Data Sheet

Customer:

Part No: L-SP192CW1D-A15-4T

Sample No:

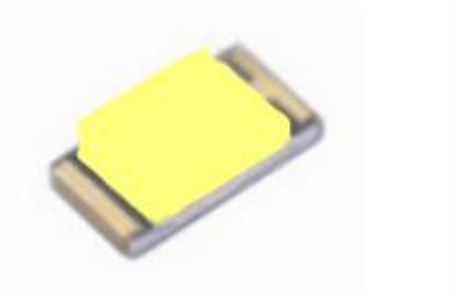
Description: 1608 Warm 6000-7000k WHITE

Item No:

Customer			
Check	Inspection	Approval	Date

L-SP192CW1D-A15-4T

SMD Type※Top view Package
L-SP192CW1D-A30-4T



Features

. 0603 package
. Top view LED
. Compatible with infrared and vapor phase reflow solder process.
. Wide viewing angle
. Pb-free
. RoHS compliant

Description

. The Ciellight 192 package has high efficacy, high power consumption, wide viewing angle and a compact form factor.
. These features make this package an ideal LED for all lighting applications.

Applications

. General lighting
. Decorative and Entertainment Lighting
. Indicators
. Automotive Telecommunication
. Switch lights

Device Selection Guide

Chip Material	Emitted Color	Resin Color
InGaN	White	Yellow Diffused

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I_F	25	mA
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Peak Forward Current (Duty 1/10@1ms)	I_{FP}	60	mA
Soldering Temperature*1	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	
Power Dissipation at(or below) 25℃Free Air Temperature	P_d	95	mW
Electrostatic Discharge(HBM)	ESD	2000	V

Notes: *1: Soldering time≦5 seconds

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V_F	2.7	---	3.3	V	I_F=20mA
Reverse Current	I_R	---	---	10	μA	V_R=5V
Luminous Intensity	Iv	640	---	920	mcd	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=20mA

Notes:

1.Tolerance of Luminous Intensity ±10%.

2.Tolerance of Forward Voltage : ±0.1V.

Bin Range of Luminous Intensity

Bin Code	Min	Max	Unit	Condition
Sa1	700	765	mcd	I_F=20mA
Sa2	765	840		
Ta1	840	920		
Ta2	920	1050		
Ua1	1050	1200		

Note:

Tolerance of Luminous Intensity: ±10%.

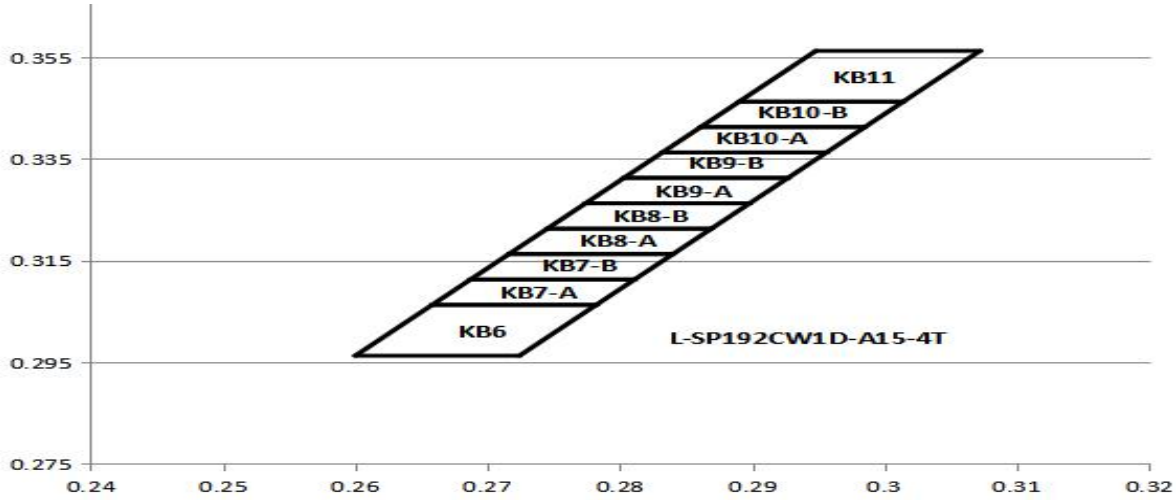
Bin Range of Forward Voltage

Bin Code	Min	Max	Unit	Condition
27	2.7	2.8	V	I_F=20mA
28	2.8	2.9		
29	2.9	3.0		
30	3.0	3.1		
31	3.1	3.2		
32	3.2	3.3		

Note:

Tolerance of Forward Voltage: ±0.1V.

Bin Range of Chromaticity Coordinates



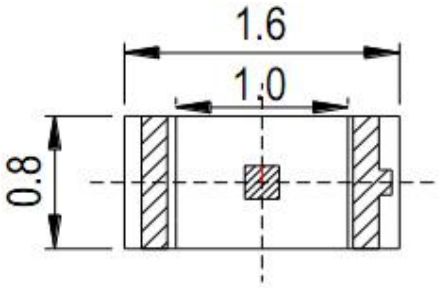
KB6	0.2600	0.2963	KB7-A	0.2658	0.3063	KB7-B	0.2687	0.3113
	0.2724	0.2963		0.2782	0.3063		0.2811	0.3113
	0.2782	0.3063		0.2811	0.3113		0.284	0.3163
	0.2658	0.3063		0.2687	0.3113		0.2716	0.3163
KB8-A	0.2716	0.3163	KB8-B	0.2745	0.3213	KB9-A	0.2774	0.3263
	0.284	0.3163		0.2869	0.3213		0.2898	0.3263
	0.2869	0.3213		0.2898	0.3263		0.2927	0.3313
	0.2745	0.3213		0.2774	0.3263		0.2803	0.3313
KB9-B	0.2803	0.3313	KB10-A	0.2832	0.3363	KB10-B	0.2861	0.3413
	0.2927	0.3313		0.2956	0.3363		0.2985	0.3413
	0.2956	0.3363		0.2985	0.3413		0.3014	0.3463
	0.2832	0.3363		0.2861	0.3413		0.289	0.3463
KB11	0.289	0.3463						
	0.3014	0.3463						
	0.3072	0.3563						
	0.2948	0.3563						

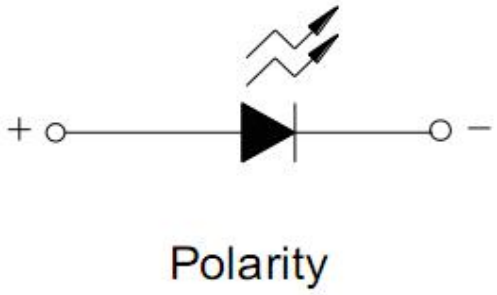
Note:

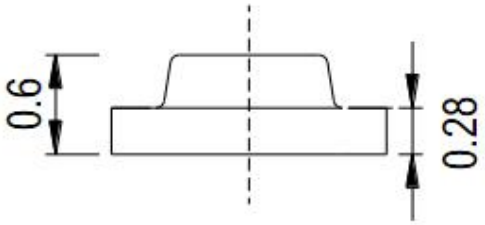
1.The value is based on driving current by 20mA.

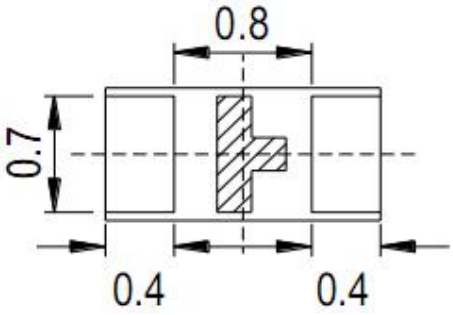
2.Tolerance of Chromaticity Coordinates: ±0.01

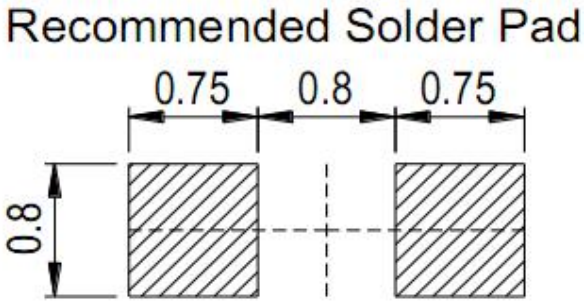
Package Dimensions



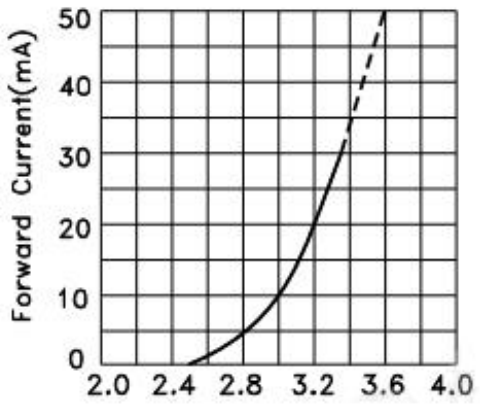




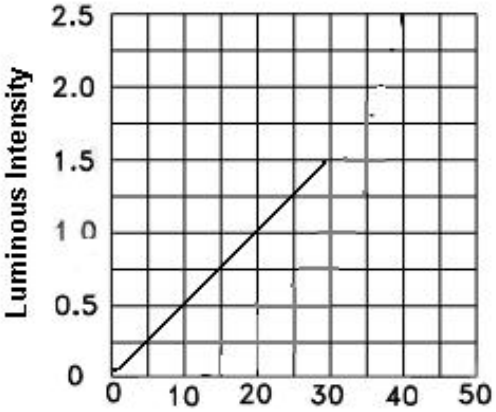




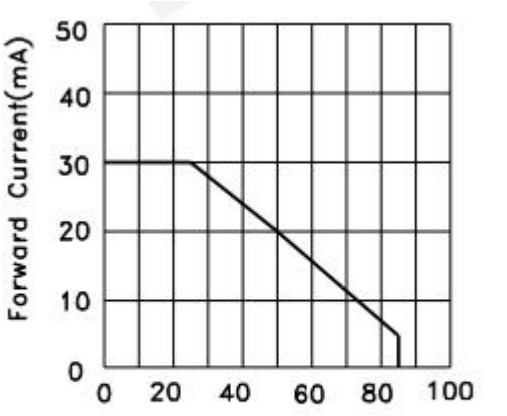
Note: Tolerance unless mentioned is ±0.1mm,Unit = mm.



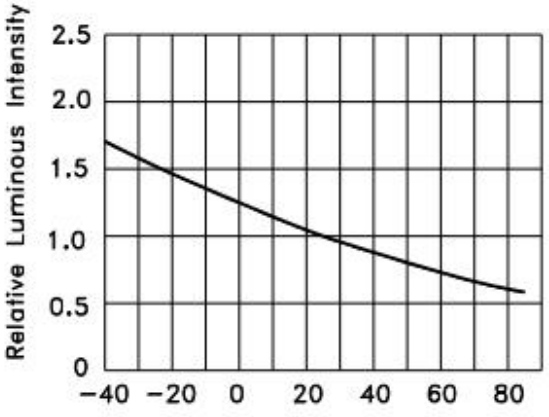
Forward current Vs. Forward voltage



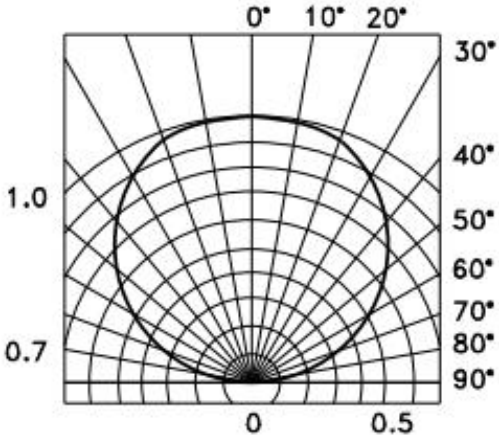
Luminous Intensity Vs. Forward current



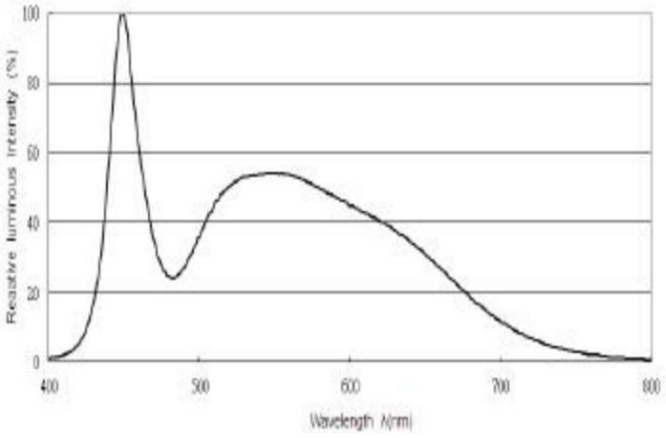
FORWARD CURRENT
DERATING CURVE



LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE



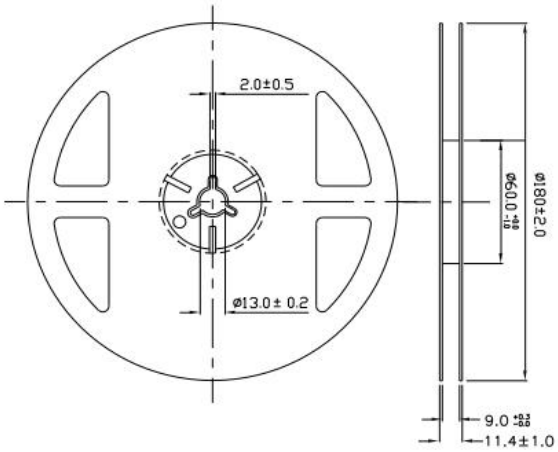
SPATIAL DISTRIBUTION



Label Form Specification

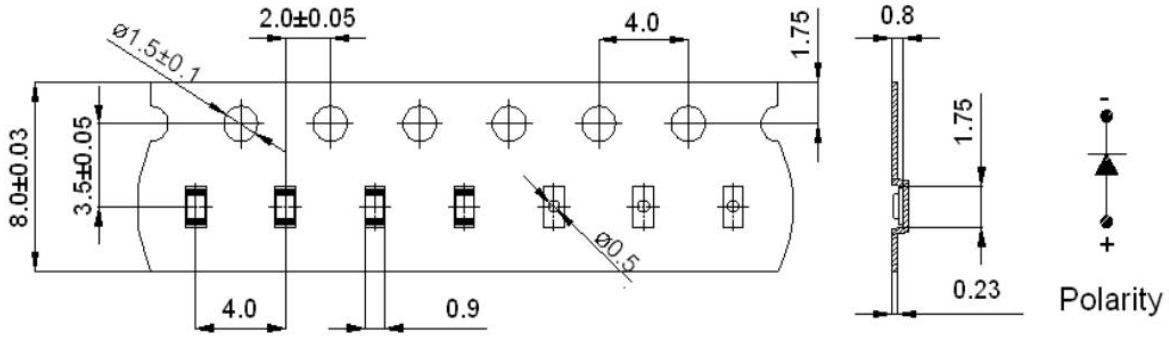
CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number

Reel Dimensions



Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

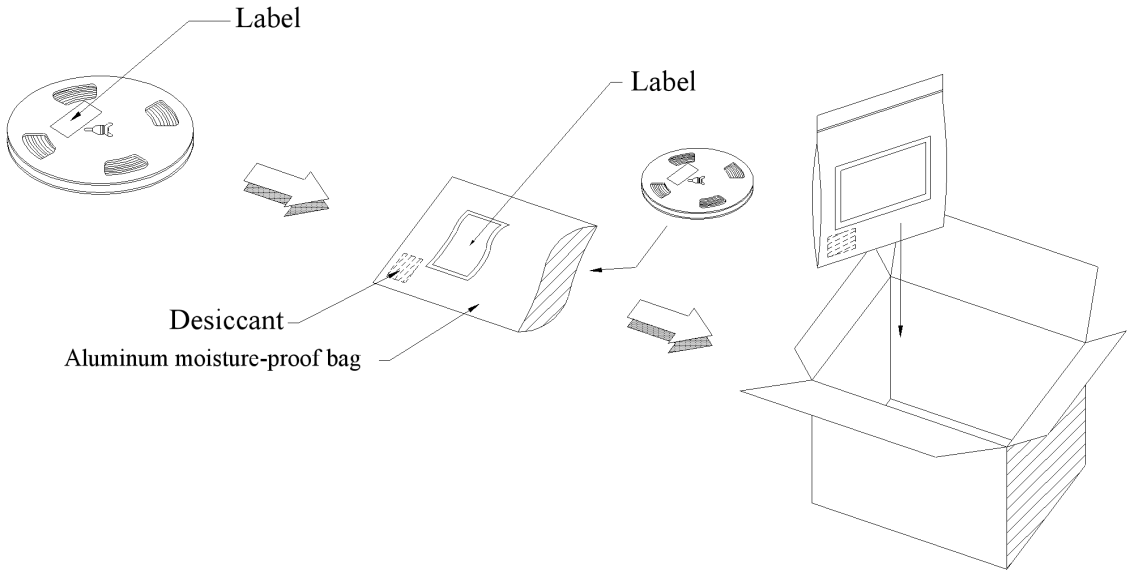
Carrier Tape Dimensions:(Quantity: 4000pcs/reel)



Note:

1.Tolerance unless mentioned is ±0.1mm,Unit = mm.
2.Minimum packing amount is 1000/2000 pcs per reel.

Moisture Resistant Packing Process



Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.
Confidence level：90%
LTPD：10%

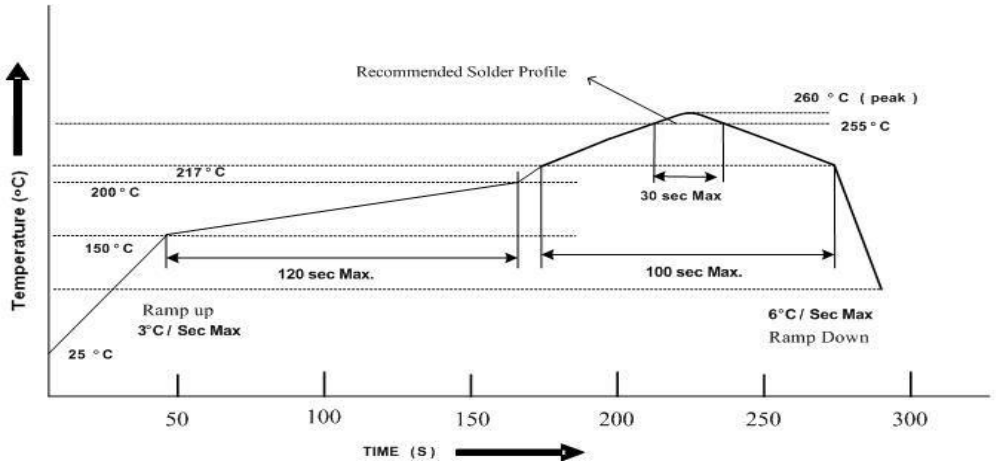
No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260℃/10sec.	6 Min	22 PCS	0/1
2	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS	0/1
3	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS	0/1
4	High Temperature/Humidity Reverse Bias	Ta=85℃,85%RH	1000 Hrs.	22 PCS	0/1
5	Low Temperature Storage	Ta=-40℃	1000 Hrs.	22 PCS	0/1
6	High Temperature Storage	Ta=100℃	1000 Hrs.	22 PCS	0/1
7	DC Operation Life	Ta=25℃ IF = 20 mA	1000 Hrs.	22 PCS	0/1

Precautions For Use

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

2. Storage
   2.1 Do not open moisture proof bag before the products are ready to use.
   2.2 Before opening the package, the LEDs should be kept at 40℃ or less and 90%RH or less.
   2.3 The LEDs should be used within a year.
   2.4 After opening the package, the LEDs should be kept at 30℃ or less and 60%RH or less.
   2.5 The LEDs should be used within 168 hours (7 days) after opening the package
   2.6 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 J-STD-33 Standard.

3. Soldering Condition
   3.1 Pb-free solder temperature profile



   3.2 Reflow soldering should not be done more than two times.
   3.3 When soldering, do not put stress on the LEDs during heating.
   3.4 After soldering, do not warp the circuit board.

4. Soldering Iron
   Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing
   Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.