EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet
High Power LED – 1W (Preliminary)

EHP-AX08LS/GM31C-P01/2832

Features

- Feature of the device: small package with high efficiency
- Typical color temperature: 3050 K.
- Typical view angle: 120°.
- Typical light flux output: 39lm @ 350mA.
- ESD protection.
- Soldering methods: SMT.
- Grouping parameter: total luminous flux, color temperature.
- Typical optical efficiency: 30 lm/W.
- Thermal resistance (junction to lead): 15 K/W.
- The product itself will remain within RoHS compliant version

Applications

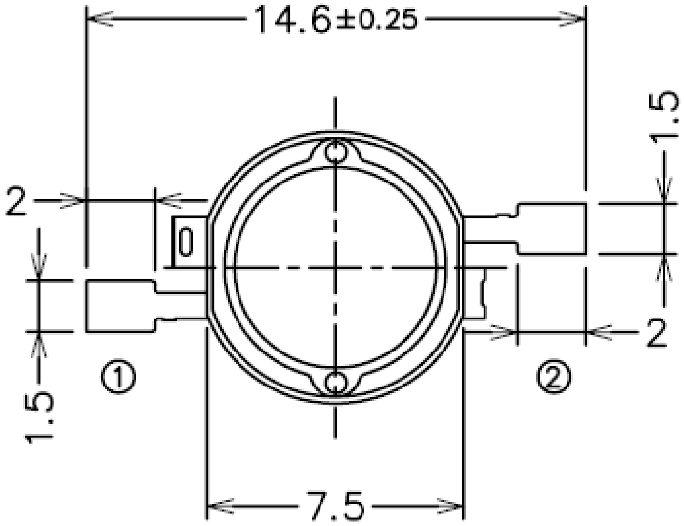
- TFT LCD display backlight
- Decorative and entertainment illumination
- Signal and symbol luminaries for orientation marker lights (e.g. steps, exit ways, etc.)
- Exterior and interior automotive illumination

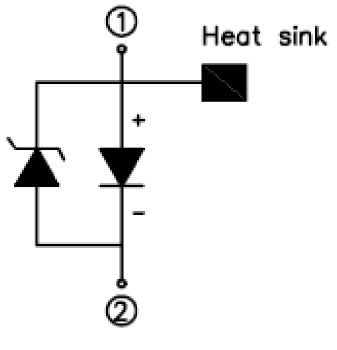
Materials

Items	Description
Housing black body	**Heat resistant polymer**
Encapsulating Resin	**Silicone resin**
Lens	**Silicone**
Electrodes	**Ag plating copper alloy**
Die attach	**Flux**
Chip	**InGaN**

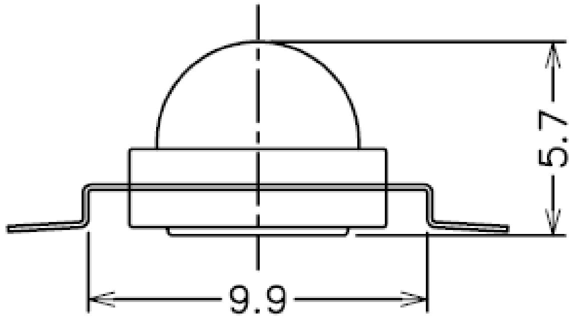
EHP-AX08LS/GM31C-P01/2832

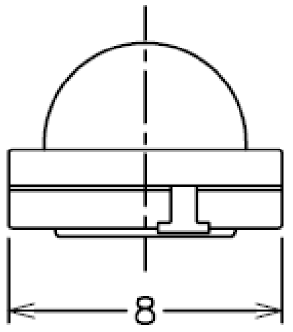
Dimensions

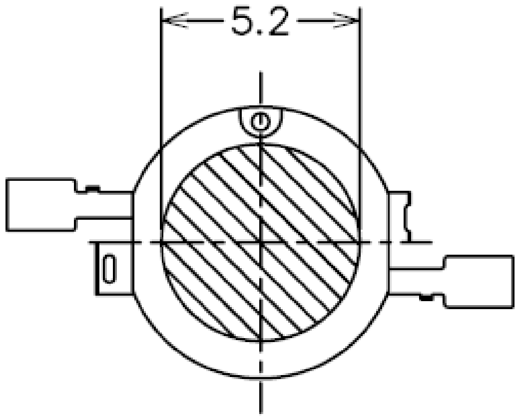




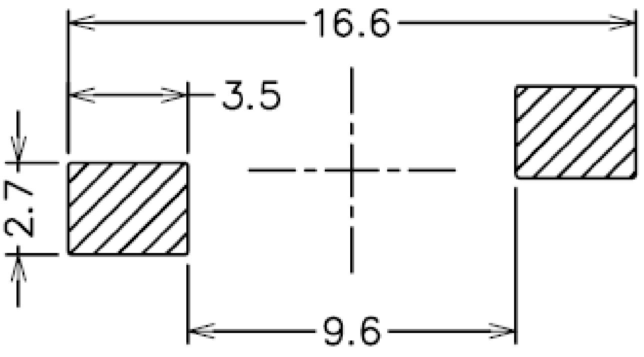
Polarity







Bot. view



Soldering patterns

Notes: 1. Dimensions are in millimeters.

2. Tolerances unless dimensions ±0.25mm.

Maximum Ratings ($T_{Ambient}=25^oC$)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{opr}	-40 ~ +100	ºC
Storage Temperature	T_{stg}	-40 ~ +110	ºC
Junction temperature	T_j	125	ºC
Pulse Forward Current	I_F	500	mA
Power Dissipation	P_d	2.0	W
Junction to heat-sink thermal resistance	R_{th}	15	K/W

Electro-Optical Characteristics ($T_{Ambient}=25^oC$)

Parameter	Bin	Symbol	Min	Typ.	Max	Unit	Condition
Luminous Flux(1)	J3	Φ_v	33	----	39	lm	I_F=350mA
	J4		39	----	45		
	J5		45	----	52		
Forward Voltage(2)	V2	V_F	3.25	----	3.55	V	
	V3		3.55	----	3.85		
	V4		3.85	----	4.15		
Viewing Angle(3)	----	$2\theta_{1/2}$	----	120	----	deg	
Color Temperature(4)	----	CCT	2850	3050	3250	K	

Note. 1. Luminous Flux measurement tolerance: ±10%

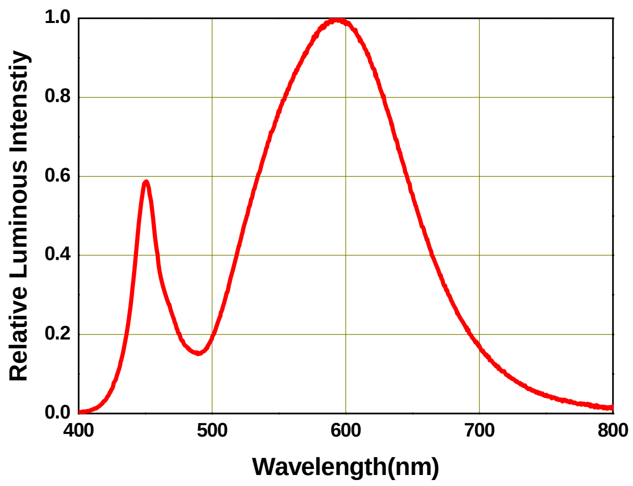
2. Forward Voltage measurement tolerance: ±0.1V

3. $2\theta_{1/2}$ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.

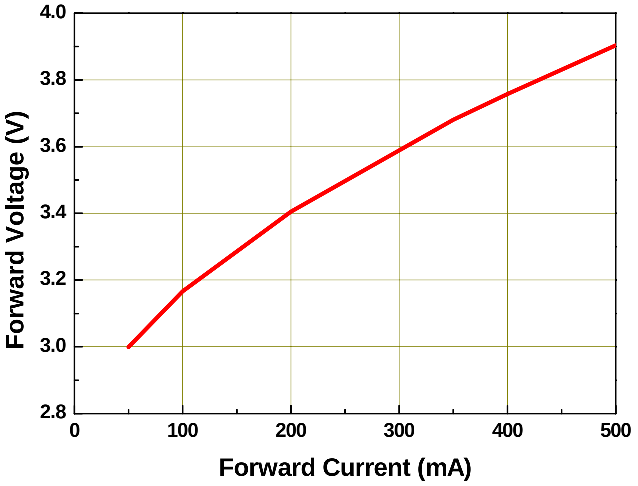
4. X, Y coordination for white light bin areas refer to EHP-A08-AX08 series White and Warm White Binning (DSE-A08-001) .

Typical Electro-Optical Characteristics Curves

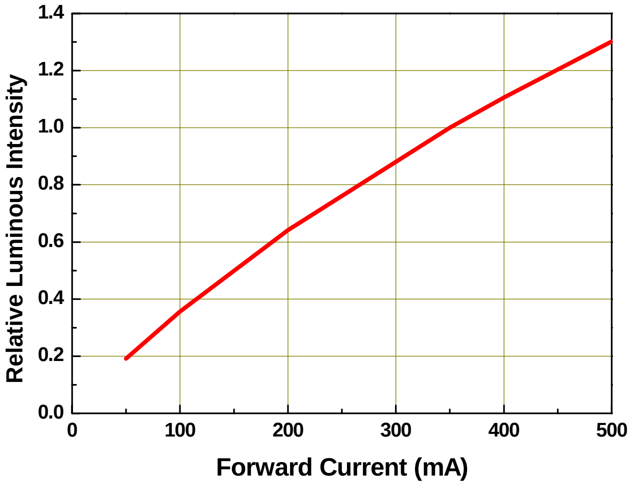
Relative Spectral Distribution,
I_F=350mA, $T_{Ambient}$=25ºC



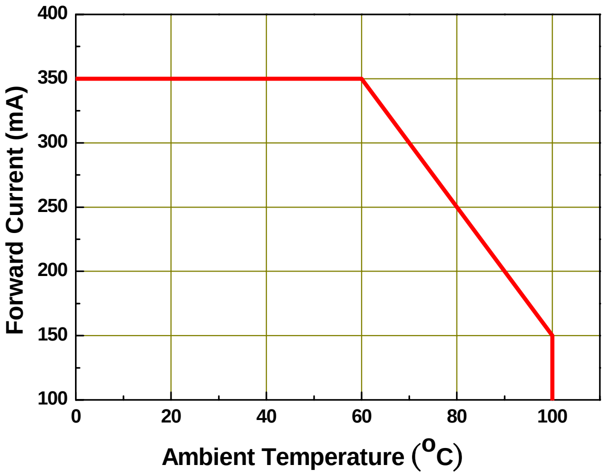
Forward Voltage vs Forward Current,
$T_{Ambient}$=25ºC



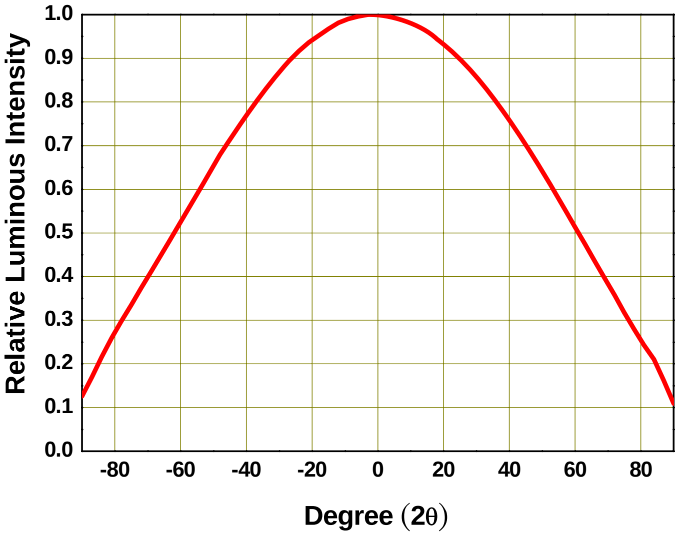
Relative Luminous Intensity vs Forward Current, $T_{Ambient}$=25ºC



Forward Current Derating Curve,
Derating based on T_{jMAX}=125°C



Typical Representative Spatial Radiation Pattern



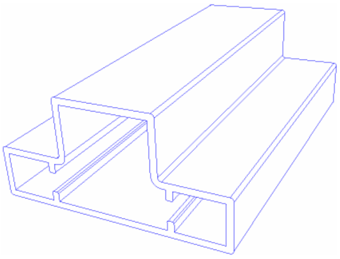
Label explanation

CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Dominant Wavelength
REF: Reference
LOT No: Lot Number

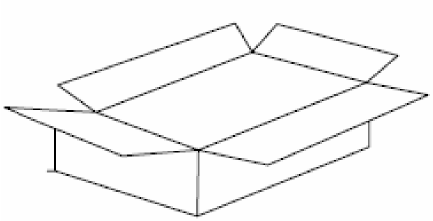
MADE IN TAIWAN: Production Place

Tube Packing Specifications

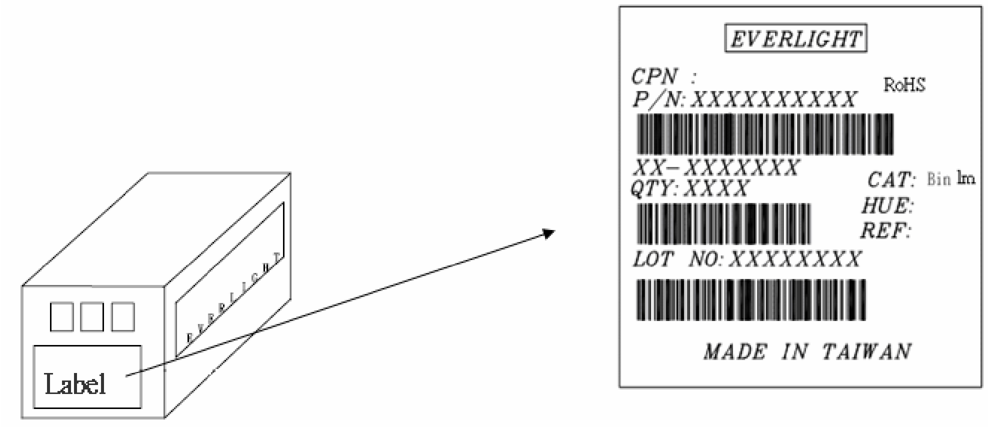
1. Tube



2. Inner Carton



3. Outside Carton



- **Packing Quantity**
  1. **60 Pcs / Per Tube**
  2. **20 Tubes / Inner Carton**
  3. **12 Inner Cartons / Outside Carton**

Precautions For Use

1. Over-current-proof

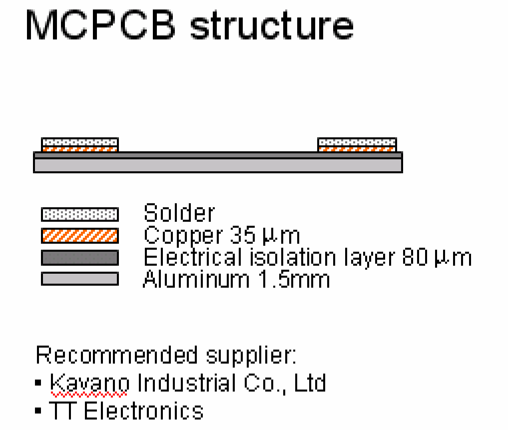
Though EHP-A08 has conducted ESD protection mechanism, customer must not use the device in reverse and should apply resistors for extra protection. Otherwise slight voltage shift may cause enormous current change and burn out failure would happen.

2. Storage

i. Do not open moisture proof bag before the products are ready to use.
ii. Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.
iii. The LEDs should be used within a year.
iv. After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.
v. The LEDs should be used within 168 hours (7 days) after opening the package.
vi. If the moisture absorbent material (silicone gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
vii. Pre-curing treatment : 60±5℃ for 24 hours.

3. Thermal Management

i. For maintaining the high flux output and achieving reliability, EHP-A08 series LED package should be mounted on a metal core printed circuit board (MCPCB) with proper thermal connection to dissipate approximately 1W of thermal energy under 350mA operation.



ii. Special thermal designs are also recommended to take in outer heat sink design, such as FR4 PCB on Aluminum with thermal vias or FPC on Aluminum with thermal conductive adhesive, etc.
iii. Sufficient thermal management must be conducted, or the die junction temperature will be over the limit under large electronic driving and LED lifetime will decrease critically.

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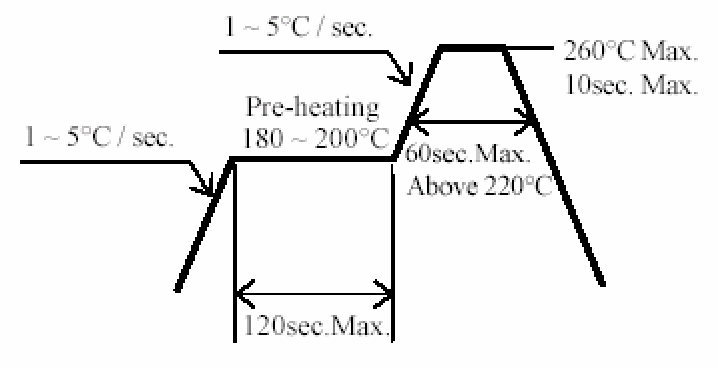
4. Soldering Condition

i. Lead reflow soldering temperature profile



ii. Reflow soldering should not be done more than two times.

iii. While soldering, do not put stress on the LEDs during heating.

iv. After soldering, do not warp the circuit board

5. Soldering Iron

i. For prototype builds or small series production runs it is possible to place and solder the LED by hand.

ii. Dispensing thermal conductive glue or grease on the substrates and follow its curing spec. Press LED housing to closely connect LED and substrate.

iii. It is recommended to hand solder the leads with a solder tip temperature of 280°C for less than 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal.

iv. Be careful because the damage of the product is often started at the time of the hand solder.