

**Technical Data Sheet****Side View LEDs (Height 0.8mm)****99-213SUBP/S3019/TR8****Features**

- Side view white LED
- White SMT package
- Lead frame package with individual 2 pins
- Wide viewing angle
- Soldering methods: IR reflow soldering
- Pb-free
- The product itself will remain within RoHS compliant version.

**Descriptions**

- Due to the package design, 99-213 has wide viewing angle, low power consumption and white LEDs are devices which are materialized by combing blue chips and special phosphor. This feature makes the LED ideal for light guide application.

**Applications**

- LCD Back Light
- Mobile phones
- Indicators
- Illuminations
- Switch Lights

**Device Selection Guide**

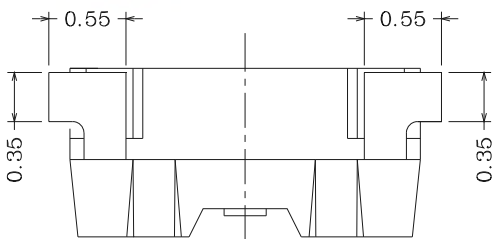
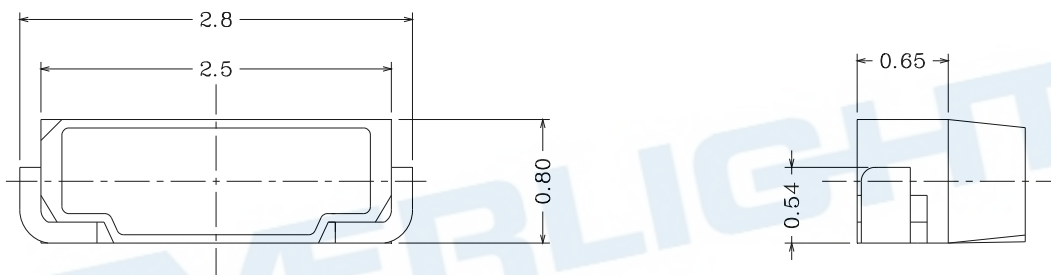
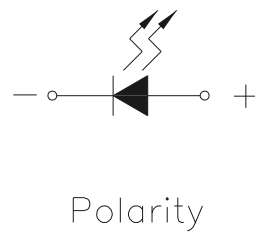
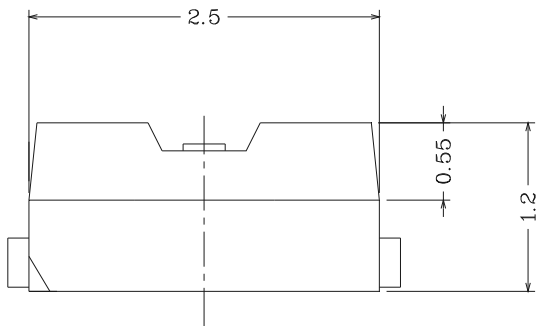
Chip	Emitted Color	Resin Color
Material		
InGaN	Pastel Sky Blue	Water Clear

**Technical Data Sheet**

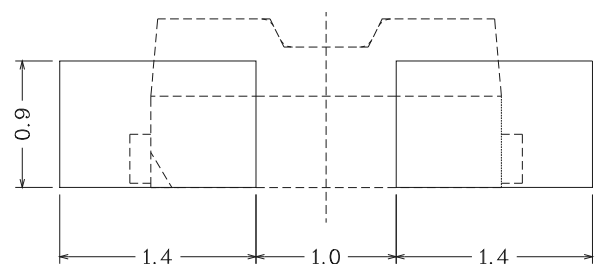
**Side View LEDs (Height 0.8mm)**

**99-213SUBP/S3019/TR8**

**Package Outline Dimensions**



Recommended soldering pad design



**Note:** The tolerances unless mentioned are  $\pm 0.1\text{mm}$ , unit = mm.

## Technical Data Sheet

## Side View LEDs (Height 0.8mm)

**99-213SUBP/S3019/TR8****Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	30	mA
Peak Forward Current (Duty 1/10 @10ms)	I <sub>FP</sub>	100	mA
Power Dissipation	P <sub>d</sub>	110	mW
Electrostatic Discharge(HBM)* <sup>1</sup>	ESD	2000	V
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
Soldering Temperature	T <sub>sol</sub>	Reflow Soldering: 260 °C for 10 sec. Hand Soldering: 350 °C for 3 sec.	

**Note:** The products are sensitive to static electricity and must be carefully taken when handling products.

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	1050	-----	1650	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	-----	110	-----	deg	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	2.70	-----	3.70	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-----	-----	50	μA	V <sub>R</sub> =5V

**Note:** Tolerance of Luminous Intensity: ±11%

## Technical Data Sheet

## Side View LEDs (Height 0.8mm)

**99-213SUBP/S3019/TR8****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
2	1050	1200	mcd	I <sub>F</sub> =20mA
3	1200	1350		
4	1350	1500		
5	1500	1650		

**Bin Range of Forward Voltage**

Bin	Min.	Max.	Unit	Condition
34	2.70	2.80	V	I <sub>F</sub> =20mA
35	2.80	2.90		
36	2.90	3.00		
37	3.00	3.10		
38	3.10	3.20		
39	3.20	3.30		
40	3.30	3.40		
41	3.40	3.50		
41	3.50	3.60		
43	3.60	3.70		

**Notes:**

1. Tolerance of Luminous Intensity:  $\pm 11\%$
2. Tolerance of Forward Voltage:  $\pm 0.1V$

Technical Data Sheet

Side View LEDs (Height 0.8mm)

**99-213SUBP/S3019/TR8**

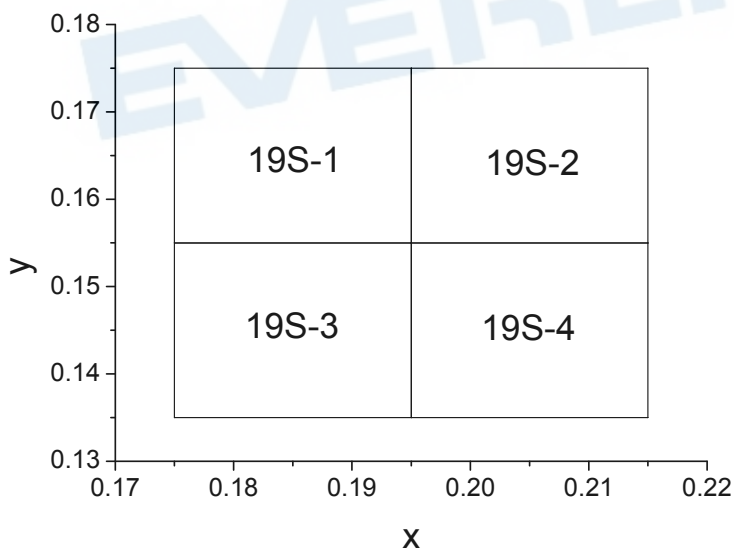
**Bin Range of Chromaticity Coordinates**

**I<sub>F</sub>=20mA**

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y	Condition
19S-1	0.175	0.155	19S-2	0.195	0.155	I <sub>F</sub> =20mA
	0.175	0.175		0.195	0.175	
	0.195	0.175		0.215	0.175	
	0.195	0.155		0.215	0.155	
19S-3	0.175	0.135	19S-4	0.195	0.135	
	0.175	0.155		0.195	0.155	
	0.195	0.155		0.215	0.155	
	0.195	0.135		0.215	0.135	

**Note:** Tolerance of Chromaticity Coordinates: ±0.01

**The C.I.E. 1931 Chromaticity Diagram**

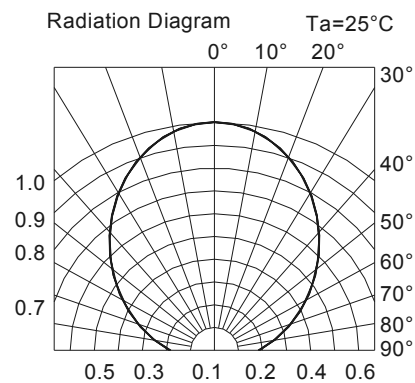
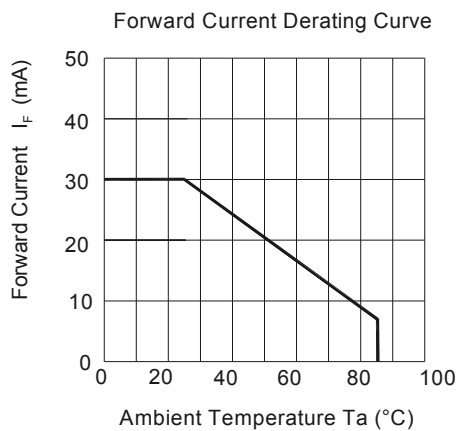
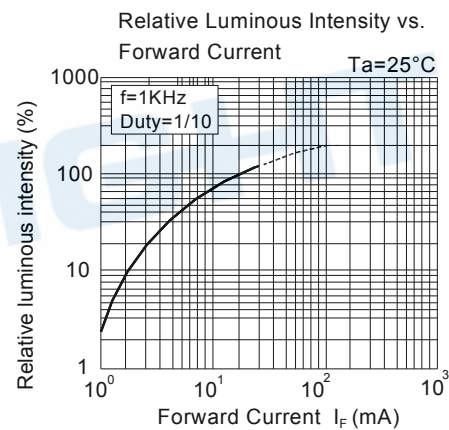
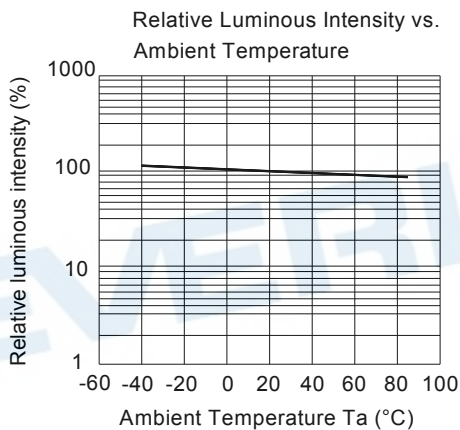
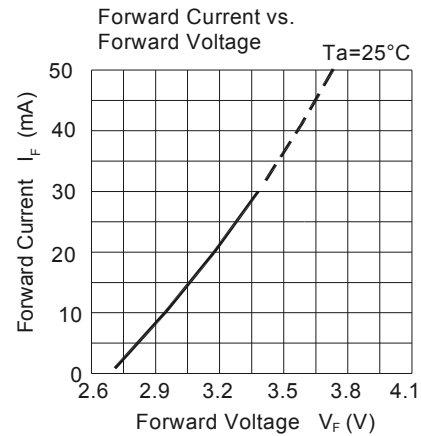
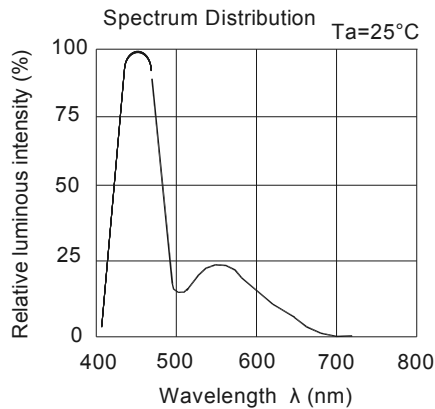


Technical Data Sheet

Side View LEDs (Height 0.8mm)

**99-213SUBP/S3019/TR8**

Typical Electro-Optical Characteristics Curves



**Technical Data Sheet**

**Side View LEDs (Height 0.8mm)**

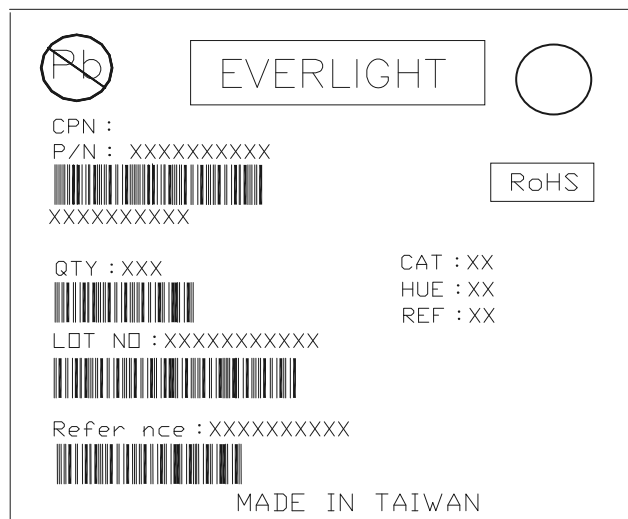
**99-213SUBP/S3019/TR8**

**Label Explanation**

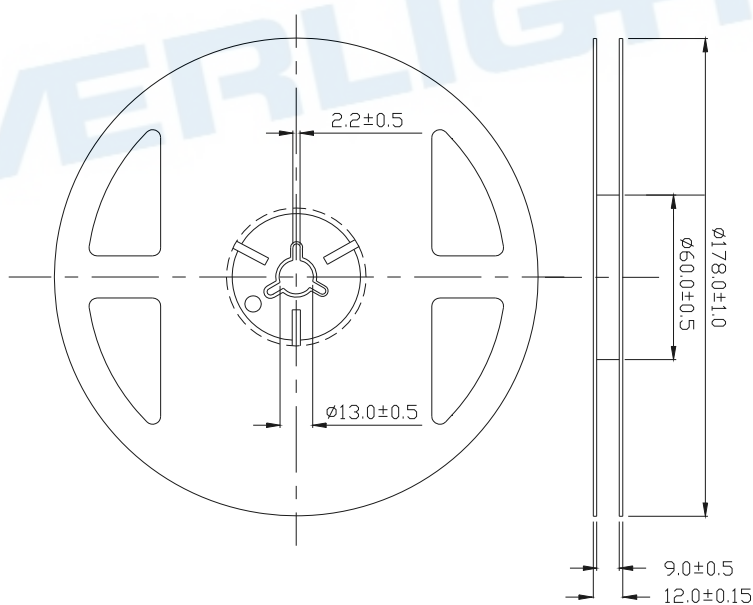
CAT: Luminous Intensity Rank

HUE: Chromaticity Coordinates

REF: Forward Voltage Rank



**Reel Dimensions**



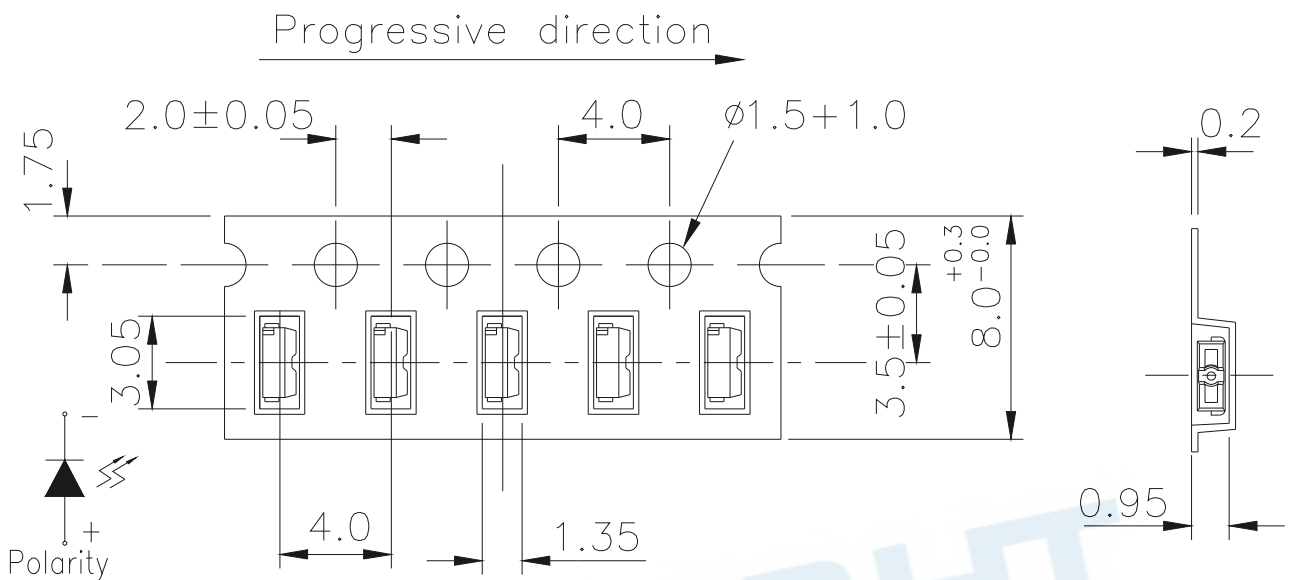
**Note:** The tolerances unless mentioned are ±0.1mm, unit = mm.

**Technical Data Sheet**

**Side View LEDs (Height 0.8mm)**

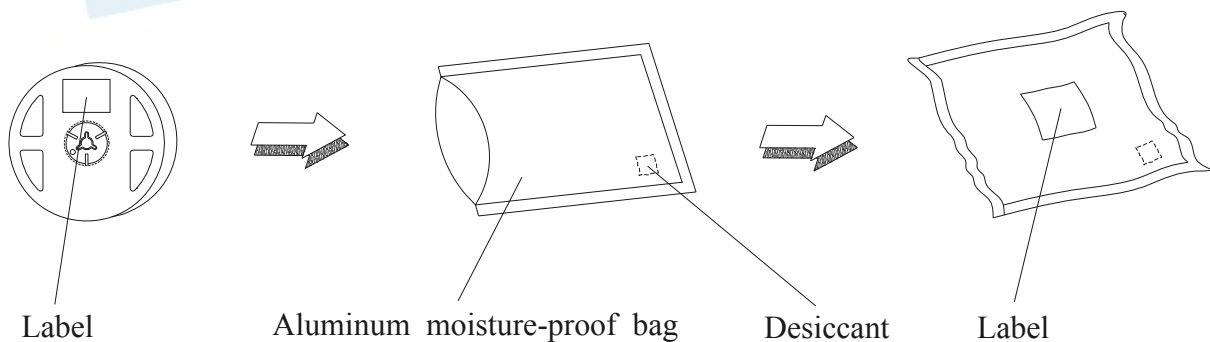
**99-213SUBP/S3019/TR8**

**Carrier Tape Dimensions: Loaded Quantity 2000 pcs. Per Reel**



**Note:** The tolerances unless mentioned are ±0.1mm, unit = mm.

**Moisture Resistant Packaging**





## Technical Data Sheet

## Side View LEDs (Height 0.8mm)

99-213SUBP/S3019/TR8**Reliability Test Items and Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C±5°C Max. 10 sec.	6 Min.	22 pcs.	0/1
2	Temperature Cycle	H : +100°C 15min ∫ 5 min L : -40°C 15min	300 Cycles	22 pcs.	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	300 Cycles	22 pcs.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 pcs.	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22 pcs.	0/1
6	DC Operating Life	I <sub>F</sub> = 20 mA / 25°C	1000 Hrs.	22 pcs.	0/1
7	High Temperature / High Humidity	85°C/85%RH	1000 Hrs.	22 pcs.	0/1

**Technical Data Sheet****Side View LEDs (Height 0.8mm)****99-213SUBP/S3019/TR8****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.

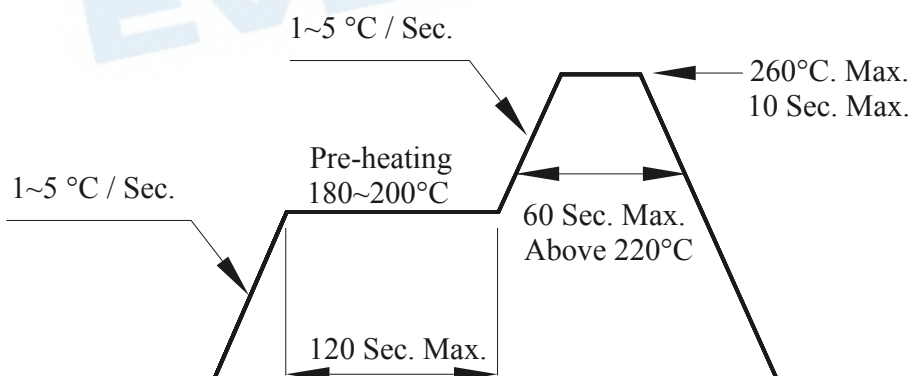
2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 168 hours 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.

## Technical Data Sheet

### Side View LEDs (Height 0.8mm)

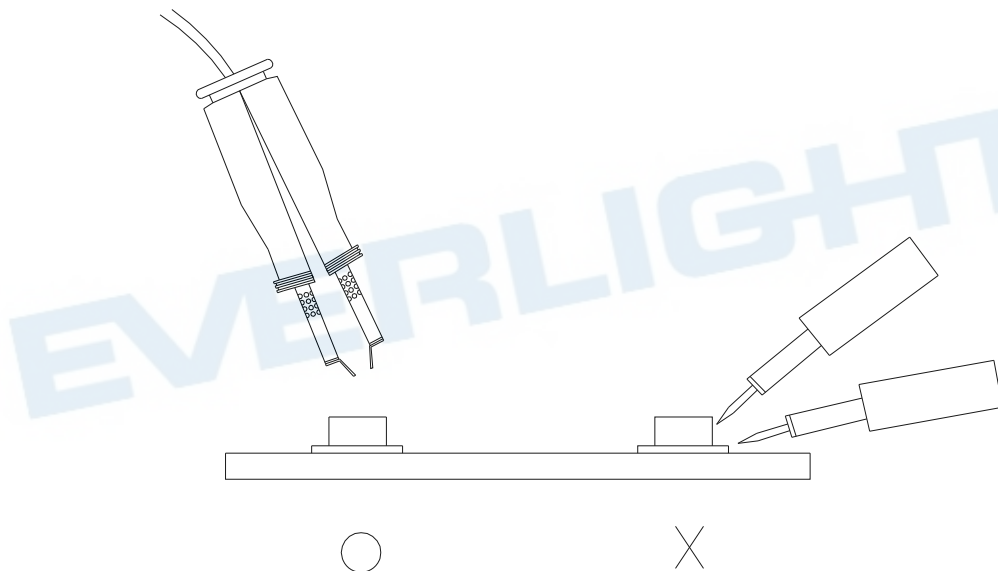
**99-213SUBP/S3019/TR8**

#### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C 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.



#### 6. Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound

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**99-213SUBP/S3019/TR8****DISCLAIMER**

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2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.

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