USHIO Applying Light to Life

Data Sheet

2021.06

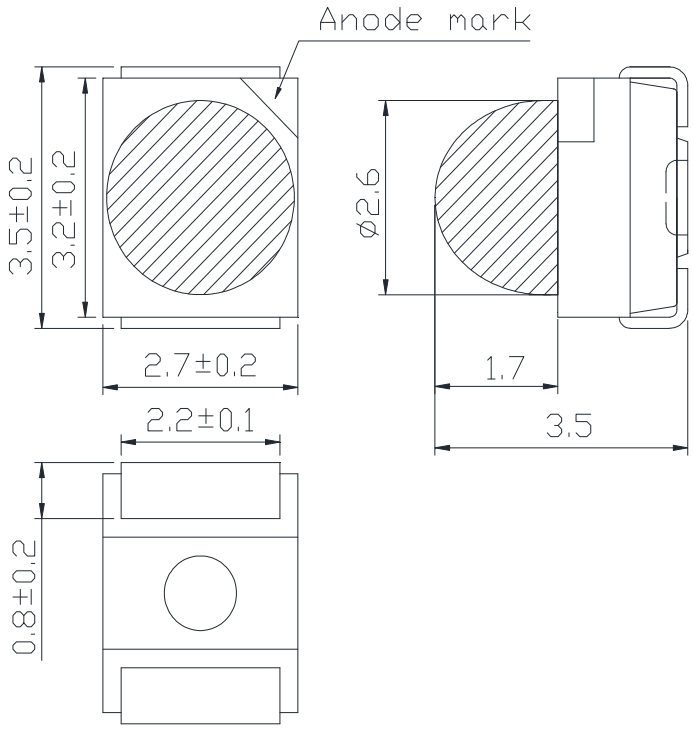
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PRELIMINARY

SMT1450D-22

1450nm High Performance TOP IR LED

Outline and Internal Circuit



(Unit : mm)

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Features

- Chip Material : InGaAsP
- Chip Dimension : 350um * 350um
- Number of Chips : 1pce
- Peak Wavelength : 1450nm typ.
- Lead Frame Die : Silver Plated
- Package Resin : PA6T
- Lens : Silicone or Epoxy Resin

Application

Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Ratings	Unit
Power Dissipation	PD	130	mW
Forward Current	IF	100	mA
Pulse Forward Current	IFP	1000	mA
Reverse Voltage	VR	5	V
Thermal Resistance	Rthjs	80	K/W
Junction Temperature	Tj	120	°C
Operating Temperature	Topr	-40 ~ +100	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Soldering Temperature	TSOL	250	°C

‡Pulse Forward Current condition : Duty 1% and Pulse Width=10us.

‡Soldering condition : Soldering condition must be completed with 5 seconds at 250°C.

Optical and Electrical Characteristics (Tc=25°C)

(*: 100% testing, **: reference value)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	VF		0.95	1.3	V	IF=50mA*
	VFP		2.2			IFP=1A**
Reverse Current	IR			10	uA	VR=5V*
Total Radiated Power	PO	3.5	5.3		mW	IF=50mA*
			28			IFP=1A**
Radiant Intensity	IE		28		mW/sr	IF=50mA**
			150			IFP=1A**
Peak Wavelength	λp	1420		1480	nm	IF=50mA*
Half Width	Δλ		110		nm	IF=50mA**
Viewing Half Angle	θ1/2		±15		deg.	IF=50mA**
Rise Time	tr		60		ns	IF=50mA**
Fall Time	tf		30		ns	IF=50mA**

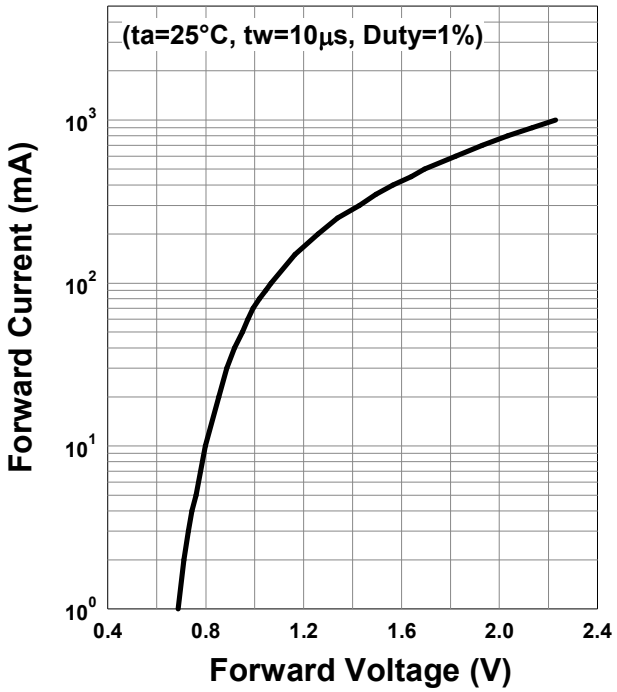
‡ Radiated Power is measured by G8370-85.

‡ Radiant Intensity is measured by ANDO Optical Multi Meter AQ2140 & AQ2743.

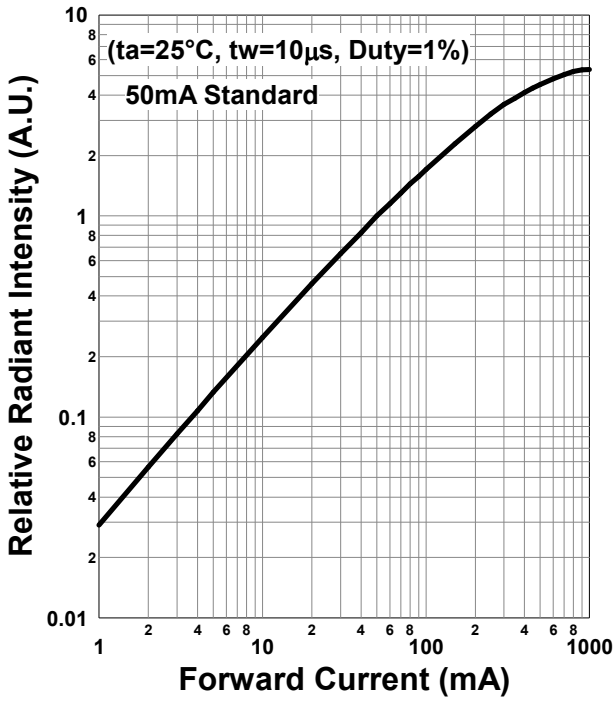
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Typical Characteristic Curves

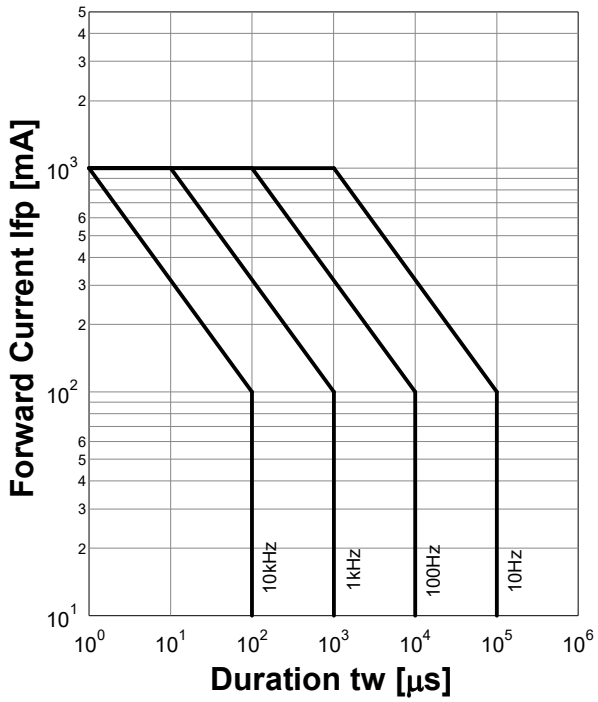
Forward Current - Forward Voltage



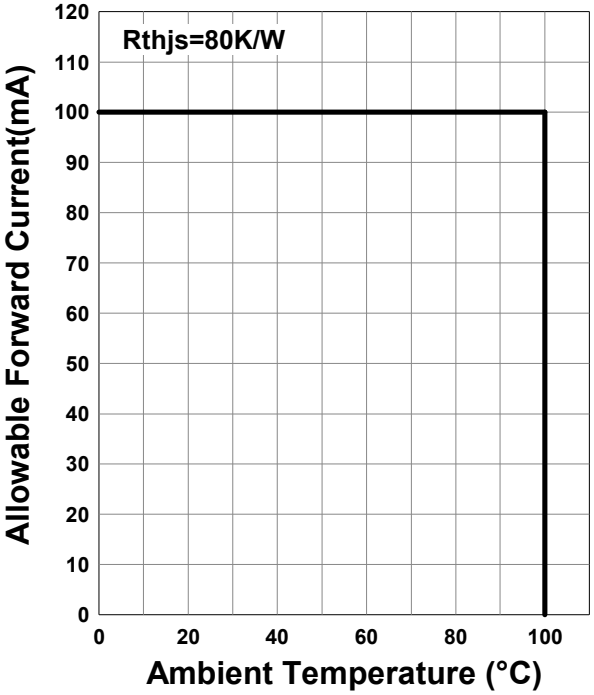
Relative Radiant Intensity - Forward Current



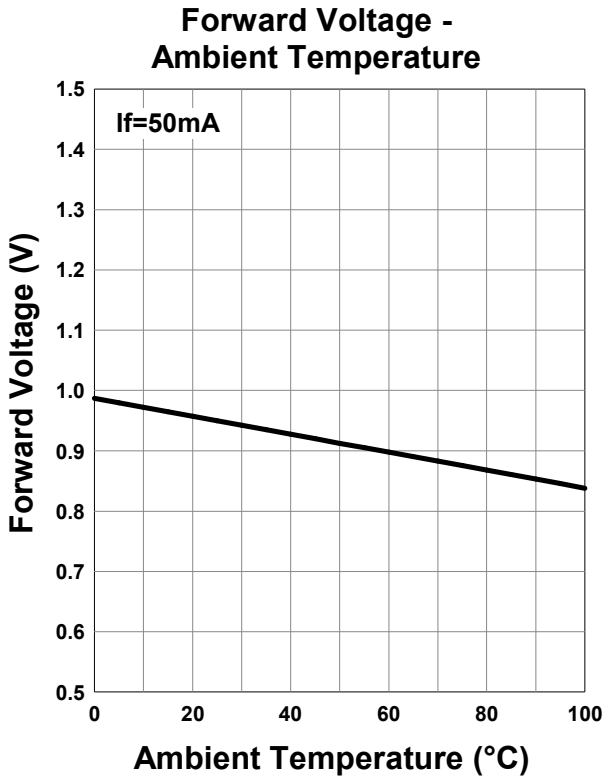
Forward Current - Pulse Duration

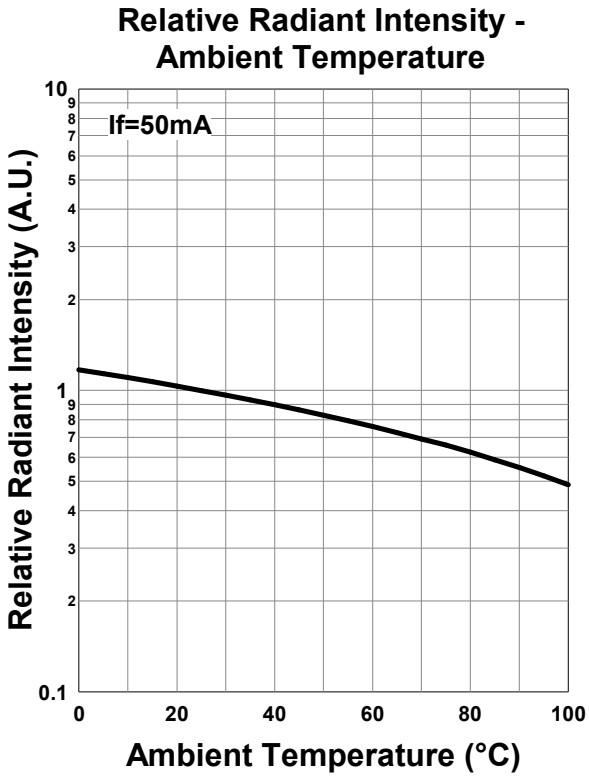


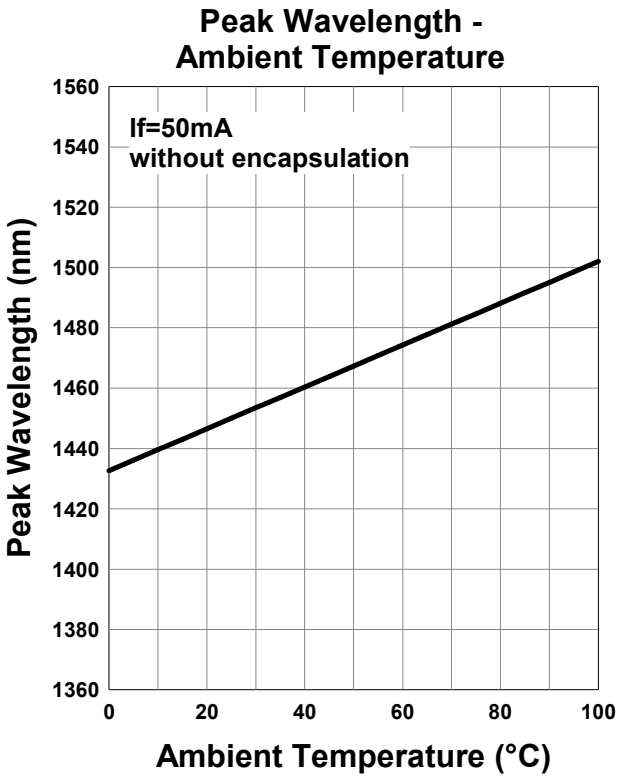
Allowable Forward Current - Ambient Temperature



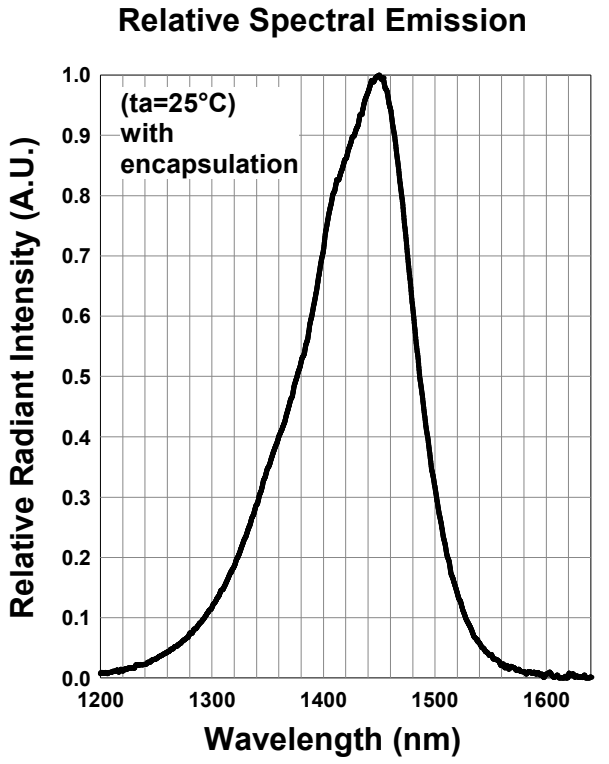
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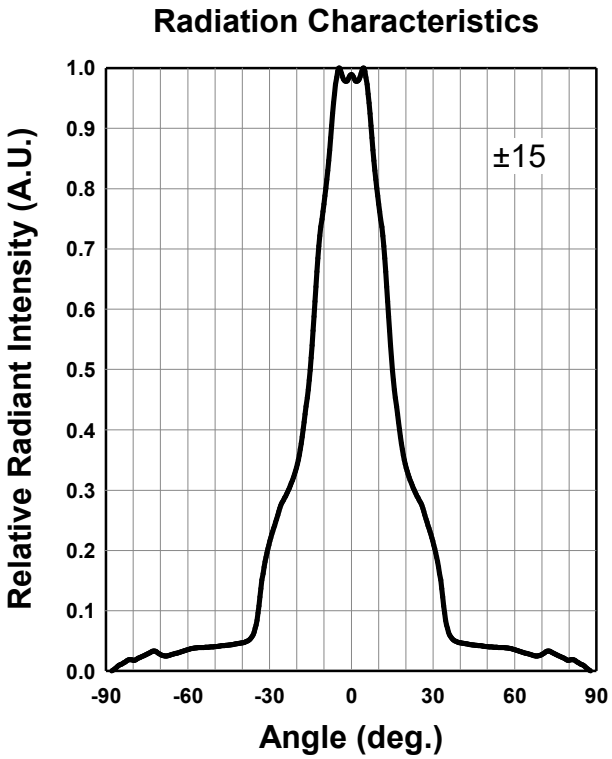


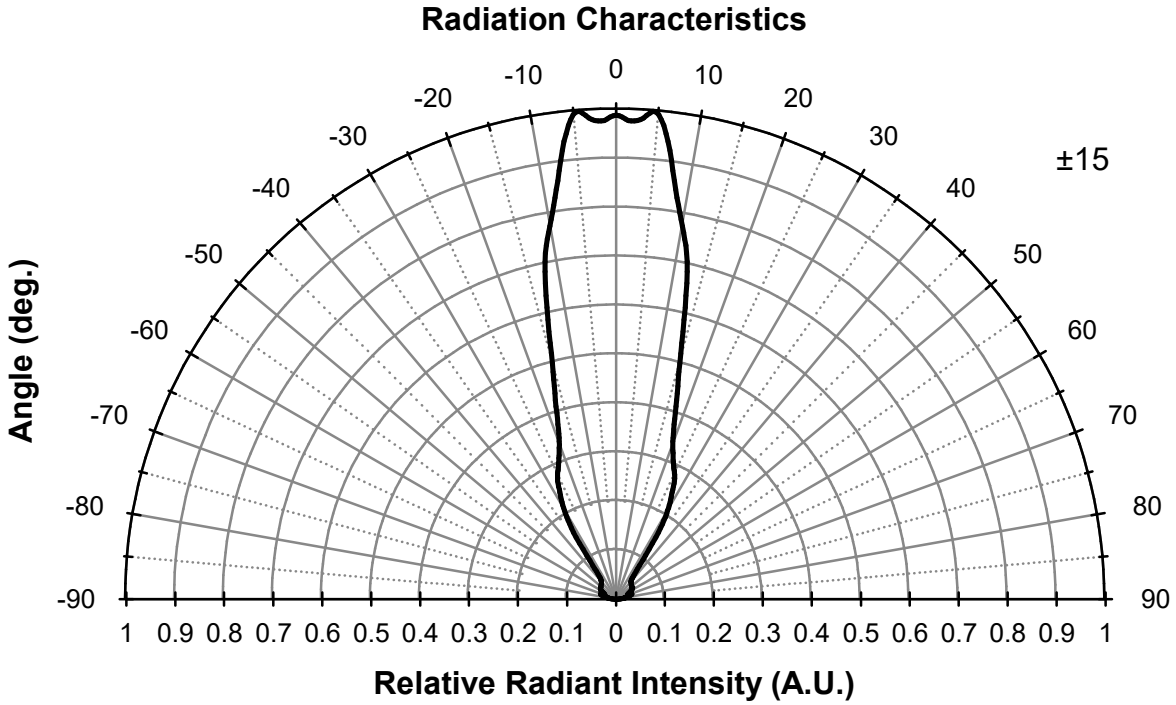




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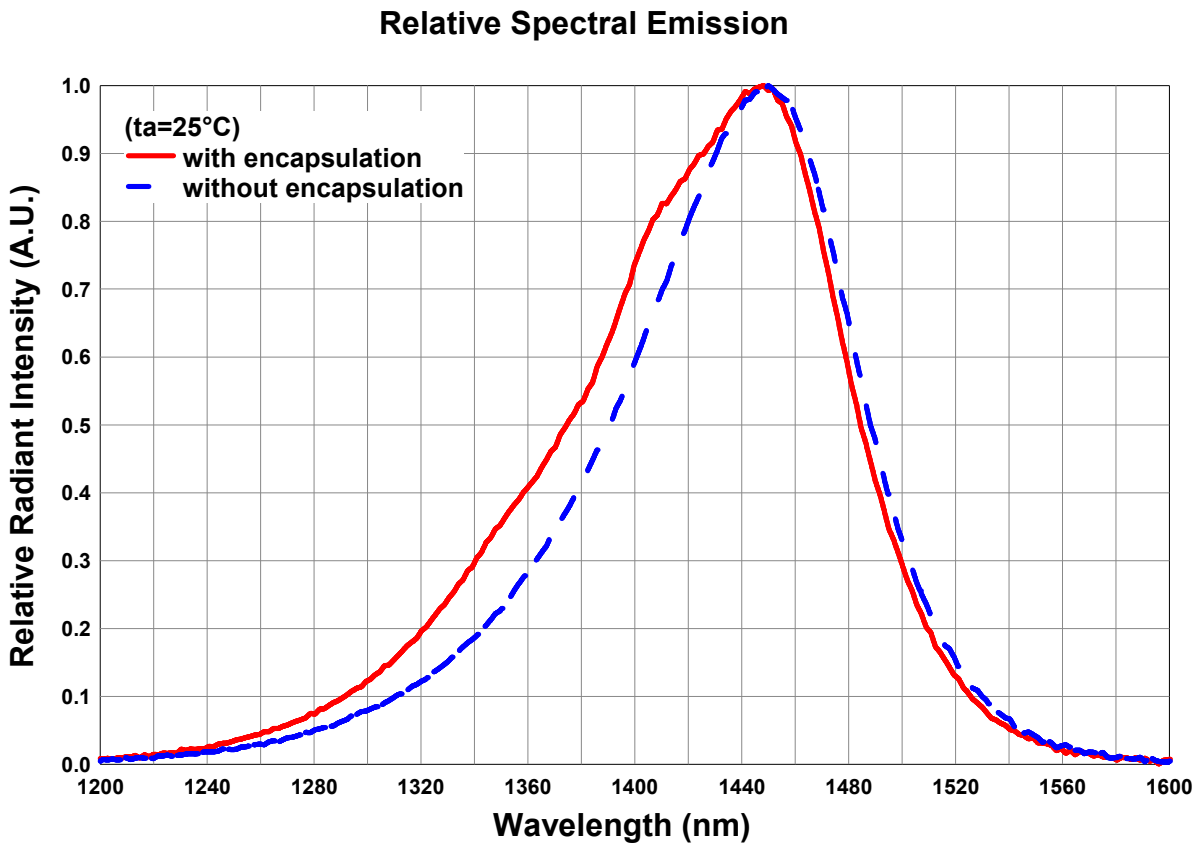






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*The absorption of lens resin changes spectral emission.



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Wrapping

Moisture barrier bag aluminum laminated film with a desiccant to keep out the moisture absorption during the transportation and storage.

SMD LED storage and handling precautions

Storage Conditions before Opening a Moisture-Barrier Aluminum Bag

- Before opening a moisture-barrier aluminum bag, please store it at <30ºC, <60%RH.
- Please note that the maximum shelf life is 12 months under these conditions.

Storage Conditions after Opening a Moisture-Barrier Aluminum Bag

- After opening a moisture-barrier aluminum bag, store the aluminum bag and silica gel in a desiccator.
- After opening the bag, please solder the LEDs within 72 hours in a room with 5 - 30ºC, <50%RH.
- Please put any unused, remaining LEDs and silica gel back in the same aluminum bag and then vacuum-seal the bag.
- It is recommended to keep the re-sealed bag in a desiccator at <30%RH.
- The 72-hour- long floor life does not include the time while LEDs are stored in the moisture-barrier aluminum bag. However, we strongly recommend to solder the LEDs as soon as possible after opening the aluminum bag.

Notes about Re-sealing a Moisture-Barrier Aluminum Bag

- When vacuum-sealing an opened aluminum bag, if you find the moisture-indicator of the silica gel has changed to pink from blue (indicating a relative humidity of 30 % or more), please do not use the unused LEDs, the aluminum bag, or the silica gel.

Notes about Opening a Re-sealed Moisture-Barrier Aluminum Bag

- When opening a vacuumed and re-sealed aluminum bag in order to use the remaining LEDs stored in the bag, if you find that the moisture-indicator of the silica has changed to pink, please do not use the LEDs.

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