EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet

High Power LED – 1W (Preliminary)

EHP-A07/LM01-P01/TR

Features

- Feature of the device: small package with high efficiency
- Typical color temperature: 3500 K.
- Typical view angle: 120°.
- Typical light flux output: 33 lm @ 350mA
- ESD protection.
- Soldering methods: SMT
- Grouping parameter: total luminous flux, color temperature.
- Typical optical efficiency: 32 lm/W
- Thermal resistance (junction to sink): 30 K/W
- The product itself will remain within RoHS compliant version.

Applications

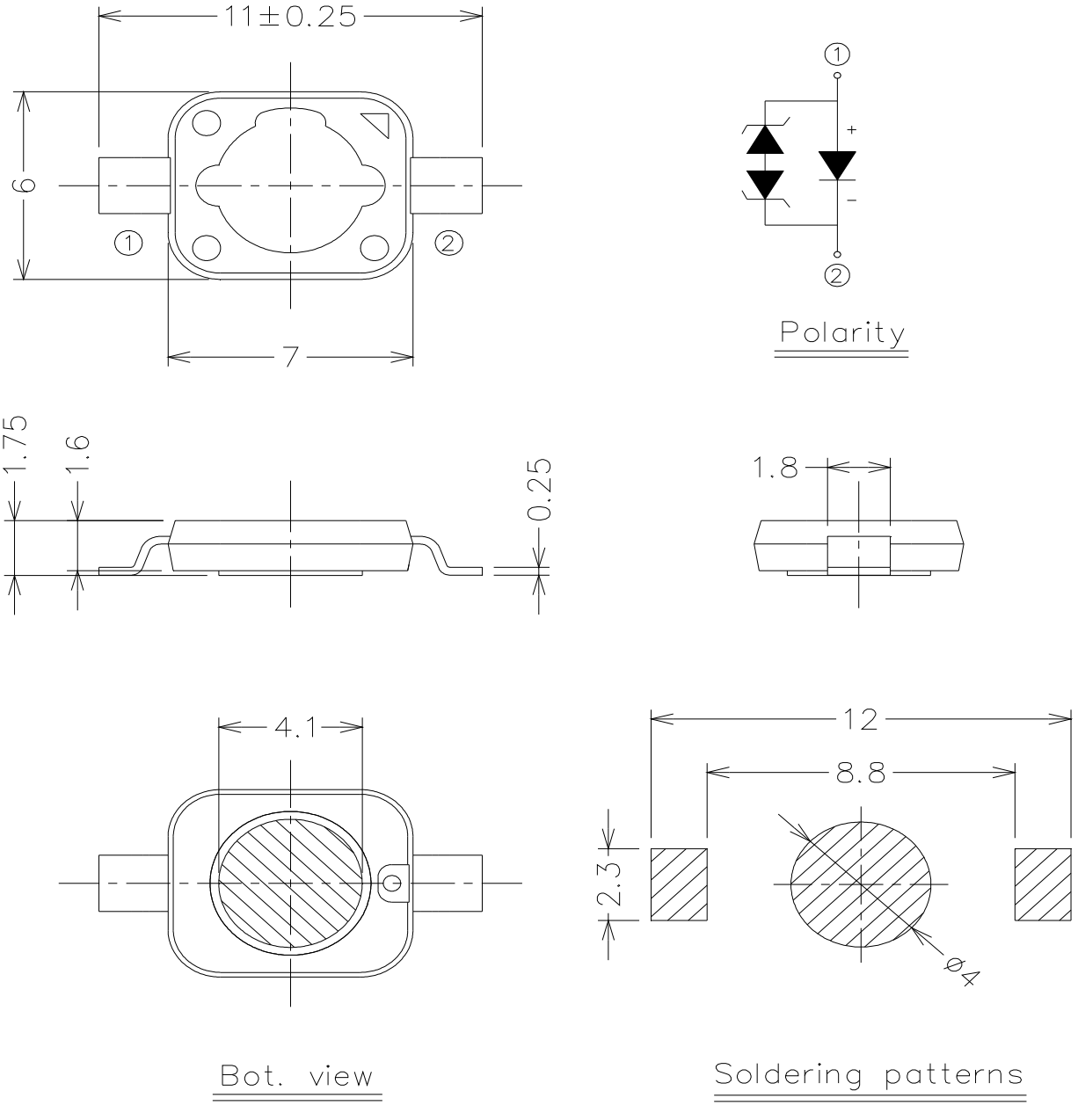
- Indoor illumination(room light, wall lighting, etc)
- Accent lighting, effective illumination.
- Daily illumination
- Decorative and entertainment illumination

Materials

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

EHP-A07/LM01-P01/TR

Dimensions



Notes: 1. Dimensions are in millimeters.

2. Tolerances unless dimensions ±0.25mm.

EHP-A07/LM01-P01/TR

Maximum Ratings ($T_{Ambient}$=25ºC)

Parameter	Symbol	Rating	Unit
DC Operating Current	I_F	350	mA
Pulsed Forward Current	I_{PF}	500	mA
ESD Sensitivity	ESD	2000	V
Junction Temperature	T_j	125	℃
Operating Temperature	T_{opr}	-40 ~ +100	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Power Dissipation	P_d	1	W
Junction To Heat-Sink Thermal Resistance	R_{th}	30	K/W

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

Parameter	Bin	Symbol	Min	Typ.	Max	Unit	Condition
Luminous Flux(1)	J2	Φ_v	27	----	33	lm	I_F=350mA
	J3		33	----	39		
	J4		39	----	45		
	J5		39	----	45		
Forward Voltage(2)	V1	V_F	2.95	----	3.25	V	
	V2		3.25	----	3.55		
	V3		3.55	----	3.85		
Viewing Angle(3)	----	$2\theta_{1/2}$	----	120	----	deg	
Color Temperature(4)	----	CCT	2670	3500	4500	K	

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

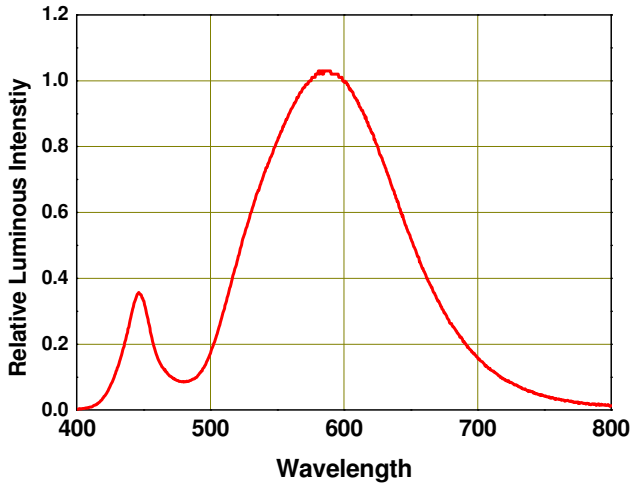
2. Forward Voltage measurement tolerance: ±0.1V

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

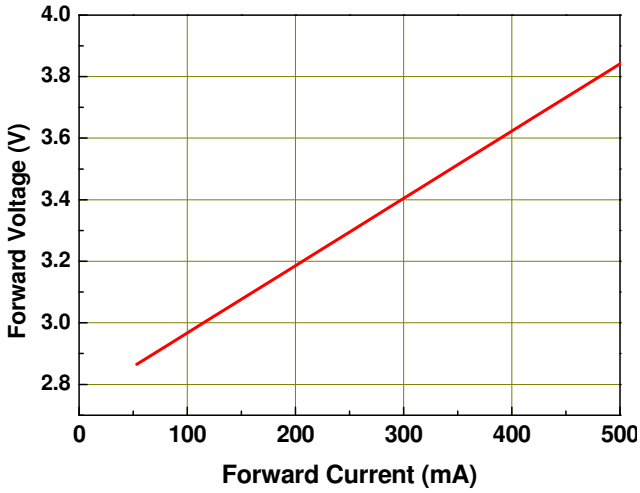
4. X, Y coordination for white light bin areas refer to High Power Illumination emitters labeling and binning (DSE-A08-002).

Typical Electro-Optical Characteristics Curves

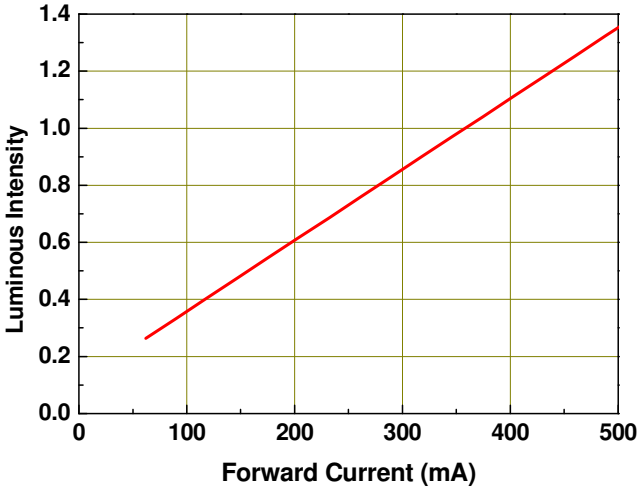
Relative Spectral Distribution, I_F=350mA, $T_{Ambient}$=25ºC



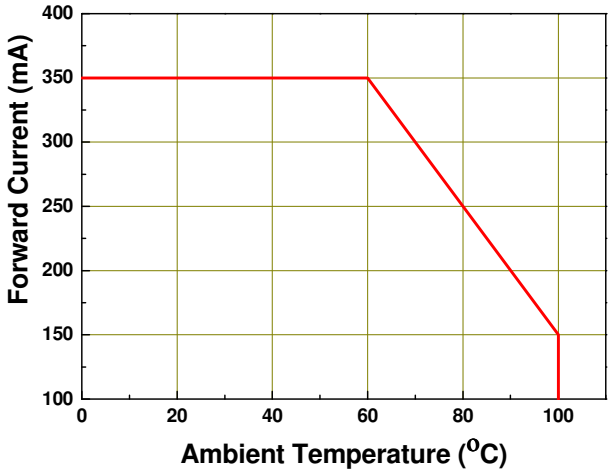
Forward Voltage vs Forward Current, $T_{Ambient}$=25ºC



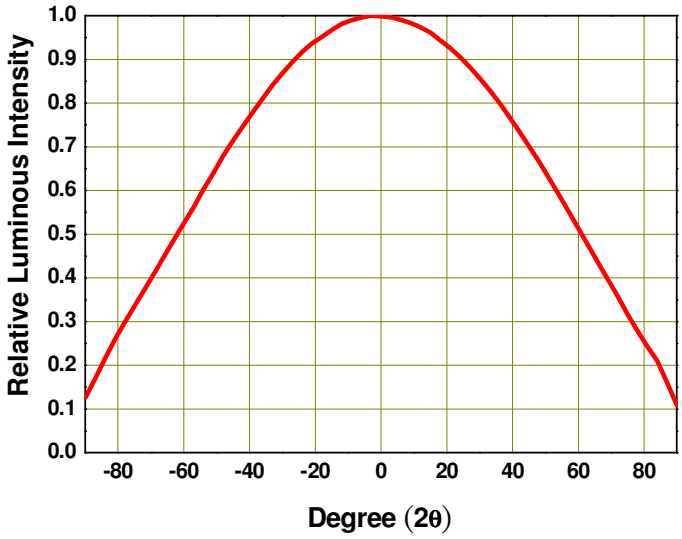
Relative Luminous Intensity vs Forward Current, $T_{Ambient}$=25ºC



Ambient Temperature & Operating Current Derating based on T_{JMAX} = 125℃



Typical Representative Spatial Radiation Pattern



EHP-A07/LM01-P01/TR

Label explanation

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

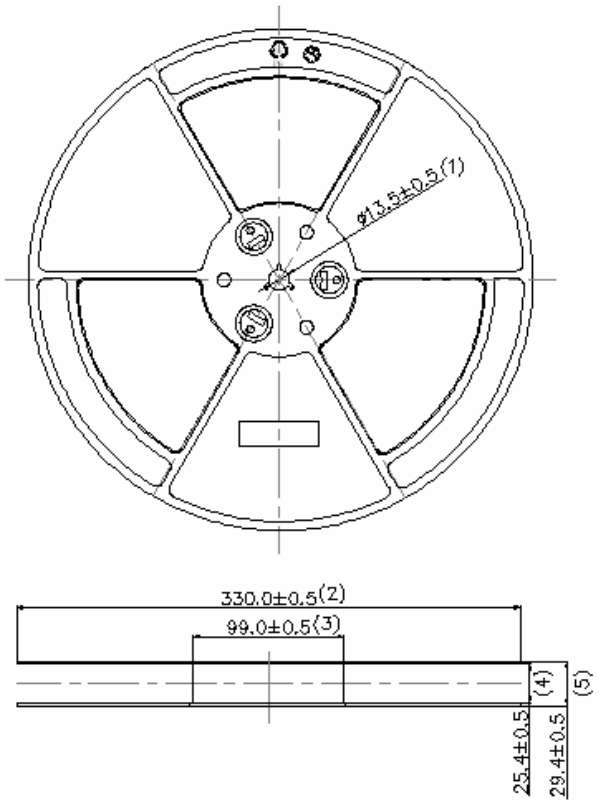
HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

Reel Dimensions

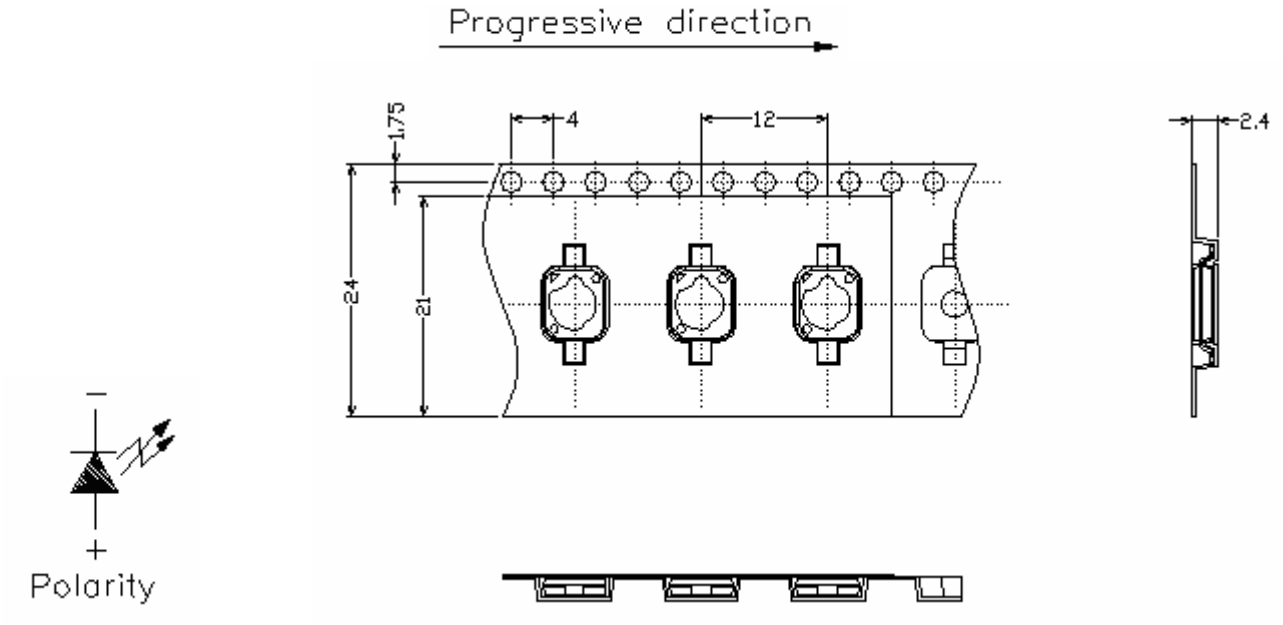


Note: 1. Dimensions are in millimeters

2. The tolerances unless mentioned is ±0.1mm

EHP-A07/LM01-P01/TR

Carrier Tape Dimensions: Loaded quantity 800 PCS per reel.



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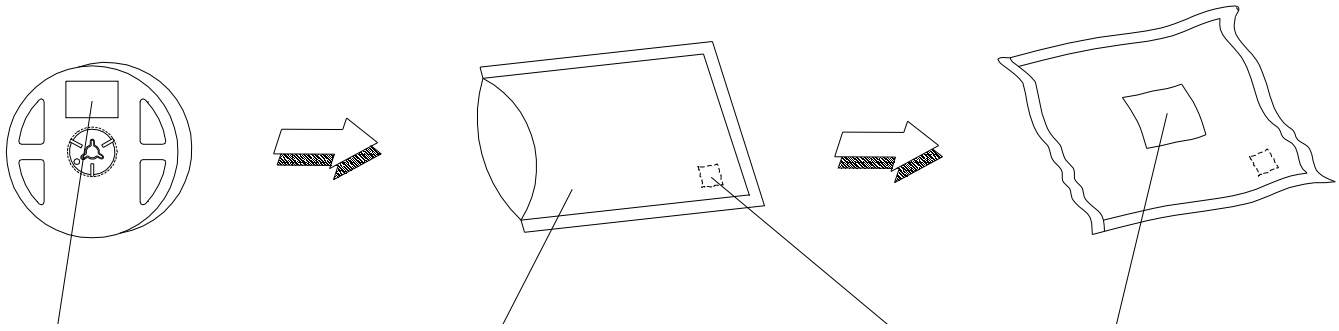
Moisture Resistant Packaging



Label **Aluminum moisture-proof bag** **Desiccant** **Label**

Precautions For Use

1. Over-current-proof

Though EHP-A07 has conducted ESD protection mechanism, customers must not use the device in reverse and should apply resistors for extra protection. Otherwise, slight voltage difference may cause enormous current shift and burn out failure would happen.

2. Storage

i. Do not open the moisture proof bag before the devices are ready to use.

ii. Before the package is opened, LEDs should be stored at temperature less than 30℃and humidity less than 90%.

iii. LEDs should be used within a year.

iv. After the package is opened, LEDs should be stored at temperature less than 30℃and humidity less than 70%.

v. LEDs should be used within 168 hours (7 days) after the package is opened.

vi. If the moisture absorbent material (silicone gel) has faded away or LEDs have exceeded the storage time, baking treatment should be implemented based on the following the conditions: pre-curing at 60±5℃ for 24 hours.

3. Thermal Management

i. For maintaining the high flux output and achieving reliability, EHP-A07 series LEDs should be mounted on a metal core printed circuit board (MCPCB) or other kinds of heat sink with proper thermal connection to dissipate approximate 1W of thermal energy at 350mA operation.

ii. Special thermal designs are also recommended to take in heat dissipation management, such as FR4 PCB on Aluminum with thermal vias or FPC on Aluminum with thermal conductive adhesive, etc.

iii. Sufficient thermal management must be implemented. Otherwise, the junction temperature of dies might be over the limit at high current driving condition and LEDs' lifetime might be decreases dramatically.

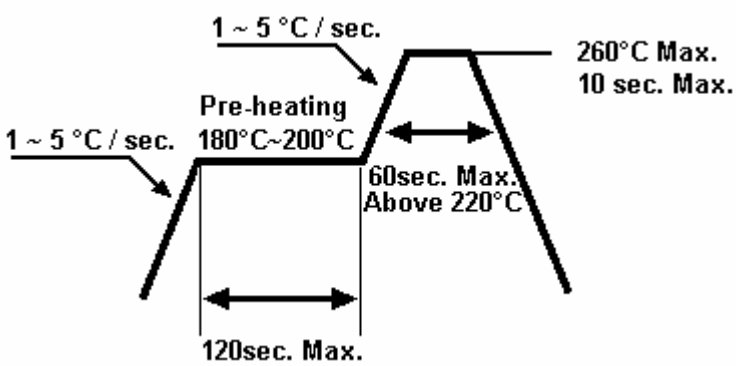
iv. For further thermal management suggestions, please consult Everlight Design Guide or local representatives for assistance.

4. Soldering Condition

4-1. For Reflow process

i. EHP-A07 series are suitable for SMT process.

ii. Lead reflow soldering temperature profile



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

iv. In soldering process, stress on the LEDs during heating should be avoided.

v. After soldering, do not warp the circuit board.