

承 認 書

SPECIFICATION FOR APPROVAL

客 戶:

CUSTOMER

品 名: 0603紅藍雙色LED

DESCRIPTION

型 號: HQ-0603RBC

MODEL

日 期: 13.05.06

DATE

承 制 方

MANUFACTURER :

使 用 方

USER:

制 表 DRAFTING	審 核 CHECK	核 準 APPROVE
李 麗		

核 準 APPROVE	簽 章

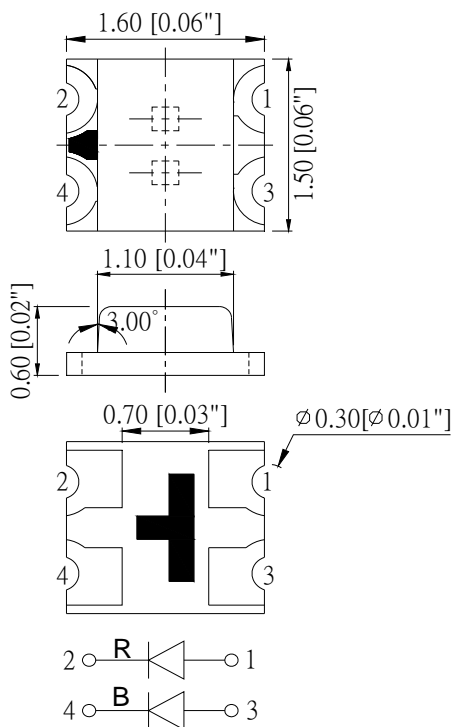
Features

- 1.6mm x 1.5mm SMT LED, 0.6mm thickness
- Low power consumption
- Wide view angle
- Package:3000pcs/reel
- RoHS Compliant

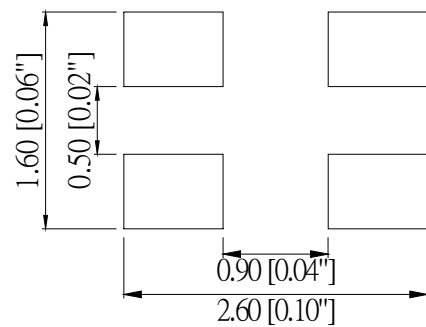
Applications

- Ideal for back light and indicator
- Various colors and lens types available

Package outlines



Recommend Pad Layout



Part No.	Emitted color	Dice	Lens color
HQ-0603RBC	Red	AlGaInP	Water transparent
	Blue	InGaN	

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)

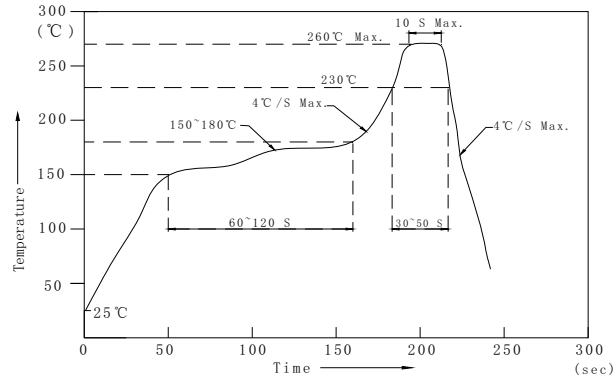
Parameter	Symbol	Value		Unit
		R	G	
Power dissipation	Pd	75	111	mW
Forward current	If	30		mA
Reverse voltage	Vr	5		V
Operating temperature	Top	-40 ~+80		°C
Storage temperature	Tstg	-40 ~+85		°C
Peak pulsing current (1/8 duty f=1kHz)	Ifp	125		mA

Electro-optical characteristics (TA=25°C)

Parameter	Test Condition	Symbol	Value			Unit	
			Min	Typ	Max		
Wavelength at peak emission	If=20mA	λ_p	R	--	630	--	nm
			G	--	515	--	
Spectral half bandwidth	If=20mA	$\Delta \lambda$	R	--	18	--	nm
			G	--	38	--	
Dominant wavelength	If=20mA	λ_d	R	620	--	630	nm
			G	514	--	524	
Forward voltage	If=20mA	Vf	R	1.6	--	2.5	V
			G	2.8	--	3.7	
Luminous intensity	If=20mA	Iv	R	63	100	--	mcd
			G	250	400	--	
Viewing angle at 50% Iv	If=10mA	$2\theta_{1/2}$	--	120	--	Deg	
Reverse current	Vr=5V	Ir	--	--	10	μA	

Reflow Profile

■ Reflow Temp/Time



Notes:

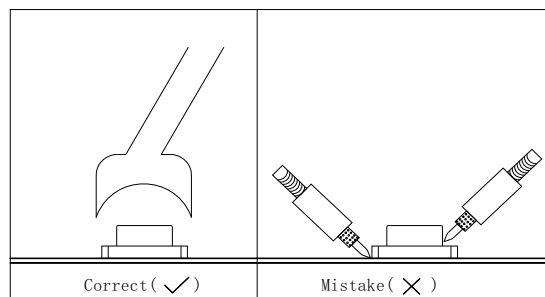
1. We recommend the reflow temperature $245^{\circ}\text{C}(\pm 5^{\circ}\text{C})$. the maximum soldering temperature should be limited to 260°C .
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■ Soldering iron

Basic spec is $\leq 5\text{sec}$ when 260°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°C .

■ Rework

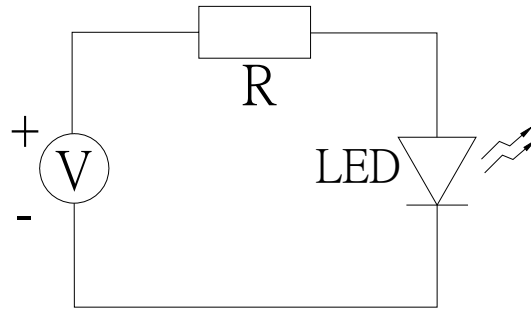
1. Customer must finish rework within 5 sec under 260°C .
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



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

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 $5^{\circ}\text{C}\sim 30^{\circ}\text{C}$ and <math>< 30\% \text{ R.H.}</math> after the package is Opened, the products should be used within a week or they should be keeping to stored at $\leq 20 \text{ R.H.}$ 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 <math>< 5\% \text{ RH}</math>, taped reel type

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

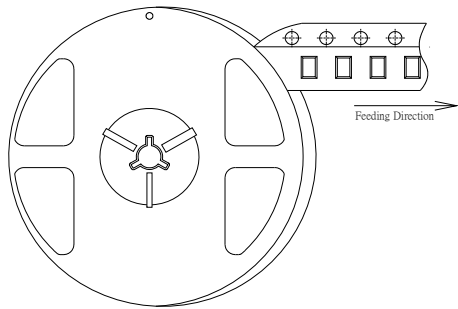
3.3 $130 \pm 3^{\circ}\text{C}$ x(15~30min), bulk type

Test items and results of reliability

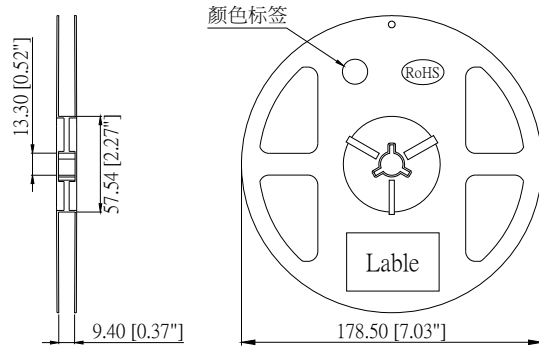
Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑ ↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ⇔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	Ta=80°C	1000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

Packaging Specifications

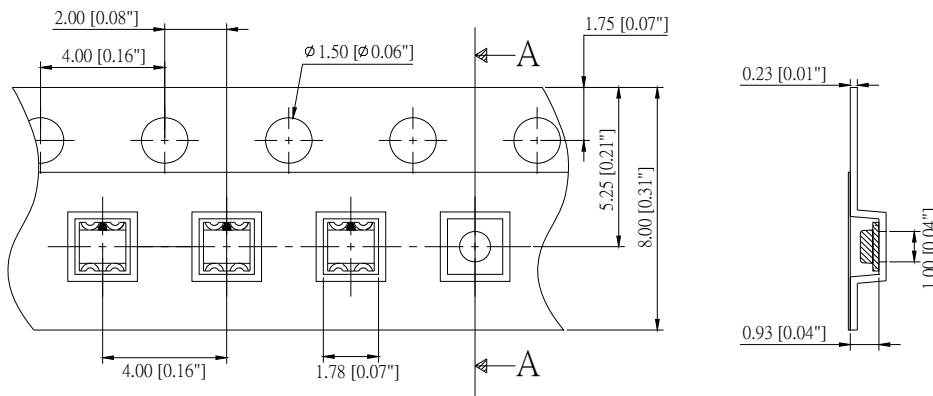
● Feeding Direction



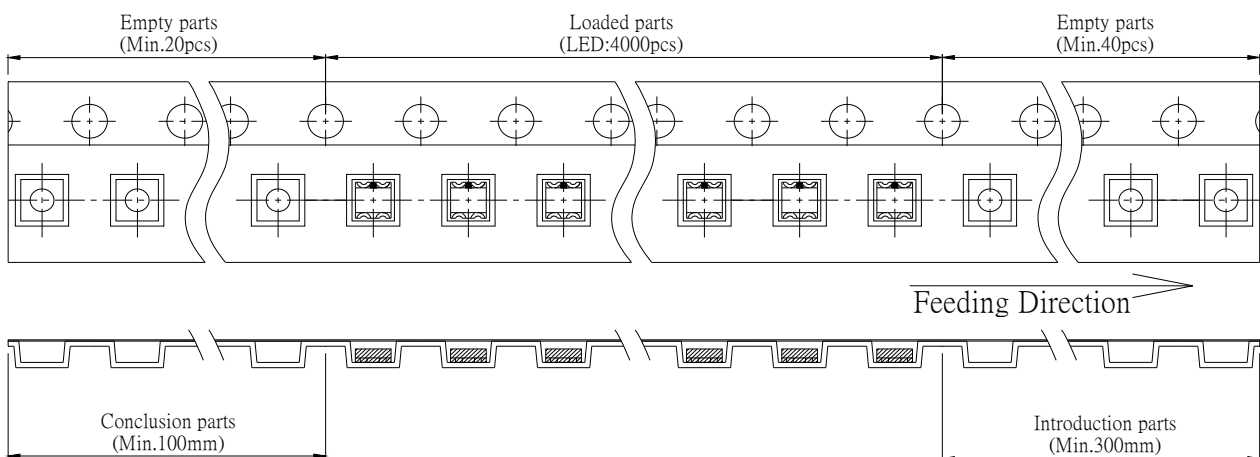
● Dimensions of Reel (Unit: mm)



● 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. 3,000pcs/Reel.