

NMOP-10133-LS13-NR

SURFACE MOUNT LED TAPE AND REEL

Features:

- 1.Top view LED.
- 2.Small package with high efficiency
- 3.Soldering methods: IR reflows soldering
- 4.RoHS compliant
- 5.Pb Free

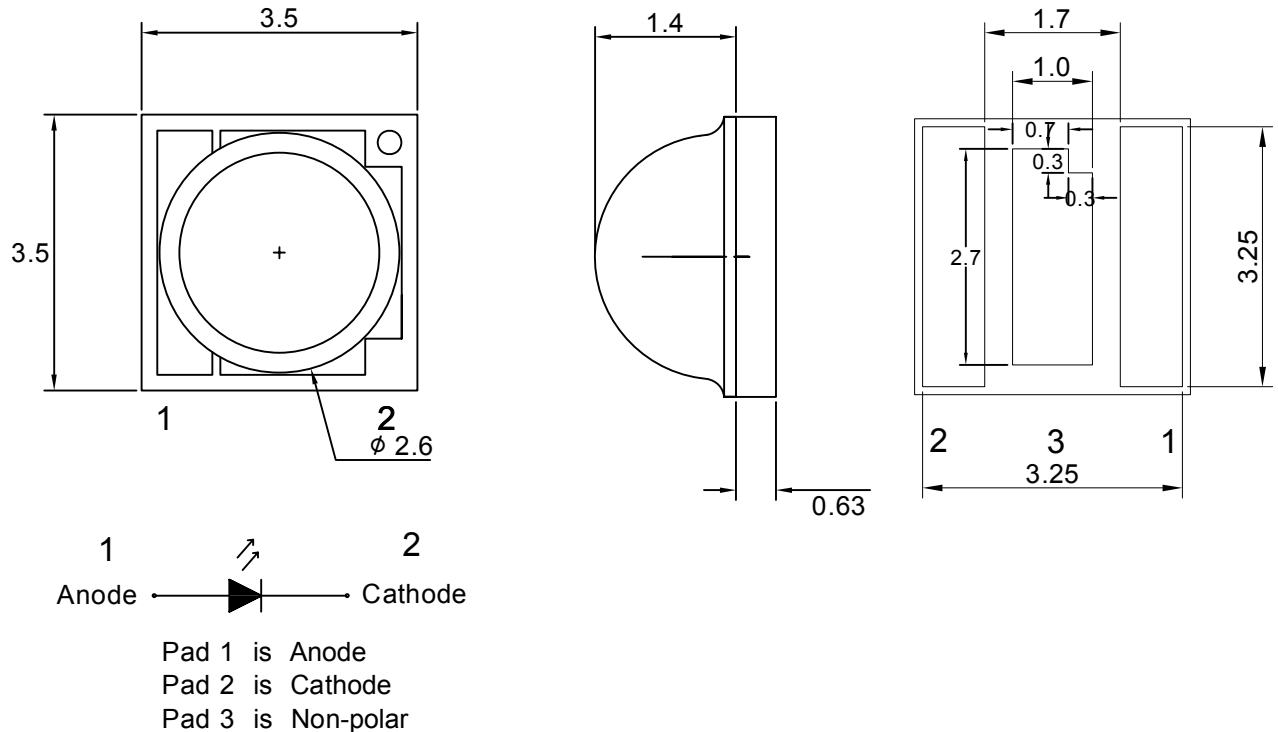
Applications:

- 1.CCD Camera.
- 2.Infrared applied system

Device Selection Guide:

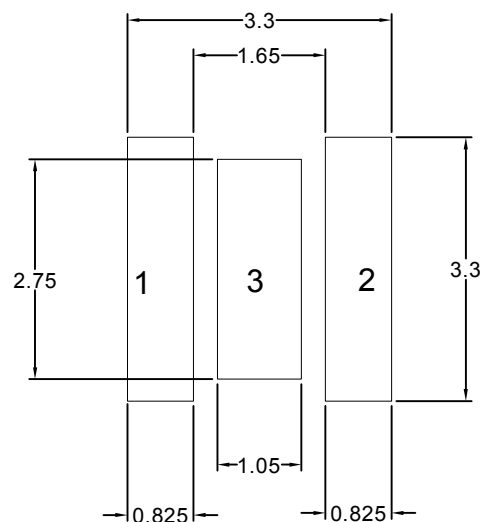
PART NO	MATERIAL	COLOR	
		Emitted	Lens
NMOP-10133-LS13-NR	AlGaAs	Infrared	Water Clear

Package Outline Dimensions



Note : 1.All dimension are in millimeter tolerance is ± 0.2 mm unless otherwise noted.
2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is ± 0.1 mm, Unit=mm.

Absolute Maximum Ratings at Ta=25° C

Parameter	Symbol	Ratings	UNIT
Power Dissipation*	Pd	3.7	W
DC Forward Current*	IF	1000	mA
Reverse Current(VR=5V)*	Ir	10	μA
Peak pulse current Duty1/10@10KHz*	I _{FP}	2000	mA
ESD Sensitivity*	HMB 100pf/1.5 KΩ	2000	V
	MM 200pf/0Ω	150	V
LED junction Temperature	Tj	145	°C
Thermal resistance*	Rth j-s	8	°C/W
Operating Temperature	Topr	-40 ~ +125	°C
Storage Temperature	Tstg	-40 ~ +125	°C
Soldering Temperature	Tp	260	°C

* Ambient test condition : TA=25 °C

Typical Electrical & Optical Characteristics (Ta=25° C)

Parameter	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Radiant Intensity	I_e	100	150	----	mW/sr	IF=1A
Radiant Flux	ϕ_e	----	500	----	mW	IF=1A
Peak Emission Wavelength	λ_P	----	940	----	nm	IF=1A
Spectral Bandwidth at 50% of I_{max}	$\Delta \lambda$	----	40	----	nm	IF=1A
Forward Voltage	V_F	2.8	----	3.7	V	IF=1A
Viewing Angle	2 θ 1/2	130			deg	IF=1A

Note : 1.The forward voltage data did not including $\pm 0.1V$ testing tolerance.
 2.The radiant Intensity data did not including $\pm 15\%$ testing tolerance.

Forward Voltage Classification

BIN CODE	I _e (mW/sr) at 1A	
	Min.	Max.
D8	100	120
D9	120	140
D10	140	170
E1	170	210
E2	210	250
E3	250	300

Radiant Intensity Classification

BIN CODE	V _f (V) at 1A	
	Min.	Max.
1	2.8	3.1
2	3.1	3.4
3	3.4	3.7

Typical Electro-Optical Characteristics Curve

Fig.1 Relative Intensity
VS. Forward Current

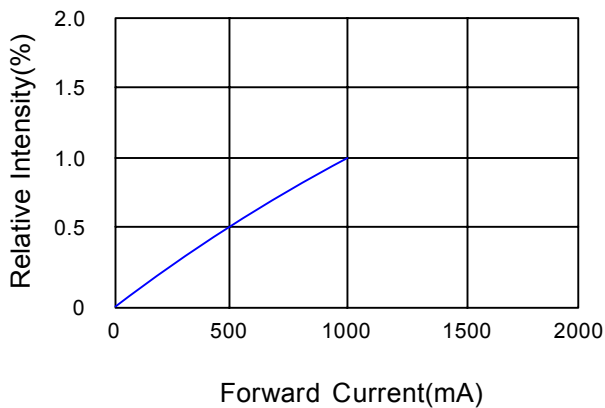


Fig.2 Forward Current
VS. Ambient Temperature

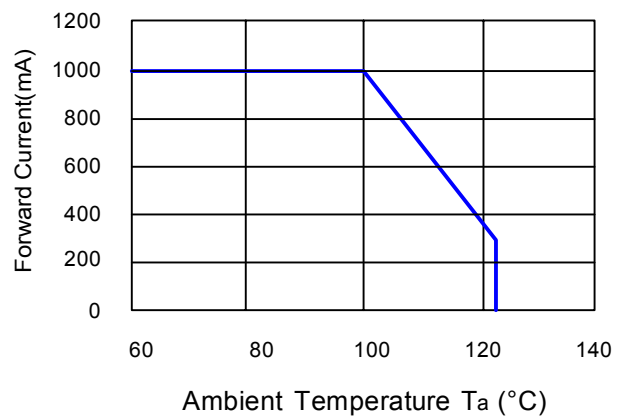


Fig.3 Relative Radiant Power
VS. Wavelength

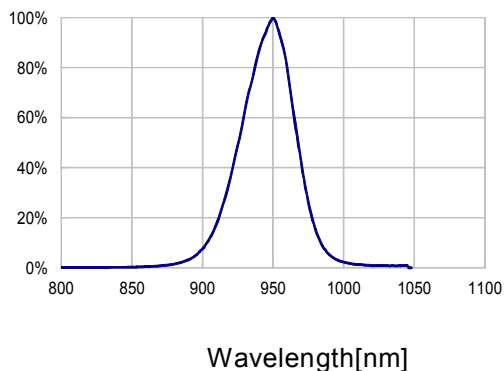


Fig.4 Forward Voltage
VS. Forward Current

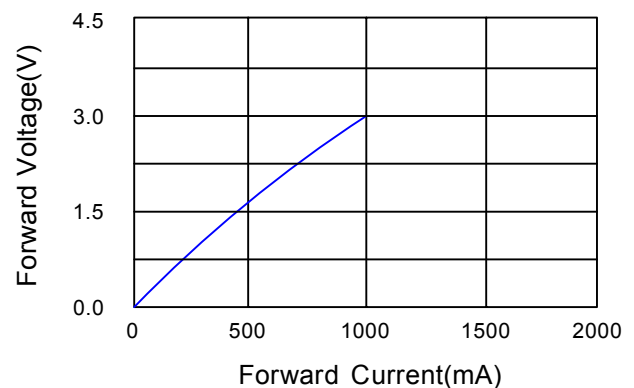
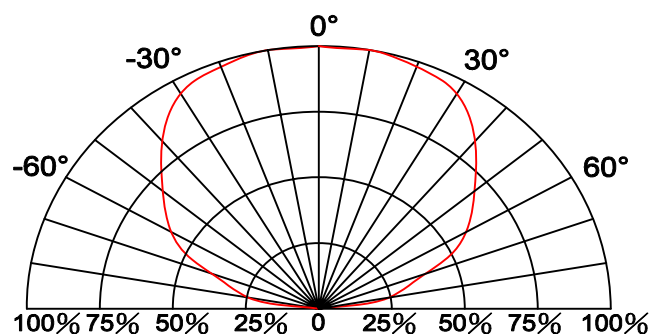
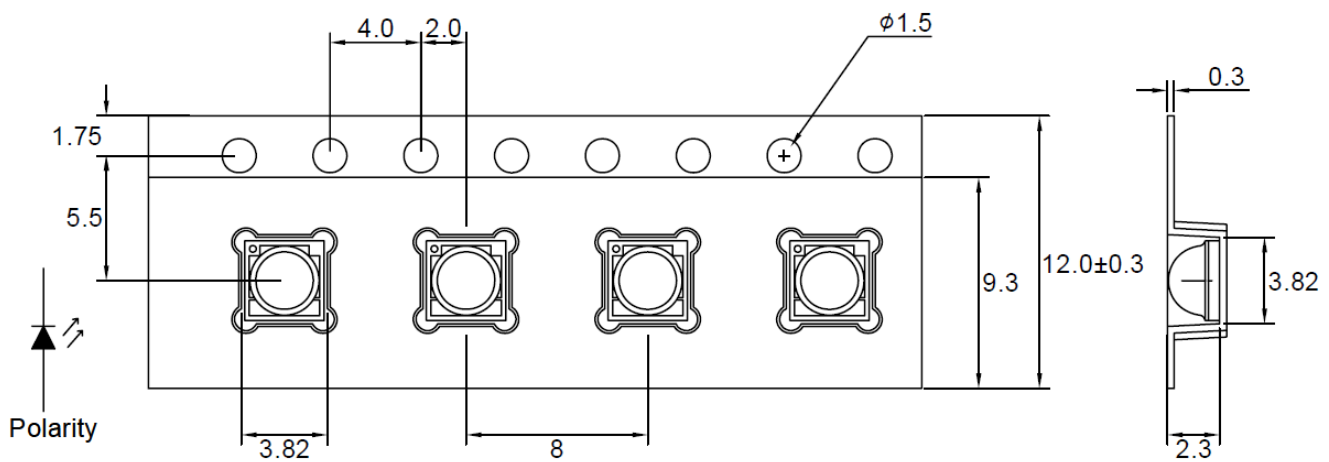


Fig.5 Directive Radiation

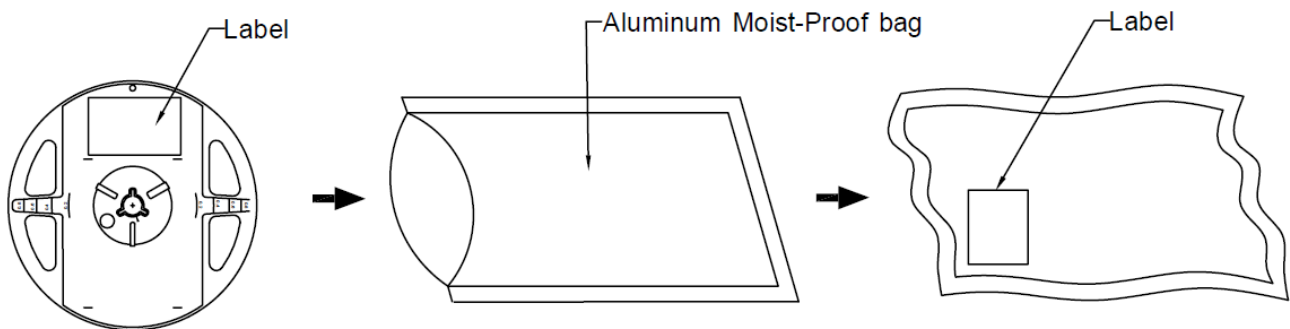


Carrier Type Dimension



Note : The tolerances unless mentioned is ± 0.1 mm, Angle ± 0.5 . Unit=mm.

Packing Specifications



Part No.	Description	Quantity/Reel
NMOP-10133-LS13-NR	12.0mm tape, 7" reel	500 PCS

Label Explanation

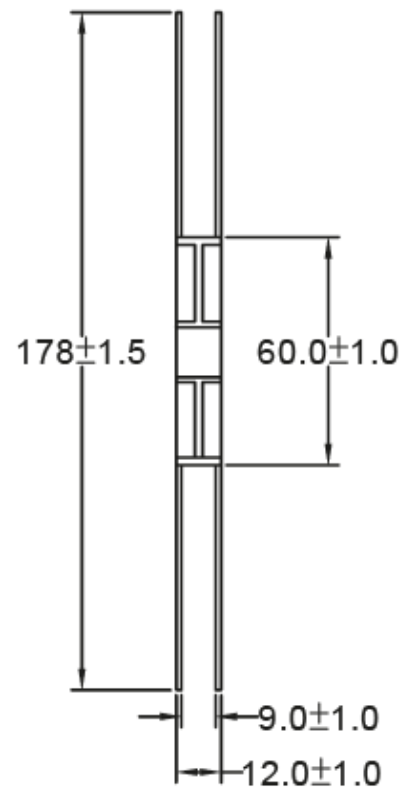
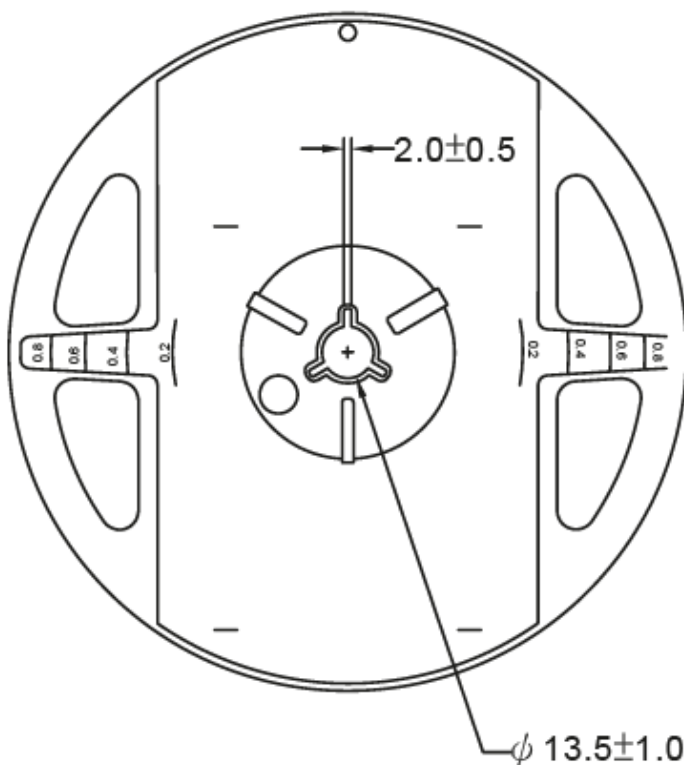
 Neumüller Elektronik GmbH www.neumueller.com	
Typ / Part No. _____	
Date Code / Rank _____	
Menge / Quantity _____	
Kunde / Customer _____	

BIN: Luminous Intensity

HUE: Dominant Wavelength

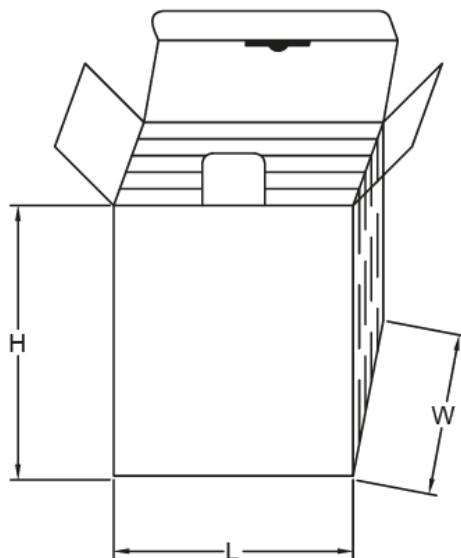
VF: Forward Voltage

Reel Dimensions

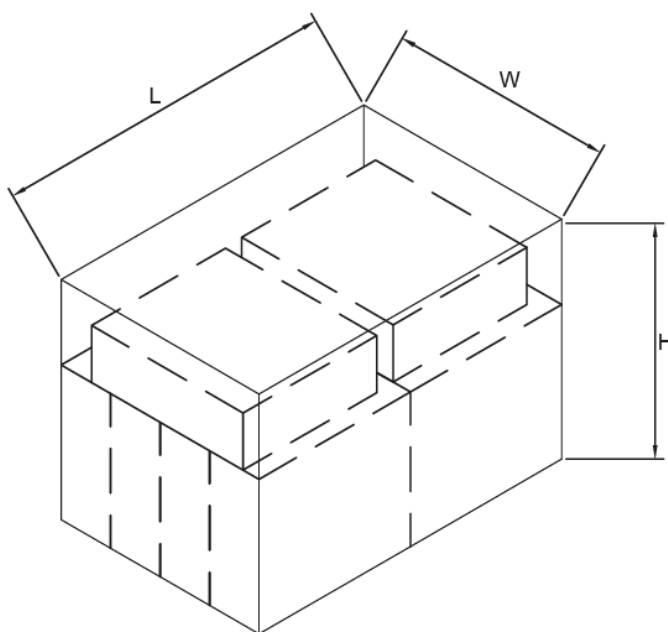


Box Explanation

1. 5 BAG / INNER B
2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26

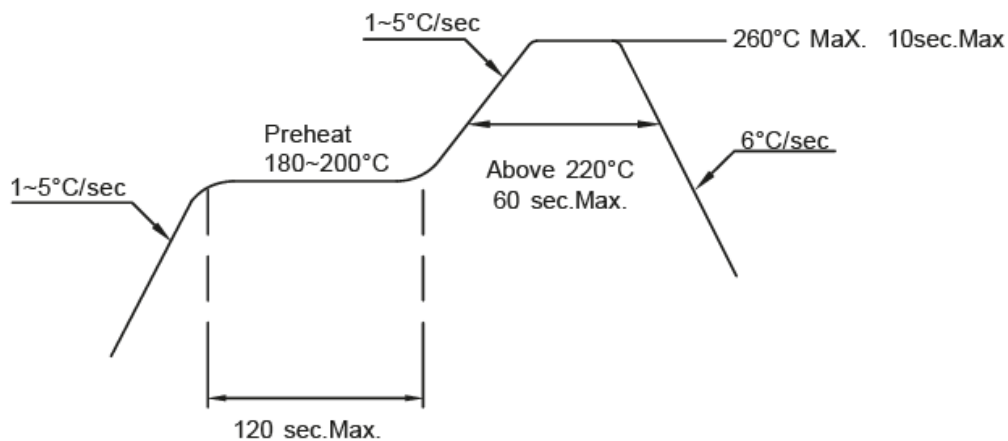


3. 10 INNER BOXES / CARTON
4. CARTON SIZE : L X W X H 58cm X 34cm x 35cm



Recommended Soldering Conditions

PB-Free Reflow Solder



Note:

1. Reflow soldering should not be done more than two times.
2. When soldering, do not put stress on the LEDs during heating.
3. After soldering, do not warp the circuit board.

Precautions For Use:

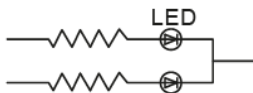
Storage time:

1. Calculated shelf life before opening is 12 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within 168 hours in an environment of $\leq 30^{\circ}\text{C}$ / 60% RH, or
 - b) Stored at ambient of 10% RH or less
3. Devices are required baking before assembly if:
 - a) Humidity Indicator Card reads $>10\%$ (for level 2a -5a) or $>60\%$ (for level 2) at ambient temperature $23\pm 5^{\circ}\text{C}$
 - b) 2.a) or 2.b) doesn't meet
4. If baking is required, devices should be baked for >72 hours at $60\pm 5^{\circ}\text{C}$ / 5% RH. Performing baking only once, and using the baked devices within 72 hours.

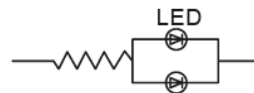
Drive Method:

LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED. Consider worst case voltage variations than could occur across the current limiting resistor. The forward current should not be allowed to change by more than 40% of its desired value.

Circuit model A



Circuit model B



(A) Recommended circuit.

(B) The difference of brightness between LED could be found due to the VF-IF characteristics of LED.

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

ESD(Electrostatic Discharge):

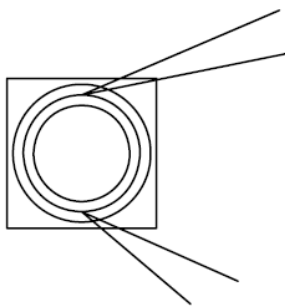
Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling these LED. All devices, equipment and machinery must be properly grounded.

Reliability Test:

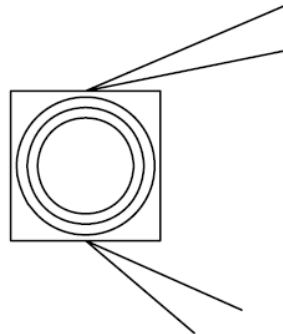
Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life Test	1.Ta=25°C 2.If=20mA 3.t=1000 hrs (-24hrs,+72hrs)	22
	High Temperature Storage Test	1.Ta=100°C±5°C 2.t=1000 hrs (-24hrs,+72hrs)	22
	Low Temperature Storage Test	1.Ta=-40°C±5°C 2.t=1000 hrs (-24hrs,+72hrs)	22
	High Temperature High Humidity Storage Test	1.Ta=85°C 2.RH=85% 3.t=1000hrs(-24hrs,+72hrs)	22
Environmental Test	Thermal Shock Test	1.Ta=100°C±5°C ~ -40°C±5°C 20min/ 10sec / 20min 2.total 100 cycles	22
	Temperature Cycling	1.100°C±5°C ~ -40°C±5°C 30mins / 5mins / 30mins 2.100 Cycles	22
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 M	22

Please follow the guideline to grab LEDs

1. don't touch lens with the fingers
2. use tweezers to grab LED
3. don't apply more than 4N of lens(400G) directly onto the lens
4. don't touch lens with the tweezers



Wrong(x)



Correct(o)

Lens cleaning

in the case where a minimal level of dirt and dust particles can not be guaranteed, a suitable cleaning solution can be applied to the lens surface

1. try a gentle swabbing using a lint-free swab
2. if needed, the use of lint-free swab and isopropyl alcohol used gently removes dirt from the lens
3. don't use other solvents as they may directly react with the led assembly.
4. don't use ultrasonic cleaning that the led will be damaged