

NMOP-10119

Surface mount LED Tape and Reel



Features:

1. Top view LED.
2. White SMT package.
3. Leadframe package with individual 2 pin.
4. Wide viewing angle.
5. Soldering methods:IR reflow soldering.
6. Feature of the device:more light due to higher optical efficiency; extremely wide viewing angle; ideal for backlighting and coupling in light guide.

Descriptions:

The NMOP-10119 SMD has wide viewing angle and optimized light coupling by inter reflector,The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

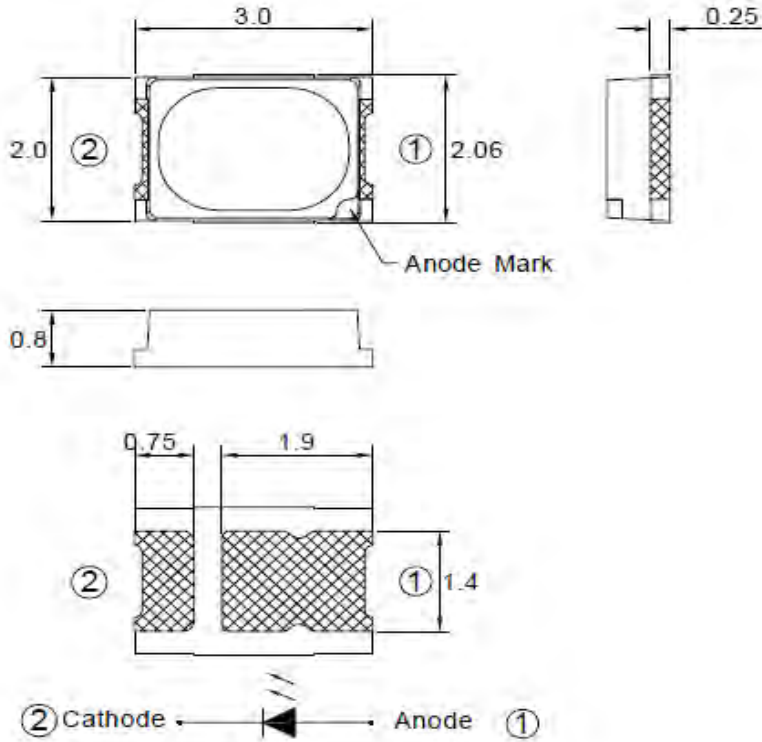
Applications:

1. Telecommunication: indicator and backlighting in telephone and fax.
2. Indicators.
3. Switch lights.
4. Automotive backlighting or indicator.

Device Selection Guide:

Part No	Material	Color	
		Emitted	Lens
NMOP-10119	AlGaInP	Red	Water Clear

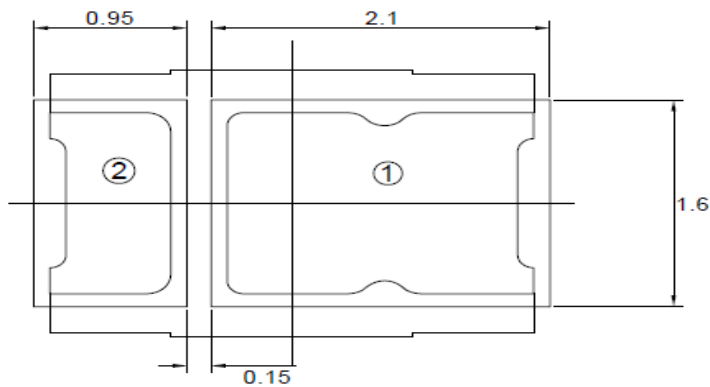
Package Dimensions:



Note :

1. All dimension are in millimeter tolerance is $\pm 0.2\text{mm}$ unless otherwise noted.
2. Specifications are subject to change without notice.

Recommended Soldering Pad Dimension



Note:

The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit=mm.

Absolute Maximum Ratings at Ta=25° C

Parameter	Symbol	Ratings	UNIT
		URF(S)	
Forward Current	I_F	150	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	300	mA
Power Dissipation	PD	450	mW
Reverse Current @5V	I_r	10	μ A
Electrostatic Discharge	ESD	2000	V
Operating Temperature	T_{opr}	-40 ~+85	° C
Storage Temperature	T_{stg}	-40 ~+100	° C

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

Parameter	Symbol	Min.	Typ.	Max.	UNIT	Condition
Luminous Intensity	I_v	5.000	8.000	-	mcd	IF=150mA
Dominant Wavelength	λ_D	-	625	-	nm	IF=150mA
Spectral Line Half-Width	$\Delta\lambda$	-	30	-	nm	IF=150mA
Forward Voltage	V_F	2.0	-	3.0	V	IF=150mA
Viewing Angle	2 θ 1/2	-	120	-	deg	IF=150mA

Note :

1. The forward voltage data did not including $\pm 0.1V$ testing tolerance.
2. The luminous intensity data did not including $\pm 15\%$ testing tolerance.
3. The dominant wavelength data did not including $\pm 1nm$ testing tolerance.

Luminous Intensity Classification

BIN CODE	Iv(mcd) at 150mA	
	Min.	Max.
Z-1	5.000	6.500
Z-2	6.500	8.000
AA-1	8.000	10.000
AA-2	10.000	12.500

Typical Electro-Optical Characteristics Curve

URFS CHIP

Fig.1 Forward current vs. Forward Voltage

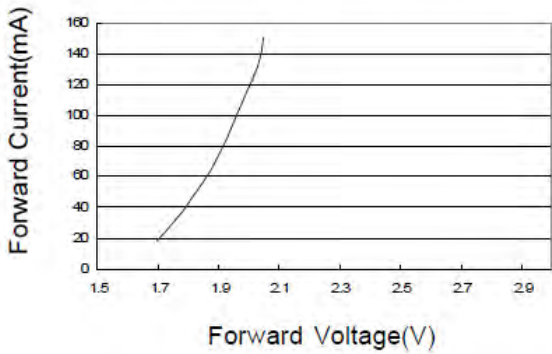


Fig.3 Driving Forward Current VS. Ambient Temperature (Ta°C)

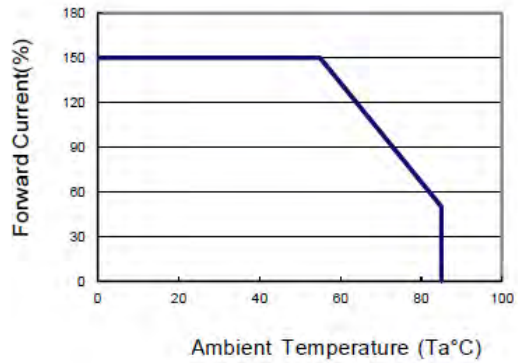


Fig.2 Forward current vs. Luminous Intensity

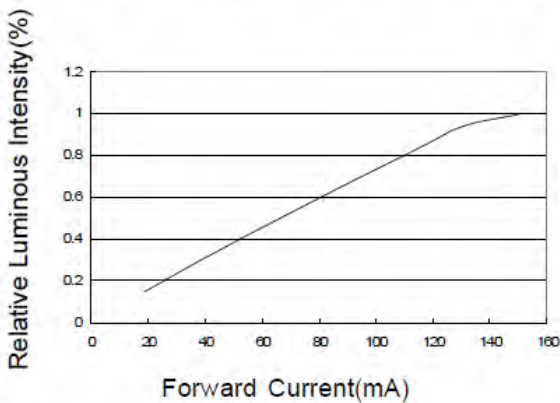


Fig.4 Forward Voltage vs. Temperature

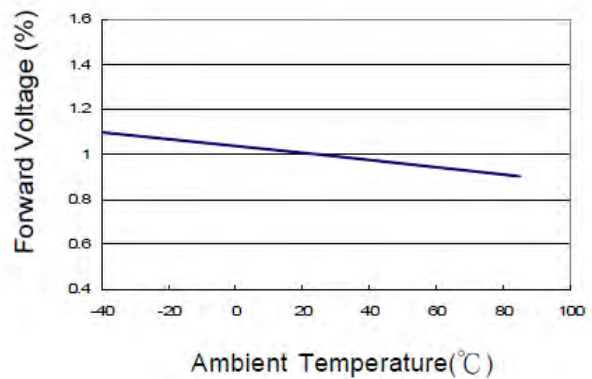


Fig.5 Relative Intensity vs. Wavelength

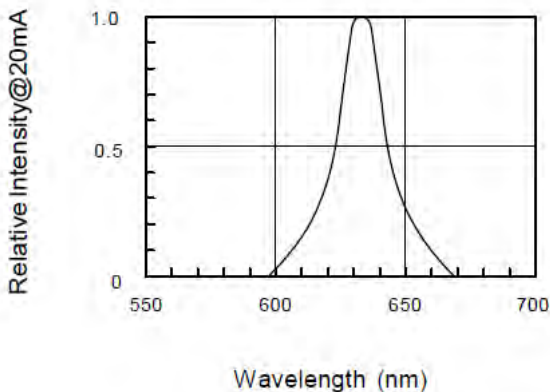
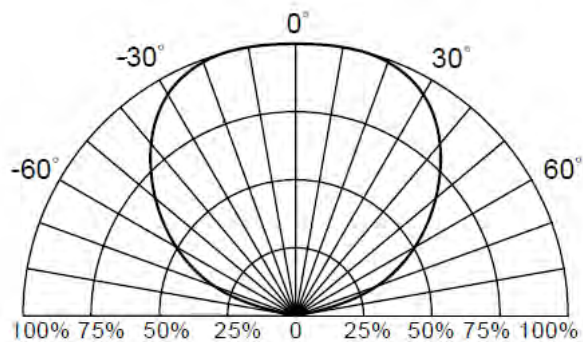


Fig.6 Directivity Radiation



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Label Explanation:



N Neumüller
Elektronik GmbH

Typ / Part No. _____

Date Code / Rank _____

Menge / Quantity _____

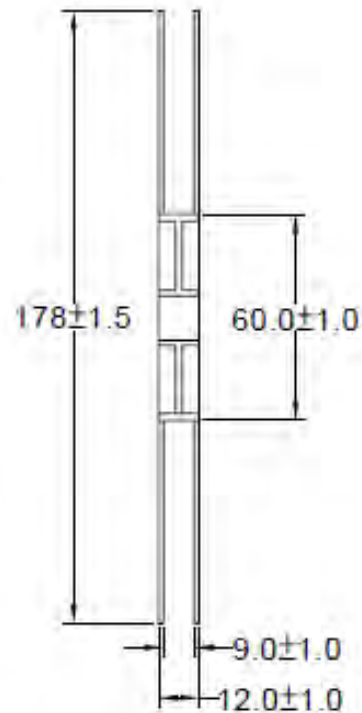
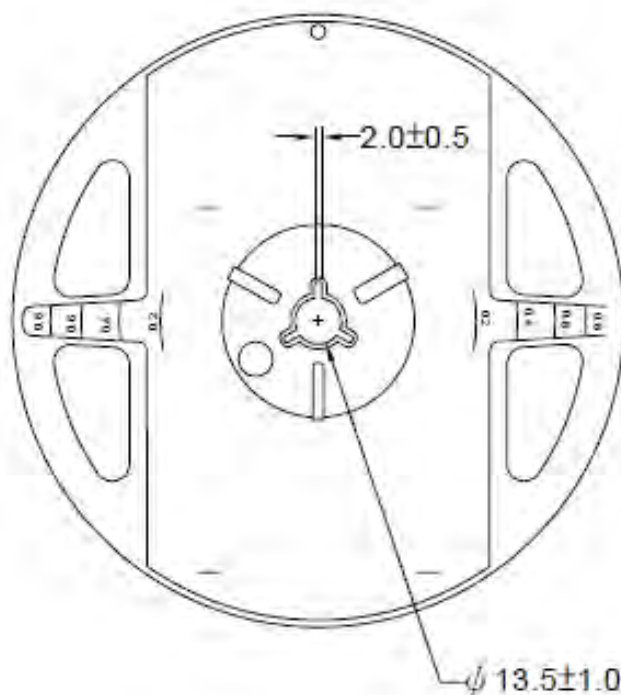
Kunde / Customer _____

BIN : Luminous Intensity

HUE : Dominant Wavelength

VF : Forward Voltage

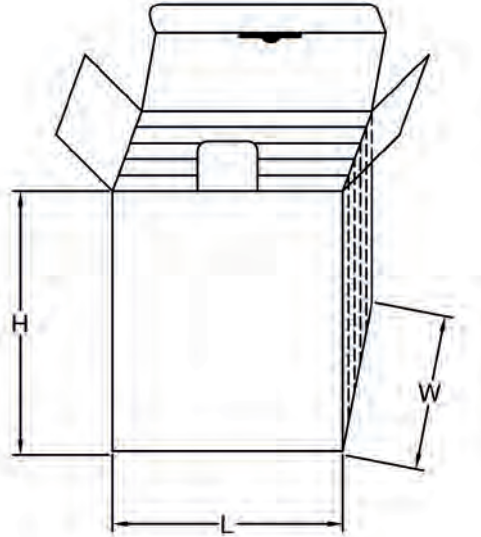
Reel Dimensions:



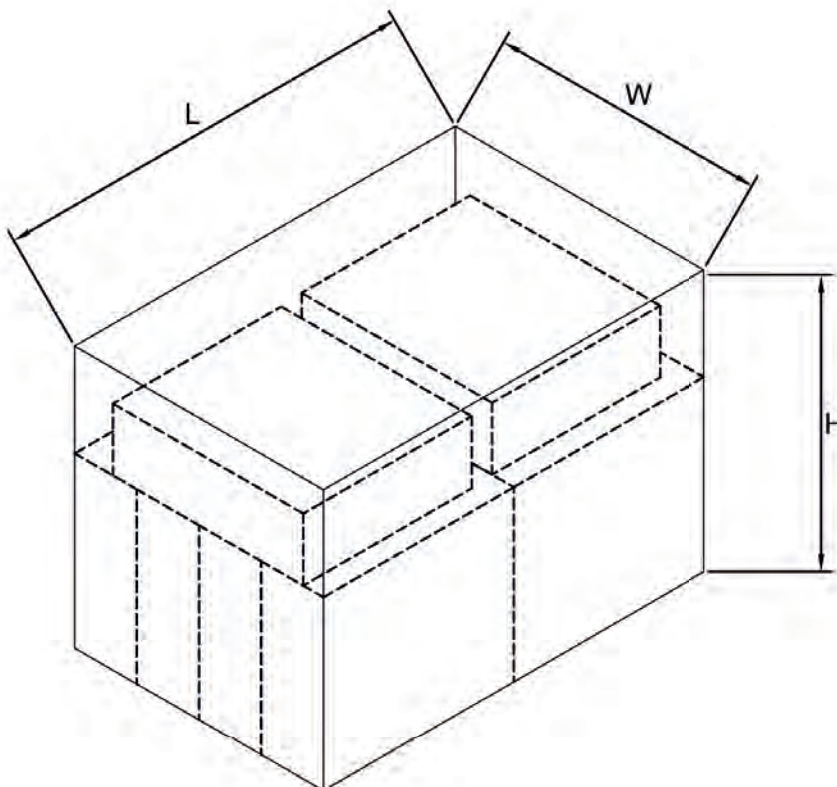
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Box Explanation:

1. 5 Bag / Inner Box
2. Inner Box Size: L x W x H 23cm x 8.5cm x 26cm

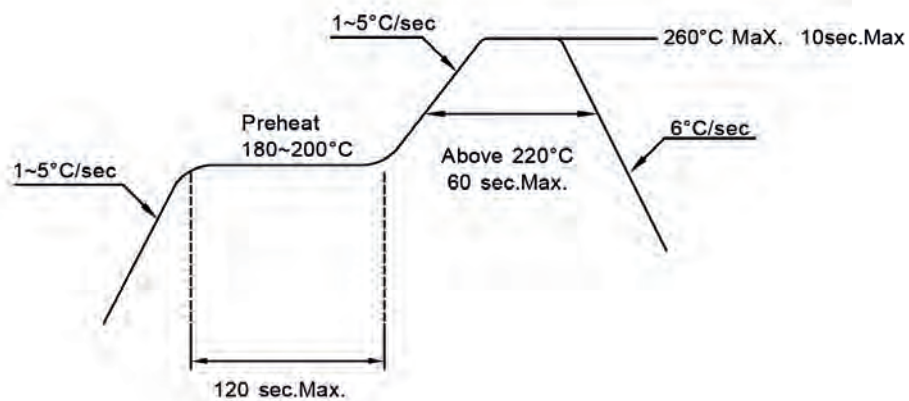


3. 10 Inner Boxes / Carton
4. Carton size: L x W x H 58cm x 34cm x 35cm



Recommended Soldering Conditions

1. Hand Solder
Basic spec is $\leq 320^{\circ}\text{C}$ 3 sec. one time only
2. 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:

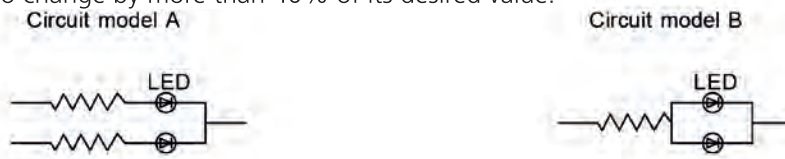
1. Calculated shelf life before opening is 12 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within 168 hours in an environment of $\leq 30^{\circ}\text{C} / 60\%$ 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.

MSL LEVEL 3

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 that 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. $T_a = 25^\circ \text{C}$ 2. $I_f = 150\text{mA}$ 3. $t = 1000\text{hrs}$ (-24hrs, +72hrs)	22
	High Temperature Storage Test	1. $T_a = 100^\circ \text{C} \pm 5^\circ \text{C}$ 2. $t = 1000\text{hrs}$ (-24hrs, +72hrs)	22
	Low Temperature Storage Test	1. $T_a = -40^\circ \text{C} \pm 5^\circ \text{C}$ 2. $t = 1000\text{hrs}$ (-24hrs, +72hrs)	22
	High Temperature High Humidity Storage Test	1. $T_a = 85^\circ \text{C}$ 2. $\text{RH} = 85\%$ 3. $t = 1000\text{hrs}$ (-24hrs, +72hrs)	22
Environmental Test	Thermal Shock Test	1. $T_a = 100^\circ \text{C} \pm 5^\circ \text{C} \sim -40^\circ \text{C} \pm 5^\circ \text{C}$ 20 min / 10 sec / 20 min 2. total 100 cycles	22
	Temperature Cycling	1. $100^\circ \text{C} \pm 5^\circ \text{C} \sim -40^\circ \text{C} \pm 5^\circ \text{C}$ 30 mins / 5 mins / 30 mins 2. 100 cycles	22
	IR Reflow	1. $T = 260^\circ \text{C}$ max. 10 sec. max. 2. 6 min	22