

Preliminary Specifications

SMD TYPE SIDE VIEW WHITE LED

Model : AS626TWPE1

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1. General Description

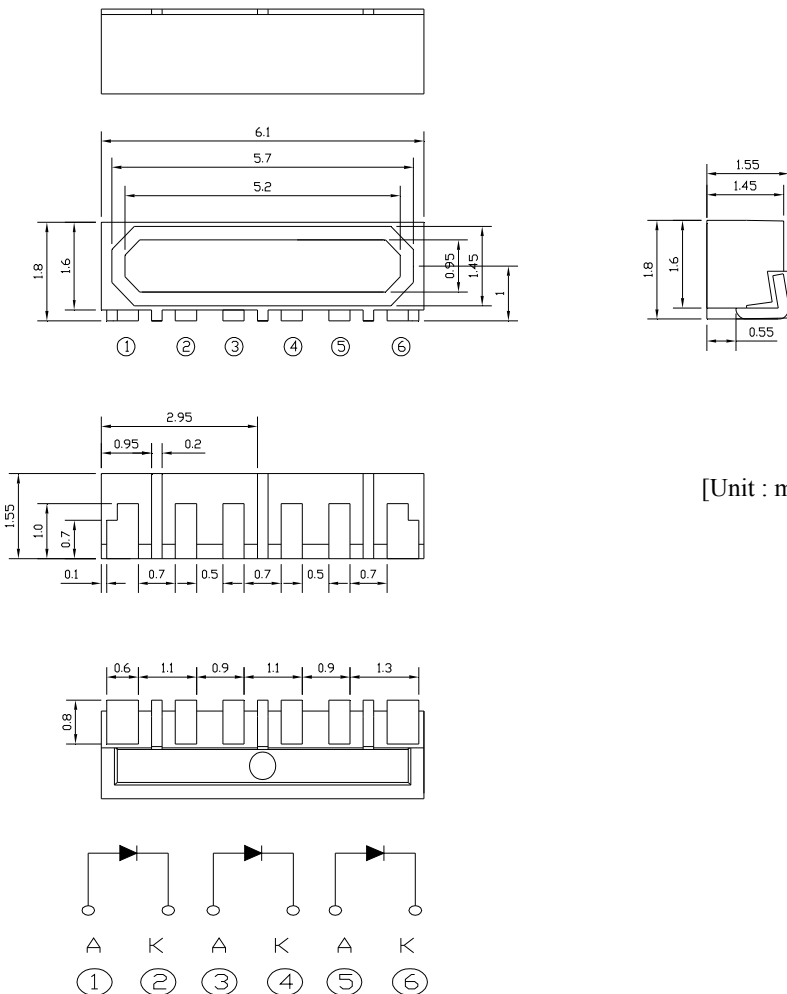
(1) Features

- Package Size - 6.1(L) × 1.55(W) × 1.8(T) mm
- Ideal for backlighting and coupling in light guides
- Wide view angle ($2\theta_{1/2}=125\text{deg.}$)

(2) Applications

- Backlighting(LCD, switches, keys, displays)
- Coupling into light guides
- Interior automotive lighting

(3) Outline Dimensions



<Circuit diagram>

2. Specifications

(1) Absolute maximum ratings

($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Absolute maximum rating	Unit	Remark
Power Dissipation	P_D	100	mW	per die
Forward Current	I_F	25	mA	per die
Peak Pulse Current ⁽¹⁾	I_{FP}	80	mA	per die
Reverse Voltage	V_R	5	V	$I_R=10\mu\text{A}$
Operating Temperature	T_{OPR}	-40 to +85	$^{\circ}\text{C}$	
Storage Temperature	T_{STG}	-40 to +100	$^{\circ}\text{C}$	

Notes (1) Duty ratio = 1/10, pulse with = 10msec

(2) Initial Electrical/Optical Characteristics

($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 60\text{mA}$	3.0	3.2	3.6	V
Reverse Current	I_R	$V_R = 5\text{V}$	-	-	10	μA
Luminous Intensity ⁽¹⁾⁽²⁾	I_V	$I_F = 60\text{mA}$	3,500	-	7,000	mcd
Chromaticity Coordinate ⁽³⁾	Cx	$I_F = 60\text{mA}$	0.265	0.288	-	-
	Cy		0.231	0.278	-	-

notes (1) Luminous Intensity measuring equipment : CAS140B(Instrument system)

(2) Luminous Intensity Measurement allowance is $\pm 5\%$

(3) The coordinate refer to CIE 1931 chromaticity diagram.

(3) Characteristics Rank

■ Forward voltage & Luminous intensity rank

($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Condition	Rank	Min.	Typ	Max.	Unit
Forward Voltage	V_F	$I_F = 60\text{mA}$	1	3.0	-	3.1	V
			2	3.1	-	3.2	
			3	3.2	-	3.3	
			4	3.3	-	3.4	
			5	3.4	-	3.5	
Luminous Intensity	I_V	$I_F = 60\text{mA}$	I	3,500	-	4,000	mcd
			J	4,000	-	4,500	
			K	4,500	-	5,000	
			L	5,000	-	5,500	
			M	5,500	-	6,000	
			N	6,000	-	6,500	
			O	6,500	-	7,000	

■ Color Rank
 $(I_F=20\text{mA/per die, } T_a=25^\circ\text{C})$

	c1			
Cx	0.2590	0.2500	0.2570	0.2650
Cy	0.2320	0.2390	0.2530	0.2450

	b1			
Cx	0.2690	0.2590	0.2650	0.2740
Cy	0.2240	0.2320	0.2450	0.2360

	c2			
Cx	0.2650	0.2570	0.2640	0.2720
Cy	0.2450	0.2530	0.2670	0.2580

	b2			
Cx	0.2740	0.2650	0.2720	0.2800
Cy	0.2360	0.2450	0.2580	0.2480

	c3			
Cx	0.2720	0.2640	0.2750	0.2820
Cy	0.2580	0.2670	0.2810	0.2720

	b3			
Cx	0.2800	0.2720	0.2820	0.2880
Cy	0.2480	0.2580	0.2720	0.2620

	c4			
Cx	0.2820	0.2750	0.2870	0.2910
Cy	0.2720	0.2810	0.2950	0.2870

	b4			
Cx	0.2880	0.2820	0.2910	0.2960
Cy	0.2620	0.2720	0.2870	0.2760

	c5			
Cx	0.2910	0.2870	0.2960	0.2990
Cy	0.2870	0.2950	0.3040	0.2940

	b5			
Cx	0.2960	0.2910	0.2990	0.3020
Cy	0.2760	0.2870	0.2940	0.2830

	c6			
Cx	0.2990	0.2960	0.3070	0.3090
Cy	0.2940	0.3040	0.3150	0.3050

	b6			
Cx	0.3020	0.2990	0.3090	0.3110
Cy	0.2830	0.2940	0.3050	0.2940

	c7			
Cx	0.3090	0.3070	0.3190	0.3200
Cy	0.3050	0.3150	0.3280	0.3170

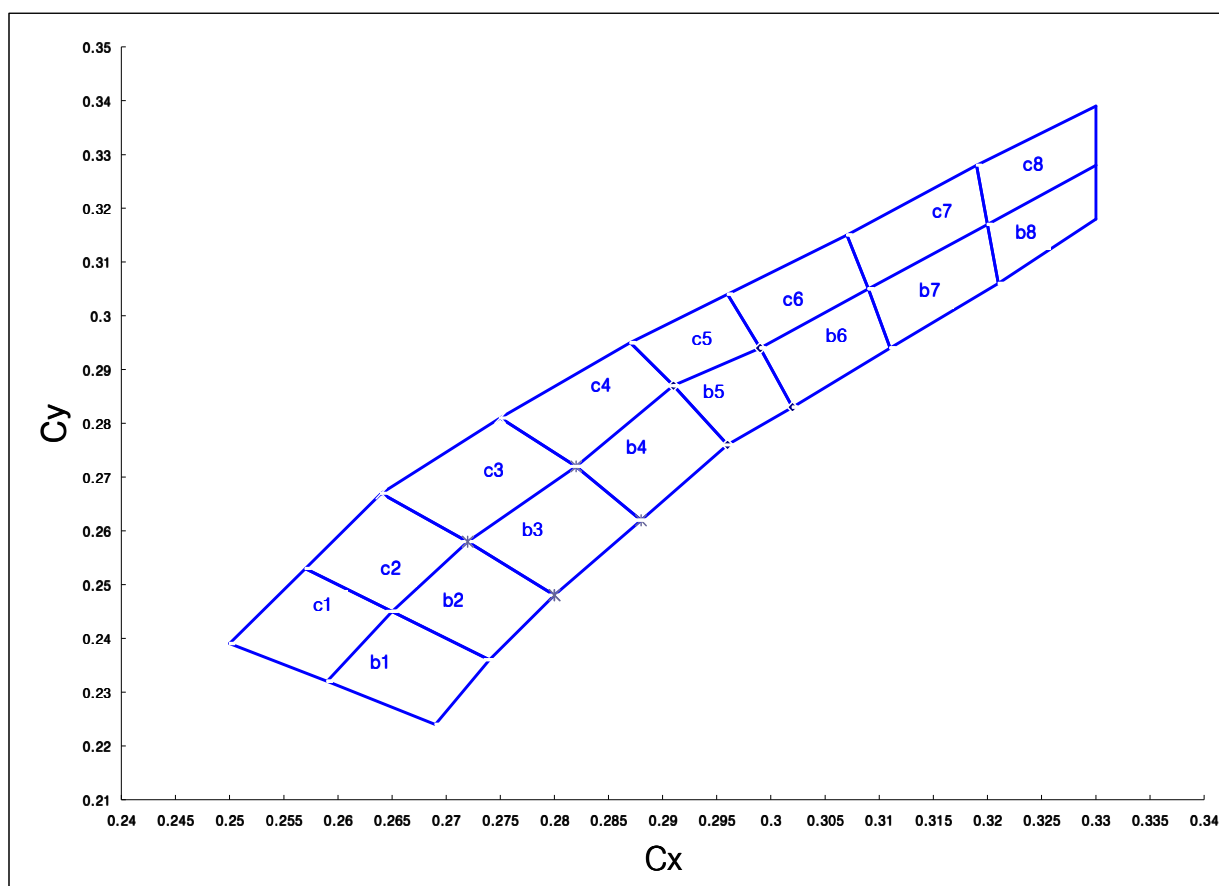
	b7			
Cx	0.3110	0.3090	0.3200	0.3210
Cy	0.2940	0.3050	0.3170	0.3060

	c8			
Cx	0.3200	0.3190	0.3300	0.3300
Cy	0.3170	0.3280	0.3390	0.3280

	b8			
Cx	0.3210	0.3200	0.3300	0.3300
Cy	0.3060	0.3170	0.3280	0.3180

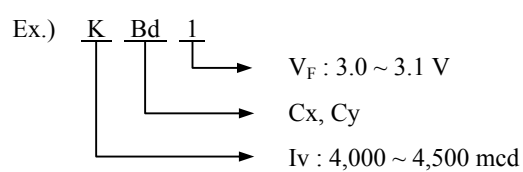
Notes (1) Color coordinates measurement allowance is ± 0.01 .

■ Chromaticity Diagram

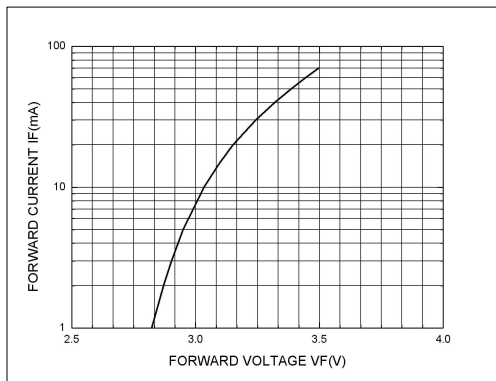


3. Rank

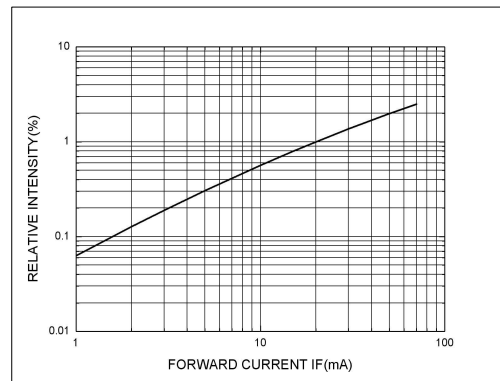
The rank inscription is composed of the follow method.



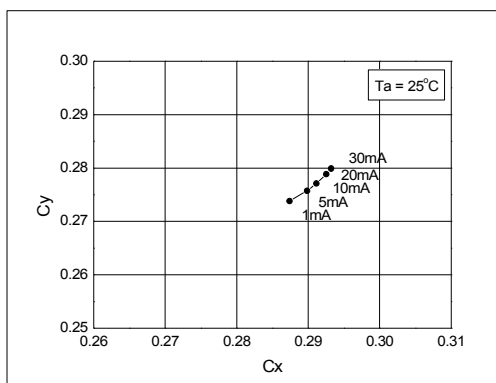
4. Characteristics Diagrams



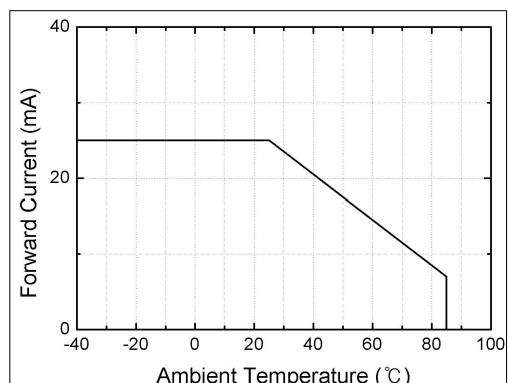
Forward Current vs Forward Voltage



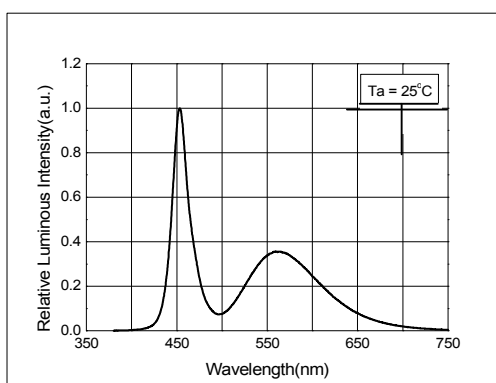
Relative Luminous Intensity vs Forward Current



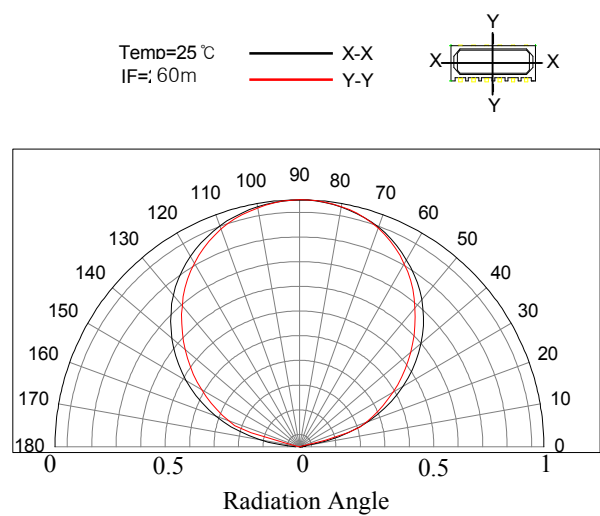
Forward Current vs Chromaticity Diagram



Forward Current vs Ambient Temperature



Relative Spectral Emission



5. Results of Reliability Tests

(1) Test Items and Results

Item	Test Condition	Notes	No. of Damaged
Temperature Cycle	-40 °C ~25 °C ~100 °C ~25 °C (30min~5min~30min~5min)	100Cycle	0/50
Steady State Operating Life	T _a = 25 °C, I _F =25mA	1000hrs.	0/50
Steady State Operating Life of High Temperature	T _a = 85 °C, I _F =20mA	1000hrs	0/50
Steady State Operating Life of High Humidity Heat	T _a = 85 °C, RH = 85%, I _F = 20mA	500hrs	0/50
High Temperature Storage	T _a = 85 °C	1000hrs.	0/50
High Temperature & Humidity Storage	T _a = 85 °C, RH = 85%	1000hrs.	0/50
Low Temperature Storage	T _a = -40 °C	1000hrs.	0/50
Resistance to Soldering Heat	T _{max} =260 °C, 10sec	3 times	0/50

(2) Criteria for Judging the Damage

Parameter	Symbol	Condition	Criteria for Judgement	
			Min.	Max.
Forward Voltage	V _F	I _F = 20mA	-	U.S.L. ⁽¹⁾ * 1.2
Luminous Intensity	I _v	I _F = 20mA	L.S.L. ⁽²⁾ * 0.5	-

Notes (1) U.S.L. : Upper Standard Level

(2) L.S.L. : Lower Standard Level

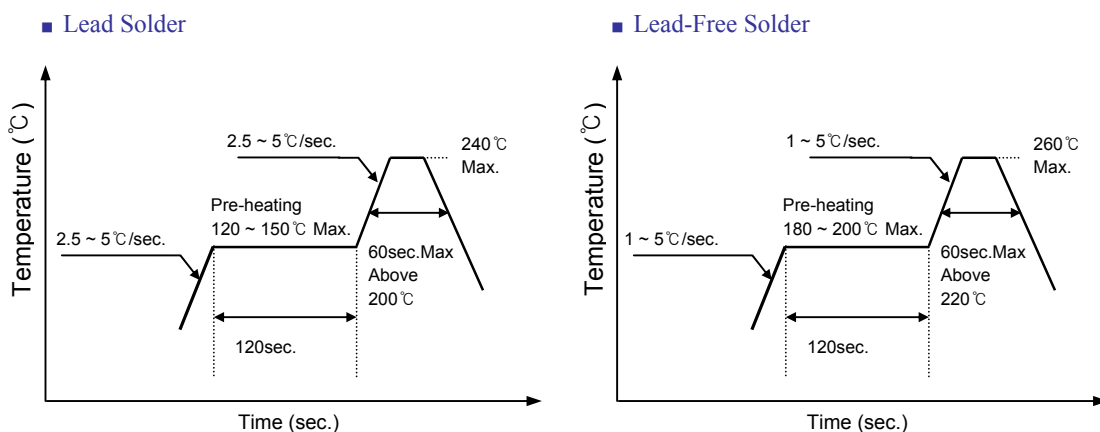
6. Soldering Conditions

(1) Recommended Soldering Conditions

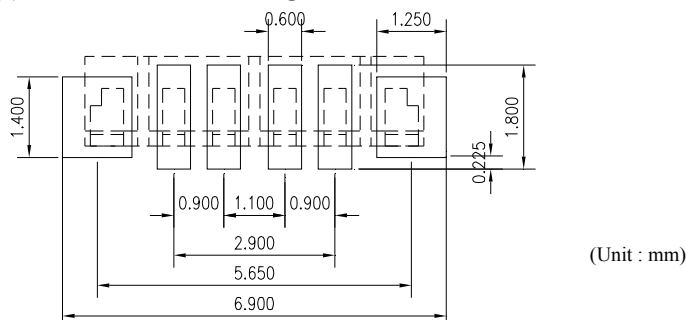
Reflow Soldering			Hand Soldering	
	Lead Solder	Lead-Free Solder	Temperature Soldering time	300 °C Max. 3 sec. Max. (one time only)
Pre-Heating	120 ~ 150 °C	180 ~ 200 °C		
Pre-Heat Time	120sec. Max.	120sec. Max.		
Peak Temperature	240 °C Max.	260 °C Max.		
Soldering Time	5sec. Max.	5sec. Max.		

* After reflow soldering, Rapid cooling should be avoid.

(2) Recommended Reflow Soldering profile



(3) Recommended Soldering Pattern

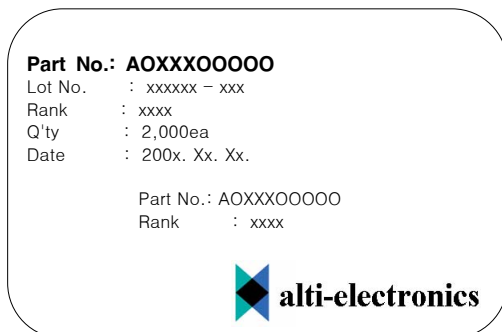


(4) Soldering Cautions

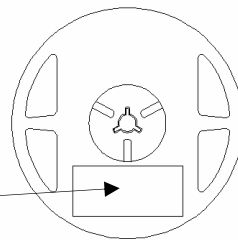
- Reflow soldering should not be done more than two times.
- When soldering, do not put stress on the LEDs during heating.
- After soldering, do not wrap the circuit board.
- The LEDs can be soldered on place using the reflow soldering method.
- Occasionally there is a brightness decrease cause by the influence of heat or ambient atmosphere during air reflow. It is recommend that the user use the nitrogen reflow method.

(2) Packing and Packaging

■ Label

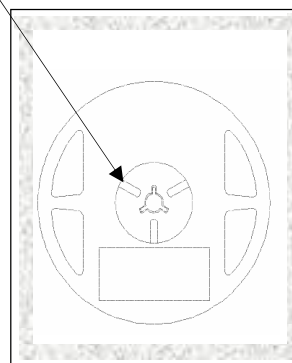


Reel

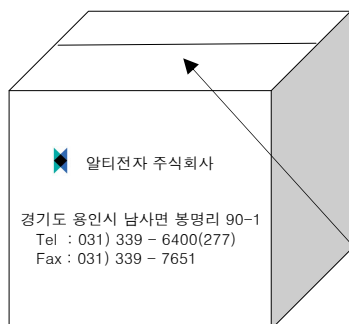


Aluminum

Zipper Bag



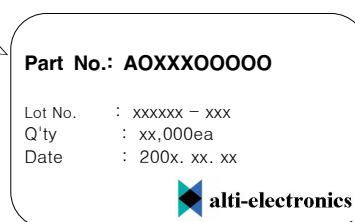
■ Inner Box



■ Outer Box



Box Label



Box Type	Inner Box	Outer Box	
		Medium	Large
Max. Packing Q'ty(pcs)	16,000	64,000	128,000

- (1) The carrier tape wound on the wheel are placed into an ESD protected pack with a silicagel and sealed by the thermal pressure sealer. Then this sealed pack is packaged in a cardboard box.

8. Precaution

(1) Static Electricity

These LEDs are highly susceptible to static electricity or surge voltage. So a wrist strap or an anti-electrostatic glove necessarily be used when handling the LEDs. Do not use the equipment that surge voltage is came into existence.

All devices and equipment that measure or mount the LEDs must be properly grounded.

After being assembled LEDs, it should be ascertained a electrical characteristic whether that are damaged by static electricity or not. It is easy to find the damaged LEDs by a light-on or VF test at forward a below 1mA current.

(2) Packing

The moisture that is absorbed into the LED products may cause a badness and damage to the optical characteristics of the LEDs. Therefore the moisture barrier aluminum bag is used to keep moisture in the packing. And a silicagel is inserted into a moisture barrier aluminum bag that sealed by the thermal pressure sealer.

(3) Cleaning

It is recommended that isopropyl alcohol(IPA) be used as a solvent for cleaning the LEDs.

Do not clean the LEDs by the ultrasonic. When it use other solvents or is absolutely necessary ultrasonic, before cleaning, a pre-test should be done to confirm whether the LEDs are any damaged or not

(4) Storage

In order to avoid the absorption of moisture, it is recommended to store LEDs in the moisture barrier aluminum bag is not opened.

Storage condition before opening the packing :

Temperature : below 30℃

Humidity : 90%RH max

The LEDs should be used within a year.

Storage condition after opening the packing :

Temperature : below 30℃

Humidity : 60%RH max

After opening the packing, the LEDs should be used within 168 hours(7days). If unused LEDs remain, they should be stored in the place kept away moisture.

If the LEDs have exceeded the above storage time, it should be used after to bake using the following conditions.

Baking condition : 80±5℃, more than 1 hours

(5) Pick and Place

It should be avoided to rub or scratch the surface of resin by any hard material. It is possible that the LEDs are damaged to the optical characteristics.

(6) Heat

The LEDs are products that are generated heat. Please consider the heat generation of the LED when it is designed the PCB. After considering the ambient temperature and the heat generation of LEDs, the operating current should be decided

(7) Others

If the forward or reverse voltage which exceeds the absolute maximum rating is applied to the LEDs, that will cause the damage to the LEDs. It is possible that the damaged LEDs do not light on at the low current.

Be careful not to look the LEDs that the output power is strongly increased in the face. It is possible that eyesight has been getting weaker.

This specifications of the product may be revised without notice.