Ciel Light

RoHS

Surface Mounted Chip LED

SP195UHR

◆Features：

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

◆Applications：

- Automotive_Telecommunication
- Indicators
- LCD Back-lights
- Illuminations

◆Absolute Maximum Ratings （Ta=25℃）

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

◆Electrical/Optical Characteristics （Ta=25℃）

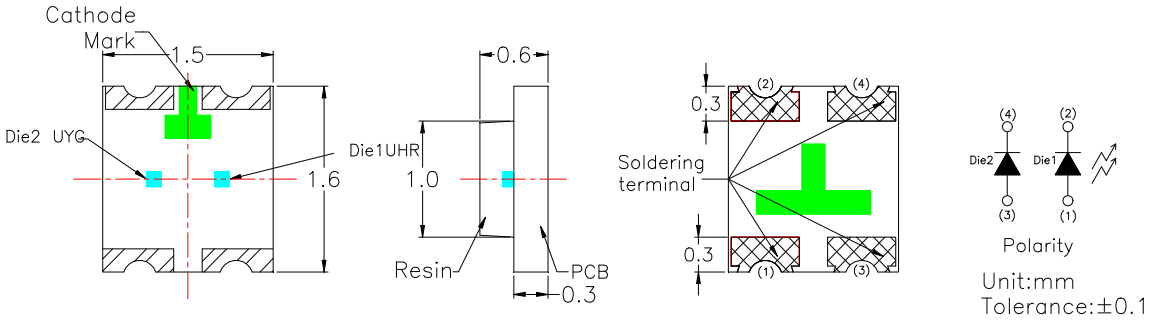
Chip			Lens Appearance	Absolute Maximun Rating			Electro-optical Data (At 20mA)				Viewing Angle 2θ1/2 (deg)
Emitted Color	λ_P (nm)	λ_D (nm)		△λ (nm)	P_D (mW)	I_{Fmax} (mA)	V_F (V)		I_V mcd)		
							Typ.	Max.	Min.	Typ.	
Ultra High Red (Die 1)	645	631	Water Clear	20	78	30	2.1	2.6	45.0	72.0	120°
Ultra High Red (Die 2)	645	631		20	78	30	2.1	2.6	45.0	72.0	

※**The measuring tolerance** → Luminous intensity ±15%
Wavelength (λ_D) ±2nm

APPROVER	DIMENSION NO：	VERSION：	DATE：
		A2	2016-12-11
	ISSUE：	CHECKER：	ENGINEER：

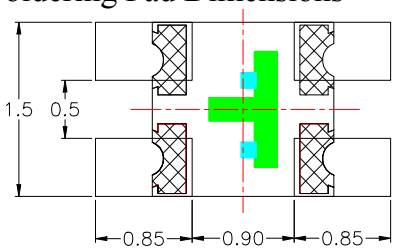
◆ Dimensions / Taping and Package Spec.

● Package Dimensions of Device (SP195 Die1 Die2 Series)



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

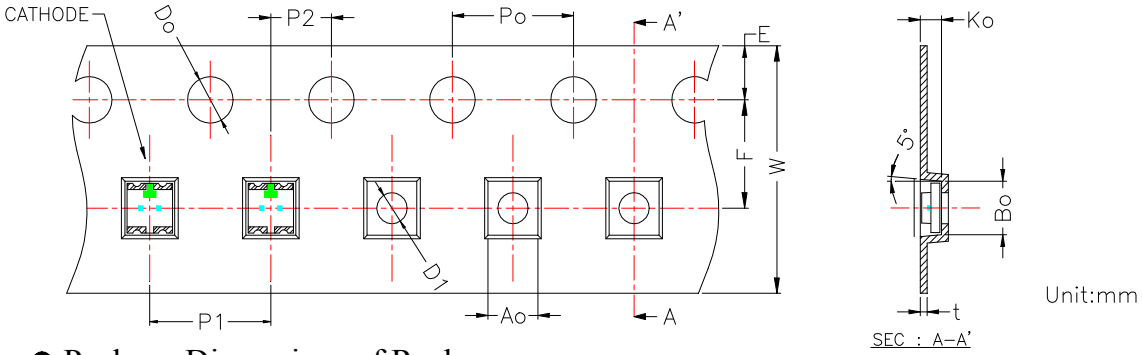
● Recommended Soldering Pad Dimensions



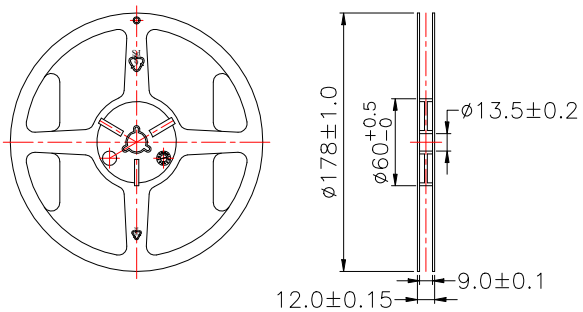
Unit:mm

● Tape Specification :4000pcs Per Reel

Packing Size													
Item	W	P1	E	F	Do	D1	Po	10Po	P2	Ao	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 −0.00	+0.25 −0.00	±0.05	±0.20	±0.05	±0.05	±0.05	±0.05	±0.02



● Package Dimensions of Reel :

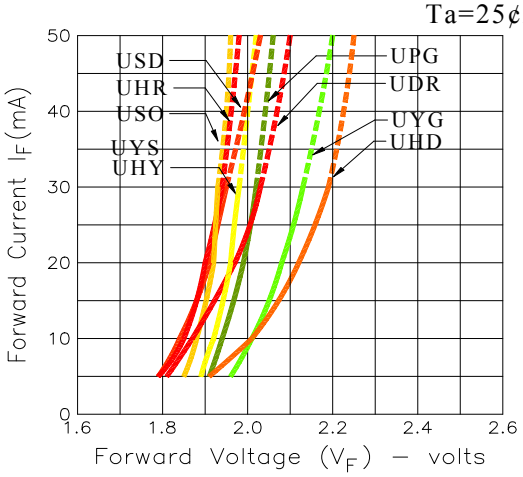


◆ Typical Electro-Optical Characteristic Curves

SP195UHR

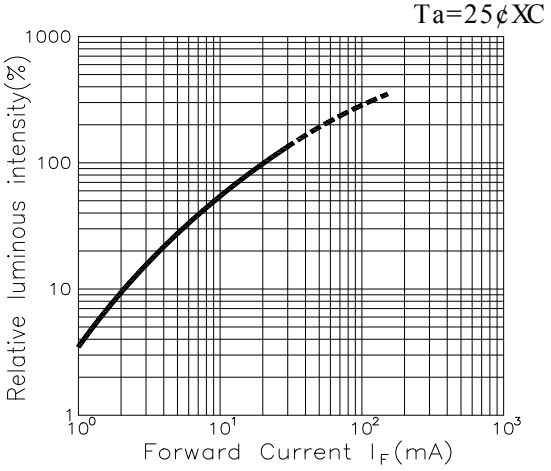
Forward Current Vs. Forward Voltage

Ta=25¢XC

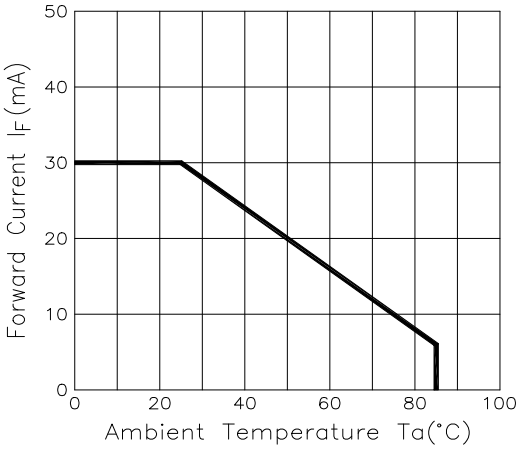


Luminous Intensity Vs. Forward Current

Ta=25¢XC

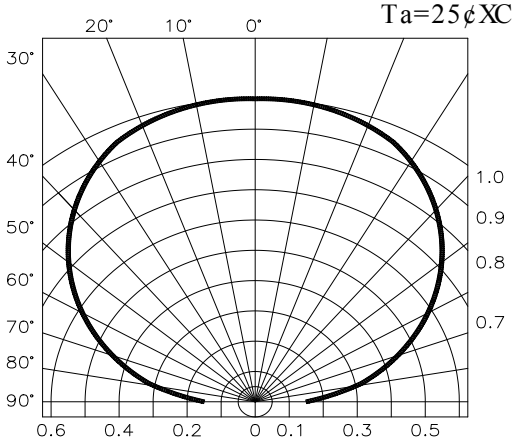


Forward Current Derating Curve

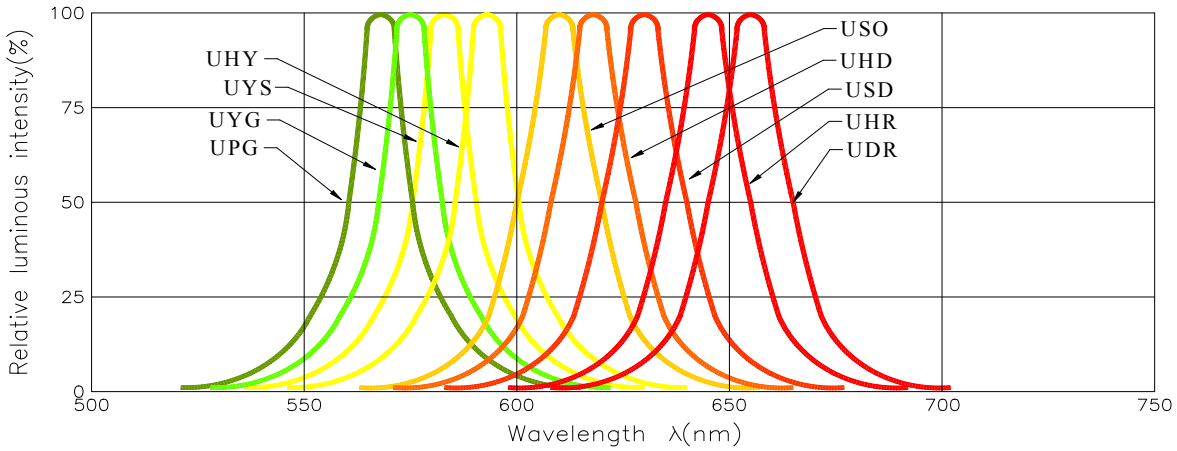


Radiation Diagram

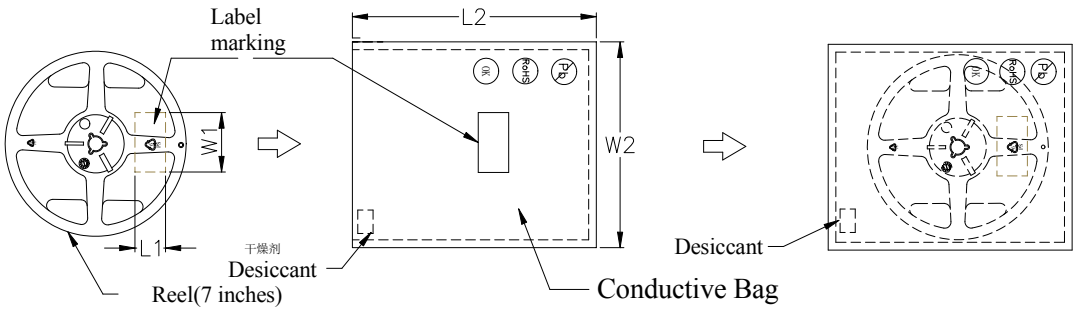
Ta=25¢XC



Spectrum Distribution

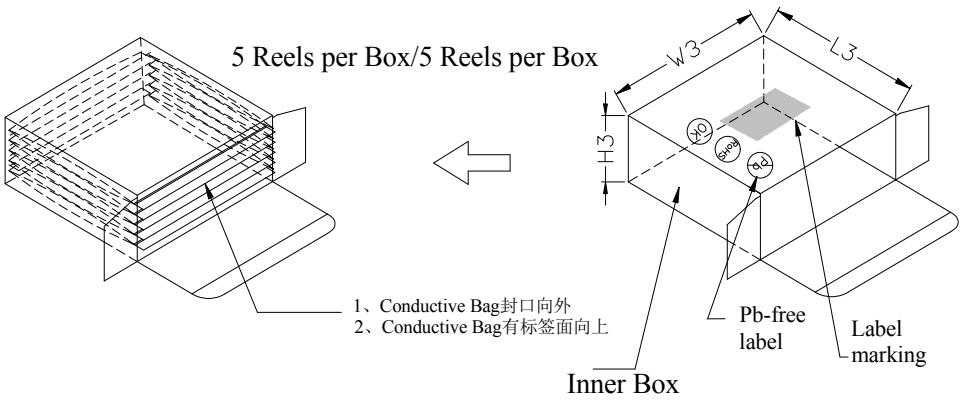


◆ Packing and Shipping Instruction



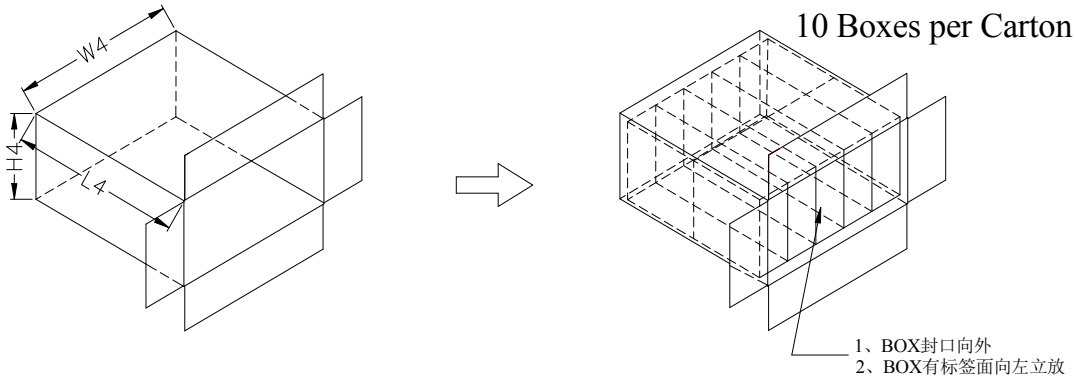
Dimension	L1	W1	L2	W2
Spec.	30.0	60.0	260.0	230.0

Unit : mm



Dimension	L3	W3	H3
Outside	278	238	77
Inside	277.7	237.4	76.4

Unit : mm



Dimension	L4	W4	H4
Outside	571	400	248
Inside	570.3	398.6	246.6

Unit : mm

◆ 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：

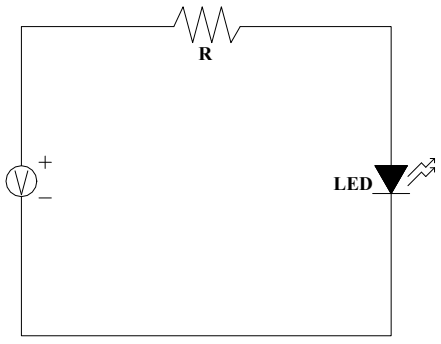
No.	Item	Test Conditions	Test hr/cycle/time	Sample Q'ty	Ac / Re
1	Solder Heat	TEMP ：260℃±5℃ ；10±1 sec	2 times	30 pcs	0 / 1
2	Solderbility Test ※	TEMP ：235℃±5℃ ；3±1 sec	1 time	5 pcs	0 / 1
3	Temperature Cycle	H：+85℃ 30min. ∫ 5min. L：-40℃ 30min.	100 cycles	20 pcs	0 / 1
4	Thermal Shock	H：+85℃ 5min. ∫ L：-40℃ 5min.	50 cycles	20 pcs	0 / 1
5	High Temperature Storage	TEMP：85℃	1000 hrs	20 pcs	0 / 1
6	Low Temperature Storage	TEMP：-40℃	1000 hrs	20 pcs	0 / 1
7	DC Operating Life	$I_F = I_{Fmax}$	1000 hrs	20 pcs	0 / 1
8	High Temperature High Humidity	85℃ / 90～95%R.H.	1000 hrs	20 pcs	0 / 1
9	Shocking test	100～2000Hz ；98.1m/s^2 X,Y,Z direction	2 hrs	20 pcs	0 / 1
10	Dropping test	Put on pallet ；height：75cm	3 times	20 pcs	0 / 1

Judgment Criteria	
Forward Voltage V_F	V_F Max-Increase < 1.1x
Reverse Current I_R	I_R Max-Increase < I_{Rmax}
Luminous Intensity I_V	I_V Decay < 40%

※Tolerability test criteria：coverage is not less than 95%

Note：Measurement shall be taken after the tested samples have been returned to normal ambient conditions (generally after two hours)

◆Test Circuit



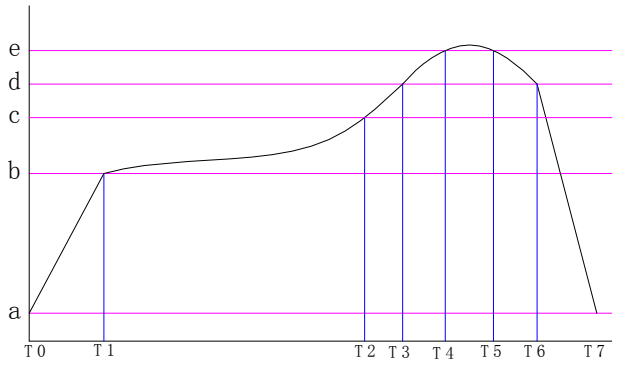
◆Precautions For Use：

- Overdrive current proof
  Customer must apply resistors for protection, otherwise slight voltage shift will cause current change with great deal. （Burn out will happen）
- Storage

1. The operation of temperature and R.H. are：5℃～30℃, 60%R.H. Max..
2. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccant. Considering the tape life, we suggest our customers to use our products within 1.5 year（from production date）.
3. It's recommended to bake before soldering when the package is unsealed more than 72 hrs. The condition is：60℃±5℃ for 15hrs.

◆Reflow Temp. / Time：

TEMP (℃)		TIME (sec)	
a	25	T0~T1	5℃/sec max
b	150	T1~T2	90～130
c	200	T2~T3	5℃/sec max
d	230	T3~T6	60～90
e	260	T4~T5	10±1
		T6~T7	-6℃/sec max
MSL level		**Level 4**	



◆Hand Soldering Iron：

- Temperature at tip of iron：400℃ Max.（35W Max.）
- Soldering time：3 ±1sec.

◆Numbering System：SMD LED

- Mono-Color：

1.■■-□□□□□□□□□□-□□：**Company Code**

2.□□-■□□□□□□□□□□-□□：**Product Code**：SMD→S、 DIP→D

3.□□-□■□□□□□□□□□-□□：**Structure Code**：PCB Type→P、L/F Type→L

4.□□-□□■■■□□□□□-□□：**Model Code**：1206→150、0805→170,172、0603→190

1st Number(Package Code)：Standard Type→1、Routing Type→2、Lens Type→3

2nd Number(Size Code)：1204 side-view→1、0402→2、0802 side-view→3、0803 side-view→4、1206→5、0603 side-view →6、0805→7、1104 side-view→8、0603→9、3Φ→A、5Φ→B、1205→C、1.6Φ→D

3rd Number (Type Code)：1 Chip→0、2 Chips→5、3 Chips →7

5.□□-□□□□□■■■□□-□□：**Color Code (2~3 Code)**

6.□□-□□□□□□□□■□-□□：**Internal Code**

7.□□-□□□□□□□□□■-□□：**Appearance Code**：Color Diffused→1、Color Transparent→2、White Diffused→3、Water Clear→4

8.□□-□□□□□□□□□□-■■：**Assistant Code(0~6 Code)**

- Multi-Color

1.■■-■■■■■■□□□□□□□-□□：**The Same With The Mono-Color Type**

2.□□-□□□□□■■■■■■□-□□：**Color Code(4~6 Code)**

3.□□-□□□□□□□□□□□■-□□：**Appearance Code**：White Diffused→3、Water Clear→4

4.□□-□□□□□□□□□□□□-■■：**Assistant Code(0~2 Code)**

Model NO：SP195UHR

◆Luminous Intensity BIN Limits

BIN Code	Test condition： @20mA	
UHR	I_{Vmin} (mcd)	I_{Vmax} (mcd)
J	45	72
K	72	115

◆ Dominant Wavelength BIN Limits

BIN Code	Test condition： @20mA	
UHR	λ_{Dmin} (nm)	λ_{Dmax} (nm)
1	625	635

◆Label Marking

Product NO：	(Model NO)	
Lot NO：		
Quantity：	(Seal/Date)	pcs
Q.C.：		BIN
Date：	(Date of Produce)	