

Specifications for Approval

Customer Part No.:

Inhere Part No.: S2016BPYT-001

Part Name: 2016 黄光 LED

Spec Issue Date: 2019-04-12

Revision No.: A

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To Customer:

We submit here with the following information for your approval:

- Sample
- OQC Inspection Record
- LED Dimension
- Electrical Characteristics Curve
- Internal Circuit Diagram
- Soldering recommendation

Prepared by: Lily
Date: 2019-04-12

Checked by: Wudingjun
Date: 2019-04-12

Approved by: Tom
Date: 2019-04-12

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Customer Opinion

- Approve and no objection
- Reject with the following reason:

Features

2.0mm × 1.6mm SMD LED, 0.6thickness

Low power consumption

Wide view angle

Package: 4000pcs/reel

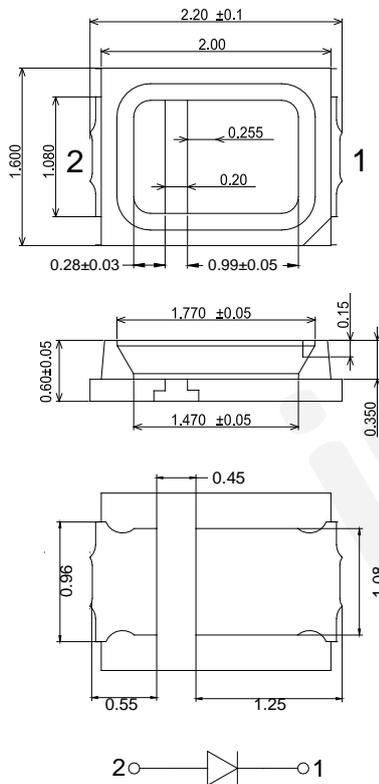
RoHS Compliant

Applications

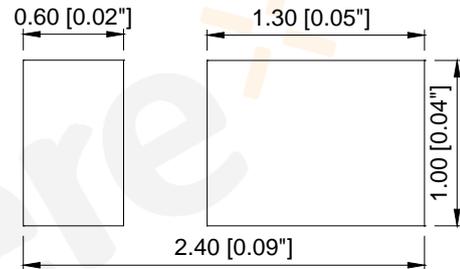
Ideal for back light and indicator

Various colors and lens types available

Package outlines



Recommend Pad Layout



Part No.	Emitted color	Dice	Lens color
S2016BPYT-001	Yellow	InGaN/GaN	Water Clear

Notes:

All dimensions are in millimeters (inches);

Tolerances are ±0.1mm (0.004inch) unless otherwise noted.

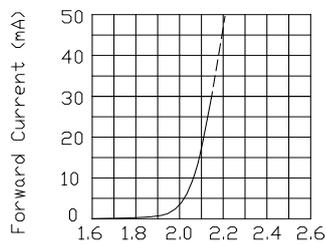
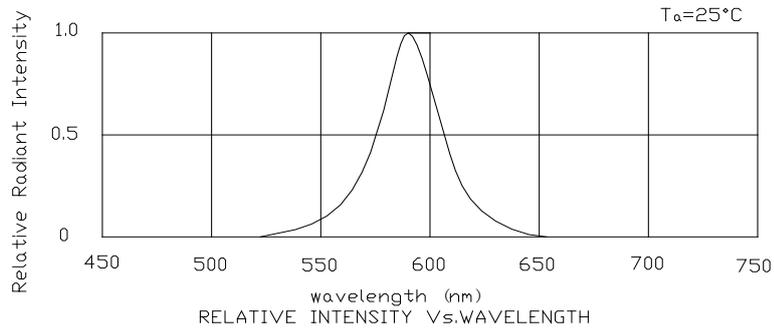
Absolute Maximum Ratings (TA=25°C)

Parameter	Symbol	Value	Unit
Forward current	I _f	30	mA
Reverse voltage	V _r	5	V
Power dissipation	P _d	72	mW
Operating temperature	T _{op}	-40 ~+85	°C
Storage temperature	T _{stg}	-40 ~+85	°C
Peak pulsing current (1/10 duty f=1kHz)	I _{fp}	125	mA

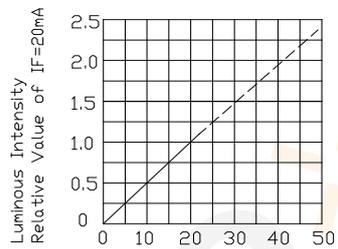
Electro-Optical Characteristics (Ta=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	I _f =20mA	λ_p	--	594	--	nm
Spectral half bandwidth	I _f =20mA	$\Delta \lambda$	--	18	--	nm
Dominant wavelength	I _f =20mA	λ_d	586	--	596	nm
Forward voltage	I _f =20mA	V _f	1.8	--	2.4	V
Luminous intensity	I _f =20mA	I _v	800	1250	--	mcd
Viewing angle at 50% I _v	I _f =10mA	2 $\theta_{1/2}$	--	120	--	Deg
Reverse current	V _r =5V	I _r	--	--	10	μ A

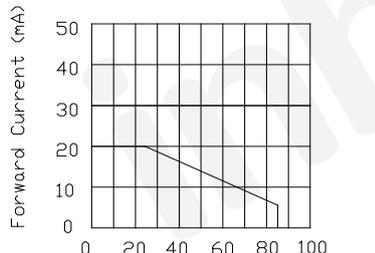
Optical characteristic curves



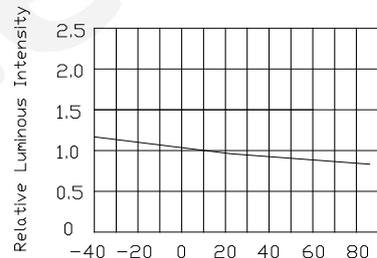
Forward Voltage (V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



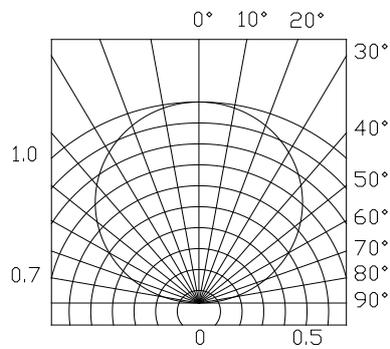
I_f -Forward Current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



Ambient Temperature T_a ($^\circ\text{C}$)
FORWARD CURRENT
DERATING CURVE



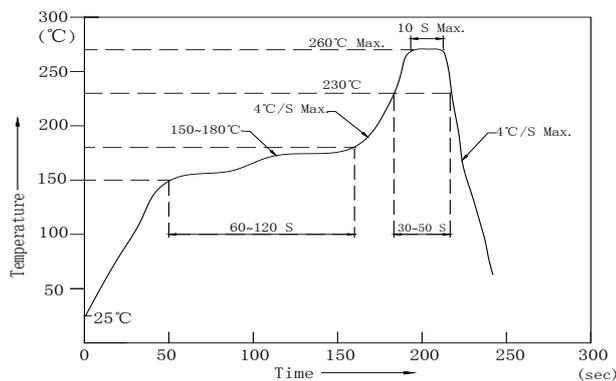
Ambient Temperature T_a ($^\circ\text{C}$)
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE



SPATIAL DISTRIBUTION

Reflow Profile

■ Reflow Temp/Time



Notes:

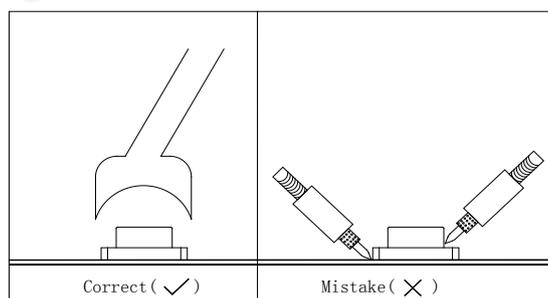
1. We recommend the reflow temperature 245°C ($\pm 5^{\circ}\text{C}$). the maximum soldering temperature should be limited to 260°C .
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■ Soldering iron

Basic spec is $\leq 5\text{sec}$ when 320°C ($\pm 20^{\circ}\text{C}$). 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 350°C .

■ Rework

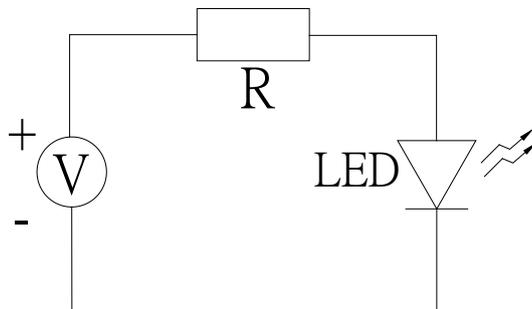
1. Customer must finish rework within 5 sec under 340°C .
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.



- 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

2.2 Shelf life in sealed bag: 12 month at <math>< 5^{\circ}\text{C} \sim 30^{\circ}\text{C}</math> and <math>< 30\%</math> R.H. after the package is opened, the products should be used within a week or they should be keeping to stored at ≤ 20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering. The Conditions is: $60 \pm 5^{\circ}\text{C} / 24\text{hrs}$

Test Items and Results of Reliability

Test Item	Test Conditions	Standard Test Method	Note	Number of Test
Reflow Soldering	Ta=260±5℃,Time=10±2S	JB/T 10845-2008	3times	0/22
Salt Atmosphere	Ta=35±3℃,PH=6.5~7.2	GB/T 2423.17-2008	24hrs	0/22
Temperature Cycling	-40±5℃ 30±1min ↑→(25℃/5±1min) ↓ 100±5℃ 30±1min	GB/T 2423.22-2012	100cycles	0/22
Thermal Shock	Ta=-40±5℃~100±5℃, 15±1min dwell	GB/T 2423.22-2012	100cycles	0/22
High Humidity High Temp. Cycling	Ta=30±5℃~65±5℃, 90±5%RH,24hrs/1cycle	GB/T 2423.4-2008	10cycles	0/22
High Humidity High Temp. Storage Life	Ta=85±5℃,ψ(%)=85±5%RH	GB/T 2423.3-2006	1000hrs	0/22
High Temperature Storage Life	Ta=100±5℃,non-operating	GB/T 2423.2-2008	1000hrs	0/22
Low Temperature Storage Life	Ta=-40±5℃,non-operating	GB/T 2423.1-2008	1000hrs	0/22
Life Test	Ta=26±5℃,@20mA, ψ(%)=25%RH~55%RH	--	1000hrs	0/22
High Humidity High Temp. Operating Life	Ta=85±5℃,@20mA, ψ(%)=85%RH	GB/T 2423.3-2006	500hrs	0/22
Low Temperature Operating Life	Ta=-20±5℃,@20mA	GB/T 2423.1-2008	1000hrs	0/22

Forward Voltage Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
7	1.8	1.9	V
8	1.9	2.0	
9	2.0	2.1	
A	2.1	2.2	
B	2.2	2.3	
C	2.3	2.4	

Luminous Intensity Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
S	800	1000	mcd
T	1000	1250	
U	1250	1600	
V	1600	--	

Dominant wavelength Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
Yd	586	588	nm
Ye	588	590	
Yf	590	592	
Yg	592	594	
Yh	594	596	

Group Name on Label (Example DATA: 9 T Yf 20)

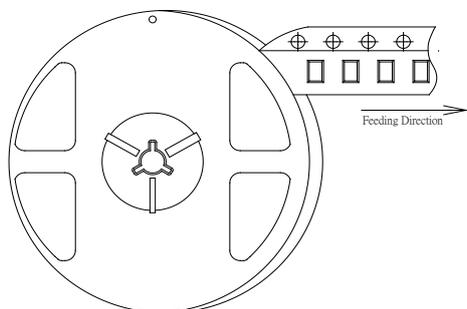
DATA: 9 T Yf 20	Vf(V)	Iv (mcd)	λ_d (nm)	Test Condition
9→T→Yf→20	2.0~2.1	1000~1250	590~592	IF=20mA

Notes:

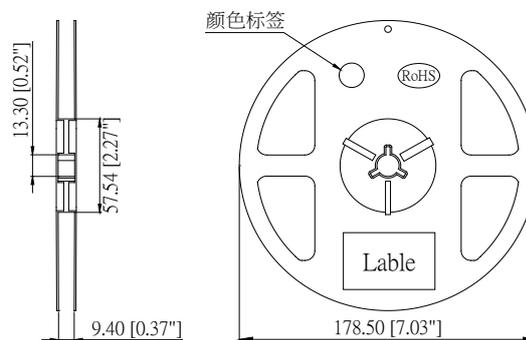
1. The tolerance of luminous intensity (Iv) is $\pm 15\%$.
2. The tolerance of dominant wavelength is $\pm 1\text{nm}$.
3. This specification is preliminary.
4. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

2016 Series SMD Chip LED Lamps Packaging Specifications

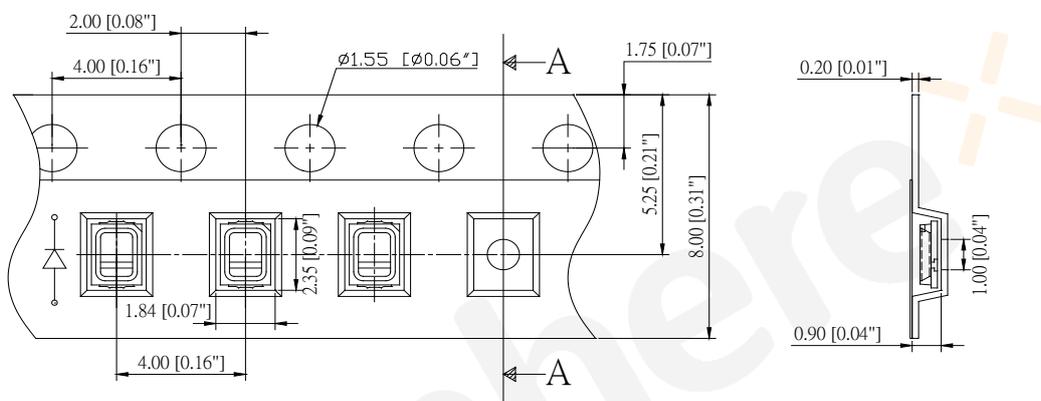
● Feeding Direction



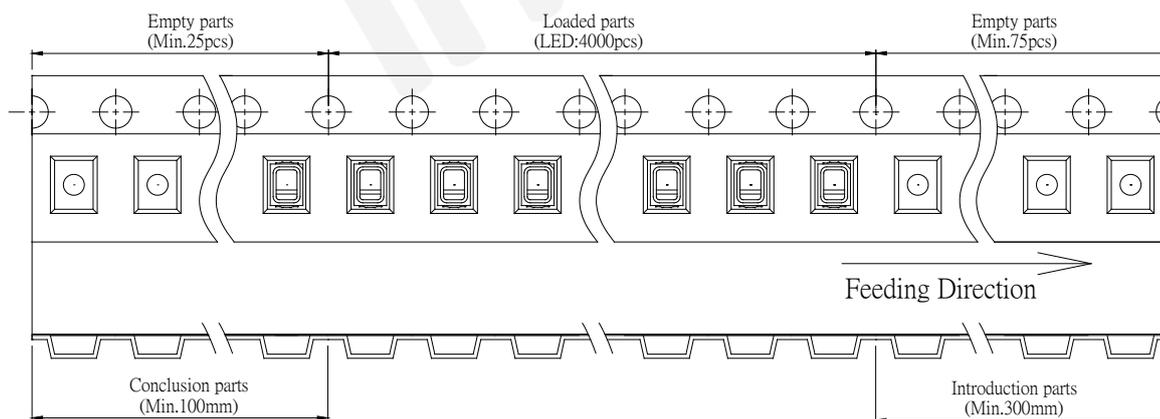
● Dimensions of Reel (Unit: mm)



● Dimensions of Tape (Unit: mm)



● Arrangement of Tape



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. 4,000pcs/Reel.

