

# NMOP-10122

## SMD LED

### Features:

1. Package in 8.0mm carrier tape on 7" diameter reel.
2. Compatible with automatic placement equipment.
3. Compatible with reflow solder process.

### Descriptions:

1. The NMOP-10122 SMD Taping 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.
2. Besides, lightweight makes them ideal for miniature applications. etc.

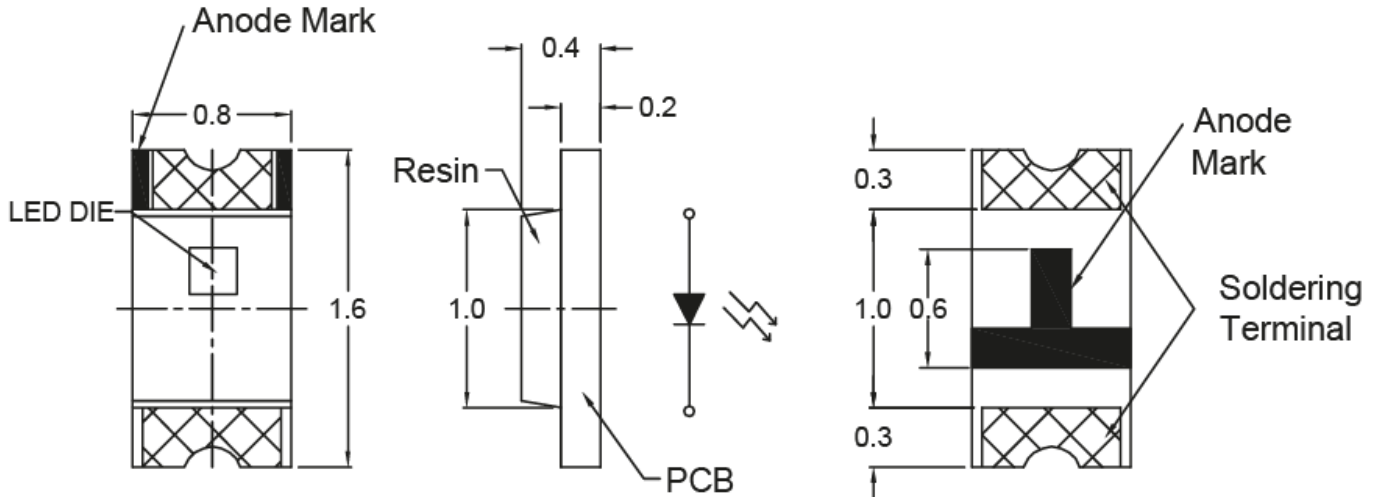
### Applications

1. Automotive : backlighting in dashboard and switch.
2. Telecommunication : indicator and backlighting in telephone and fax.
3. Flat backlight for LCD, switch and symbol
4. General use.

### Device Selection Guide

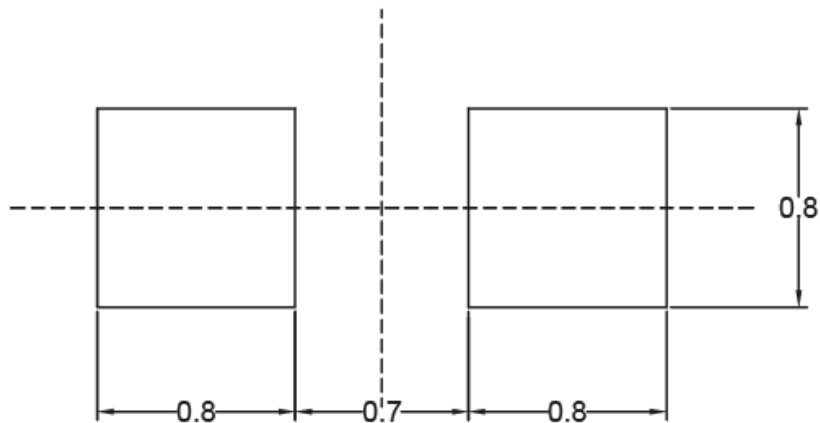
Part No	Material	Color	
		Emitted	Lens
NMOP-10122	AlGaInP	Yellow	Water Clear

## Package Outline Dimensions



Note : 1.All dimension are in millimeter tolerance is  $\pm 0.1$ mm unless otherwise noted.  
2.Specifications are subject to change without notice.

## Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is  $\pm 0.1$ mm, Angle  $\pm 0.5$ . Unit=mm.

## Absolute Maximum Ratings at Ta=25° C

Parameter	Symbol	Ratings	UNIT
Power Dissipation	PD	65	mW
Peak forward current Duty 1/10@10KHz	I <sub>FP</sub>	90	mA
Forward Current	I <sub>F</sub>	25	mA
Reverse Current @5V	I <sub>r</sub>	10	μA
ESD Sensitivity	ESD	2000	V
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	320	380	---	mcd	IF=20mA
Dominant Wavelength	λ <sub>P</sub>	583	---	590	nm	
Spectrum Line Half-Width	Δλ	---	20	---	nm	
Forward Voltage	V <sub>F</sub>	1.7	---	2.6	V	
Viewing Angle	2θ <sub>1/2</sub>	---	130	---	deg	

- Note :
1. The forward voltage data did not including ±0.1V testing tolerance.
  2. The luminous intensity data did not including ±15% testing tolerance.
  3. The dominant wavelength data did not including ±1nm testing tolerance

## Luminous Intensity Classification

BIN CODE	IV(MCD) at 20mA	
	Min.	Max.
T	320	500
U	500	800

## Dominant Wavelength Classification

BIN CODE	$\lambda_D$ (nm) at 20mA	
	Min.	Max.
14	583	585
15	585	587
16	587	589
17-1	589	590

# Typical Electro-Optical Characteristics Curve

UYR CHIP

Fig.1 Forward current vs. Forward Voltage

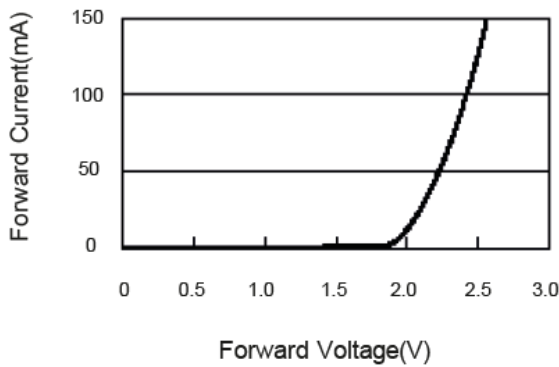


Fig.2 Luminous Intensity vs. Forward Current

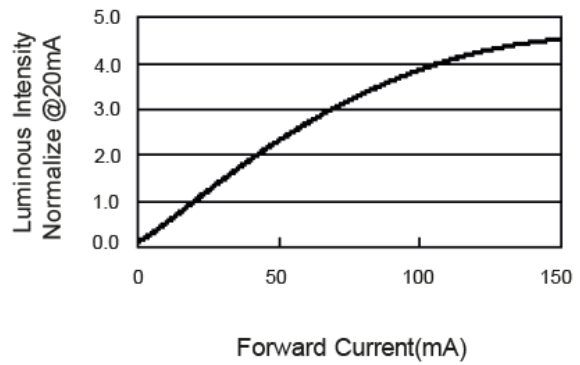


Fig.3 Forward Current vs. Temperature

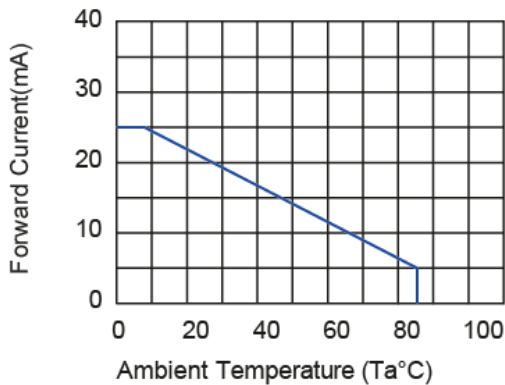


Fig.4 Luminous Intensity vs. Temperature

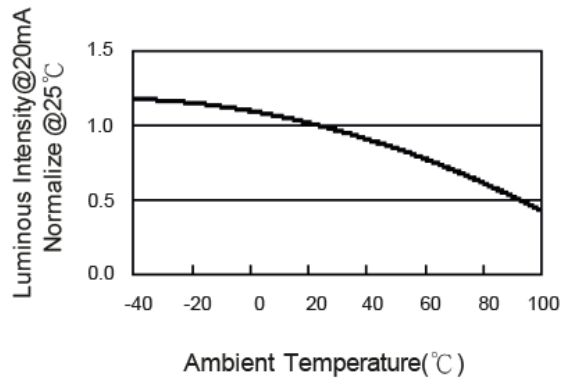


Fig.5 Relative Intensity vs. Wavelength

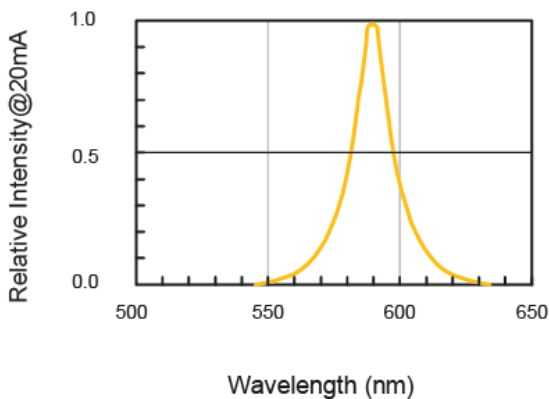
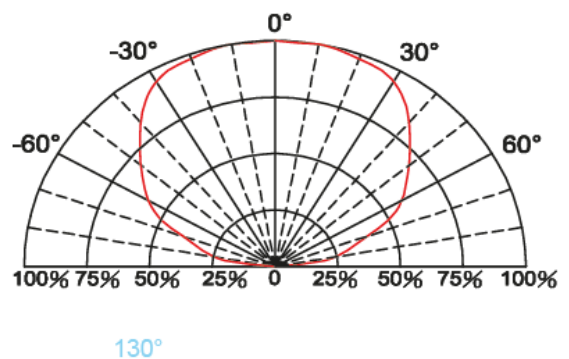
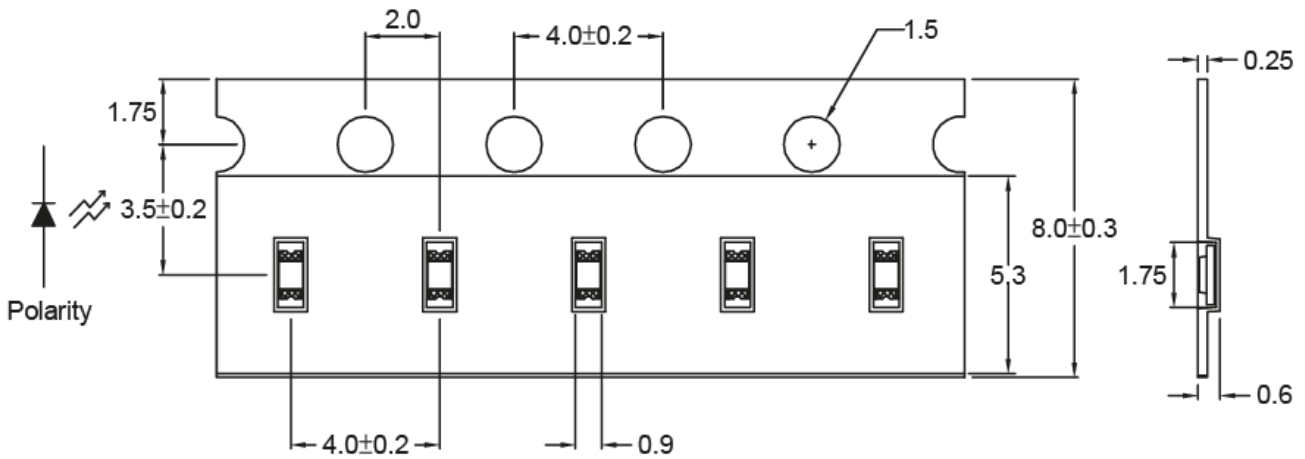


Fig.6 Directive Radiation

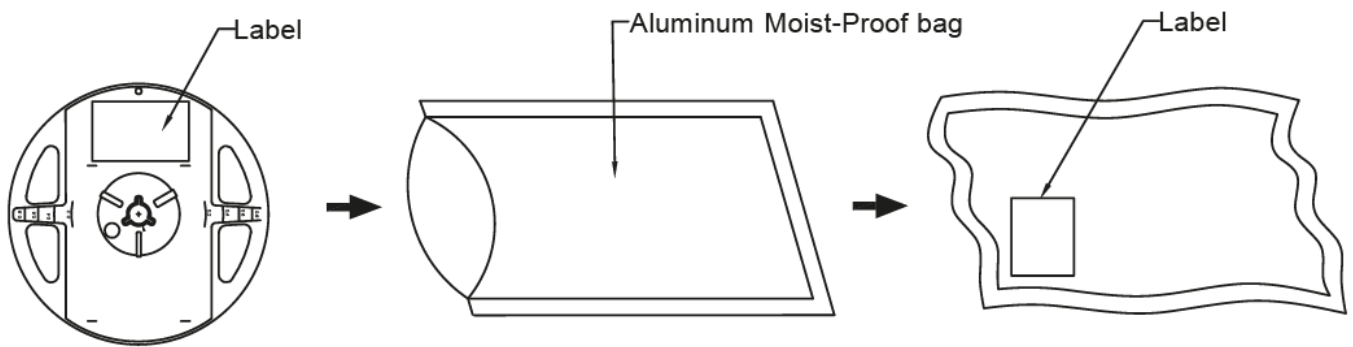


## Carrier Type Dimensions



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

## Packing Specifications



Part No.	Description	Quantity/Reel
NMOP-10122	8.0mm tape, 7" reel	4000 devices

NMOP-10122

## Label Explanation



**N Neumüller**  
Elektronik GmbH  
www.neumueller.com

Typ / Part No. \_\_\_\_\_

Date Code / Rank \_\_\_\_\_

Menge / Quantity \_\_\_\_\_

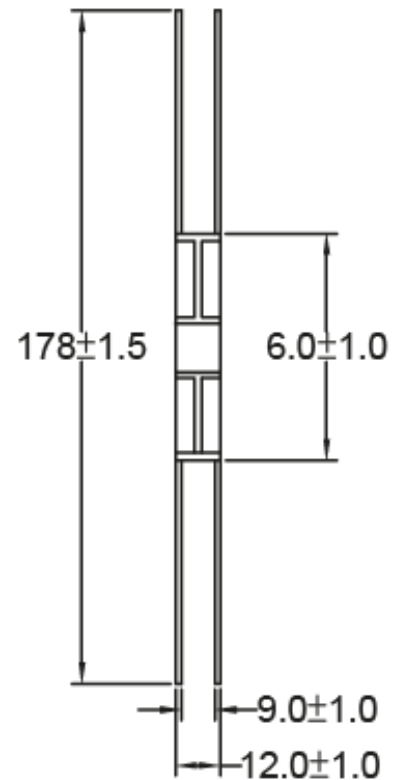
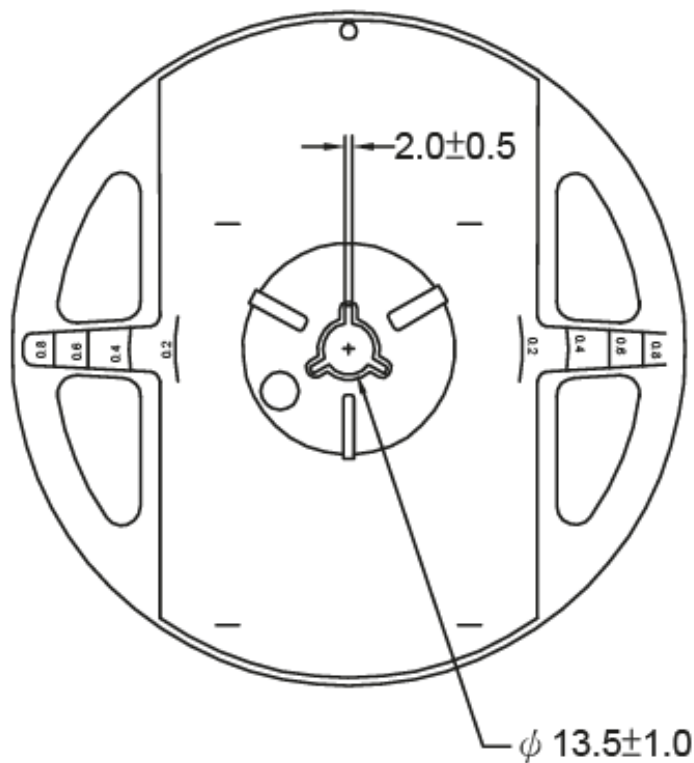
Kunde / Customer \_\_\_\_\_

BIN : Luminous Intensity

HUE : Dominant Wavelength

VF: Forward Voltage

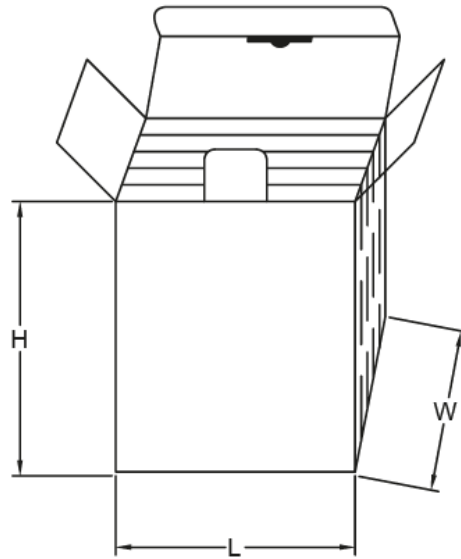
## Reel Dimensions



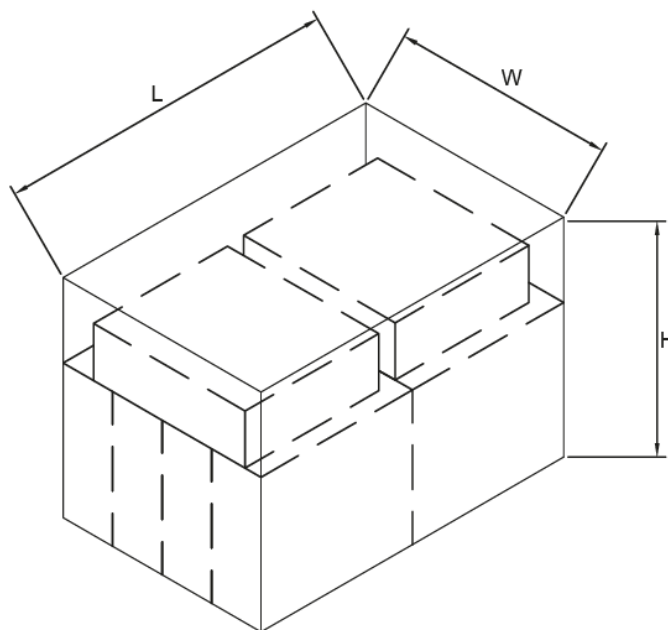
**NMOP-10122**

## Box Explanation

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



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



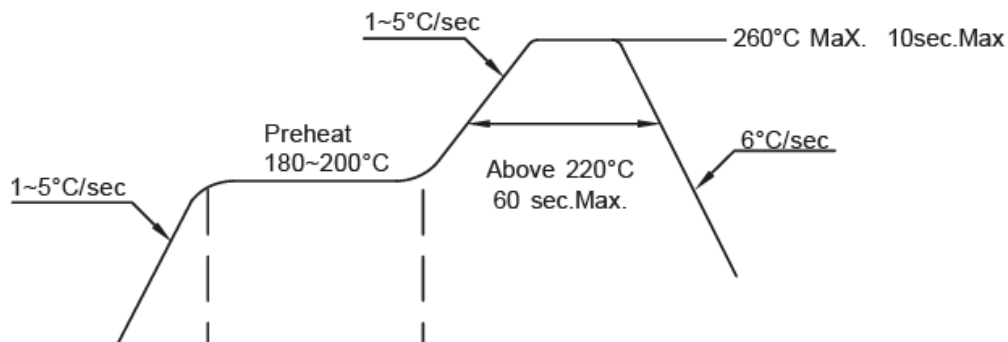


## Recommended Soldering Conditions

1. Hand Solder

Basic spec is  $\geq 280^{\circ}\text{C}$  3 sec one time only.

### 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. The operation of Temperatures and RH are : 5°C~30°C,RH60%.
2. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp proof box with desiccating agent. Considering the tape life, we suggest our customers to use our products within a year(from production date).
3. If opened more than one week in an atmosphere 5 °C ~ 30°C,RH60%, they should be treated at 60°C±5 °C for 24hrs.

### 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.



(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 Cyeles	22
	IR Reflow	1. T=260°C Max. 10sec.Max. 2. 6 Min	22