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LED SMD



Lead-Free Parts

PRELIMINARY

This is just a preliminary design
to let you evaluate the concept

AM-LG-P170UYR-T50

DATA SHEET

DOC. NO : QW0905-AM-LG-P170UYR-T50

REV. : A

DATE : 12 - Oct. - 2018

Features:

1. Package in 8.0mm carrier tape on 7" diameter reel.
2. Top view LED Package & Dimensions : 1.25x2.0x0.8 (unit:mm)
3. Luminous color:yellow(Wd:590nm)
4. Viewing angle:140°
5. Compliant with RoHS and REACH

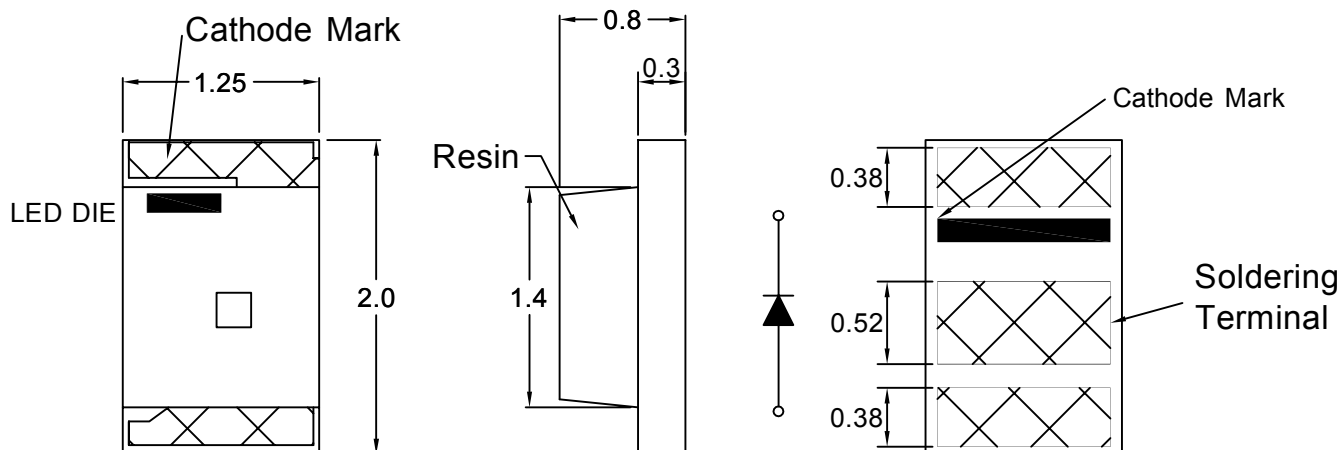
Application:

1. Automotive parts
2. Backlight
3. Interior optical indicator
4. General applications

Device Selection Guide:

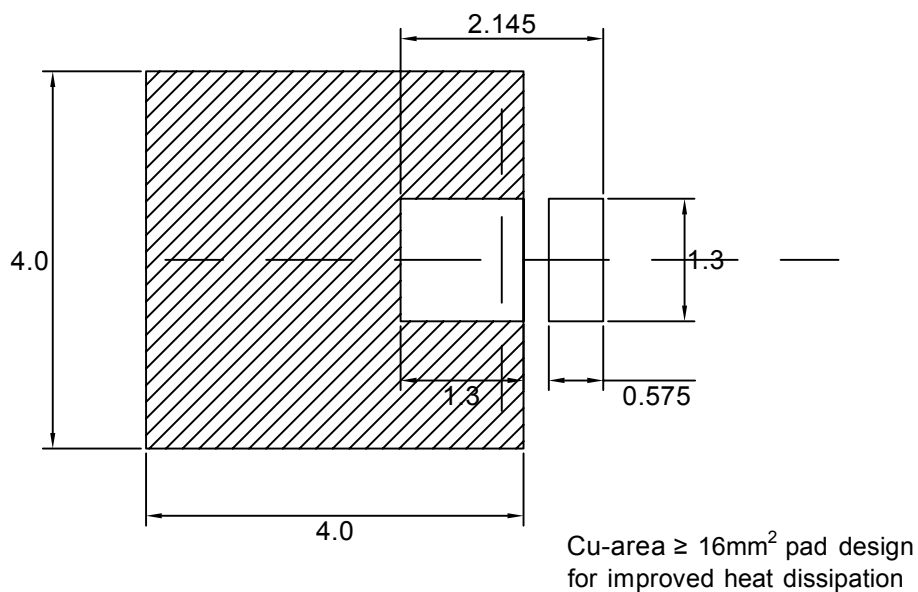
PART NO	MATERIAL	COLOR	
		Emitted	Lens
AM-LG-P170UYR-T50	AlGaInP	Yellow	Water Clear

Package Dimensions



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

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$. Unit=mm.

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings	UNIT
Power Dissipation	PD	140	mW
Peak Forward Current Duty 1/10@10KHz	IFP	100	mA
Forward Current	IF	50	mA
Reverse Current @12V	Ir	10	μA
Electrostatic Discharge	ESD	2000	V
Operating Temperature	Topr	-40 ~ + 100	°C
Storage Temperature	Tstg	-40 ~ + 100	°C
LED junction Temperature	Tj	125	°C
Thermal resistance*	Rth j-s	150	K/W

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

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Luminous Intensity	Iv	450	800	1420	mcd	IF=50mA
Dominant Wavelength	λD	583	590	595	nm	IF=50mA
Spectral Line Half-Width	△λ	----	15	----	nm	IF=50mA
Forward Voltage	V _F	1.9	----	2.8	V	IF=50mA
Viewing Angle	2θ 1/2	----	140	----	deg	IF=50mA

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) at50mA	
	Min.	Max.
U1	450	560
U2	560	710
V1	710	900
V2	900	1120
X1	1120	1420

Dominant Wavelength Classification

BIN CODE	$\lambda D(nm)$ at50mA	
	Min.	Max.
Y1	583	586
Y2	586	589
Y3	589	592
Y4	592	595

Forward Voltage Classification

BIN CODE	Vf(v) at 50mA	
	Min.	Max.
2	1.90	2.05
3	2.05	2.20
4	2.20	2.35
5	2.35	2.50
6	2.50	2.65
7	2.65	2.80

Typical Electro-Optical Characteristics Curve

Fig.1 Forward current vs. Forward Voltage

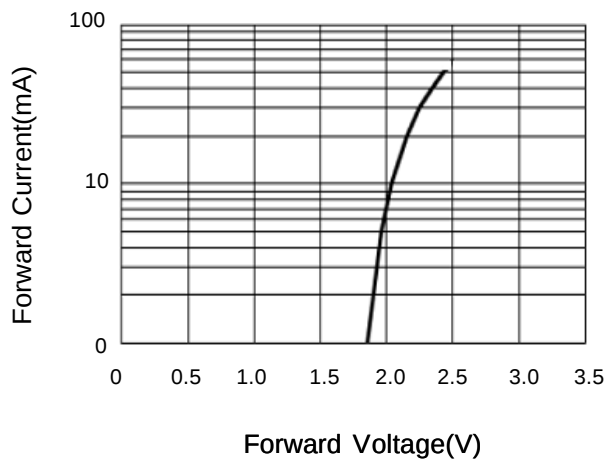


Fig.2 Luminous Intensity vs. Forward Current

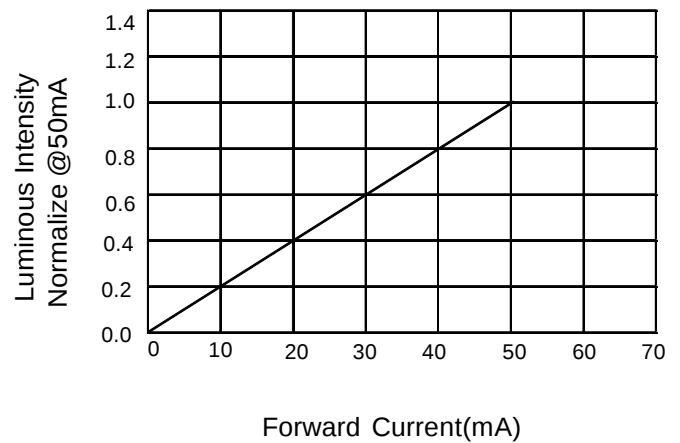


Fig.3 Forward Current vs. Temperature

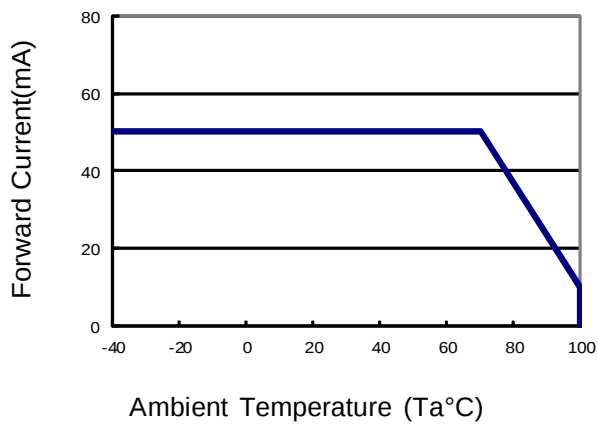


Fig.4 Luminous Intensity vs. Temperature

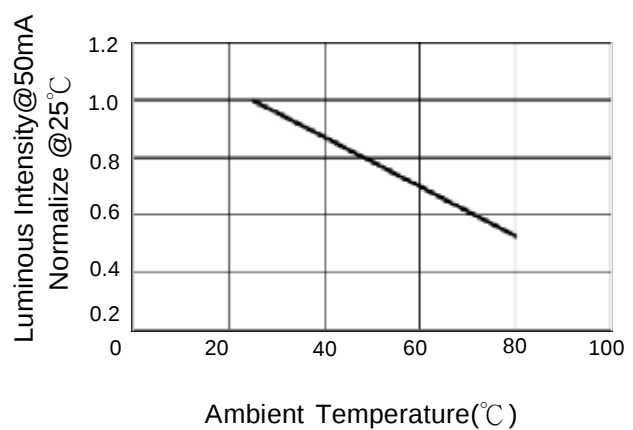


Fig.5 Relative Intensity vs. Wavelength

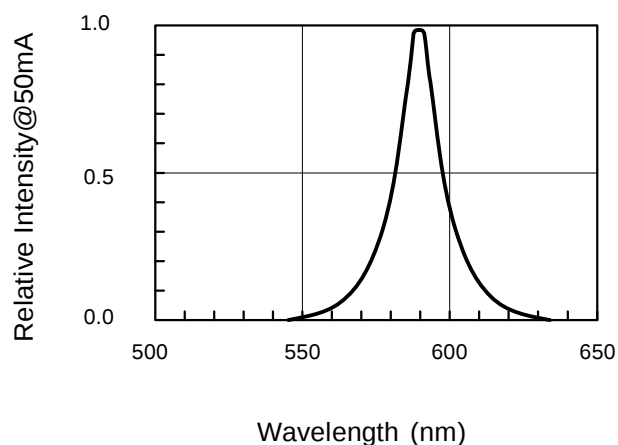
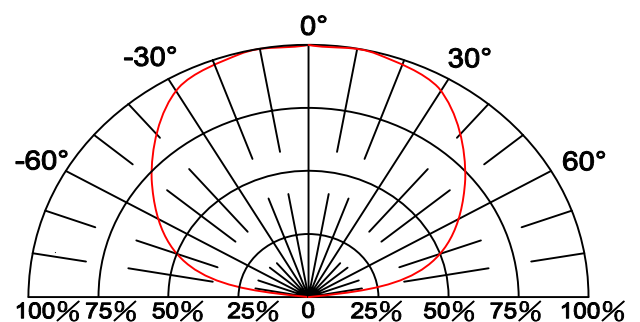


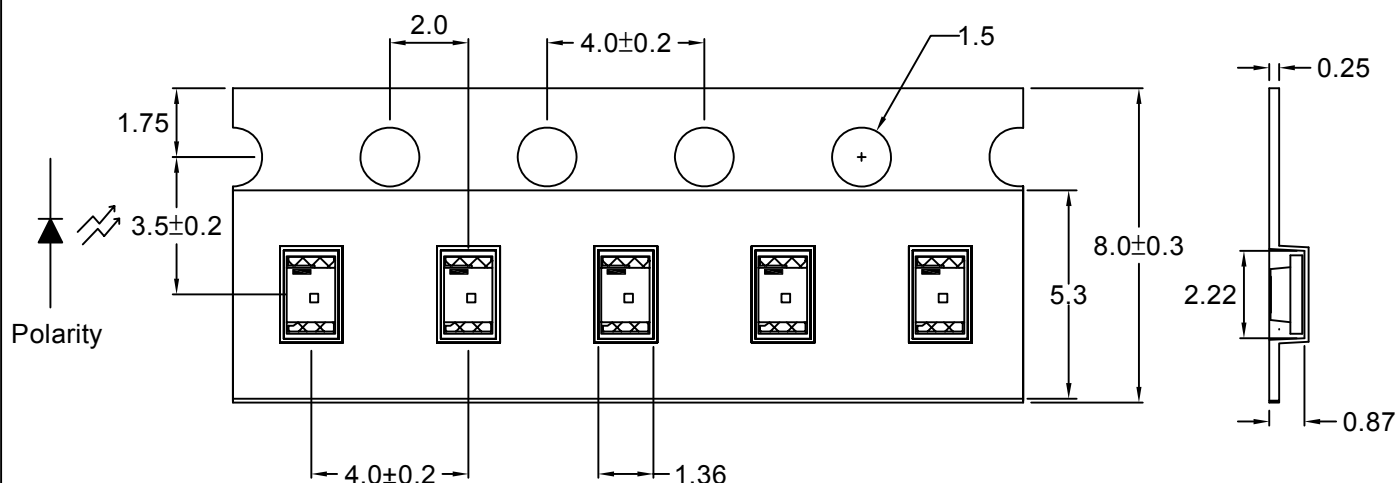
Fig.6 Directive Radiation



PART NO. AM-LG-P170UYR-T50

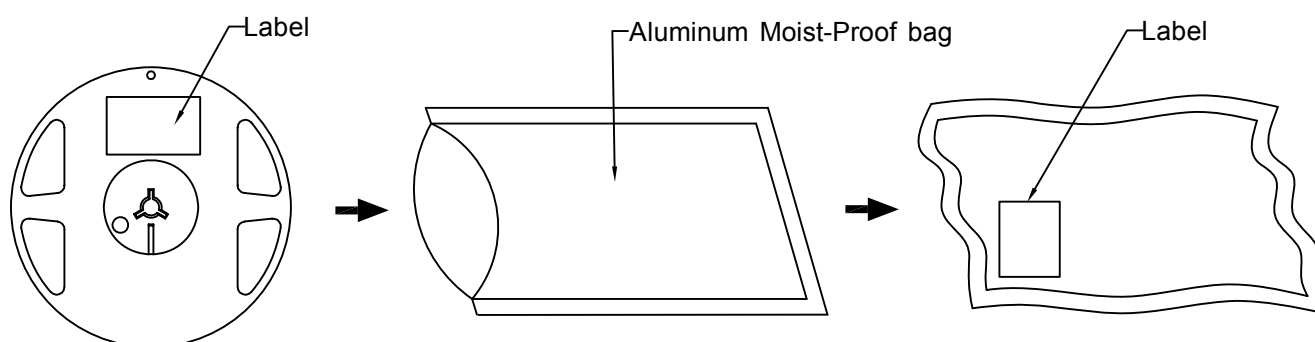
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Carrier Type Dimensions



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

Packing Specifications



Part No.	Description	Quantity/Reel
AM-LG-P170UYR-T50	8.0mm tape, 7" reel	4000 devices

Label Explanation

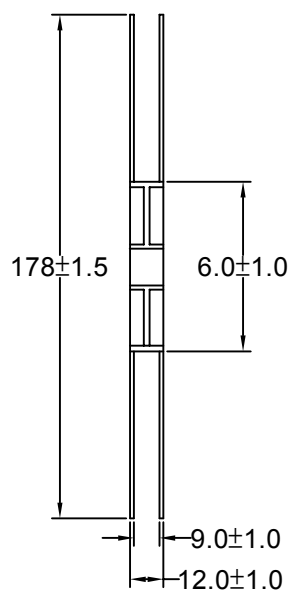
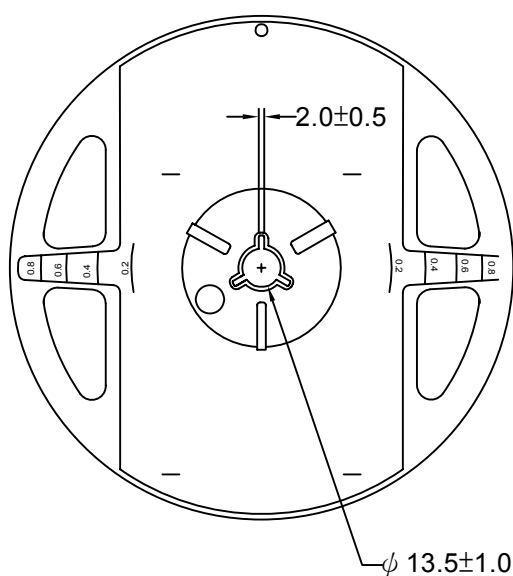
	LIGITEK ELECTRONICS CO., LTD.
PART :	AM-LG-P170UYR-T50
LOT :	GS11650168
QTY(PCS):	4000
BIN/HUE :	U1/Y1
	VF:2.05-2.2

BIN : Luminous Intensity

HUE : Dominant Wavelength

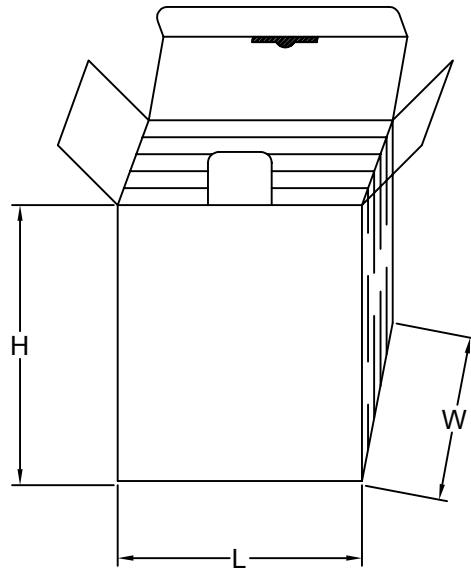
VF : Forward Voltage

Reel Dimensions

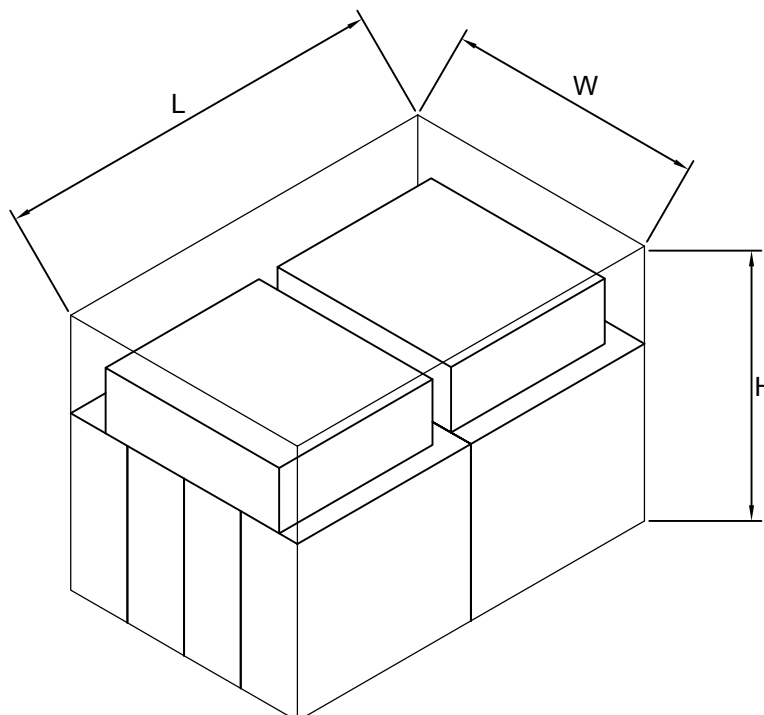


Box Explanation

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

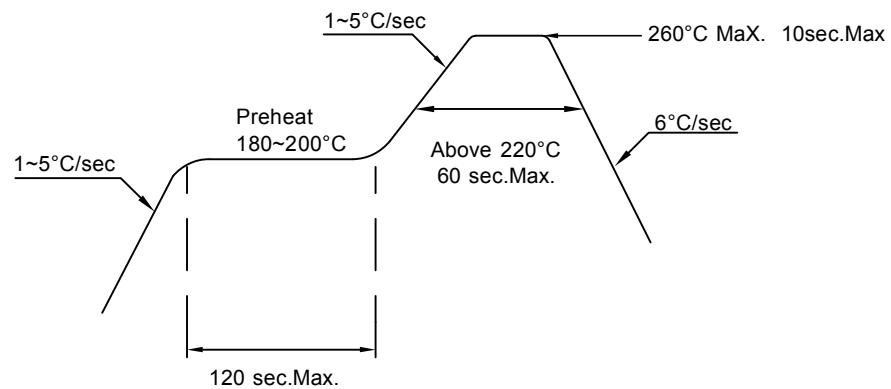


3. 10 INNER BOXES / CARTON
4. CARTON SIZE : L X W X H 58cm X 34cm x 35cm



Recommended Soldering Conditions**1. Hand Solder**

Basic spec is $\leq 280^{\circ}\text{C}$ 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:**

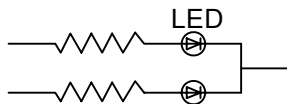
1. Calculated shelf life before opening is 18 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
 2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within one years in an environment of $\leq 30^{\circ}\text{C}$ / 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 2

Drive Method:

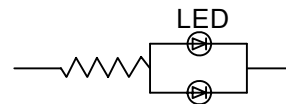
LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

Consider worst case voltage variations than could occur across the current limiting resistor. The forwrdr 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-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.