

SMD

19-037A/RSGHBHW1-S03/2T



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 4.2 mg
- RoHS compliant

Description

- The 19-037A SMD chip 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 19-037A 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	White Diffused
InGaN	Brilliant Green	
InGaN	Brilliant Blue	

Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	R:25 G:20 B:20	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	R:60 G:50 B:50	mA
Power Dissipation	P_d	R:60 G:70 B: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:200 B:200	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 Hand Soldering : 350	for 10 sec. for 3 sec.

Electro-Optical Characteristics (Ta=25)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	R 75		186	mcd	I _F =20mA
		G 188		465		
		B 58		144		
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	I _F =20mA
Peak Wavelength	λ _p	R 632			nm	I _F =20mA
		G -----	518	-----		
		B 468				
Dominant Wavelength	λ _d	R 618		630	nm	I _F =20mA
		G 516.5	-----	529		
		B 461.5		474		
Spectrum Radiation Bandwidth	Δλ	R 20			nm	I _F =20mA
		G -----	25	-----		
		B 25				
Forward Voltage	V _F	R 1.7	2.0	2.4	V	I _F =20mA
		G 2.7	3.3	3.7		
		B 2.7	3.3	3.7		
Reverse Current	I _R	-----	-----	1.2	μA	V _R =7V

Note:

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

Floating Bin(Red)

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
RA	75	90	mcd	$I_F = 20\text{mA}$
RB	90	108		
RC	108	130		
RD	130	155		
RE	155	186		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
R1	618	621	nm	$I_F = 20\text{mA}$
R2	621	624		
R3	624	627		
R4	627	630		

Floating Bin(Green)

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
GA	188	225	mcd	$I_F = 20\text{mA}$
GB	225	270		
GC	270	324		
GD	324	388		
GE	388	465		

Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
G1	516.5	519	nm	$I_F = 20\text{mA}$
G2	519	521.5		
G3	521.5	524		
G4	524	526.5		
G5	526.5	529		

Floating Bin(Blue)

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
BA	58	70	mcd	$I_F = 20\text{mA}$
BB	70	84		
BC	84	100		
BD	100	120		
BE	120	144		

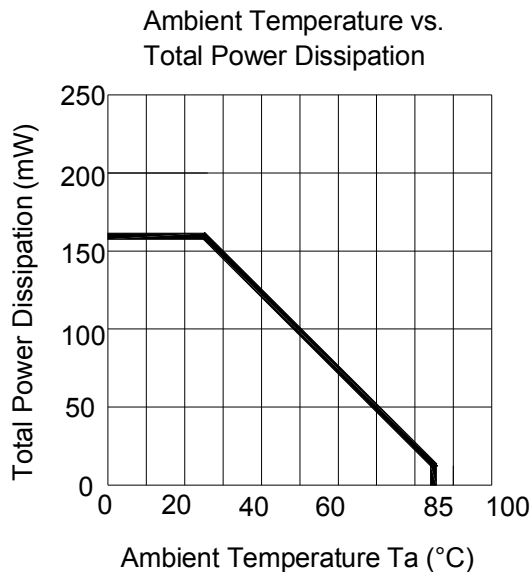
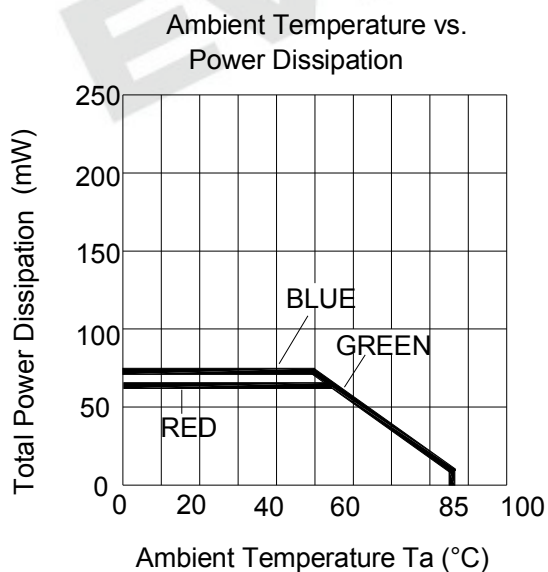
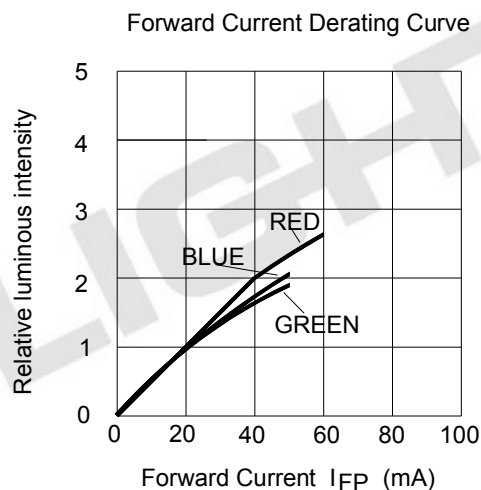
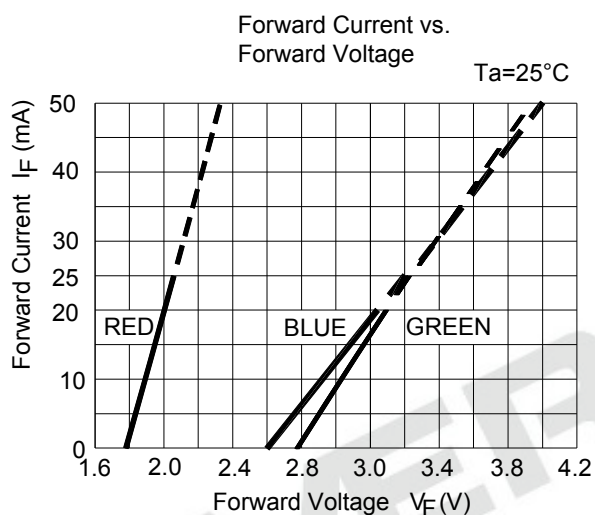
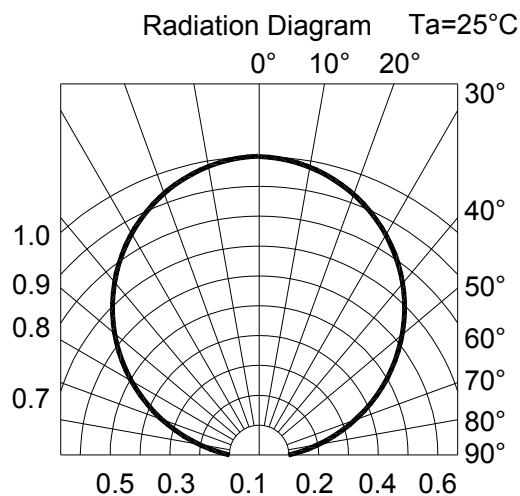
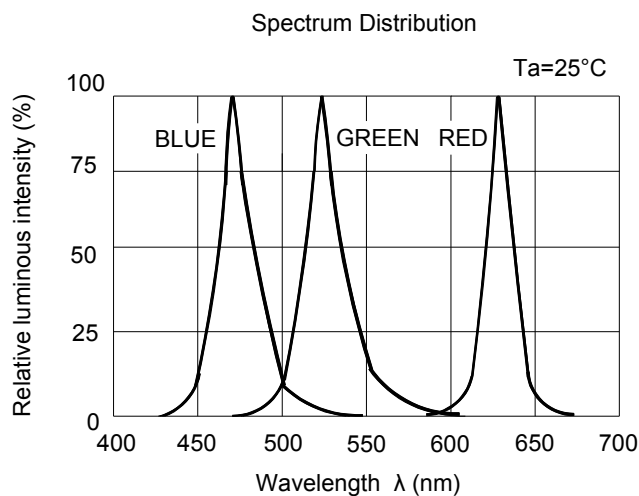
Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
B1	461.5	464	nm	$I_F = 20\text{mA}$
B2	464	466.5		
B3	466.5	469		
B4	469	471.5		
B5	471.5	474		

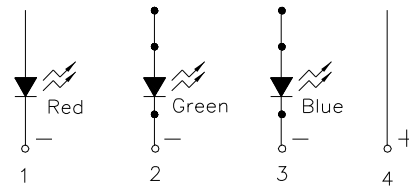
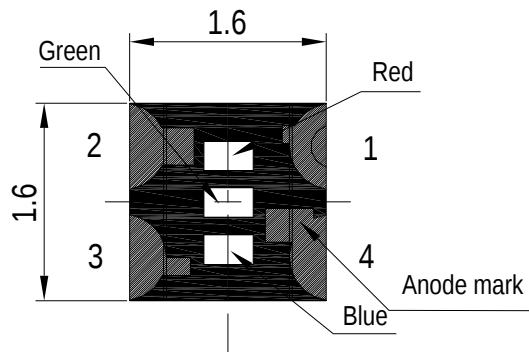
Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

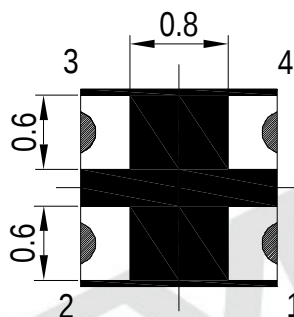
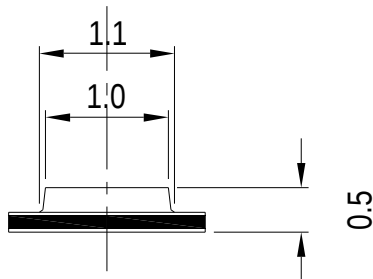
Typical Electro-Optical Characteristics Curves



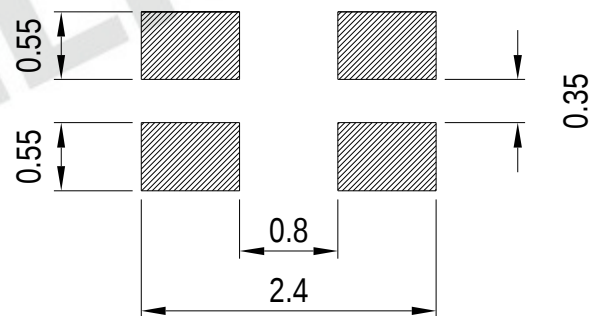
Package Dimension



Polarity



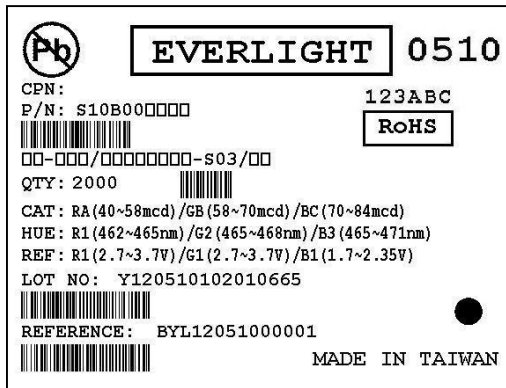
For reflow soldering (propose)



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

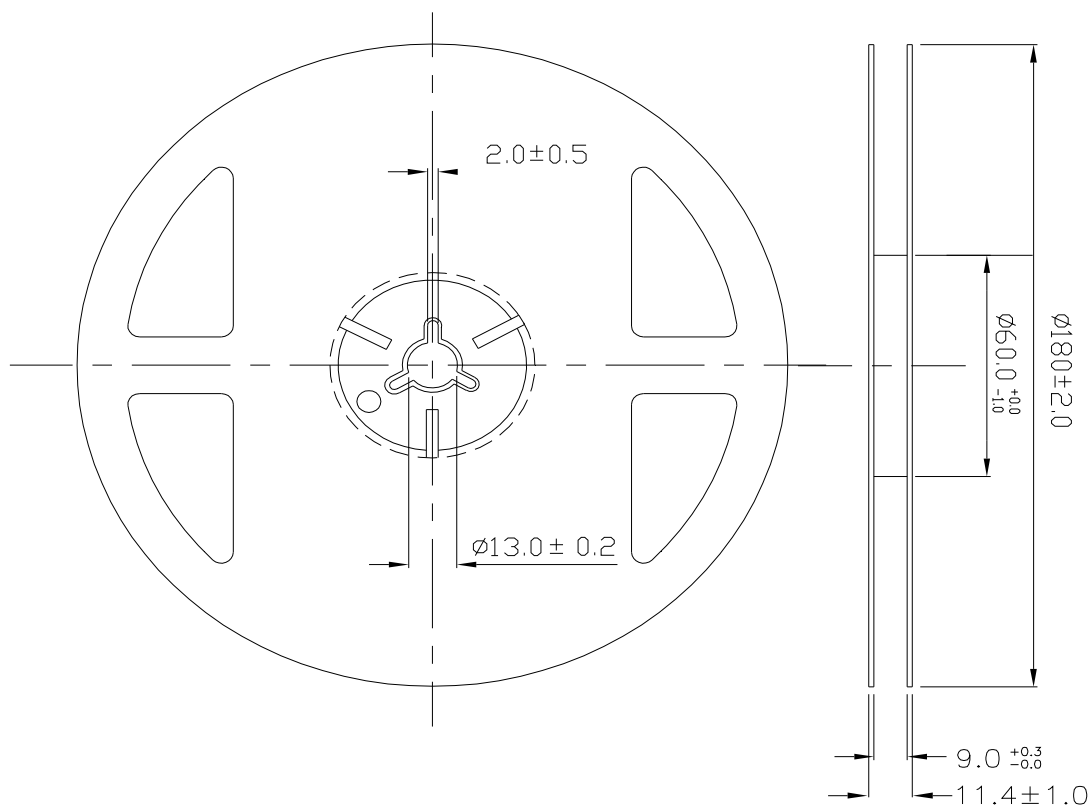
Moisture Resistant Packing Materials

Label Explanation

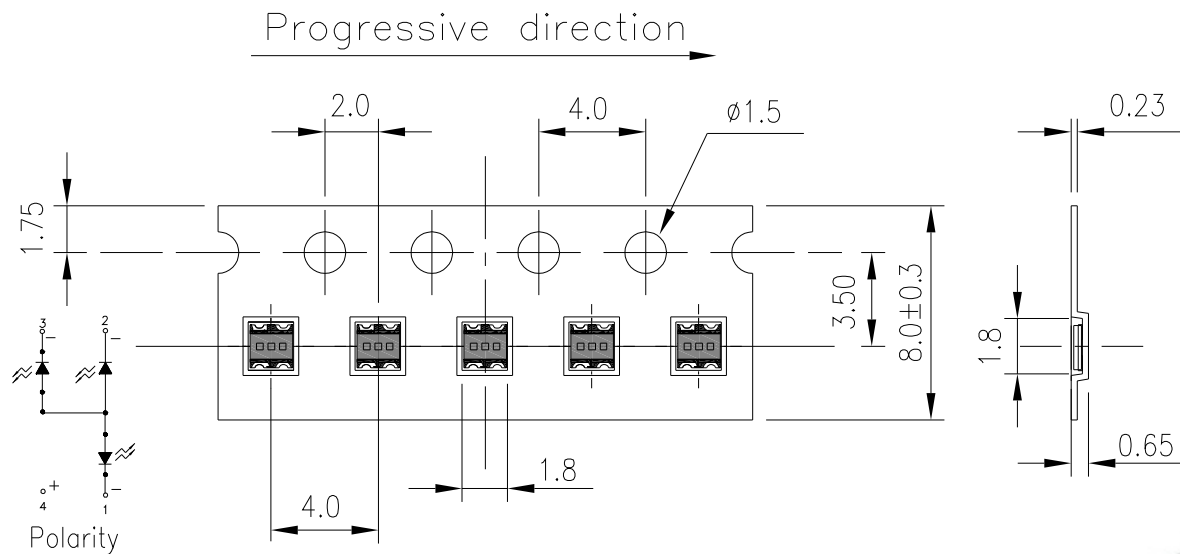


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank (by R/G/B order)
- HUE: Dom. Wavelength Rank (by R/G/B order)
- REF: Forward Voltage Rank (by R/G/B order)
- LOT No: Lot Number

Reel Dimensions

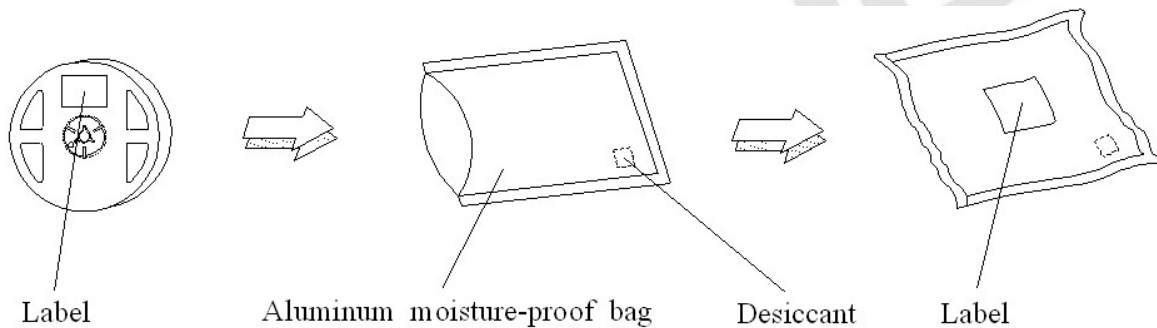


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

Moisture Resistant Packing Process



Note: Tolerances unless mentioned ± 0.1 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.

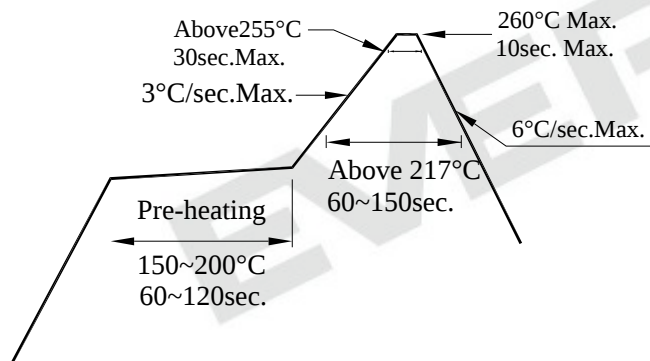
If unused LEDs remain, it should be stored in moisture proof packages.

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.

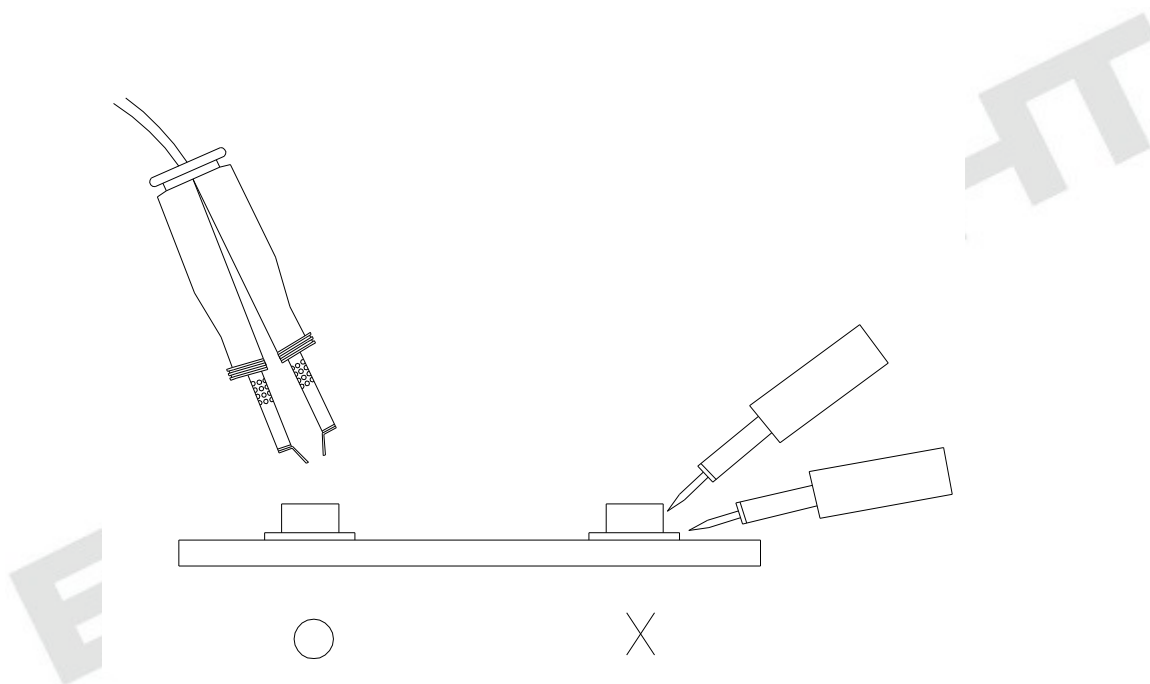
3.4 After soldering, do not warp the circuit board.

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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