

# 承認書

## Specification For Approval

Customer: (客戶) \_\_\_\_\_

Description: (產品描述)

SMDLED2016 翠綠色

Part number: (產品型號)

TJ-S2016G60HQYK88-A3

Date: (日期) \_\_\_\_\_

Approved By: (客戶承認)

Prepared By: (我司承認)

Approval	Check	Design	Sales
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核准

審核

製作

業務

Customer Service Hotline: **400-676-8616**

TEL: 0769-8662 5999      0769-8200 2226

E-MAIL : dg@togialed.com

FAX: 0769-8200 2227

WEB: www.togialed.com

## Features

2.2mm x 1.6mm SMT LED, 0.6mm thickness

Low power consumption

Wide view angle

Package: 4000pcs/reel

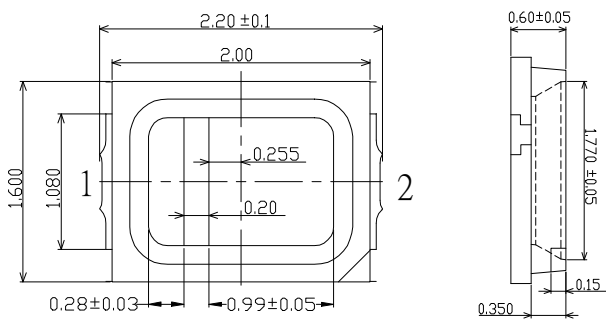
RoHS Compliant

## Applications

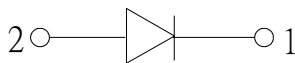
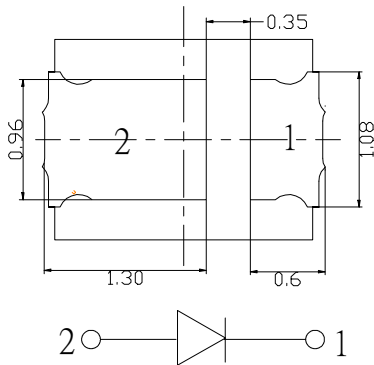
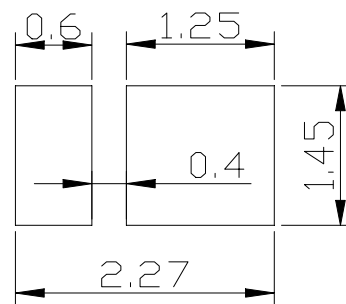
Ideal for back light and indicator

Various colors and lens types available

### Package outlines



### Recommend Pad Layout



Part No.	Emitted color	Dice	Lens color
TJ-S2016G60HQYK88-A3	Green	AlGaInP	Water transparent

### Notes:

1. All dimensions are in millimeters (inches);
2. Tolerances are  $\pm 0.1\text{mm}$  (0.004inch) unless otherwise noted.

**Absolute maximum ratings (TA=25°C)**

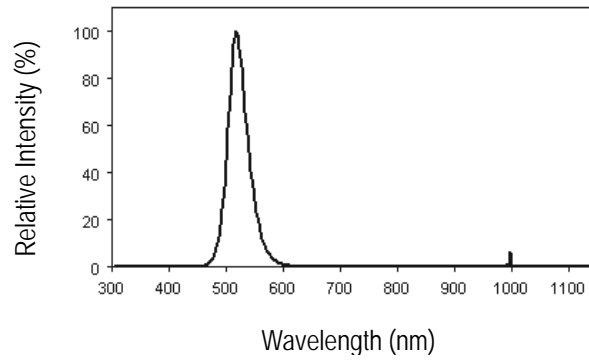
Parameter	Symbol	Value	Unit
Forward current	I <sub>f</sub>	60	mA
Reverse voltage	V <sub>r</sub>	5	V
Power dissipation	P <sub>d</sub>	150	mW
Operating temperature	T <sub>op</sub>	-40 ~+80	°C
Storage temperature	T <sub>stg</sub>	-40 ~+85	°C
Peak pulsing current (1/8 duty f=1kHz)	I <sub>fp</sub>	125	mA

**Electro-optical characteristics (TA=25°C)**

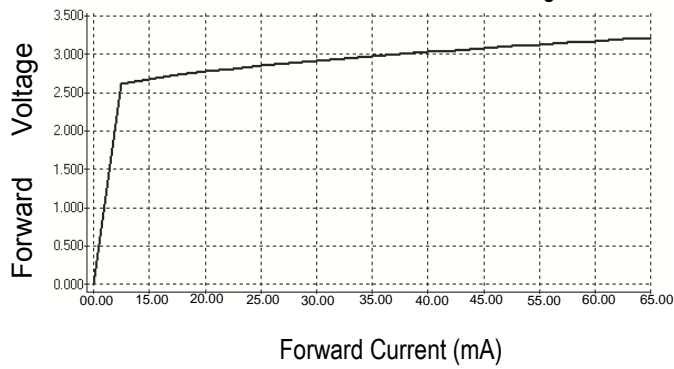
Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	I <sub>f</sub> =60mA	λ <sub>p</sub>	--	525	--	nm
Spectral half bandwidth	I <sub>f</sub> =60mA	Δλ	--	23	--	nm
Dominant wavelength	I <sub>f</sub> =60mA	λ <sub>d</sub>	515	--	535	nm
Forward voltage	I <sub>f</sub> =60mA	V <sub>f</sub>	2.8	--	3.4	V
Luminous intensity	I <sub>f</sub> =60mA	I <sub>v</sub>	15	--	20	LM
Viewing angle at 50% I <sub>v</sub>	I <sub>f</sub> =30mA	2θ 1/2	--	120	--	Deg
Reverse current	V <sub>r</sub> =5V	I <sub>r</sub>	--	--	10	μA

Optical characteristic curves

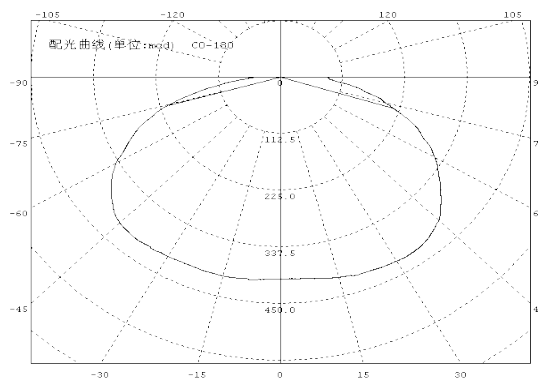
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

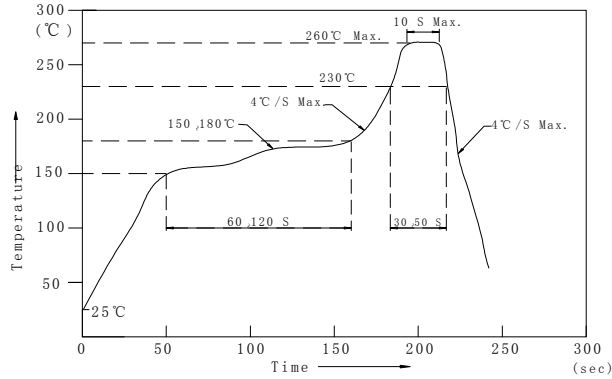


Directive Characteristics



## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

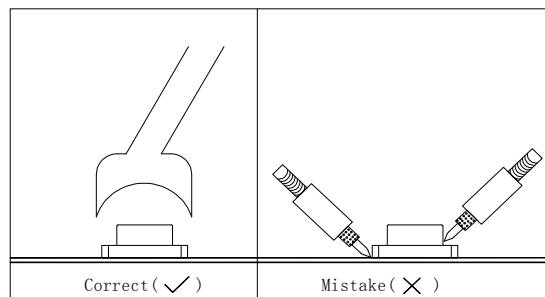
1. We recommend the reflow temperature  $245^{\circ}\text{C}(\pm 5^{\circ}\text{C})$ . the maximum soldering temperature should be limited to  $260^{\circ}\text{C}$ .
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### ■ Soldering iron

Basic spec is  $\leq 5\text{sec}$  when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under  $230^{\circ}\text{C}$ .

### ■ Rework

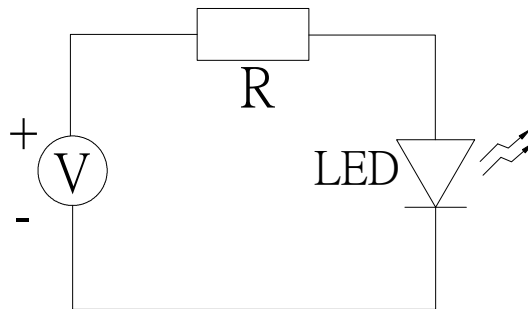
1. Customer must finish rework within 5 sec under  $260^{\circ}\text{C}$ .
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

## Test circuit and handling precautions

### ■ Test circuit



### ■ Handling precautions

#### 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 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature : 5°C~30°C(41°F~86°F)

2.2 Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. after the package is Opened, the products should be used within a week or they should be keeping to stored at  $\leq 20$  R.H. with zip-lock sealed.

#### 3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

3.1  $60 \pm 3^\circ\text{C}$  x(12~24hrs) and <5%RH, taped reel type

3.2  $100 \pm 3^\circ\text{C}$  x(45min~1hr), bulk type

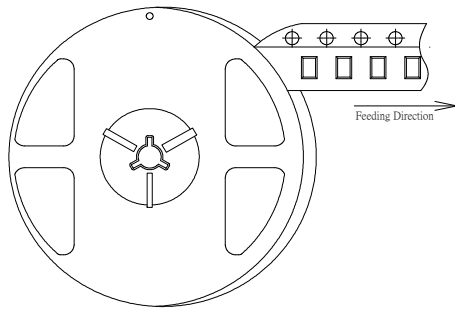
3.3  $130 \pm 3^\circ\text{C}$  x(15~30min), bulk type

Test items and results of reliability

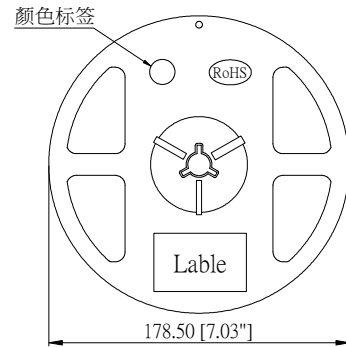
Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑ ↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ↔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	Ta=80°C	1000 hrs	0/22
	Humidity Heat Storage	Ta=60°C RH=90%	1000 hrs	0/22
	Low Temperature Storage	Ta=-30°C	1000 hrs	0/22
Operation Sequence	Life Test	Ta=25°C IF=60mA	1000 hrs	0/22
	High Humidity Heat Life Test	60°C RH=90% IF=30mA	500 hrs	0/22
	Low Temperature Life Test	Ta=-20°C IF=60mA	1000 hrs	0/22

## 2016 Series SMD Chip LED Lamps Packaging Specifications

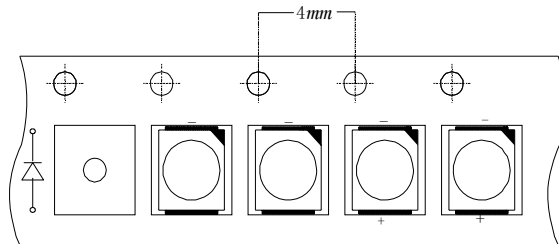
- Feeding Direction



- Dimensions of Reel (Unit: mm)



- Dimensions of Tape (Unit: mm)



### Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 4,000 pcs/Reel.



