

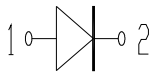
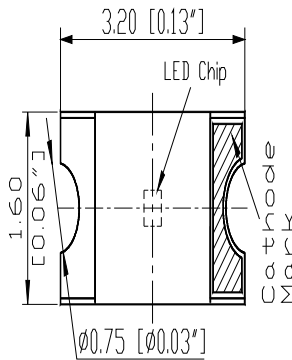
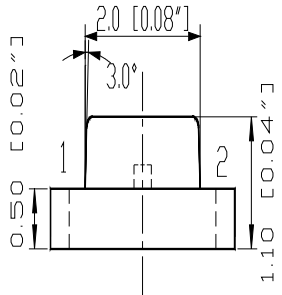
# SURFACE MOUNT LED LAMPS

## 表面黏著型發光二極體指示燈

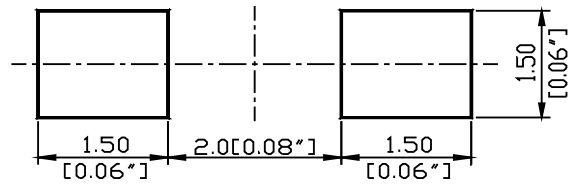
### S150 Series SMD Chip LED Lamps

Part Number: Q1500VS4

#### Package outlines



#### RECOMMEND PAD LAYOUT



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



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE DEVICES

#### NOTES:

1. All dimensions are in millimeters (inches);
2. Tolerances are ±0.1mm (0.004inch) unless otherwise noted.


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Part Number: Q1500VS4

### Absolute maximum ratings (T<sub>A</sub>=25°C)

Parameter	Symbol	Value	Unit
Forward current	I <sub>f</sub>	30	mA
Reverse voltage	V <sub>r</sub>	5	V
Power dissipation	P <sub>d</sub>	81	mW
Operating temperature range	T <sub>op</sub>	-20 ~+80	°C
Storage temperature range	T <sub>stg</sub>	-20 ~+80	°C
Peak pulsing current (1/8 duty f=1kHz)	I <sub>fp</sub>	125	mA

### Electro-optical characteristics (T<sub>A</sub>=25°C)

Parameter	Test Conditio n	Symbo l	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	I <sub>f</sub> =20mA	λ <sub>peak</sub>	630	635	640	nm
Spectral half bandwidth	I <sub>f</sub> =20mA	Δλ	--	20	--	nm
Dominant wavelength	I <sub>f</sub> =20mA	λ <sub>dom</sub>	619	624	629	nm
Forward voltage	I <sub>f</sub> =20mA	V <sub>f</sub>	--	2.20	2.70	V
Luminous intensity *1	I <sub>f</sub> =20mA	I <sub>v</sub>		600	--	mcd

Viewing angle at 50% Iv	If=10mA	2θ1/2	--	140	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μA

\*1 Note: Luminous intensity tolerances are  $\pm 10\%$  .

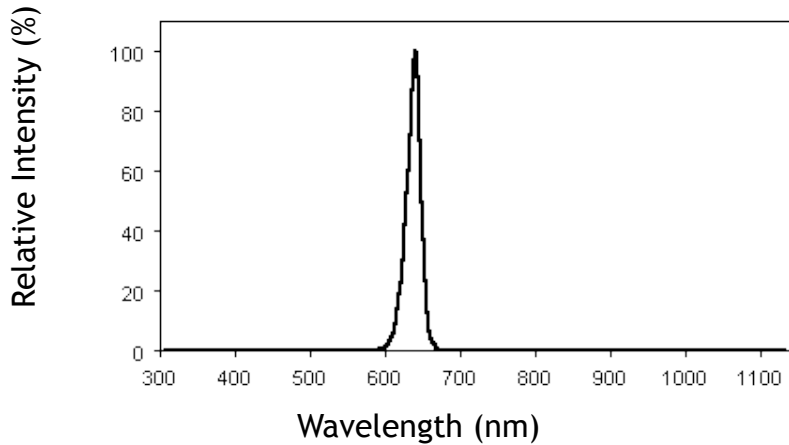
## URFACE MOUNT LED LAMPS

表面黏著型發光二極體指示燈

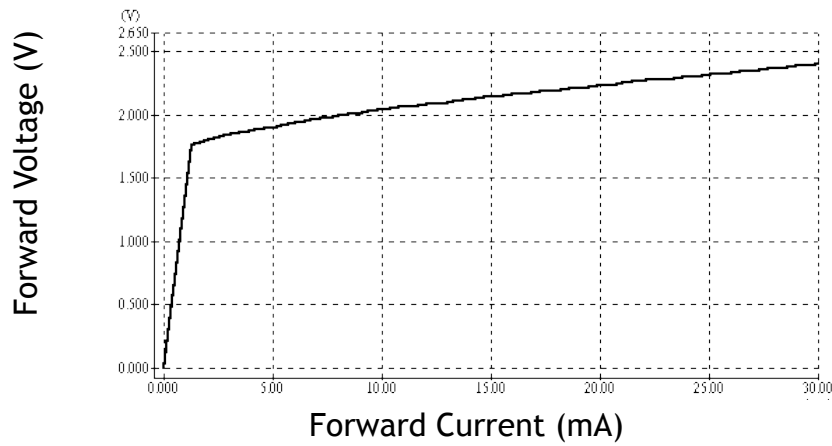
Part Number: Q150OVS4

# OPTICAL CHARACTERISTIC CURVES

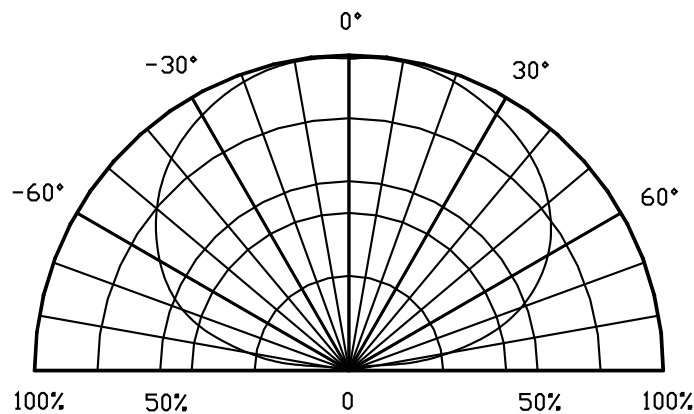
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage



Directive Characteristics

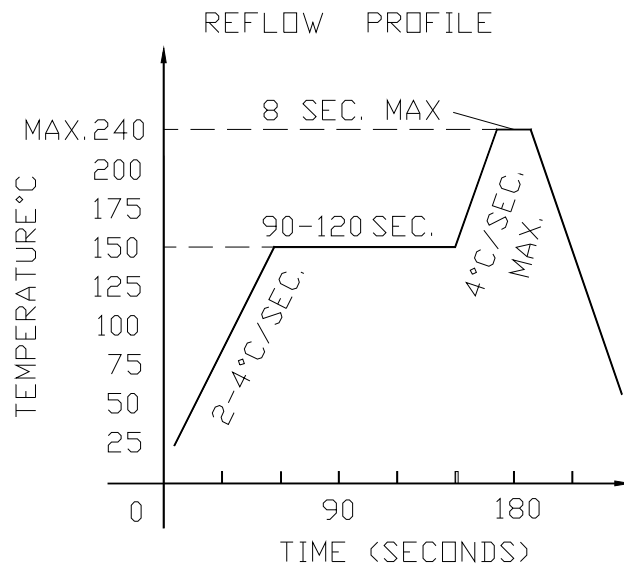


## SURFACE MOUNT LED LAMPS

表面黏著型發光二極體指示燈

Reflow Profile

## ■ Reflow Temp/Time



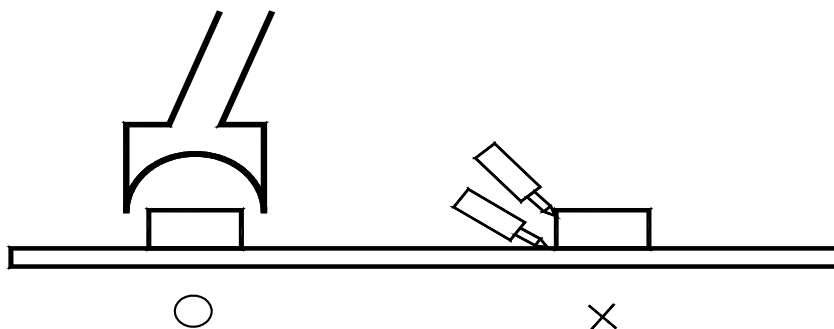
## ■ Soldering iron

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 15W, and temperatures should be controllable. Surface temperature of the device

## ■ 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.

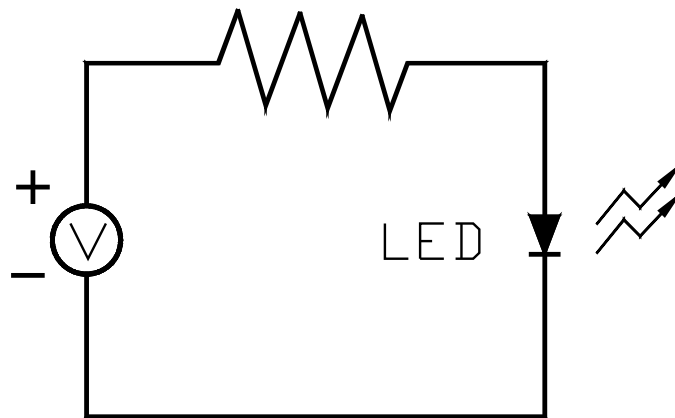


# SURFACE MOUNT LED LAMPS

## 表面黏著型發光二極體指示燈

### 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

$\leq 20$  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

When you discover that the desiccant in the package has a pink color (normal=blue), you

Should treat them in the same conditions as (3.1~3.3)

# SURFACE MOUNT LED LAMPS

## 表面黏著型發光二極體指示燈

### Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Requirement	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 <sub>a</sub> =80°C	1000 hrs	0/22
	Humidity Heat Storage	T <sub>a</sub> =60°C RH=90%	1000 hrs	0/22
	Low Temperature Storage	T <sub>a</sub> =-30°C	1000 hrs	0/22
Seperation	Life Test	T <sub>a</sub> =25°C I <sub>F</sub> =20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60°C RH=90% I <sub>F</sub> =20mA	500 hrs	0/22
	Low Temperature Life Test	T <sub>a</sub> =-20°C I <sub>F</sub> =20mA	1000 hrs	0/22