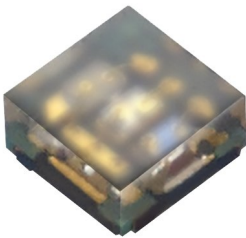


SMD ■

18-038/RSGHBHC1-S01/2T



Features

- Package in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow
- Solder process
- Full-color type
- Pb-free
- Component solderable surface finish is Gold
- Component weight is 1.0 mg
- RoHS compliant

Description

- The 18-038 SMD LED is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Moreover, with its black PCB, the 19-037 possess an ideal solution for high-contrast and high-resolution indoor signage display.

Applications

- Indoor signage display applications
- Indoor decorating and entertainment design
- Flat backlight for LCD, switch and symbol
- Indicator and backlighting for all consumer electronics

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear
InGaN	Brilliant Green	
InGaN	Brilliant Blue	

Absolute Maximum Ratings (Ta=25)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	RS:25 GH:20 BH:20	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	RS:60 GH:50 BH:50	mA
Power Dissipation	P_d	RS:60 GH:70 BH:70	mW
Junction Temperature	T_j	100	
Operating Temperature	T_{opr}	-40 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +90	
ESD (Classification acc. AEC Q101)	ESD_{HBM}	R:2000 G:150 B:150	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 for 10 sec. Hand Soldering : 350 for 3 sec.	

Electro-Optical Characteristics (Ta=25)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
Luminous Intensity	Iv	RS	130	-----	226	mcd	I _F =20mA
		GH	160	-----	336		
		BH	40	-----	84		
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	I _F =20mA	
Peak Wavelength	λ _p	RS	-----	632	nm	I _F =20mA	
		GH	-----	518			
		BH	-----	468			
Dominant Wavelength	λ _d	RS	619.0	-----	628.0	nm	I _F =20mA
		GH	521.5	-----	529		
		BH	466.0	-----	473.5		
Spectrum Radiation Bandwidth	Δλ	RS	-----	20	nm	I _F =20mA	
		GH	-----	25			
		BH	-----	25			
Forward Voltage	V _F	RS	1.7	2.0	2.4	V	I _F =20mA
		GH	2.7	3.3	3.7		
		BH	2.7	3.3	3.7		
Reverse Current	I _R	-----	-----	10	μA	V _R =5V	

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

**Floating Bin(RS)
Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
A	130	156	mcd	I _F =20mA
B	156	188		
C	188	226		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
1	619	622	nm	I _F =20mA
2	622	625		
3	625	628		

**Floating Bin(GH)
Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
A	160	194	mcd	I _F =20mA
B	194	233		
C	233	280		
D	280	336		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
1	521.5	524.0	nm	I _F =20mA
2	524.0	526.5		
3	526.5	529.0		

Note:

- 1.Tolerance of Luminous Intensity: ±10%
- 2.Tolerance of Dominant Wavelength: ±1nm

**Floating Bin(BH)
Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
A	40	48	mcd	I _F =20mA
B	48	58		
C	58	70		
D	70	84		

Bin Range of Dominant Wavelength

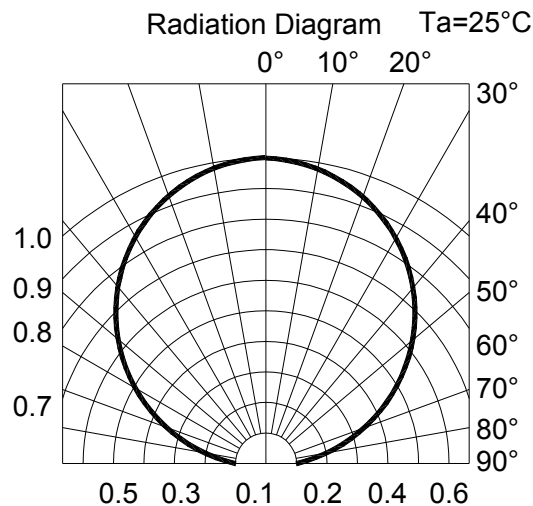
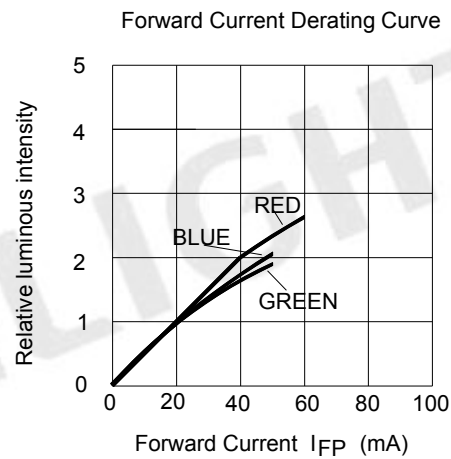
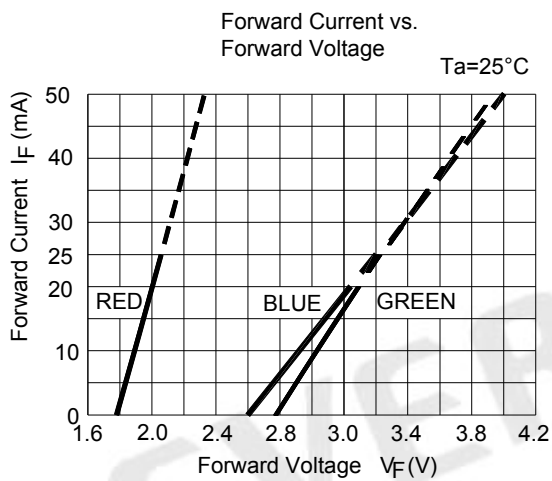
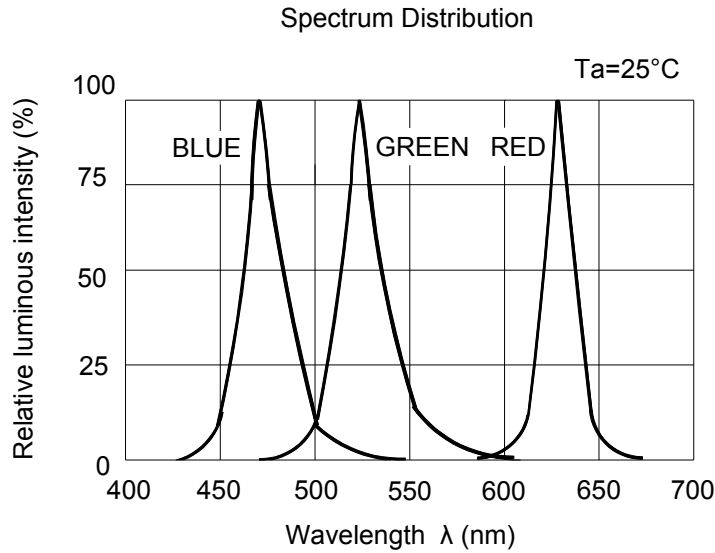
Bin Code	Min.	Max.	Unit	Condition
1	466.0	468.5	nm	I _F =20mA
2	468.5	471.0		
3	471.0	473.5		

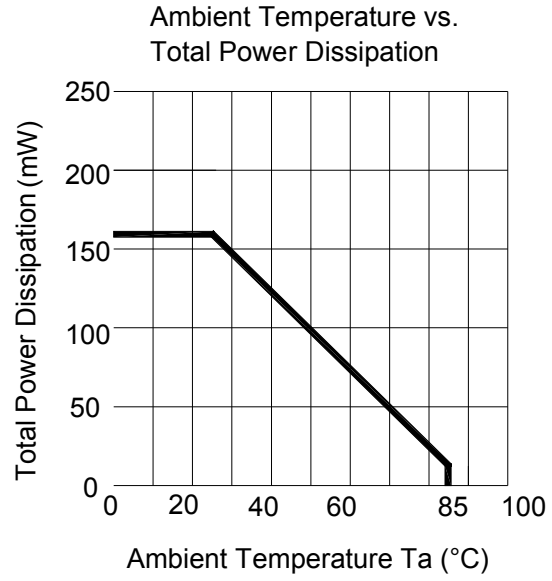
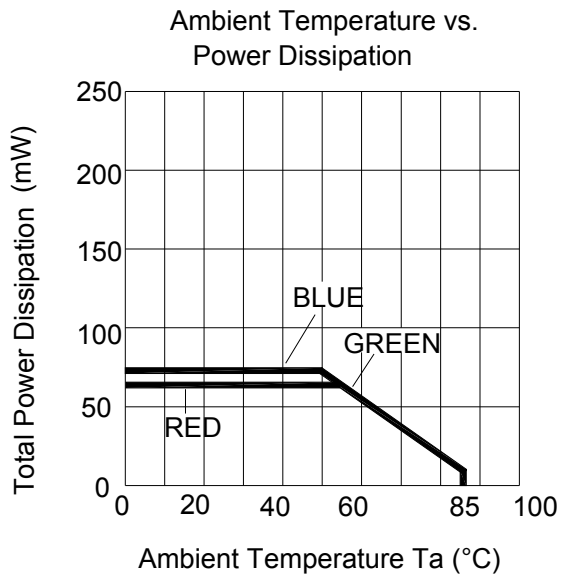
Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm

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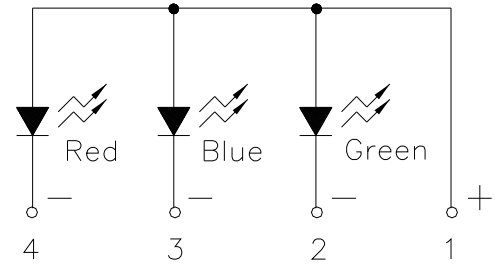
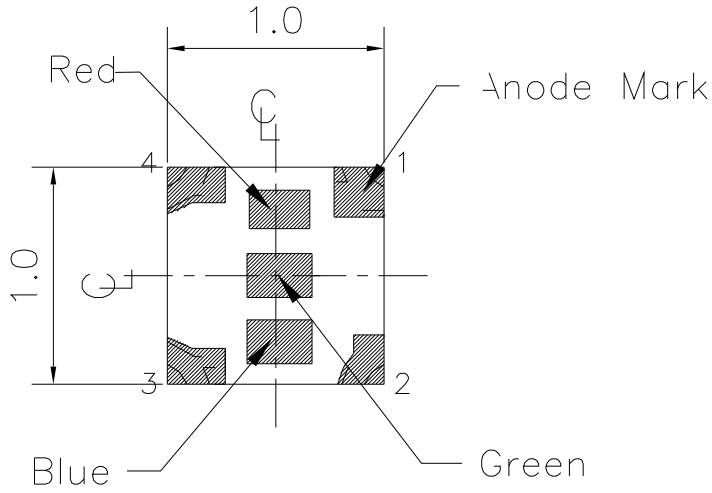
Typical Electro-Optical Characteristics Curves



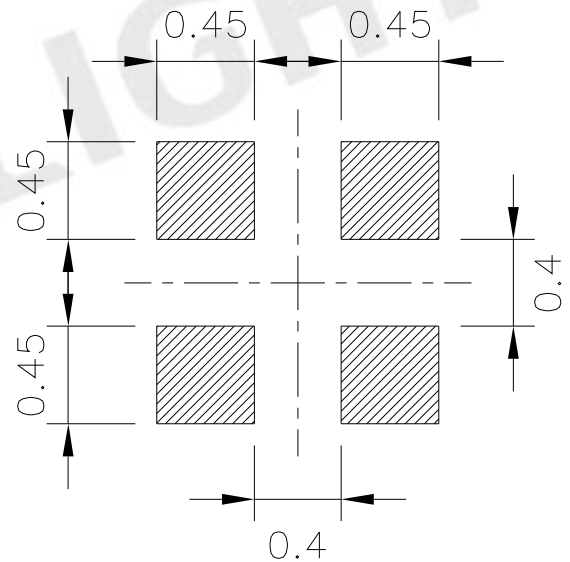
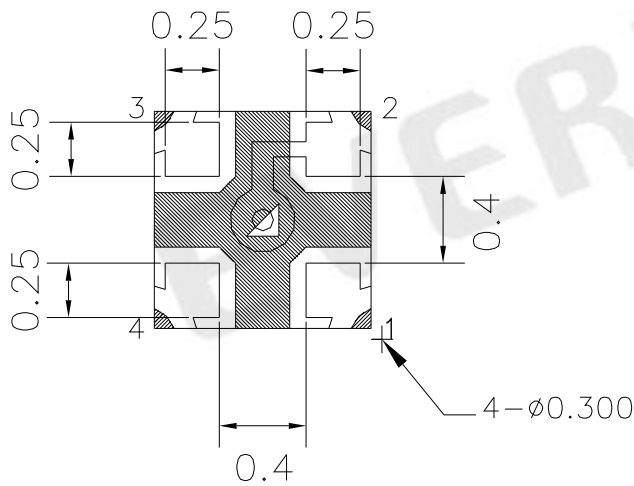
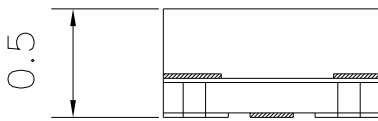


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Package Dimension



Polarity



Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

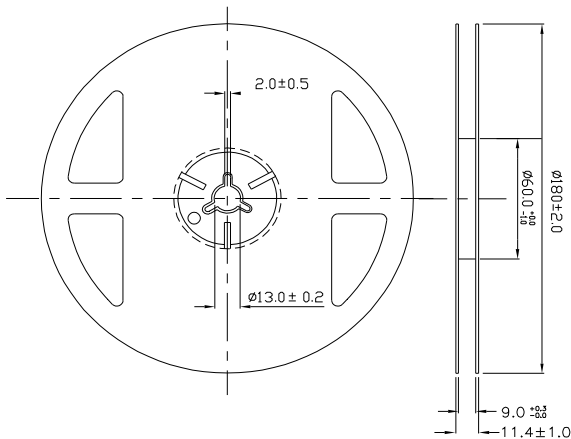
Moisture Resistant Packing Materials

Label Explanation

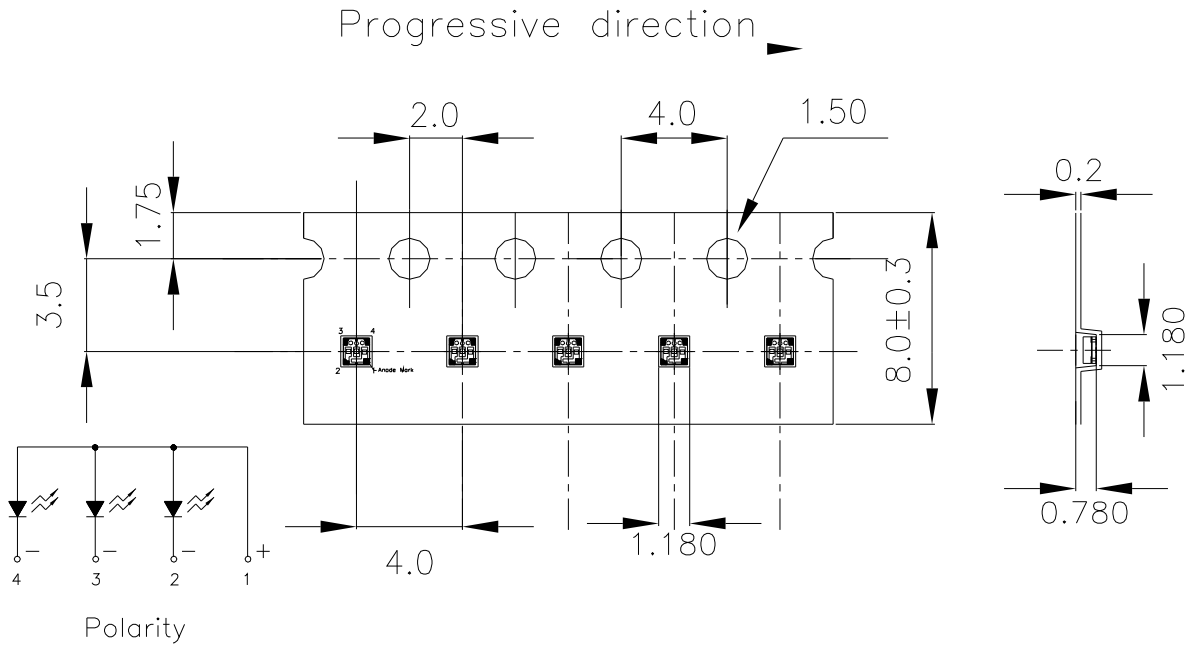


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

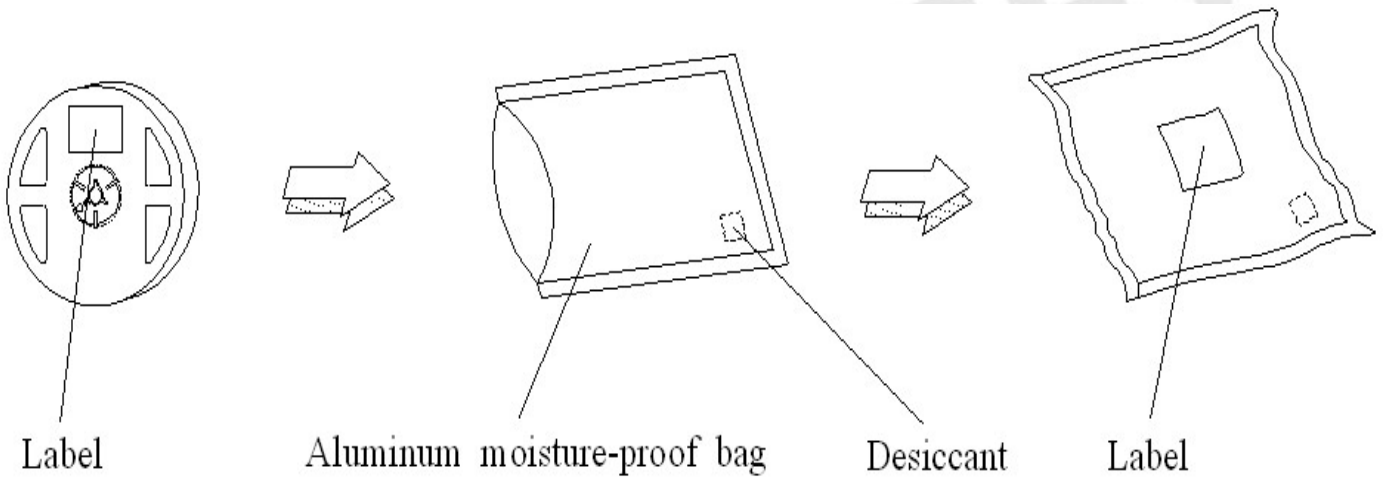


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

Moisture Resistant Packing Process



Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

Precautions For Use

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 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30 °C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 168Hrs under 30 °C or less and 60% RH or less.

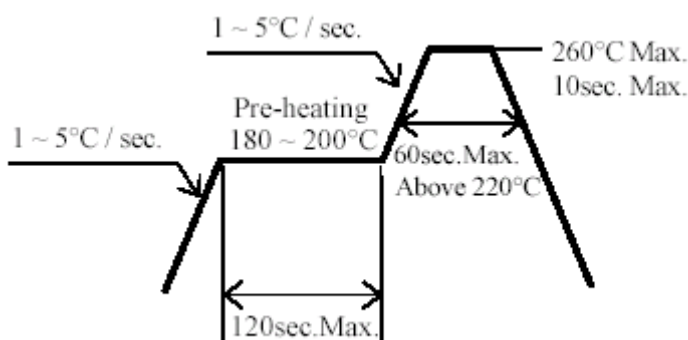
If unused LEDs remain, it should be stored in moisture proof packages.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60 ± 5 °C for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

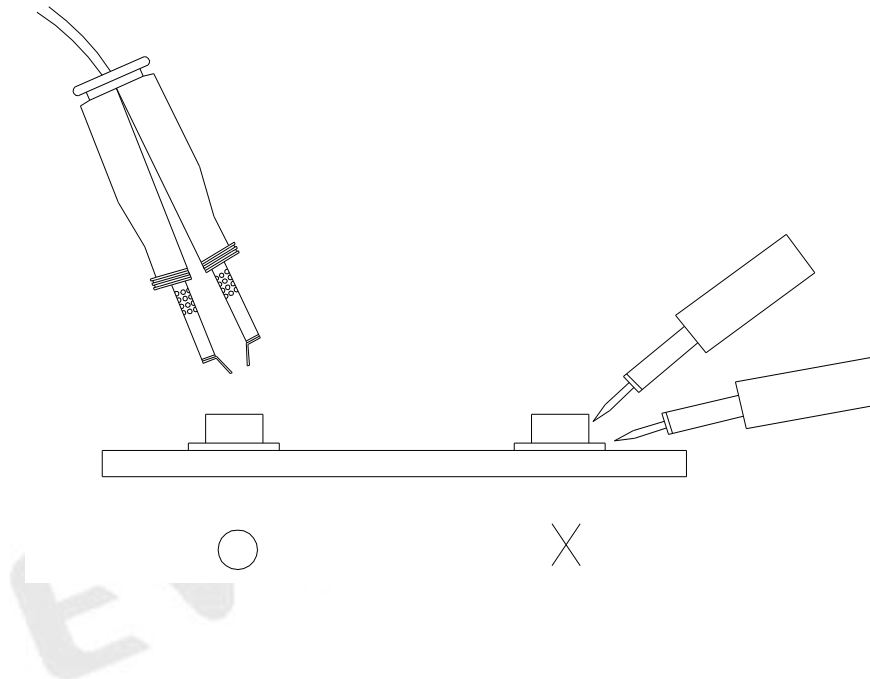
3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350 for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5.Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



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