

EHP-AX08EL/DT11H-P01/5670

Features

- Feature of the device: small package with high efficiency
- Typical color temperature: 6300 K.
- Typical view angle: 130°.
- Typical light flux output: 75lm @ 350mA.
- ESD protection.
- Soldering methods: SMT.
- Grouping parameter: total luminous flux, color temperature.
- Typical optical efficiency: 60 lm/W.
- Thermal resistance (junction to lead): 15 K/W.
- The product itself will remain within RoHS compliant version

**Applications**

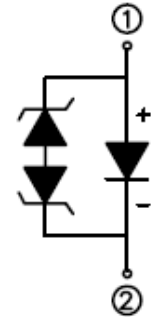
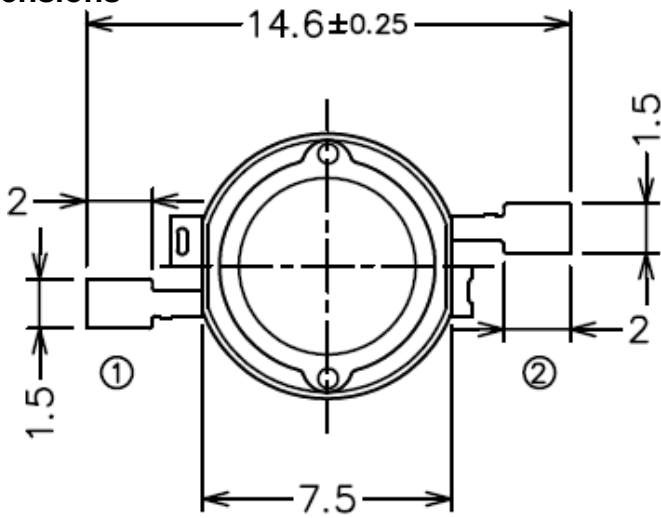
- TFT LCD display backlight
- Decorative and entertainment illumination
- Signal and symbol luminaries for orientation marker lights (e.g. steps, exit ways, etc.)
- Exterior and interior automotive illumination

Materials

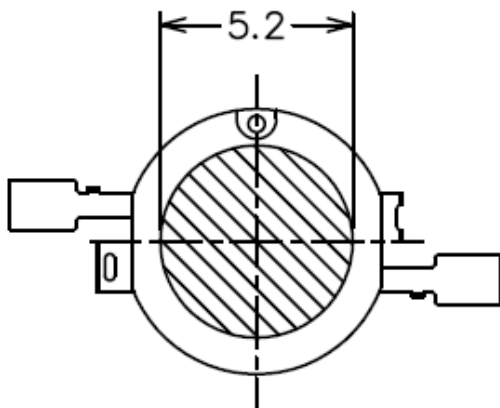
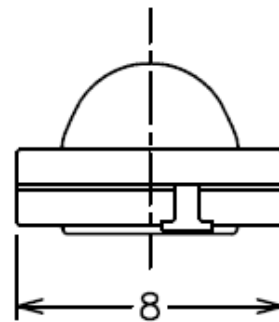
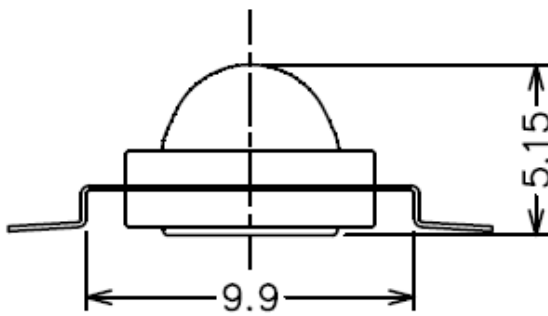
Items	Description
Housing black body	Heat resistant polymer
Encapsulating Resin	Silicone resin
Electrodes	Ag plating copper alloy
Die attach	Silver paste
Chip	InGaN

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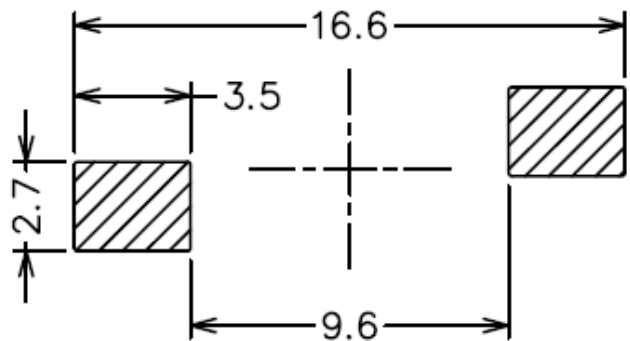
Dimensions



Polarity



Bot. view



Soldering patterns

Notes: 1. Dimensions are in millimeters.

2. Tolerances unless dimensions $\pm 0.25\text{mm}$.

■ Please note precautions 4 before soldering

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Maximum Ratings ($T_{Ambient}=25^{\circ}C$)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{opr}	-40 ~ +100	°C
Storage Temperature	T_{stg}	-40 ~ +110	°C
Junction temperature	T_j	125	°C
Pulse Forward Current	I_F	1000	mA
Power Dissipation	P_d	3.0	W
Junction to heat-sink thermal resistance	R_{th}	15	K/W

Electro-Optical Characteristics ($T_{Ambient}=25^{\circ}C$)

Parameter	Bin	Symbol	Min	Typ.	Max	Unit	Condition
Luminous Flux ₍₁₎	K2	ϕ_v	60	----	70	lm	$I_F=350mA$
	K3		70	----	85		
	K4		85	----	100		
Forward Voltage ₍₂₎	V1	V_F	2.95	----	3.25	V	
	V2		3.25	----	3.55		
	V3		3.55	----	3.85		
	V4		3.85	----	4.15		
Viewing Angle ₍₃₎	----	$2\theta_{1/2}$	----	130	----	deg	
Color Temperature ₍₄₎	----	CCT	5650	6300	7000	K	

Note. 1. Luminous Flux measurement tolerance: $\pm 10\%$

2. Forward Voltage measurement tolerance: $\pm 0.1V$

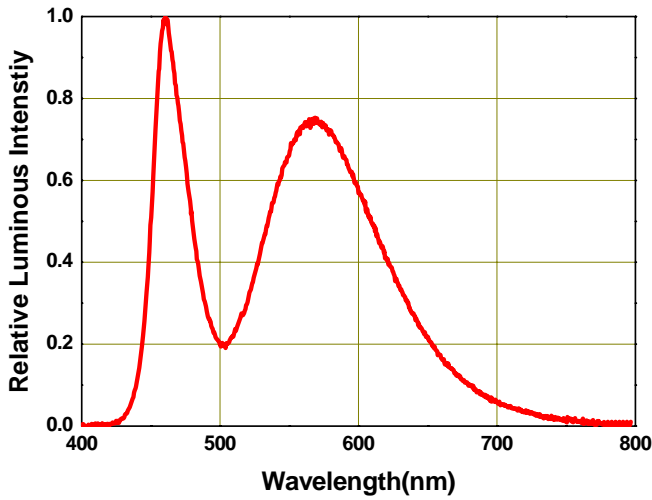
3. $2\theta_{1/2}$ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.

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

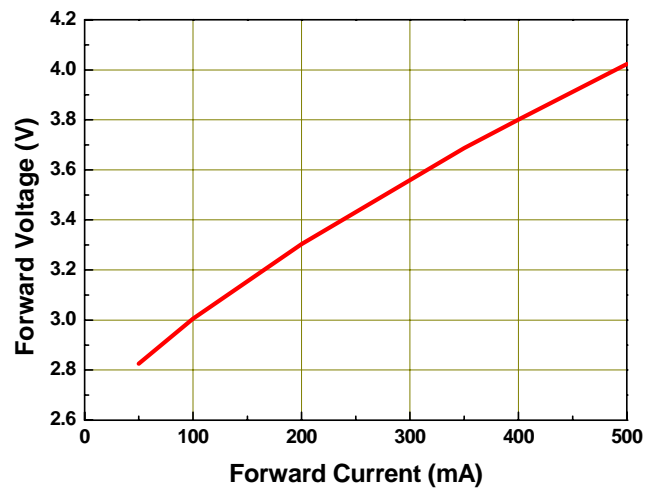
EHP-AX08EL/DT11H-P01/5670

Typical Electro-Optical Characteristics Curves

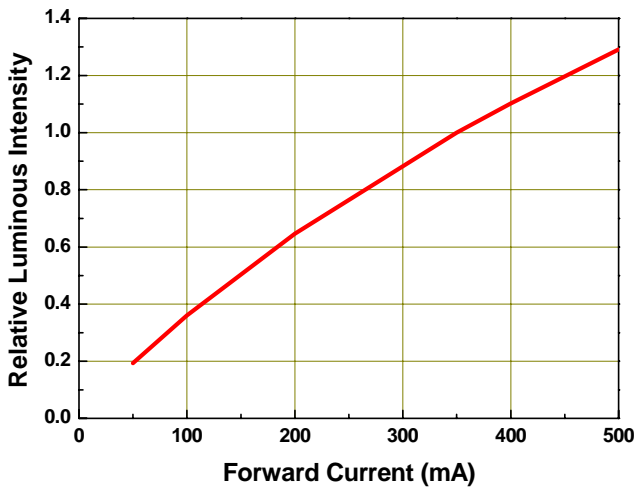
Relative Spectral Distribution,
 $I_F=350\text{mA}$, $T_{\text{Ambient}}=25^\circ\text{C}$



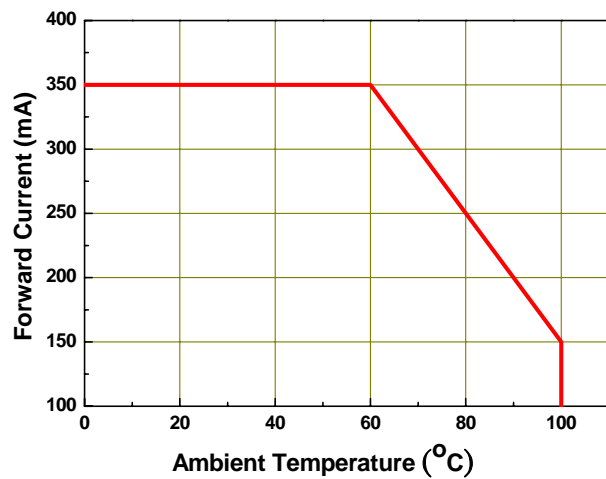
Forward Voltage vs Forward Current,
 $T_{\text{Ambient}}=25^\circ\text{C}$



Relative Luminous Intensity vs Forward Current, $T_{\text{Ambient}}=25^\circ\text{C}$

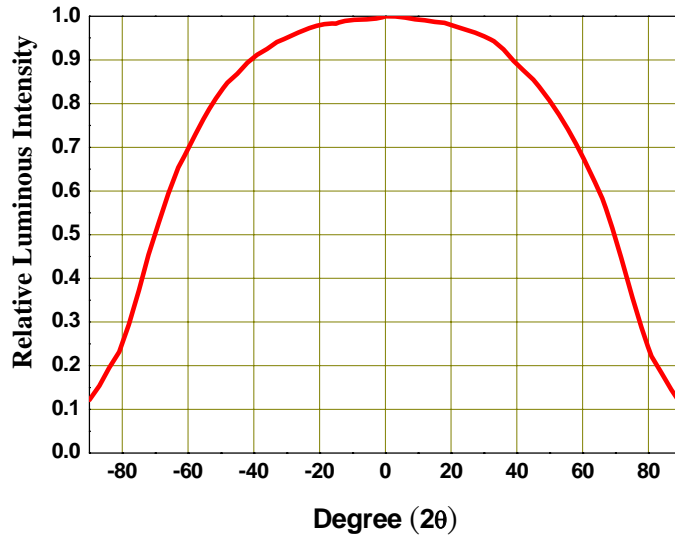


Forward Current Derating Curve,
Derating based on $T_{\text{IMAX}}=125^\circ\text{C}$



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Typical Representative Spatial Radiation Pattern



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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.

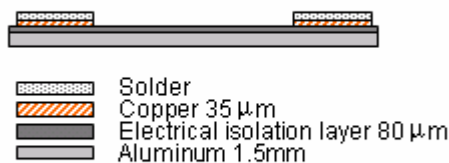
2. Storage

- 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°C 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°C 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°C 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.

MCPCB structure



- Recommended supplier:
- [Kavano Industrial Co., Ltd](#)
 - [TT Electronics](#)

- 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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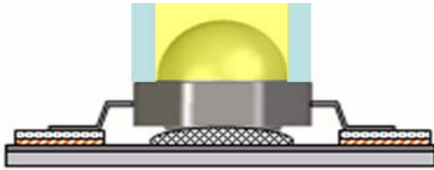
4. Soldering Condition / Assembly and Reflow process

4-1.



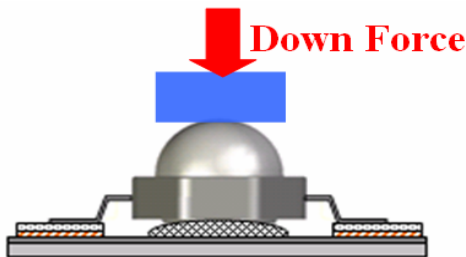
Thermal Conductive Glue Dispensing

4-2.



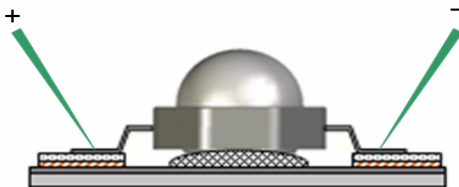
Pick and Place emitter on MCPCB with vacuum nozzle

If need to touch lens :



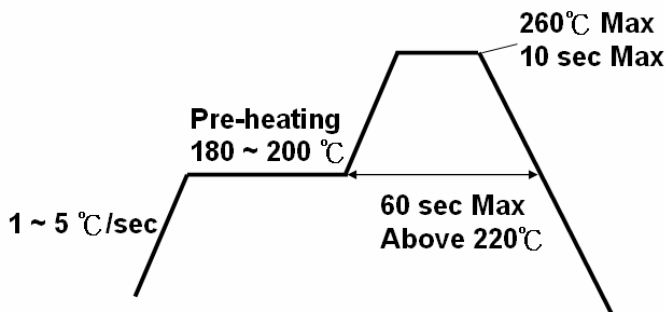
Down Force lower than 300g is guaranteed by Everlight

4-3.



Functional test of emitters

4-4. Curing of glue in oven according to the follow process



- i. Reflow soldering should not be done more than two times.
- ii. While soldering, do not put stress on the LEDs during heating.
- iii. After soldering, do not warp the circuit board

EHP-AX08EL/DT11H-P01/5670**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.