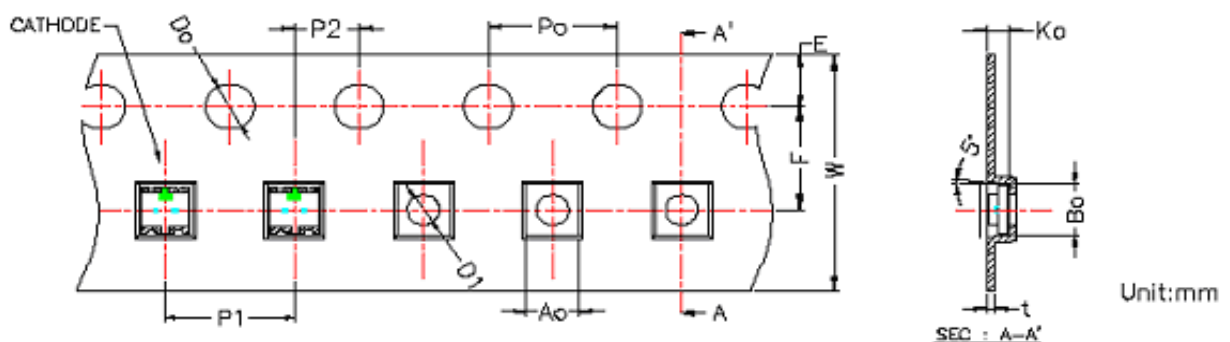
1. Soldering terminal may shift in x, y direction.

● Recommended Soldering Pad Dimensions

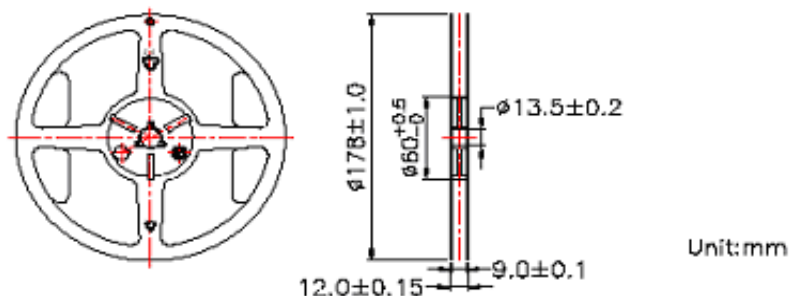


● Tape Specification :4000pcs Per Reel

Packing Size													
Item	W	P1	E	F	Do	D1	Pa	10Pa	P2	Ag	Bo	Ko	t
Spec.	8.00	4.00	1.75	3.50	1.50	1.00	4.00	40.00	2.00	1.65	1.75	0.70	0.229
Tolerance	+0.30 -0.10	±0.10	±0.10	±0.05	+0.10 -0.05	+0.25 -0.00	±0.05	±0.20	±0.05	±0.05	±0.05	±0.05	±0.02

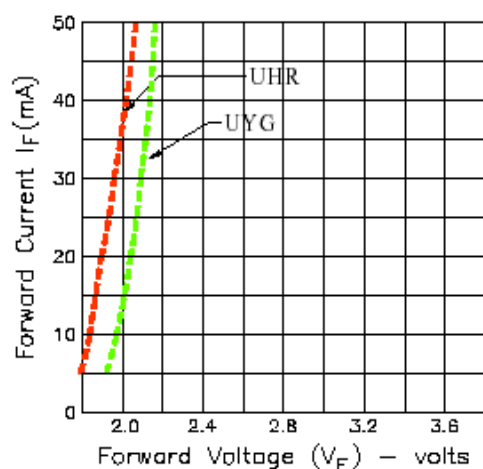


● Package Dimensions of Reel :

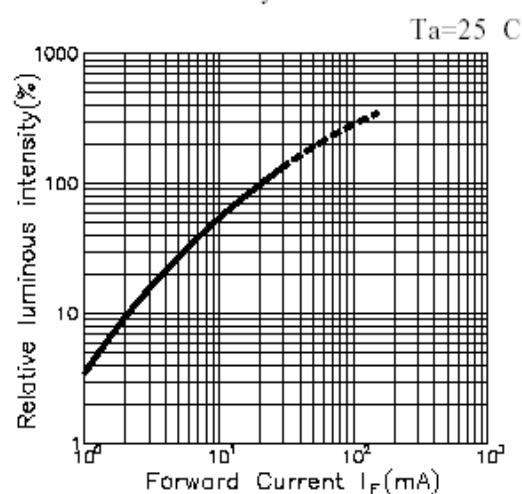




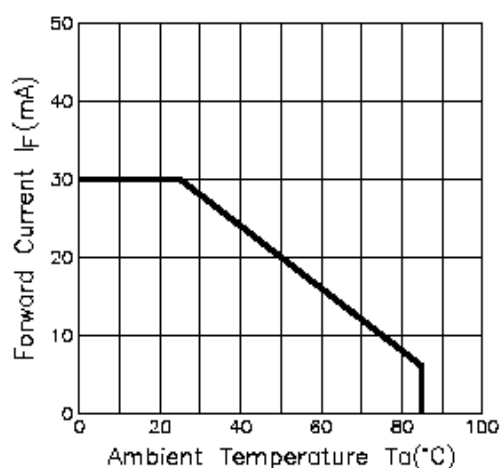
Forward Current Vs. Forward Voltage



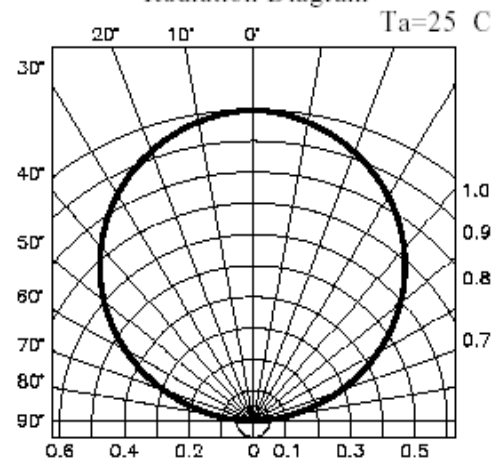
Luminous Intensity Vs. Forward Current



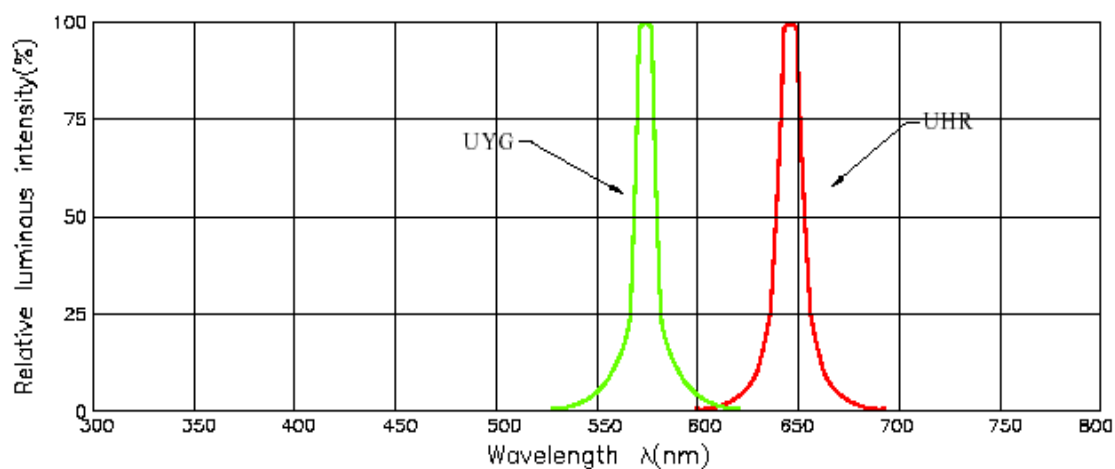
Forward Current Derating Curve



Radiation Diagram



Spectrum Distribution





◆ **Descriptions :**

- The Chip-LED Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature application, etc.

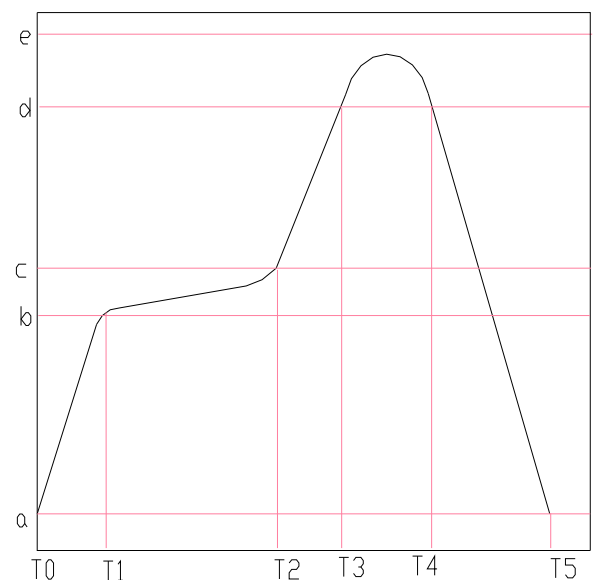
◆ **Reliability Test Items And Conditions :**

NO.	Item	Test Conditions	Test Hours / Cycle	Sample Q'ty	Ac / Re
1	Solder Heat	TEMP : 260°C±5°C	5 sec	36 pcs	0 / 1
2	Temperature Cycle	H : +100°C 30min. ∫ 5min. L : -40°C 30min.	50 cycle	36 pcs	0 / 1
3	Thermal Shock	H : +100°C 5min. ∫ 10sec L : -40°C 5min.	50 cycle	36 pcs	0 / 1
4	High Temperature Storage	TEMP : 100°C	1000 hrs	36 pcs	0 / 1
5	Low Temperature Storage	TEMP : -40°C	1000 hrs	36 pcs	0 / 1
6	DC Operating Life	I _F = 20mA	1000 hrs	36 pcs	0 / 1
7	High Temperature / High Humidity	85°C / 90~95%R.H.	1000 hrs	36 pcs	0 / 1

◆ **Reflow Temp. / Time :**

Please refer to the following figure :

Temp.(°C)		Time(Sec)	
a	25	T0~T1	Max. 3°C/sec
b	150	T1~T2	90~130 sec
c	200	T2~T3	Max. 3°C/sec
d	220	T3~T4	Max. 30~50 sec
e	250		
		T4~T5	Max. -3°C/sec
Blet Speed		70~90 cm/min	

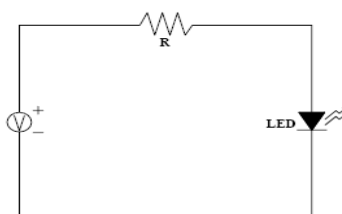




◆ **Precautions For Use :**

- Over – current – proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen)



- Storage

1. The operation of temperature and R.H. are : $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$, R.H.60% Max..
2. Once the package is opened, the products should be used within 72 hrs. Otherwise, they should be kept in a dampproof box with desiccating regent. Considering the tape life, we suggest our customers to use our products within 1 year (from production date) .
3. It's recommended to bake before soldering when the package is unsealed after 72 hrs. The condition is : $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 24hrs.

◆ **Soldering Iron :**

- Temperature at tip of iron : 300°C Max. (25W Max.)
- Soldering time : $5 \pm 1\text{sec}$.

◆ **Wave Soldering Temp. / Time :**

Temp.($^{\circ}\text{C}$)		Time(Sec)	
a	25	T1~T2	60 ± 20
b	130 ± 10	T2~T3	
c	185	T3~T6	
d	250 ± 3	T4~T5	3 ± 2

