Features:

1. Side view white LED.

2. white SMT package.

3. Leadframe package with individual 2 pin.

4.Wide viewing angle.

5.Soldering methods:IR reflow soldering.

6.Feature of the device:more light due to higher optical efficiency;extremely wide viewing angle;ideal for backlighting and coupling in light guide.

Descriptions:

The L4S1UWD-LI SMD has wide viewing angle,low power consumption and white LEDs are devices which are materialized by combing blue LEDs and special phos phors.This feature makes the LED ideal for light guide application.

Applications:

1. LCD back light.

2. Mobile phones.

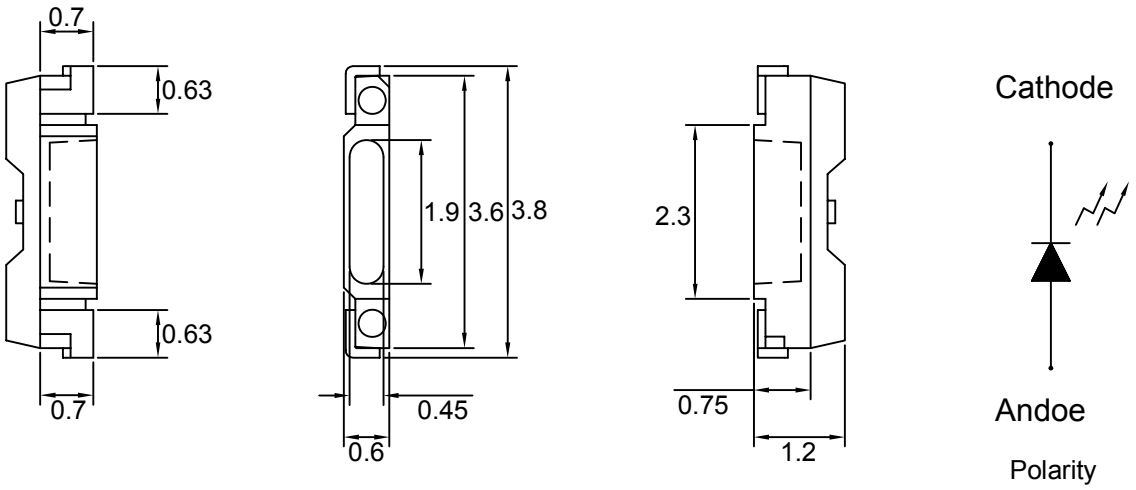
3. Indicators.

4. Switch lights.

Device Selection Guide:

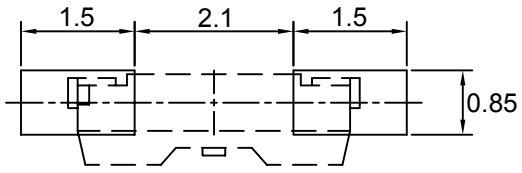
PART NO	MATERIAL	COLOR	
		Emitted	Lens
L4S1UWD-LI	InGaN	White	Yellow Diffused

Package Dimensions



Note : 1.All dimension are in millimeter tolerance is ±0.2mm unless otherwise noted.
2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



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

Absolute Maximum Ratings at Ta=25℃

Parameter	Symbol	Ratings	UNIT
Forward Current	I_F	30	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	100	mA
Power Dissipation	PD	108	mW
Reverse Current @5V	Ir	50	μA
Electrostatic Discharge	ESD	500	V
Operating Temperature	Topr	-20 ~ + 80	℃
Storage Temperature	Tstg	-30 ~ + 100	℃

Typical Electrical & Optical Characteristics (Ta=25℃)

Items Min.	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Luminous Intensity	Iv	2000	2200	----	mcd	IF=20mA
Chromaticity Coordinates	X	0.315	----	0.3417	----	IF=20mA
	Y	0.320	----	0.3720	----	IF=20mA
Forward Voltage	V_F	2.8	----	3.6	V	IF=20mA
Viewing Angle	2θ 1/2	----	110	----	deg	IF=20mA

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.
2.The luminous intensity data did not including ±15% testing tolerance.
3.The color coordinates measurememt allowance is ±0.01 testing tolerance.

Luminous Intensity Classification

BIN CODE	Iv(mcd) at 20mA	
	Min.	Max.
X11X12	2000	2100
X13X14	2100	2200
X15X16	2200	2300
X17X18	2300	2400
X19X20	2400	2500
X21X22	2500	2600
X23X24	2600	2700

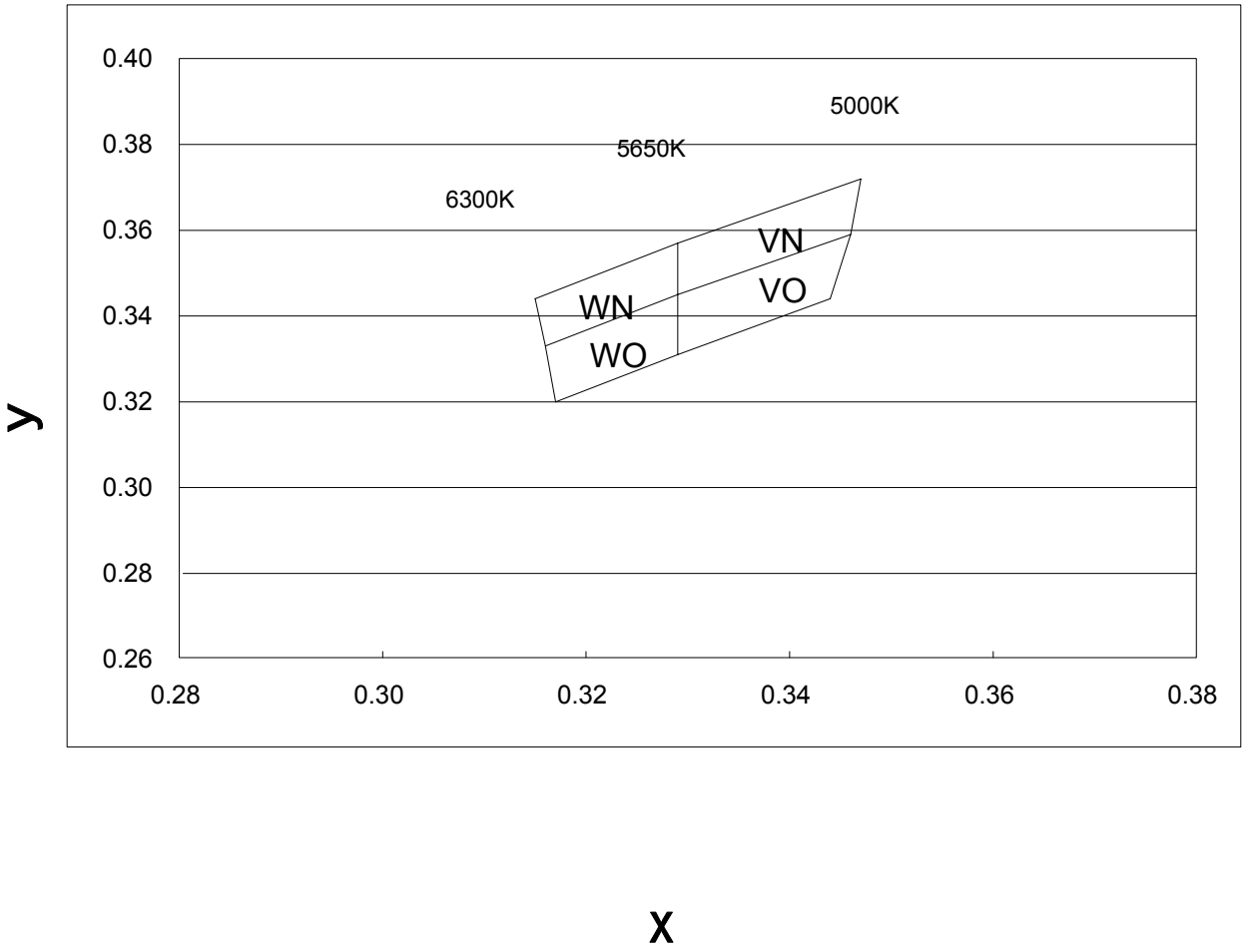
Forward Voltage Classification

BIN CODE	Vf(v) at 20mA	
	Min.	Max.
1	2.8	2.9
2	2.9	3.0
3	3.0	3.1
4	3.1	3.2
5	3.2	3.3
6	3.3	3.4
7	3.4	3.5
8	3.5	3.6

Chromaticity Coordinates Specifications For Bin Grading

Color Coordiante at20mA									
CCT(K)	BIN CODE	1		2		3		4	
		X	Y	X	Y	X	Y	X	Y
5000~5650	VN	0.329	0.357	0.347	0.372	0.346	0.359	0.329	0.345
	VO	0.329	0.345	0.346	0.359	0.344	0.344	0.329	0.331
5650~6300	WN	0.315	0.344	0.329	0.357	0.329	0.345	0.316	0.333
	WO	0.316	0.333	0.329	0.345	0.329	0.331	0.317	0.32

CIE Chromaticity Diagram



Typical Electro-Optical Characteristics Curve

WK CHIP

Fig.1 Forward current vs. Forward Voltage

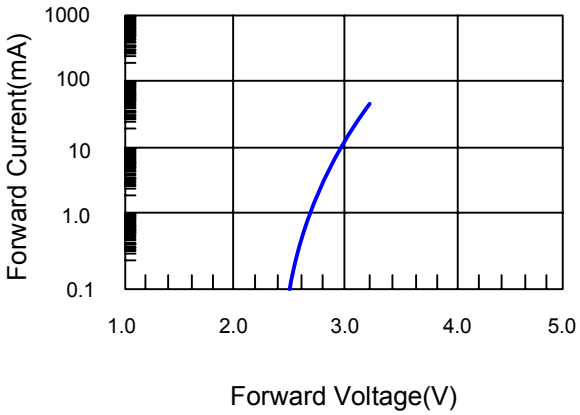


Fig.2 Relative Intensity vs. Forward Current

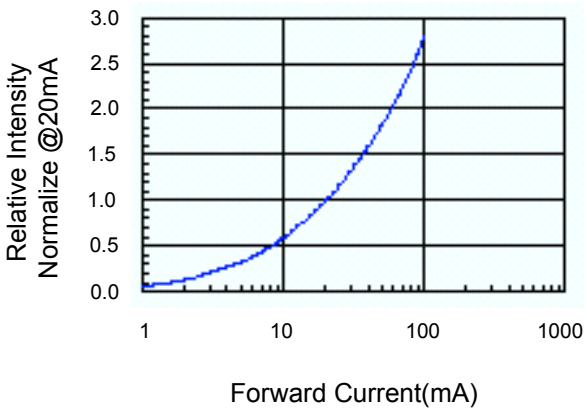


Fig.3 Forward Voltage vs. Temperature

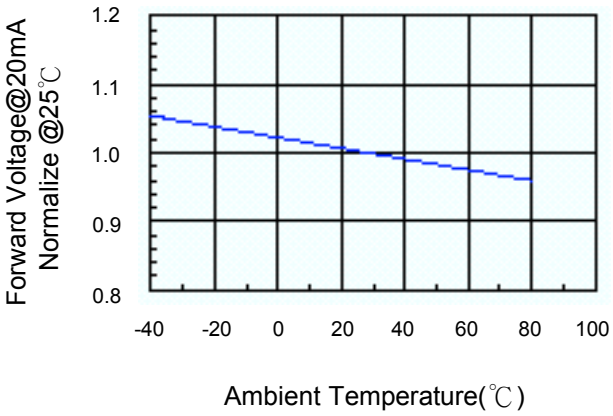


Fig.4 Relative Intensity vs. Temperature

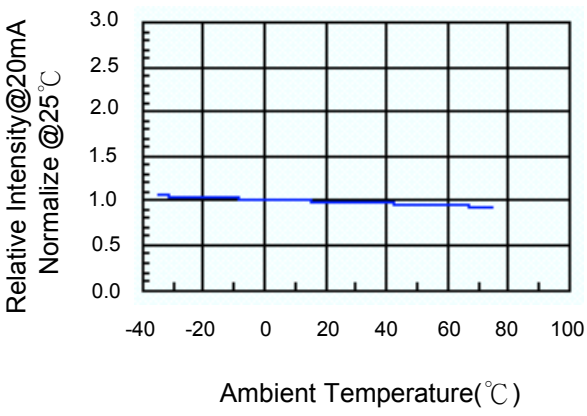


Fig.5 Luminous Spectrum(Ta=25℃)

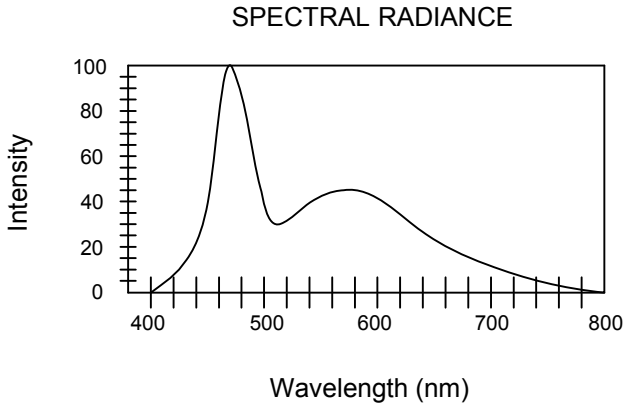
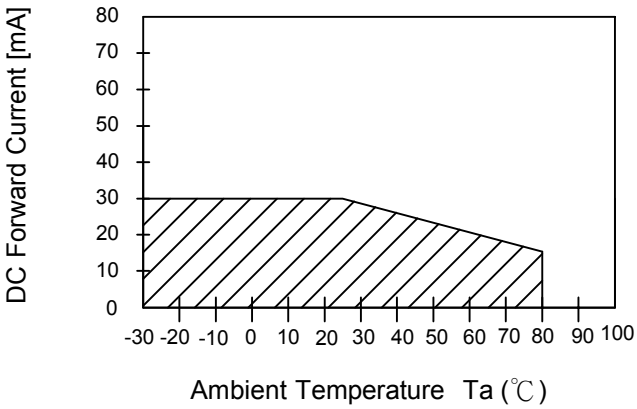
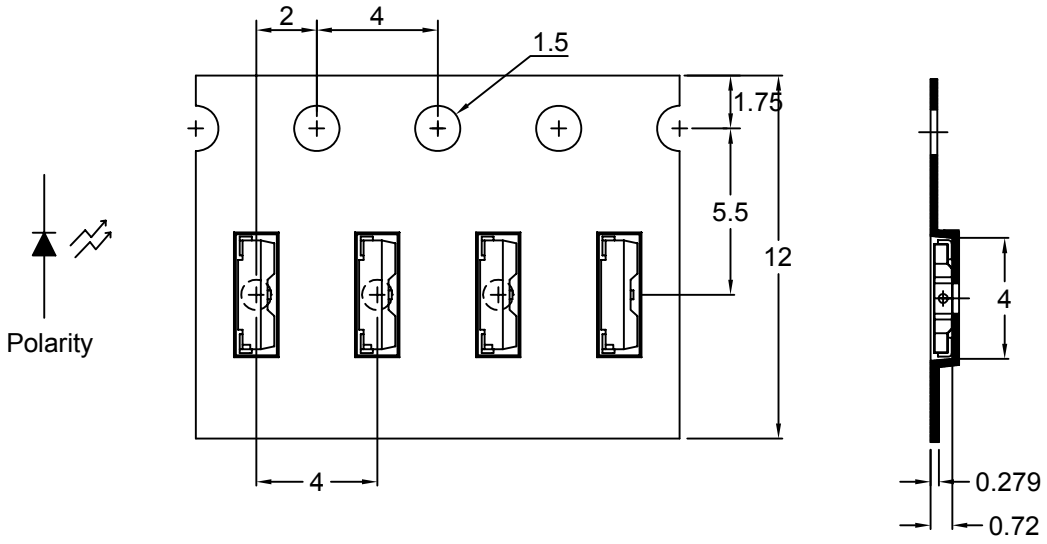


Fig.6 Forward Current vs. Temperature

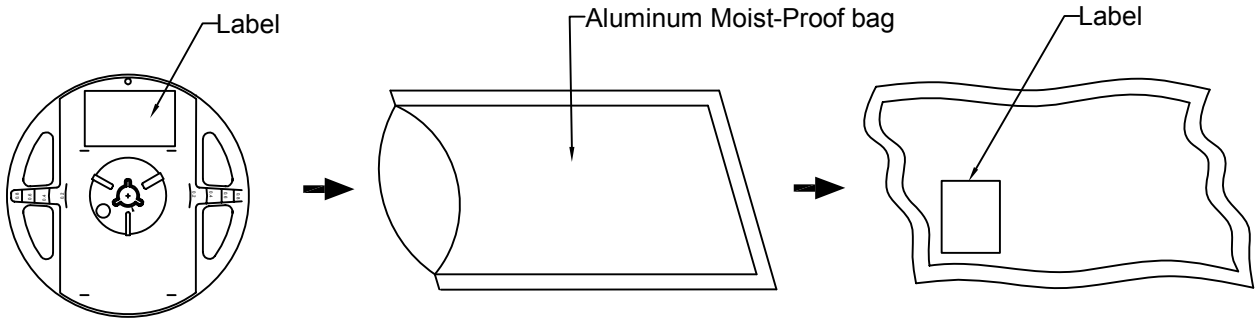


Carrier Type Dimensions



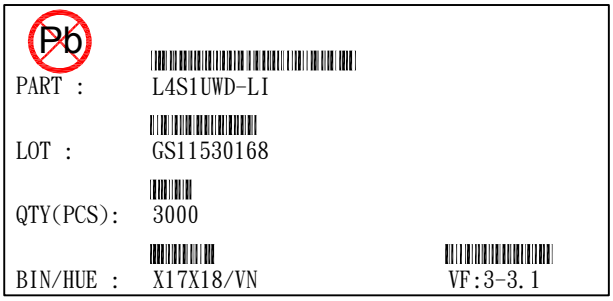
Note : The tolerances unless mentioned is ±0.1mm,Angle± 0.5. Unit=mm.

• Packing Specifications



Part No.	Description	Quantity/Reel
L4S1UWD-LI	12.0mm tape,7"reel	3000 PCS

Label Explanation

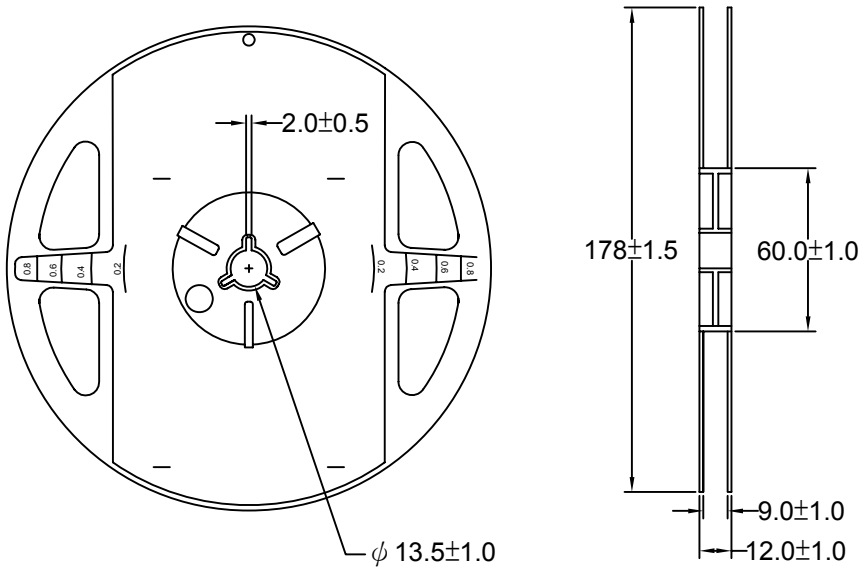


BIN : Luminous Flux

HUE : Chromaticity Coordinates
(CIE_x , CIE_y)

VF : Forward Voltage

Reel Dimensions



Precautions For Use:

Storage time:

1.The operation of Temperatures and RH are : 5℃~35℃,RH60%.

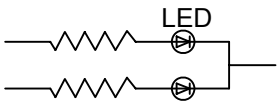
2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with descanting agent.
Considering the tape life, we suggest our customers to use our products within a year(from production date).

3.If opened more than one week in an atmosphere 5℃ ~ 35℃,RH60%,
they should be treated at 60℃±5 ℃fo r 15hrs.

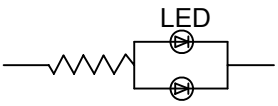
Drive Method:

LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.
Consider worst case voltage variations than could occur across the current limiting resistor. The forwrd current should not be allowed to change by more than 40% of its desired value.

Circuit model A



Circuit model B



(A) Recommended circuit.
(B) The difference of brightness between LED could be found due to the VF-IF characteristics of LED.

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

ESD(Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.

Reliability Test:

(1)Test items and results

Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life Test	1.Ta=Under Room Temperature As Per Data Sheet Maximum Rating. 2.If=20mA 3.t=1000 hrs	22
	High Temperature Storage Test	1.Ta=105℃±5℃ 2.t=500 hrs	22
	Low Temperature Storage Test	1.Ta=-40℃±5℃ 2.t=1000 hrs	22
	High Temperature High Humidity Storage Test	1.IR-Reflow In-Board, 2 Times 2.Ta=85℃±5℃ 3.RH=90%~95% 4.t=500hrs±2hrs	22
Environmental Test	Thermal Shock Test	1.IR-Reflow In-Board,2 times 2.Ta=105℃±5℃& -40℃±5℃ (30min) (30min) 3.total 100 cycles	22
	Reflow Soldering Test	1.T.Sol=260℃±5℃ 2.Dwell Time= 10 Max.	22
	Temperature Cycling	1.105℃ ~ 25℃ ~ -40℃ 30mins 15mins 30mins 2.100 Cyeles	22

(2)Criteria for judging the damage

Item	Symbol	Test Conditions	Criteria for Judgement	
			Min.	Max.
Forward Voltage	Vf	If=20mA	-	U.S.L x1.2
Reverse Current	Ir	Vr=5V	-	U.S.L x2.0
Luminous Intensity	Iv	If=20mA	L.S.L x 0.5	-

Note:
1.U.S.L.:Upper Standard Level.
2.L.S.L.:Lower Standard Level.