

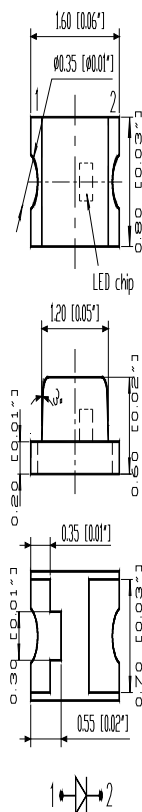
SURFACE MOUNT LED LAMPS

表面黏著型發光二極體指示燈

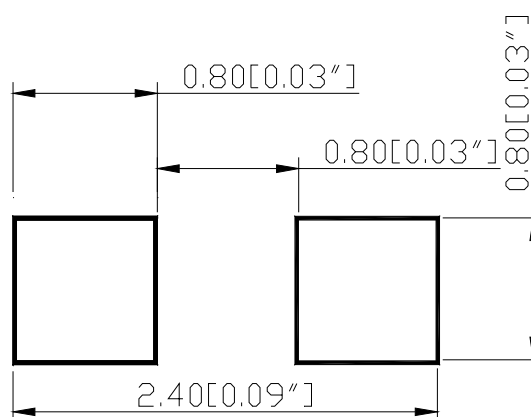
S191 Series SMD Chip LED Lamps

Part Number: Q191UHR4-5A

Package outlines



RECOMMEND PAD LAYOUT





ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

ITEM	MATERIALS
Resin (mold)	Epoxy
Bonding Wire	Ø 25 µm Au
Lens color	Water transparent
Printed circuit board	BT (white)
Dice	AlGaInP
Emitted color	Red

NOTES:

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

Rev :	Date	Drawn by :	Checked by :	Approved by :
A	2007-11-20			

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Part Number: Q191UHR4-5A

Absolute maximum ratings (T_A=25°C)

Parameter	Symbol	Value	Unit
Forward current	I _f	30	mA
Reverse voltage	V _r	5	V
Power dissipation	P _d	75	mW
Operating temperature range	T _{op}	-40 ~+80	°C
Storage temperature range	T _{stg}	-40 ~+85	°C
Peak pulsing current (1/8 duty f=1kHz)	I _{fp}	125	mA

Electro-optical characteristics (T_A=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	I _f =20mA	λ _{peak}	--	630	--	nm
Spectral half bandwidth	I _f =20mA	Δλ	--	20	--	nm
Dominant wavelength	I _f =20mA	λ _{dom}	620	--	630	nm
Forward voltage	I _f =20mA	V _f	1.7	--	2.5	V
Luminous intensity	I _f =20mA	I _v	50	--	--	mcd
Viewing angle at 50% I _v	I _f =10mA	2θ _{1/2}	--	140	--	Deg
Reverse current	V _r =5V	I _r	--	--	10	μA

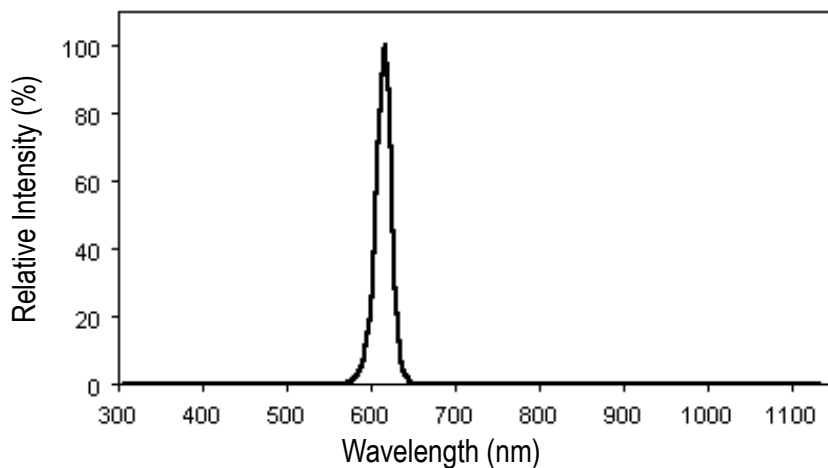
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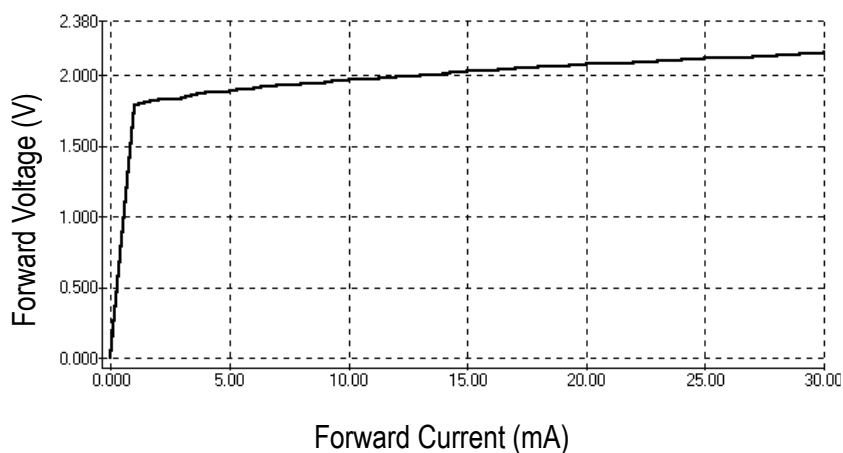
Part Number: Q191UHR4-5A

OPTICAL CHARACTERISTIC CURVES

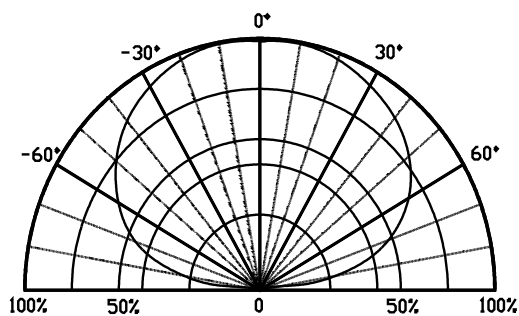
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage



Directive Characteristics

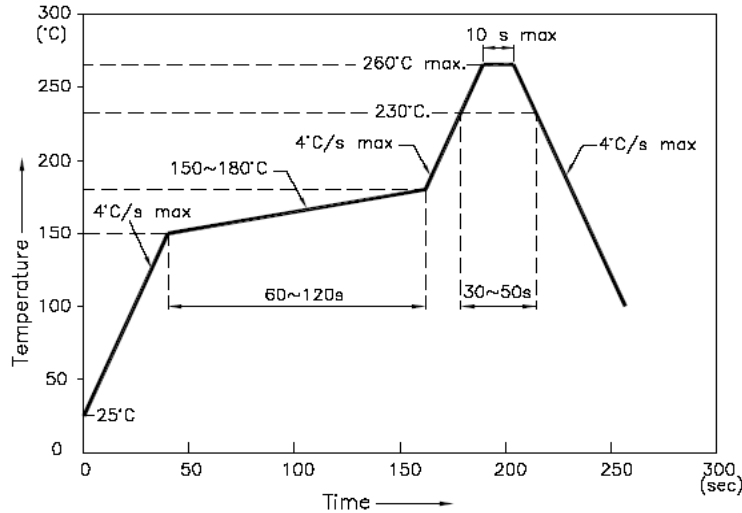


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Reflow Profile

■ Reflow Temp/Time



NOTES:

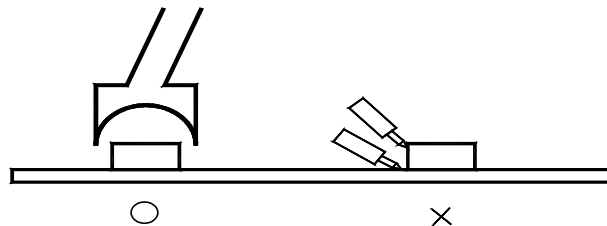
1. We recommend the reflow temperature 245°C (±5°C). the maximum soldering temperature should be limited to 260°C.
2. dont cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■Soldering iron

Basic spec is □ 5sec when 260°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 230°C.

■Rework

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



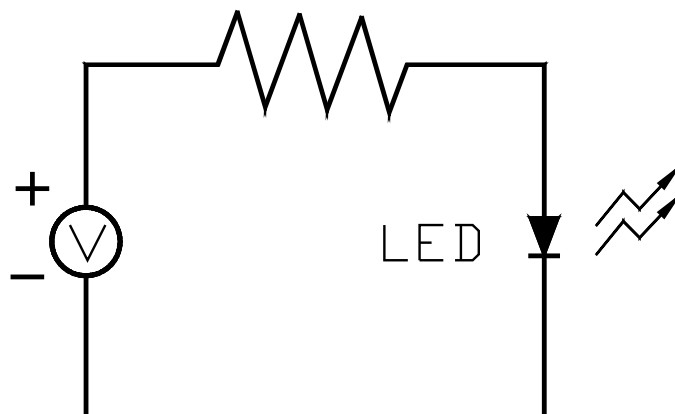
- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow、solder etc.

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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 : $5^{\circ}\text{C}\sim 30^{\circ}\text{C}$ ($41^{\circ}\text{F}\sim 86^{\circ}\text{F}$)

2.2 Shelf life in sealed bag: 12 month at $< 5^{\circ}\text{C}\sim 30^{\circ}\text{C}$ 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 ≤ 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

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Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Sequential	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	T _a =80°C	1000 hrs	0/22
	Humidity Heat Storage	T _a =60°C RH=90%	1000 hrs	0/22
	Low Temperature Storage	T _a =-30°C	1000 hrs	0/22
Se@peration	Life Test	T _a =25°C I _F =20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60°C RH=90% I _F =10mA	500 hrs	0/22
	Low Temperature Life Test	T _a =-20°C I _F =20mA	1000 hrs	0/22