Product Description

· The 0603 SMD LED is much smaller, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.

· These LEDs have high reliability performance and are designed to work under a wide range of environmental conditions.

· Besides, lightweight makes them ideal for miniature applications. etc.

Features

· Size(mm): 1.6*0.8*0.6mm

· Compatible with automatic placement equipment

· Moisture Sensitivity Level: 3

· Color type: Red

· Viewing Angle:120°

· Pb-free

· RoHS and REACH compliant

Applications

· Backlighting in dashboard and switch.

· Digital display for household appliace

· Telecommunication: indicator and backlighting in telephone and fax.

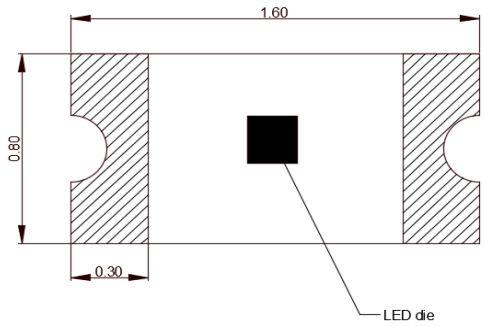
· Flat backlight for LCD

· General use

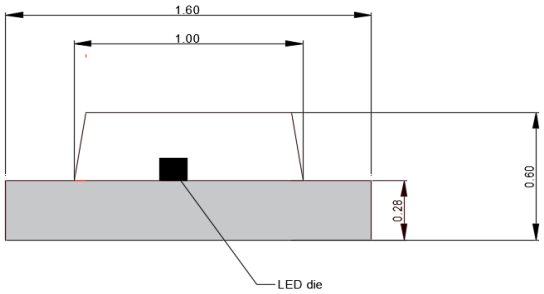
MECHANICAL DIMENSIONS

All dimensions are in mm.

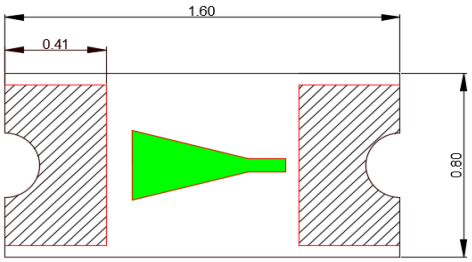
Top View



Side View



Back View



Circuit Diagram

Remark

The tolerance of all dimensions above is 0.1mm.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Items	Symbol	Absolute Maxium Rating	Unit
Forward current	I_F	20	mA
Peak Forward Crurrent	I_{FP}	60	mA
Reverse voltage	V_R	5	V
Power dissipation	P_D	60	mW
Operating temperature	T_{opr}	-40 ~+85	℃
Storage temperature	T_{stg}	-40~+100	℃

Remark:1/10 Duty cycle, 0.1ms pulse width.

TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS (T_A = 25°C)

Charateristics	Symbol	Condition	Unit	Minimum	Typical
Forward Volatge	V_F	I_F=10mA	V		2.1
Reverse Current	V_R	V_R=5V	uA		<1
Viewing Angle	$2\theta_{1/2}$	I_F=10mA			120
Luminous intensity	I_V	I_F=10mA	mcd	58	
Spectral Line Half-Width	Δλ		nm		20
Dominant Wavelength	λd	I_F=10mA	nm	615	
Peak Wavelength	λp	I_F=10mA	nm		635

* Continuous reverse voltage can cause LED damage.

INTENSITY BIN LIMIT

Red (10mA)		
Bin code	Min.(mcd)	Max.(mcd)
RM1	58	70
RM2	70	85
RM3	85	100
RM4	100	120
RM5	120	145

*Tolerance of measurement of luminous intensity is ±10%.

VOLTAGE BIN LIMIT

Red (10mA)		
Bin code	Min.(V)	Max.(V)
RV1	1.8	1.9
RV2	1.9	2
RV3	2	2.1
RV4	2.1	2.2
RV5	2.2	2.3
RV6	2.3	2.4

*Tolerance of measurement of voltage is ±0.05V.

Color BIN LIMIT

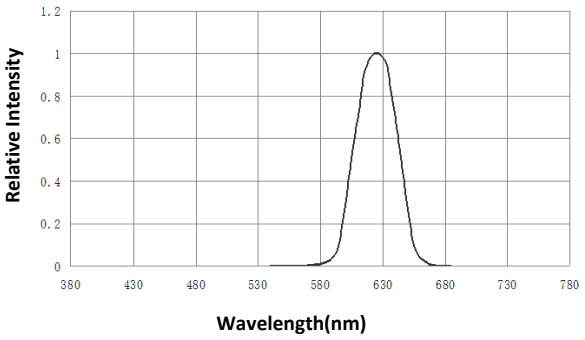
Red (10mA)		
Bin code	Min.(nm)	Max.(nm)
RD1	615	618
RD2	618	621
RD3	621	624
RD4	624	627
RD5	627	630

*Tolerance of measurement of wavelength is ±1nm

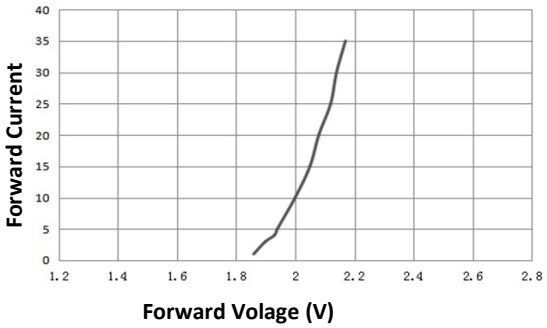
TYPICAL ELECTRO-OPTICAL CHARATERISTICS CURES(Ta=25℃)

The data below are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

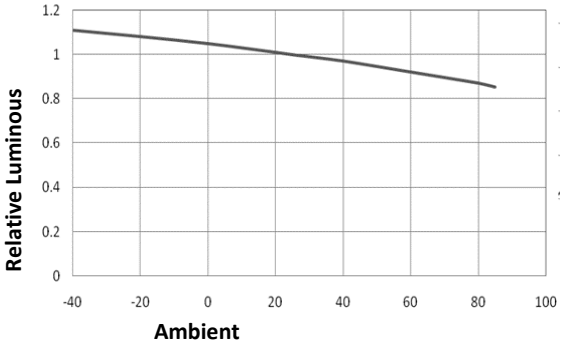
Spectrum Distribution



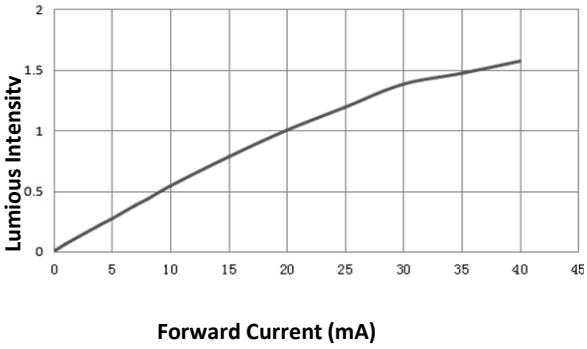
Forward Current vs. Foward



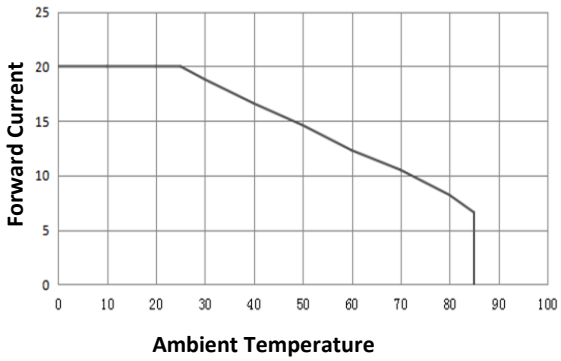
Luminous Intensity vs. Ambient Temperature



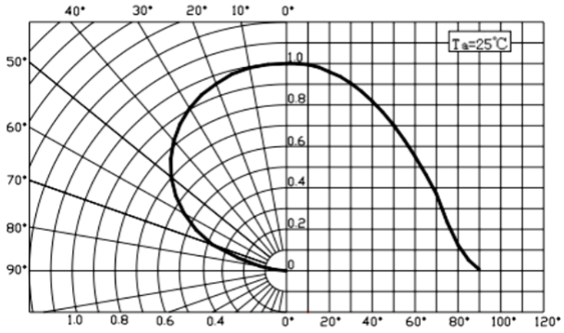
Luminous Intensity vs. Forward Current



Foward Current Derating

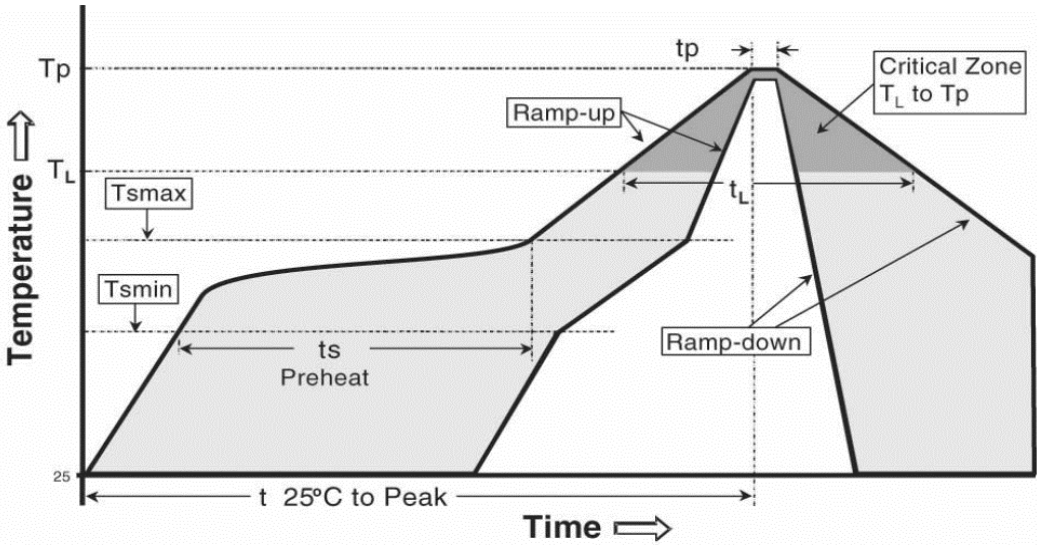


Radiation Diagram



REFLOW SOLDERING

- The CHIP LED is rated as a MSL3 as general request product.
- The recommended floor life out of bag is 24hrs.
- The temperature profile is as below.



IPC/JEDEC J-STD-020C

Profile Feature	Pb-Free Assembly
Average ramp-up rate(Tsmax to Tp)	3°C/second max.
Preheat - Temperature Min(Ts_{min}) - Temperature Max(Ts_{max}) - Time(Tsmin to Ts_{max})	 150℃ 200℃ 60-180 seconds
Time mainted above - Temperature(T_L) - Time(T_L) Peak Temperature(Tp)	 217℃ 60-150 seconds 260℃
Time within 5°C of actual peak Temperature(tp)^2	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to peak Temperature	8 minutes max.

Moisture Sensitivity

· Beking recommends keeping CHIP LEDs in the provided, resealable moisture-barrier packaging (MBP) until immediately prior to soldering. Unopened MBPs that contain CHIP LEDs do not need special storage for moisture sensitivity.

· Once the MBP is opened, CHIP LEDs may be stored as MSL 3 per IPC/JEDEC J-STD-020C, meaning they have one year of floor life in conditions of ≤ 30 ºC/60% relative humidity (RH). Regardless of the storage condition, Beking LED recommends sealing any unsoldered CHIP LEDs in the original MBP.

Handling

·The packaging sizes of these SMD products are very small. Users are required to handle with care.

·To avoid damaging the product's surface and interior device, it is recommended to choose a

Repairing

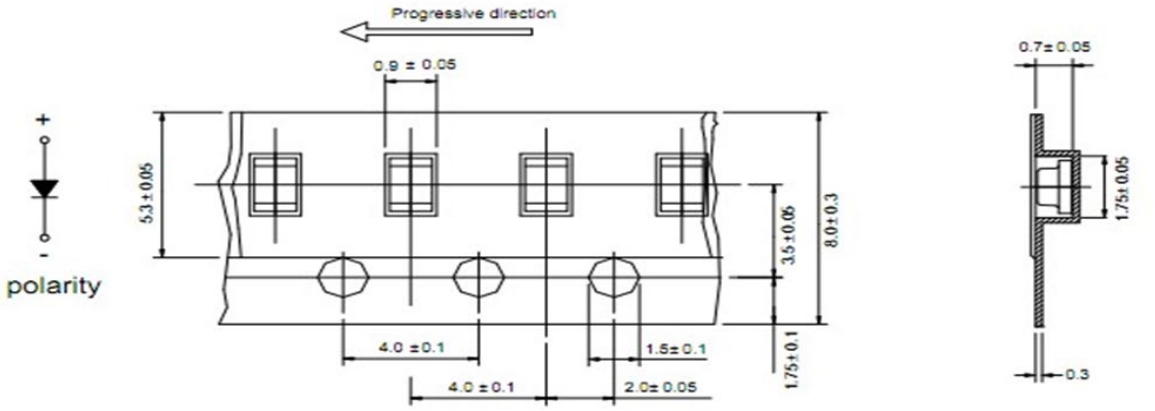
Repair should not be recommended after SMT production. When repairing is needed, a double-head soldering iron should be used (as below figure). It should be assured before handing whether the electrical and optical characteristics of the LEDs will or will not be damaged by

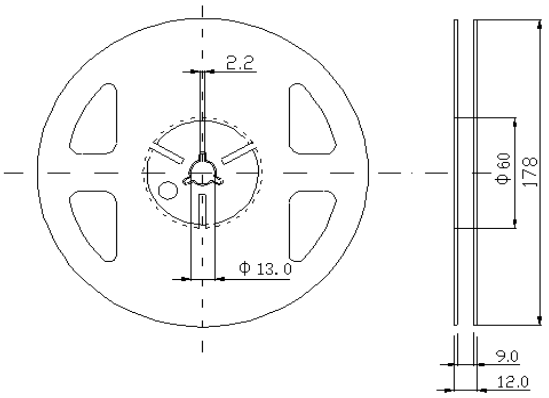
Fig.1 Pickig up a LED using an tweezer with care

Fig2. Repairing using a double-head soldering iron

PACKING

Carrier Tape Dimensions: Loaded quantity 4000pcs per reel.





All dimensions are in millimeters.

Tolerance of measurement of all dimensions is ±0.1mm