Figure1. Physical photo of ALED1WNWS160PI (1)

Figure 2. Physical photo of ALED1WNWS160PI (2)

Figure 3. Physical photo of ALED1WNWS160PI (3)

Figure 4. Interior Packing Photo

FEATURES

- High Efficiency
- High Power LED
- Package: SMT Package
- Half Angle (2Θ1/2): 160°
- Application Power: 1W
- Lens Color: Water Clear
- High Reliability and Stability
- Good Heat Sink
- Low Cost

APPLICATIONS

Widely used in lots of lighting areas, for example:

- General Lighting
- Advertisement
- Architectural Lighting
- Street Lamps
- Lighting Product
- Museum Showing Counter

SPECIFICATIONS

Table 1. Photoelectric Parameters (at TA=25°C)

Parameter	Symbol	Conditions	Min.	Avg.	Max.	Units
Luminous Intensity	Φ	IF=350mA	110	~	120	lm
Color rendering index	CRI		70	~	~	RA
Color Temperature	CCT		6000	~	6500	K
Spectral Line Half-Width	Δλ		~	~	~	nm
Forward Voltage	VF		3.00	~	3.40	V
Thermal Resistance Junction To Board	RΘJ-B		– –	~	12	°C/W
Temperature Coefficient	ΔVF/ΔT		~	-2	~	mV/°C
Viewing Angle [1]	2Θ1/2		160	~	180	Deg.
Reverse Current	IR	VR=5V	~	~	10	μA

Notes :

1. Luminous flux is measured with an accuracy of ±10%.
2.CCT is measured with an accuracy of ± 100K.
3. wavelength is measured with an accuracy of ±1nm.
4.The forward voltage is measured with an accuracy of ±0.1V.

Table 2. Absolute Maximum Rating (At TA=25°C)

Parameter	Symbol	Ratings	Units
Power Dissipation	PD	1.05	W
Continuous Forward Current	IF	350	mA
Peak Forward Current [2]	IF (Peak)	1000	mA
LED Junction Temperature	TJ	120	°C
Reverse Voltage	VR	5	V
Operating Temperature Range	TOPR	-35°C To +60°C	
Storage Temperature Range	TSTG	-40°C To +100°C	
Manual Solding Temperature	TSOL	350°C± 20°C For 3 Seconds	
ESD Sensitivity	ESD	4500V HBM	

Notes:

[1]. Tolerance Θ: 10%
[2].1/10 Duty Cycle 0.1ms Pulse Width.

Table 3. The Test Conditions And Test Results

Test Project	Reference Standard	Test Conditions	Record	Number Impaired
Thermal Resistance	JESD22-B106	Tsld=260°C,10sec	2 times	0/22
Thermal Cycling	JESD22-A104	-40°C 30min ↓↑ 5min 85°C 30min	1000 cycle	0/100
Thermal Shock	JESD22-A106	-40°C 15min ↑↓ 85°C 15min	1000 cycle	0/100
High Temperature Test	JESD22-A103	Ta=80°C	1000 hrs	0/100
Low Temperature Test	JESD22-A119	Ta= -40°C	1000 hrs	0/100
High Temperature Cycle Test Lights	JESD22-A105	On 5min -40°C >15min ↑ ↓ ↑ ↓<15min Off5min 80°C >15min	1000 cycle	0/100
High Temperature And Humidity Aging	JESD22-A101	60°C RH=90%	1000 hrs	0/100
Life Test	JESD22-A108	Ta=25°C	1000 hrs	0/100

Table 4. Impaired Judgment Standard

Project	Symbol	Test Conditions	Criteria
Solder Ability	~	~	Soldering area of more than 95%
Forward Voltage	VF	IF=350mA	The initial value of ±10%
Reverse Current	IR	VR = 5 V	≤10uA
Luminous Intensity	ΦV	IF=350mA	Average attenuation ≤10%

TYPICAL CHARACTERISTIC CURVE

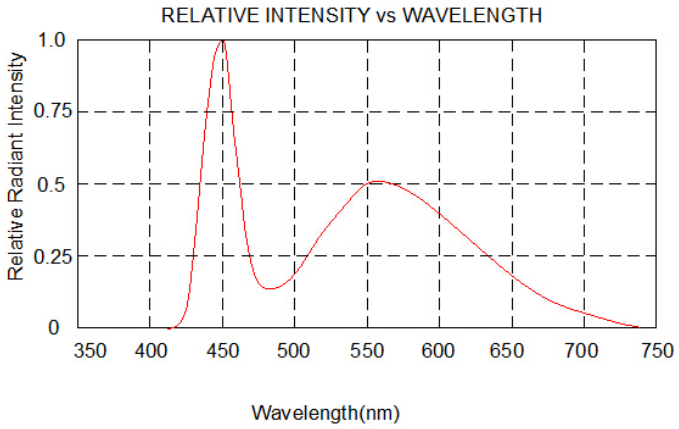

Figure 5. Relative Intensity VS Wavelength

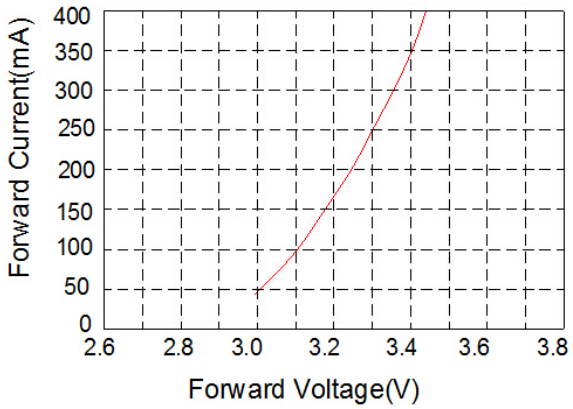

Figure 6. Forward Current-Forward Voltage

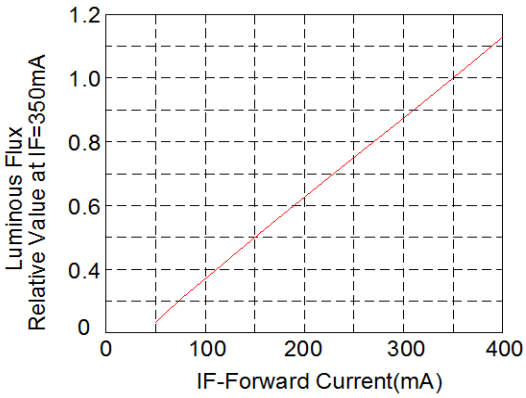

Figure 7. Forward Current VS Luminous Flux

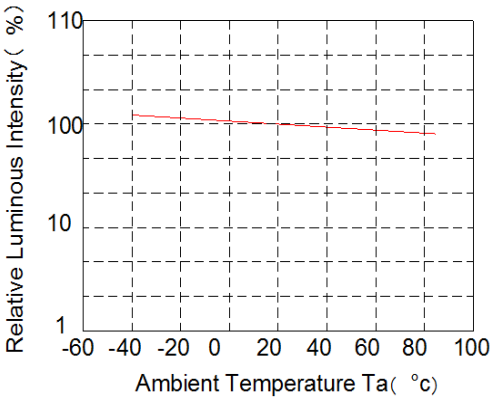

Figure 8. Relative Luminous Intensity VS Ambient Temperature

CAUTIONS

LED is a light emitting device, in which blue light combines special fluorescent powder. The working current changes of LED can disturb the color of emitted light, so it needs consideration when using LED.

1. Damp proof package

   When SMT package absorbs water, it will function when water is evaporated and expanded during soldering. This may damage the optical characteristics of LED, for which, damp proof package is used to insulate external moisture.

2. Storage condition

   For unopened package:

   LED should be kept at 30°C or below, and relative humidity 60% or below. LED should be used within one year. Conform to the suggestion of absorbent material (silica gel) in damp proof package.

   For opened package:

LED should be kept at 30°C or below, and relative humidity 50% or below. The soldering of LED should be completed within 168 hrs (7 days) after opening the damp proof package.

Repackage the unused LEDs in the damp proof package. Conform to the suggestion of absorbent material (silica gel) in damp proof package. It's suggested to seal the unused LEDs in the damp proof package.

When the storage of LED exceeds its storage time, dry it in the methods below.

Bake: over 48 hrs, at 60±5°C/4~10h (according to different ambient humidity)

3. Heat-sinking

   The final heat dissipation design is vital to the product application. Please consider some necessary factors during system design, heat generated by LED, input power, the increase of temperature coefficient, thermal conductive circuit device and other components.

   After the working current is confirmed, the max. ambient temperature of LED also needs to be guaranteed.

4. Clean

   It's recommended to use low concentration ethanol as cleaning solvent for LED. When using other solvent, it should be confirmed in advance whether it will harm the packaging structure and silica gel.

   According to laws and regulations all over the world, Freon solvent cannot be used to clean LED.

5. Static electricity

   Static electricity or surge voltage can cause severe damage to LED.

   It's recommended to wear anti-static wrist strap or gloves when using or handling LEDs.

   All equipment and machinery should be properly grounded. This measure suits for all devices installed with LED, which fully considers the final product of the assembly.

   During the assembling of LED, it's suggested to check if LED component is damaged by static electricity. It's easy to find the damage to the component.

   (Suggestion: in low current, <20mA) damaged LED shows some unusual features, such as the increase of leakage current, forward voltage becoming lower, or unlit LED.

6. Others

   Please note, when LED matrix driver is used, please make sure the backward voltage doesn't exceed the maximum rating.

   LED light output intensity can discomfort human eyes, so preventive measures should be taken to ensure people cannot look straight into LED over a few seconds.

   The component described in this LED datasheet is used in common electronic devices (street lamp, tunnel lamp, flashlight lamp and miner light, etc.).

   When LED is working at the highest temperature, proper working current should be considered.

User can't make reverse engineering, dissection, and analysis on LED. Users should be noted when defects are found. Products shall be subject to any changes of product appearance and specification without additional notices.

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