

Surface Mounted Chip LED

SP195DLG

◆ 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(1/10 Duty 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	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +85	°C

◆ Electrical/Optical Characteristics

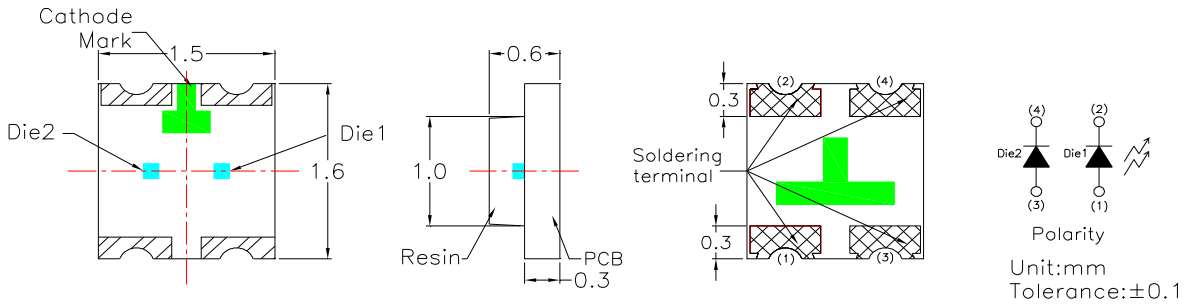
(Ta=25°C)

Chip			Lens Appearance	Absolute Maximun Rating			Electro-optical Data (At 20mA)				Viewing Angle 201/2 (deg)
Emitted Color	λ _P (nm)	λ _D (nm)		Δλ (nm)	P _D (mW)	I _{Fmax} (mA)	V _F (V)		I _V (mcd)		
							Min.	Max.	Min.	Typ.	
True Green (Die 1)	523	524	Water Clear	20	108	30	2.6	2.9	285	450	120
True Green (Die 2)	523	524		20	108	30	2.6	2.9	285	450	

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

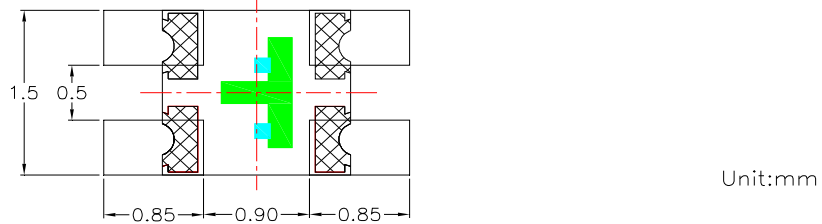
◆ Dimensions / Taping and Package Spec.

● Package Dimensions of Device (SP195 Die1 Die2 Series)



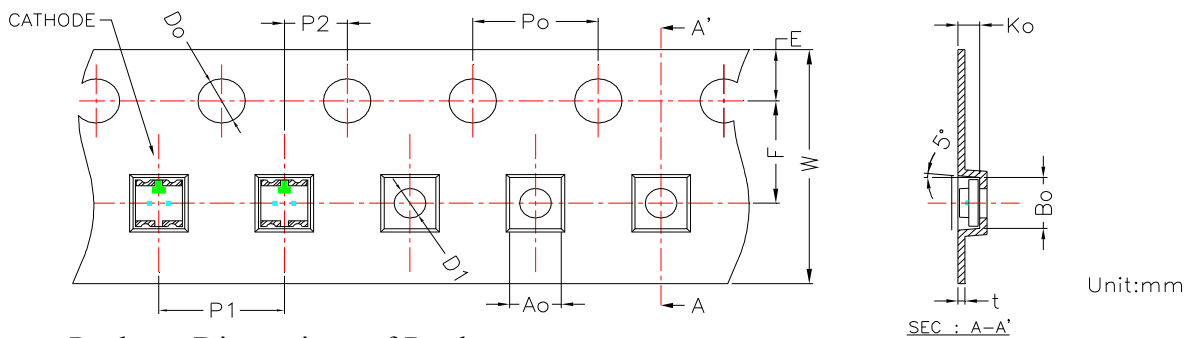
1. Soldering terminal may shift in x, y direction.

● Recommended Soldering Pad Dimensions

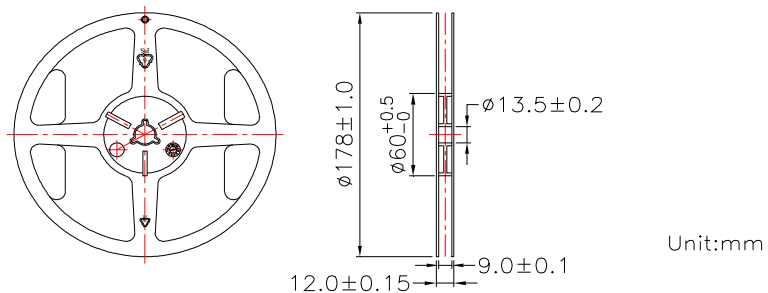


● Tape Specification :4000pcs Per Reel

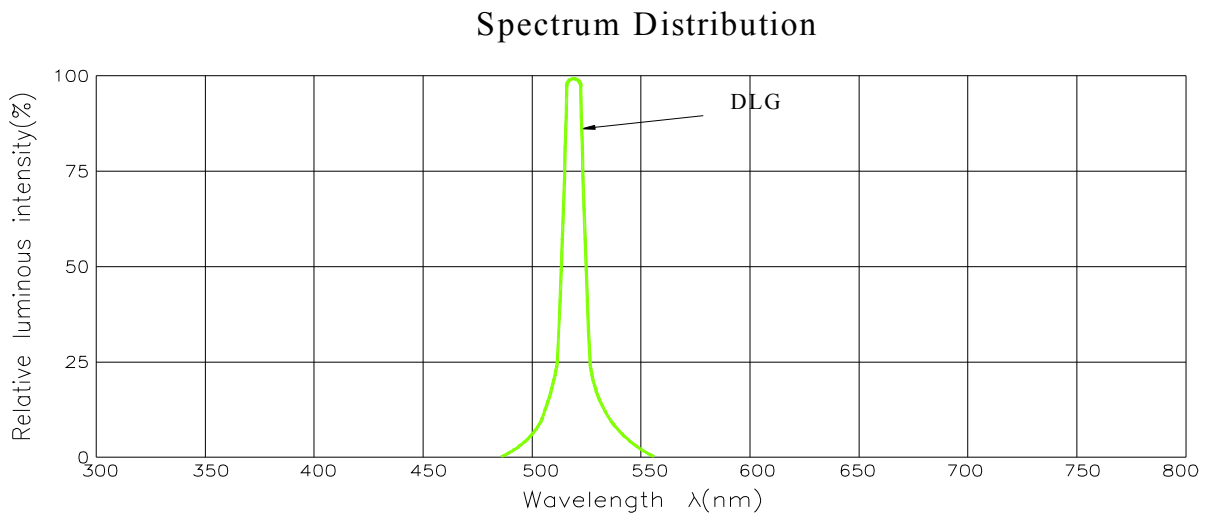
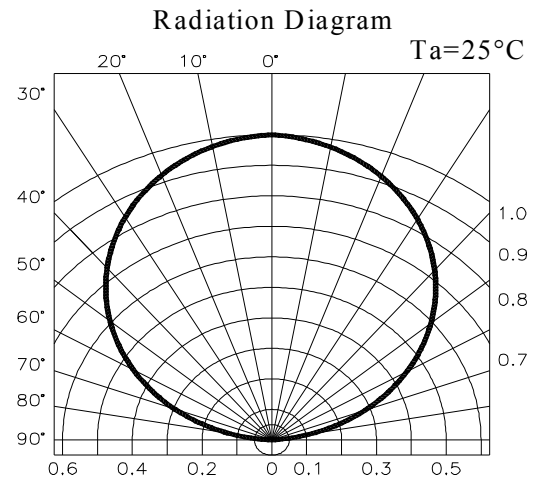
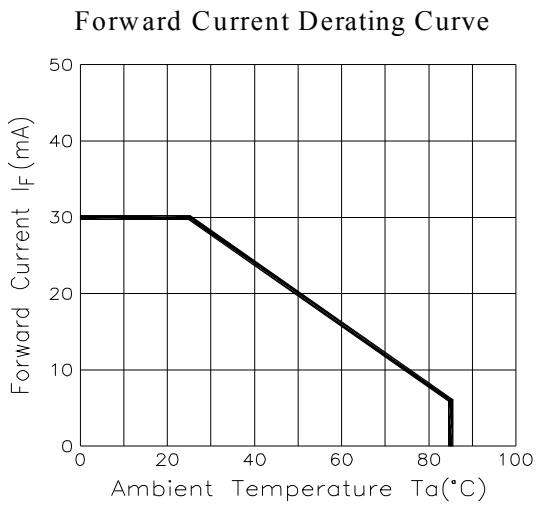
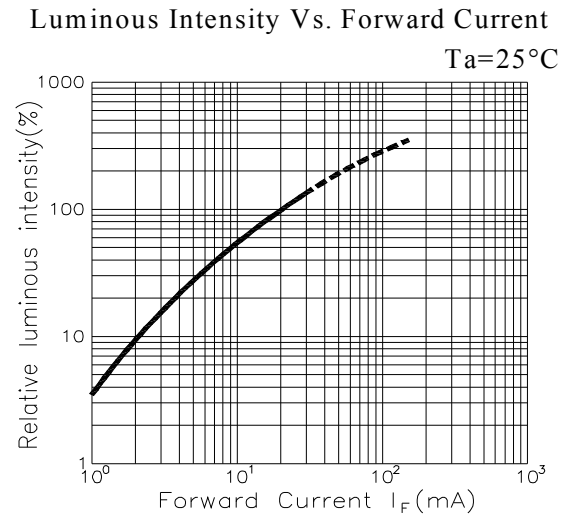
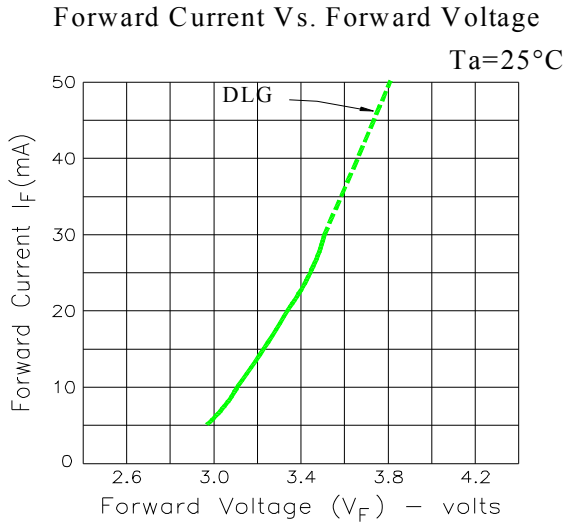
Packing Size													
Item	W	P1	E	F	D _o	D1	P _o	10P _o	P2	A _o	B _o	K _o	t
Spec.	8.00	4.00	1.75	3.50	1.50	1.00	4.00	40.00	2.00	1.65	1.75	0.70	0.229
Tolerance	+0.30 -0.10	±0.10	±0.10	±0.05	+0.10 -0.00	+0.25 -0.00	±0.05	±0.20	±0.05	±0.05	±0.05	±0.05	±0.02



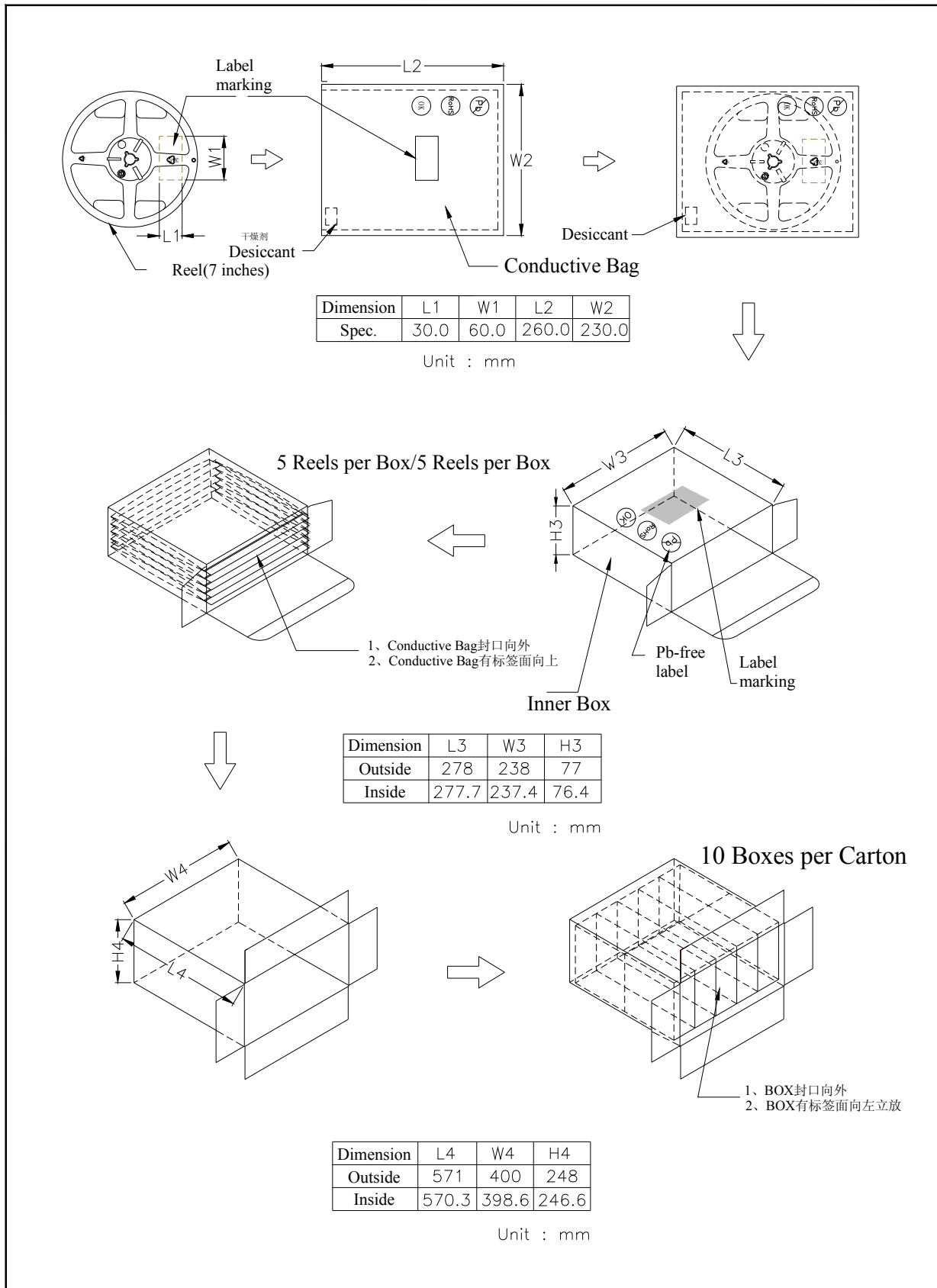
● Package Dimensions of Reel :



◆ **Typical Electro-Optical Characteristic Curves**
SP195DLG



◆ Packing and Shipping Instruction



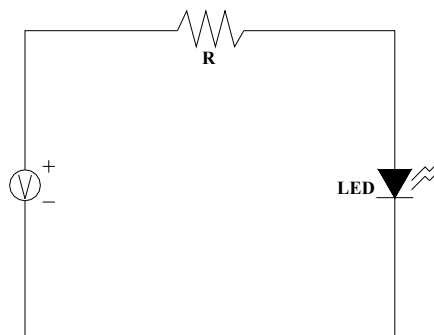
◆ **Descriptions :**

- 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°C±5°C ;10±1 sec	2 times	30 pcs	0 / 1
2	Solderbility Test ※	TEMP :235°C±5°C ;3±1 sec	1 time	5 pcs	0 / 1
3	Temperature Cycle	H : +85°C 30min. ∫ 5min. L : -40°C 30min.	100 cycles	20 pcs	0 / 1
4	Thermal Shock	H : +85°C 5min. ∫ L : -40°C 5min.	50 cycles	20 pcs	0 / 1
5	High Temperature Storage	TEMP : 85°C	1000 hrs	20 pcs	0 / 1
6	Low Temperature Storage	TEMP : -40°C	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°C / 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%		
※Solderbility 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**

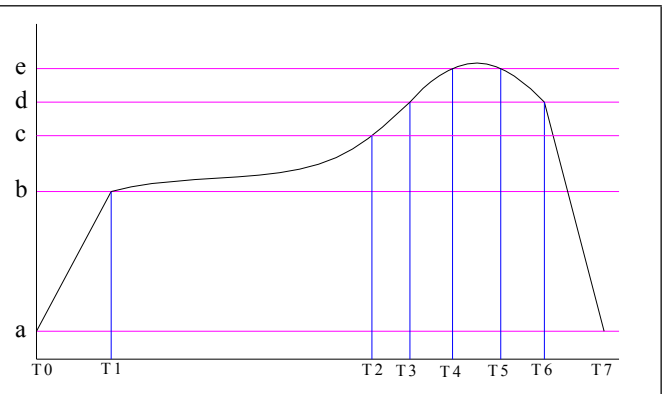


◆ **Precautions For Use :**

- 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 : $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$, 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 : $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 15hrs.

◆ **Reflow Temp. / Time :**

TEMP ($^{\circ}\text{C}$)		TIME (sec)	
a	25	T0~T1	$5^{\circ}\text{C}/\text{sec max}$
b	150	T1~T2	90~130
c	200	T2~T3	$5^{\circ}\text{C}/\text{sec max}$
d	230	T3~T6	60~90
e	260	T4~T5	10 ± 1
		T6~T7	$-6^{\circ}\text{C}/\text{sec max}$
MSL level		Level 4	



◆ **Hand Soldering Iron :**

- Temperature at tip of iron : 350°C Max. (35W Max.)
- Soldering time : 3 ± 1 sec.

◆ 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: SP195DLG

◆ Luminous Intensity BIN Limits

BIN Code	Test condition: @20mA	
DLG	I _{Vmin} (mcd)	I _{Vmax} (mcd)
N	285	450
P	450	720
Q	720	1150

BIN Code	Test condition: @20mA	
DLG	I _{Vmin} (mcd)	I _{Vmax} (mcd)
N	285	450
P	450	720
Q	720	1150

◆ Dominant Wavelength BIN Limits

BIN Code	Test condition: @20mA	
DLG	λ _{Dmin} (nm)	λ _{Dmax} (nm)
1	520	525
2	525	530
3	530	535

BIN Code	Test condition: @20mA	
DLG	λ _{Dmin} (nm)	λ _{Dmax} (nm)
1	520	525
2	525	530
3	530	535

◆ Label Marking

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