

Technical Data Sheet

Customer Part No.:

Inhere Part No.: S2014MPUG00T-002-AM

Part Name: 2014 绿光 LED

Spec Issue Date: 2024-09-02

Revision No.: A

Product Gradation : AEC-Q102 Compliance

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To Customer:

We submit herewith the following information for your approval:

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

Prepared by : Lily

Checked by : Tom

Approved by : Ares

Date : 2024-09-02

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Customer Opinion

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



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Features

2.00mm × 1.40mm SMD LED, 1.30mm thickness

Low power consumption

Wide view angle

Package: 3000pcs/reel

RoHS Compliant

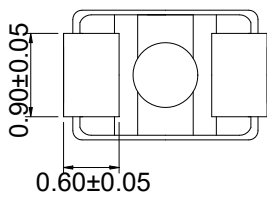
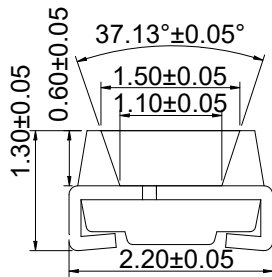
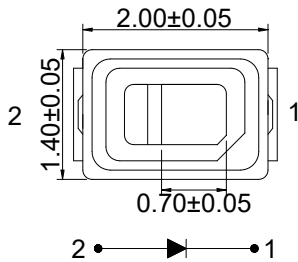
Applications

Automotive backlighting or indicator

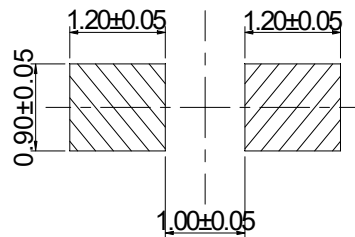
Ideal for back light and indicator

Various colors and lens types available

Package Outlines



Recommend Pad Layout



Part No.	Emitted color	Dice	Lens color
S2014MPUG00T-002-AM	Green	InGaN/GaN	Water transparent

Notes:

All dimensions are in millimeters (inches).

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

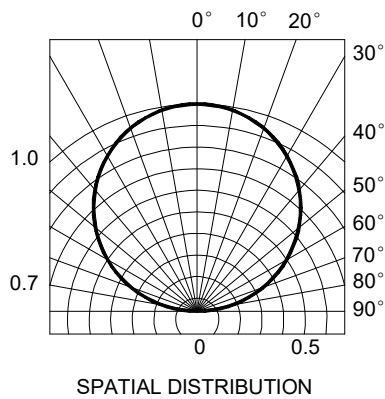
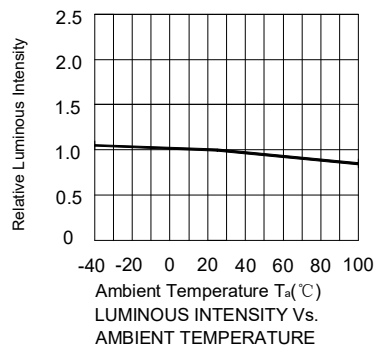
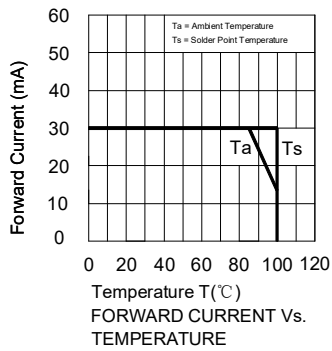
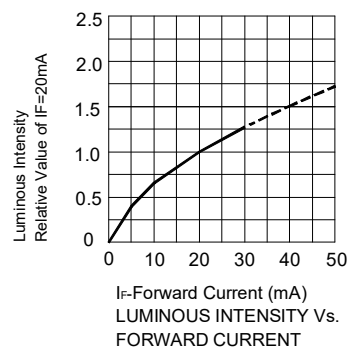
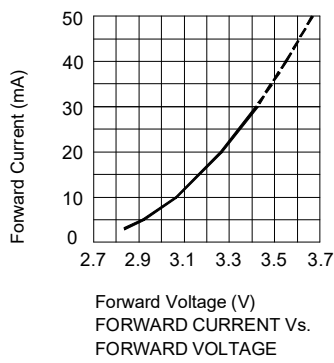
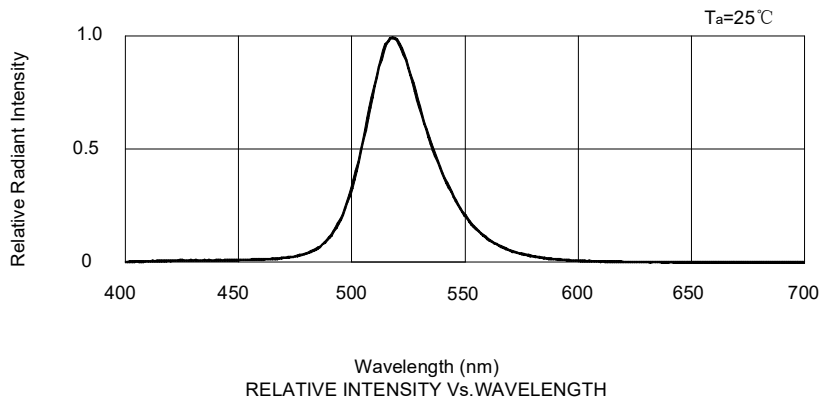
Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Value	Unit
Forward current	If	30	mA
Peak pulsing current (1/10 duty f=1kHz)	Ifp	100	mA
Power dissipation	Pd	102	mW
ESD(HBM,R=100kΩ ,C=100pF)	--	2	KV
Reverse voltage	Vr	5	V
Operating temperature	Top	-40 ~+100	°C
Storage temperature	Tstg	-40 ~+100	°C
Junction temperature	Tj	125	°C
Humidity sensitive level	MSL	2a	--

Electro-Optical Characteristics (Ta=25°C)

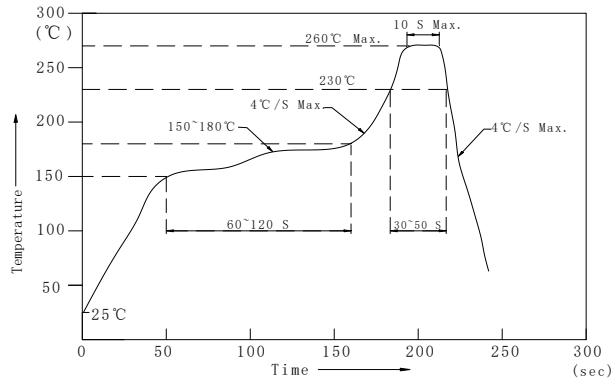
Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	If=20mA	λ_p	--	518	--	nm
Spectral half bandwidth	If=20mA	$\Delta \lambda$	--	31	--	nm
Dominant wavelength	If=20mA	λ_d	520	--	530	nm
Forward voltage	If=20mA	Vf	2.8	--	3.4	V
Luminous intensity	If=20mA	Iv	400	550	--	mcd
Viewing angle	If=20mA	$2\theta_{1/2}$	--	120	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μ A

Optical Characteristic Curves



Reflow Profile

■ Reflow Temp/Time



Notes:

1. We recommend the reflow temperature 245°C (±5°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.

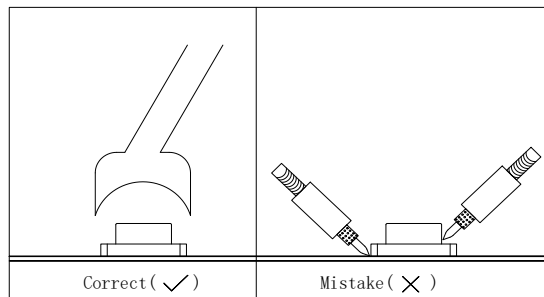
■Soldering iron

Basic spec is $\leq 5\text{sec}$ when 320°C (±20°C). If temperature is higher, time should be shorter (+10°C → -1sec).

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

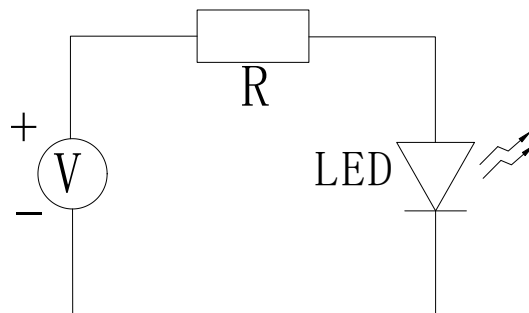
1. Customer must finish rework within 5 sec under 340°C.
2. The head of iron cannot touch copper foil.
3. Twin-head type is preferred.



- 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 4weeks or they should be keeping to stored at ≤ 20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering when the pack is unsealed after 4 weeks.

The Condition is: $65\pm 5^{\circ}\text{C}/24\text{hrs}$.

Test Items and Results of Reliability (1)

Test Item	Test Conditions	Standard Test Method	Note	Number of Test
External Visual	Ta=25±3℃ ψ(%)=40%RH~60%RH	JESD22 B-101B	--	--
Parametric Verification	Ta=25±3℃ ψ(%)=40%RH~60%RH	JESD22 A-108C	--	0/25
D.P.A	Ta=25±3℃ ψ(%)=40%RH~60%RH Random Sample H3TRB, HAST,TC	AEC-Q101-004-C	--	0/3
ESD	Ta=25±3℃ ψ(%)=40%RH~60%RH HBM: R=1.5KΩ C=100pF	JESD22 A-114E	3 times Negative/ Positive	0/30
Physical Dimension	Ta=25±3℃ ψ(%)=40%RH~60%RH	JESD22 B-100B	--	0/3
Vibration Variable Frequency	Ta=25±3℃ ψ(%)=40%RH~60%RH 0.06inch displacement,20 to 100Hz,50g 100Hz to 2KHz	JESD22 B-103B	4times	0/30
Mechanical Shock	Ta=25±3℃ ψ(%)=40%RH~60%RH 1500g's for 0.5s,5blows, 3orientation	JESD22 B-104C	3times	0/30
Temperature Cycling	Ta=-40°-100℃,30min dwell, 5min transfer,1000 cycles	JESD22 A-104C	1000cycles	0/77
Power Temperature Cycling	Ta=-40~85℃ 20min dwell/1hour transition 2 min ON / 2 min OFF	JESD22 A-105C	1000cycles	0/77
Steady-state temperature-humidity bias life test	Ta=85℃,ψ(%)=85%RH	JESD22 A-101C	1000hrs	0/77

Test Items and Results of Reliability (2)

Test Item	Test Conditions	Standard Test Method	Note	Number of Test
High Temperature Operating Life	Ta=100°C	JESD22 A-101C	1000hrs	0/77
Low Temperature Operating Life	Ta=-40°C	JESD22 A-101C	1000hrs	0/77
Low Temperature Storage Life	Ta=-40°C, non-operating	JESD22 A-119	1000hrs	0/77
High Temperature Storage Life	Ta=100°C, non-operating	JESD22 A-103C	1000hrs	0/77
Thermal Cycles	Ta=-40~100°C, 20min dwell, <10 second transfer	JESD22 A-104C	1000cycles	0/77
High Temperature Reverse Bias Test	Ta=85°C, VR=5V	JESD22 A-108C	1000hrs	0/77
Bond Shear/Die Shear	Ta=25±3°C ψ(%)=40%RH~60%RH	AEC-Q101-D1	--	0/10
Sulphur resistance	Ta=40±3°C ψ(%)=90%RH Concentration:H2S/15PPM	IEC60810	336hrs	0/10
Salt Atmosphere	Ta=35±3°C, PH=6.0~7.5	JESD22 A-107B	24hrs	0/5
Reflow soldering	Ta=260±5°C, Time=10S	JESD22 B-106C	5 times	0/30

Forward Voltage Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
H	2.8	2.9	V
I	2.9	3.0	
J	3.0	3.1	
K	3.1	3.2	
L	3.2	3.3	
M	3.3	3.4	

Luminous Intensity Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
P	400	500	mcd
Q	500	630	
R	630	800	
S	800	--	

Dominant Wavelength Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
Gk	520	522	nm
Gl	522	524	
Gm	524	526	
Gn	526	528	
Go	528	530	

Notes:

1. The tolerance of forward voltage is $\pm 0.1V$.
2. The tolerance of luminous intensity (Iv) is $\pm 11\%$.
3. The tolerance of dominant wavelength is $\pm 1nm$.
4. This specification is preliminary.
5. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

