

ARL-7020UWC (D61W)

Features

- Extremely wide viewing angle.
- Suitable for all SMT assembly and solder process.
- Available on tape and reel.
- Moisture sensitivity level: Level 4.
- Package:2000pcs/reel.
- RoHS compliant.



Description

The White LED which was fabricated using a blue chip and the phosphor

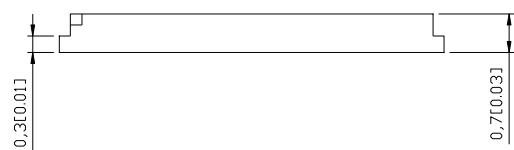
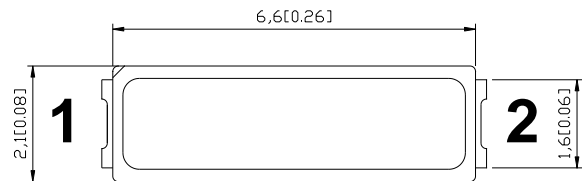


ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

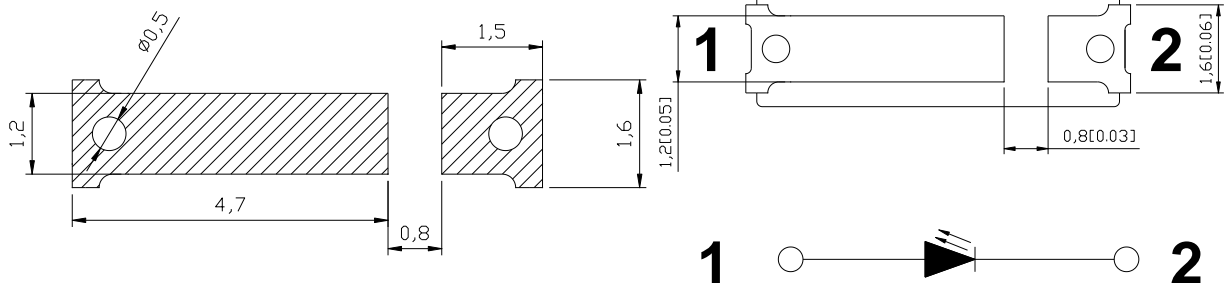
Applications

- Optical indicator
- Indoor display
- Automotive lighting
- Backlight for LCD, switch and Symbol, display
- Tubular light application
- General use

Package Dimensions



Recommended Soldering Pattern



Notes:

1. All dimension units are millimeters.
2. All dimension tolerance is ± 0.15 mm unless otherwise noted.

Selection Guide

Part No.	Dice	Lens Type
ARL-7020UWC (D61W)	White(InGaN)	Yellow Diffused

Mass Production list

Part No.	(X,Y) Typ	Φ (lm) Min	Φ (lm) Typ	Test Conditions
ARL-7020UWC (D61W)	0.265 · 0.255	47	51	I _F =150mA
	0.27 · 0.245	49	53	I _F =150mA

Note:

1. $\theta_{1/2}$ is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. the above luminous intensity measurement allowance tolerance $\pm 10\%$.

Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	V _F	2.9	--	3.6	V	I _F =150mA
Reverse Current	I _R	--	--	5	μ A	V _R = 5V

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Units
Power Dissipation	P _d	500	mW
Forward Current	I _F	150	mA
Peak Forward Current [1]	I _{FP}	200	mA
Reverse Voltage	V _R	5	V
Electrostatic Discharge (HBM)	ESD	2000	V
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Thermal Resistance (Junction / Soldering point)	R _{th J-S}	10	°C/W
Junction Temperature	T _j	115	°C

Note:

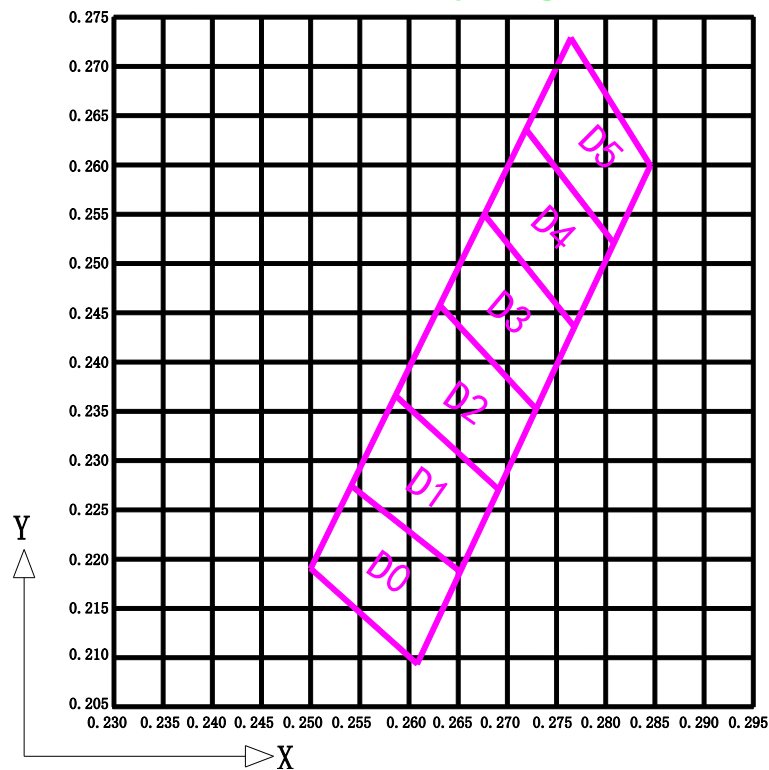
1. 1/10 Duty cycle, 0.1ms pulse width.
2. The above forward voltage measurement allowance tolerance is $\pm 0.1V$.
3. The above color coordinates measurement allowance tolerance is ± 0.003 .

BIN	IV (lm)
35a	87-89
35b	89-91
36a	91-93
36b	93-95
37a	95-97
37b	97-99
38a	99-101
38b	101-103

BIN	WL
D5	D5
D4	D4
D3	D3
D2	D2
D1	D1

BIN	VF (V)
B	2.8-2.9
C	2.9-3.0
D	3.0-3.1
E	3.1-3.2
F	3.2-3.3
G	3.3-3.4
H	3.4-3.5
I	3.5-3.6

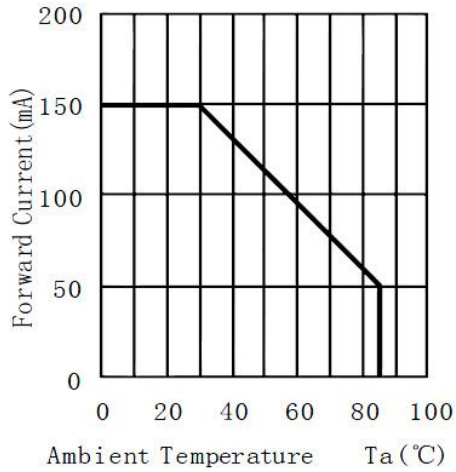
CIE 1931 Chromaticity Diagram :FHDTV



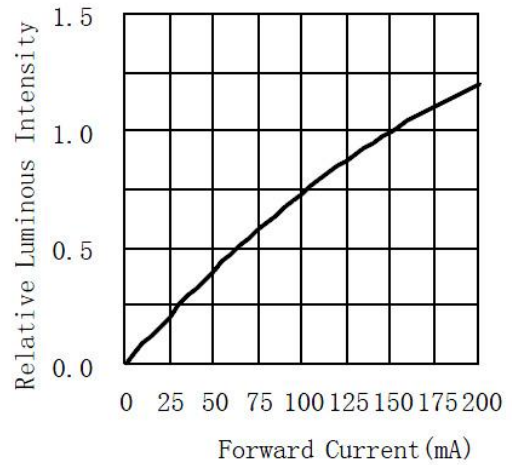
GROUP	Left down		Left up		Right up		Right down	
	X1	Y1	X2	Y2	X3	Y3	X4	Y4
D5	0.2719	0.2636	0.2764	0.2729	0.2845	0.2599	0.2808	0.2521
D4	0.2676	0.2550	0.2719	0.2636	0.2808	0.2521	0.2768	0.2436
D3	0.2631	0.2458	0.2676	0.2550	0.2768	0.2436	0.2729	0.2352
D2	0.2586	0.2366	0.2631	0.2458	0.2729	0.2352	0.2691	0.2271
D1	0.2542	0.2274	0.2586	0.2366	0.2691	0.2271	0.2652	0.2187
D0	0.2500	0.2191	0.2542	0.2274	0.2652	0.2187	0.2608	0.2094

Typical optical characteristics curves

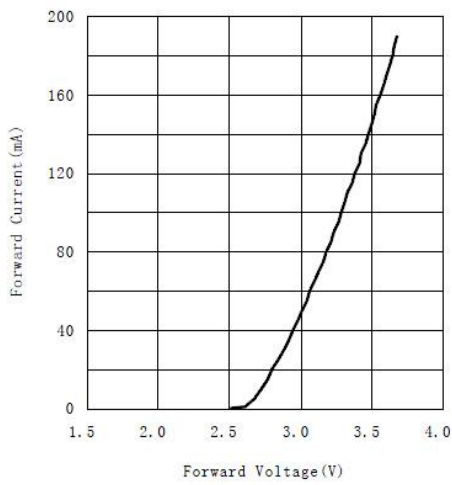
Ambient Temperature vs. Forward Current



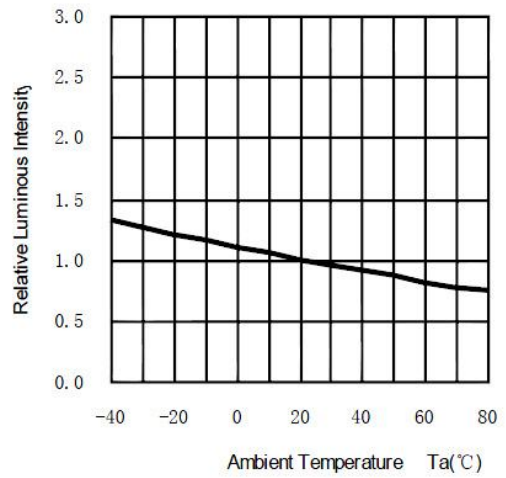
Forward Current VS. Relative Intensity



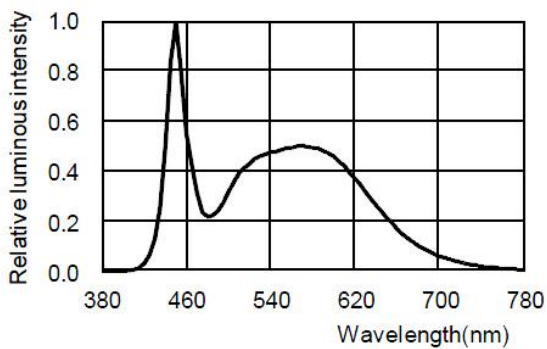
Forward Voltage VS. Forward Current



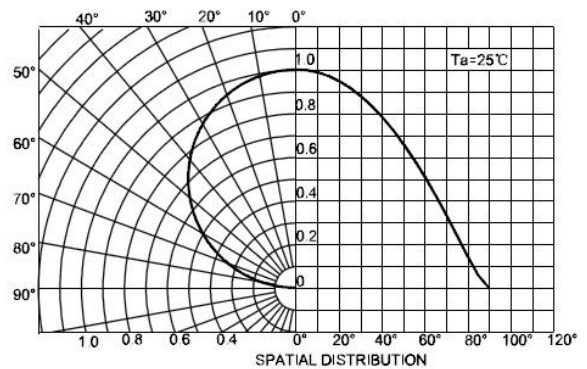
Ambient Temperature VS. Relative Intensity



Relative spectral emission



Radiation diagram



Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re
Reflow	JESD22-B106	Temp:260°C max T=10 sec	3 times.	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100°C±5°C 30 min. ↑↓5 min -40°C±5°C 30 min.	100 Cycles	22Pcs.	0/1
High Temperature Storage	JESD22-A103	Temp:100°C±5°C	1000Hrs.	22Pcs.	0/1
Low Temperature Storage	JESD22-A119	Temp:-40°C±5°C	1000Hrs.	22Pcs.	0/1
Life Test	JESD22-A108	Ta=25°C±5°C IF=150mA	1000Hrs.	22Pcs.	0/1
High Temperature High Humidity	JESD22-A101	85°C±5°C / 85%RH	1000Hrs.	22Pcs.	0/1

Criteria For Judging Damage

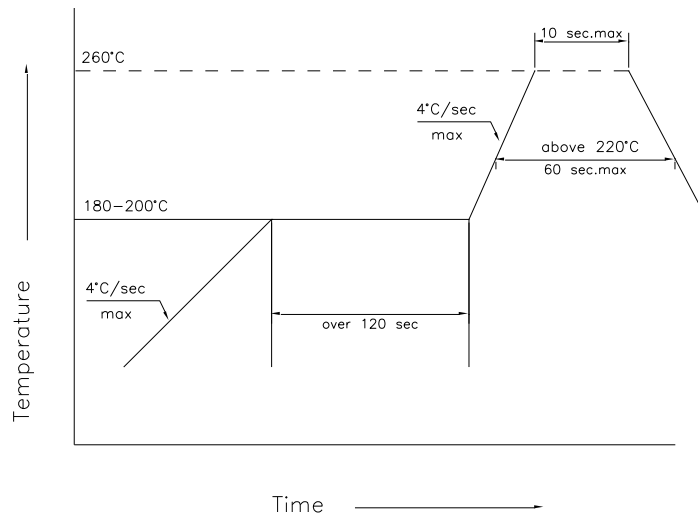
Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	VF	IF=150mA	--	U.S.L*)x1.1
Luminous Intensity	mcd	IF=150mA	L.S.L*)x0.7	--

U.S.L: Upper standard level

L.S.L: Lower standard level

*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

SMT Reflow Soldering Instructions SMT



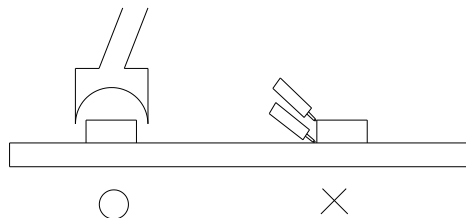
- 1.Reflow soldering should not be done more than two times.
- 2.When soldering , do not put stress on the LEDs during heating

Soldering iron

- 1.When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds

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 in advance whether the characteristics of LEDs will or will not be damaged by repairing.



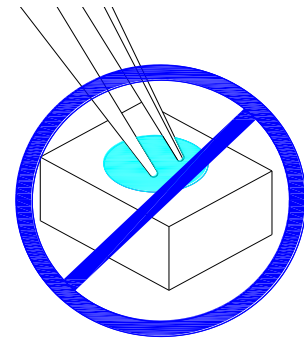
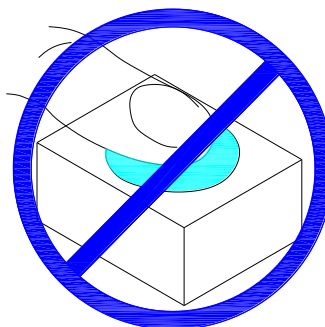
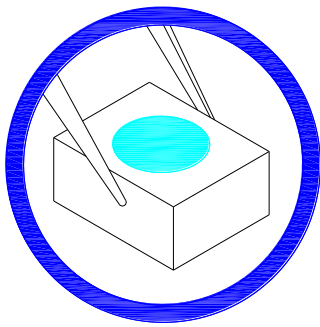
Cautions

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.

Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force. As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.

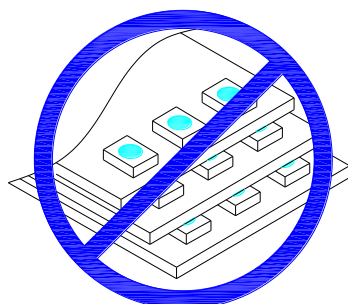
1. Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.



2. The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid



3. Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry



4. Not suitable to operate in acidic environment, PH<7

