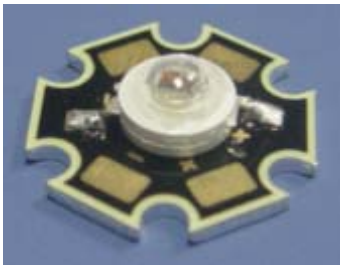
Luckylight

1W Yellow High Power LED
Technical Data Sheet

Part No.: LL-HP60NUYC

Features:

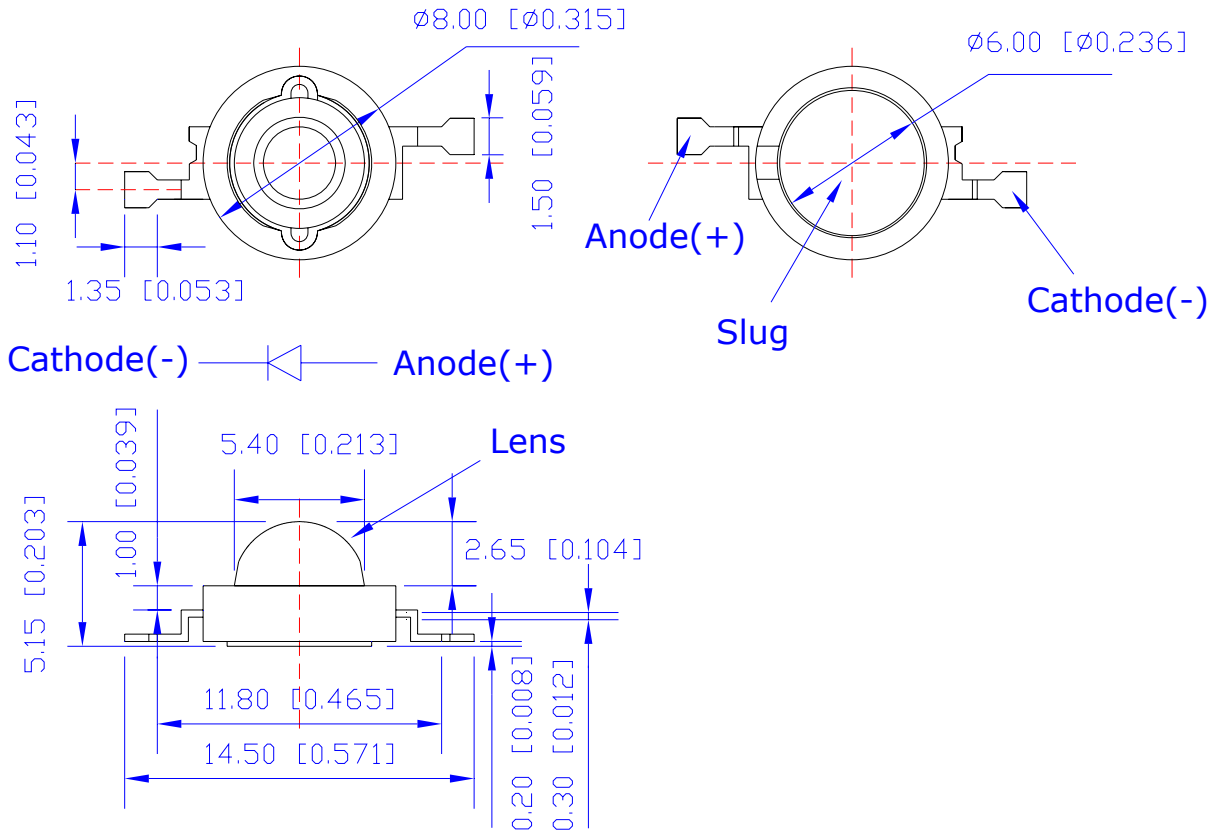


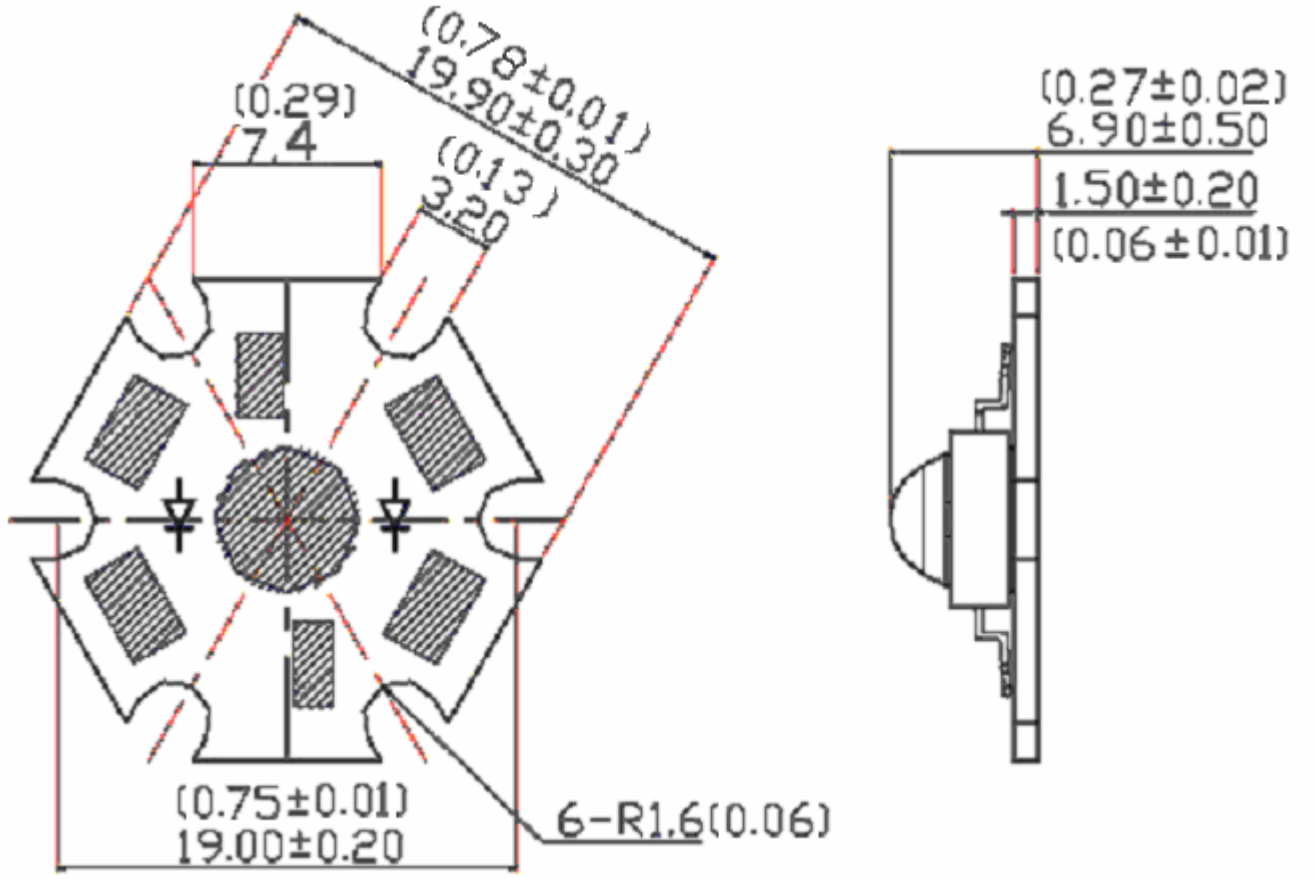
◇Very long operating life (up to100k hours).
◇Available in white, green, blue, red, yellow.
◇More energy efficient than incandescent and most halogen lamps.
◇Low voltage DC operated.
◇Cool beam, safe to the touch.
◇Instant light (less than 100 ns).
◇The product itself will remain within RoHS compliant Version.

Applications:

◇Reading lights (car, bus, aircraft).
◇Portable (flashlight, bicycle).
◇Mini_accent/Uplighters/Downlighters/Orientation.
◇Bollards/Security/Garden.
◇Cove/Undershelf/Task.
◇Automotive rear combination lamps.
◇Traffic signaling/Beacons/ Rail crossing and Wayside.
◇Indoor/Outdoor Commercial and Residential Architectural.
◇Edge_lit signs (Exit, point of sale).
◇LCD Backlights/Light Guides.

Mechanical Dimensions:





Part No.	Chip Material	Source Color
LL-HP60NUYC	AlInGaP	Yellow

Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25 mm (.010”) unless otherwise noted.

Absolute Maximum Ratings at Ta=25℃

Parameters	Symbol	Rating	Units
Forward Current	*IF*	350	mA
PeakPulseCurrent (tp≤100μs, Duty cycle=0.25)	*I pulse*	700	mA
Reverse Voltage	*VR*	5	V
LED Junction Temperature	*Tj*	125	℃
Operating Temperature Range	*Topr*	-40 to +80	℃
Storage Temperature Range	*Tstg*	-40 to +100	℃
Soldering Time at 260 ℃ (Max.)	*Tsol*	5	Seconds

Notes:

1. Proper current derating must be observed to maintain junction temperature below the maximum.
2. LEDs are not designed to be driven in reserve bias.

Electrical Optical Characteristics at Ta=25℃

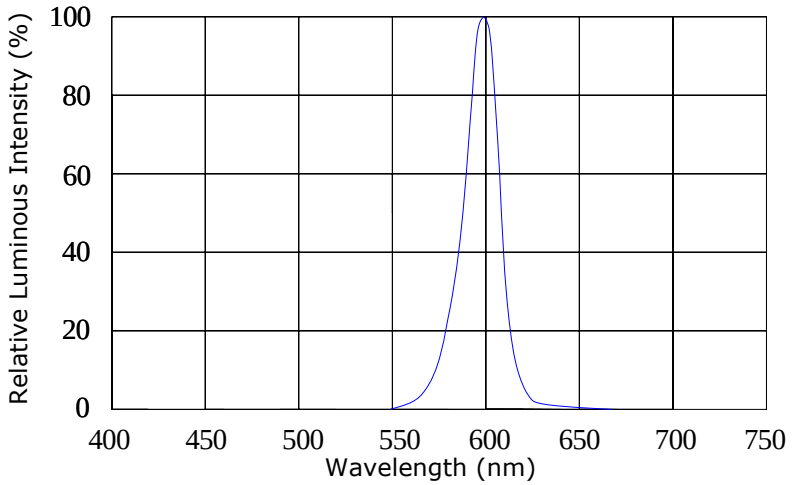
Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Viewing Angle [1]	$2\theta_{1/2}$	---	135	--	Deg	IF=350mA
Forward Voltage [2]	V_F	2.0	2.2	3.0	V	IF=350mA
Reverse Current	I_R	---	---	10	μA	V_R=5V
Peak Emission Wavelength	λp	---	593	---	nm	IF=350mA
Dominant Wavelength	λd	---	590	---	nm	IF =350mA
Spectrum Radiation Bandwidth	Δλ	---	20	---	nm	IF=350mA
Luminous Flux	Φv	30	40	---	lm	IF=350mA

Notes:

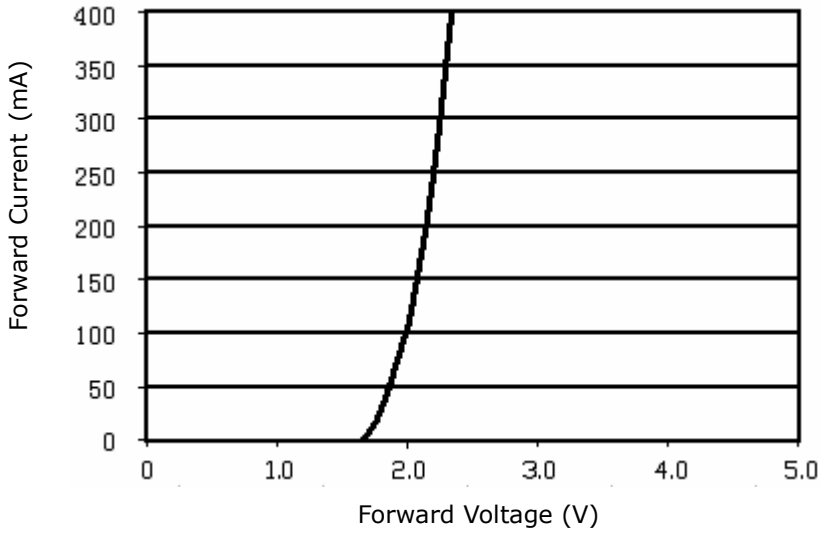
1. *2θ1/2* is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. Forward Voltage measurement tolerance : ±0.1V

Typical Electrical-Optical Characteristics Curves
(25℃ Ambient Temperature Unless Otherwise Noted)

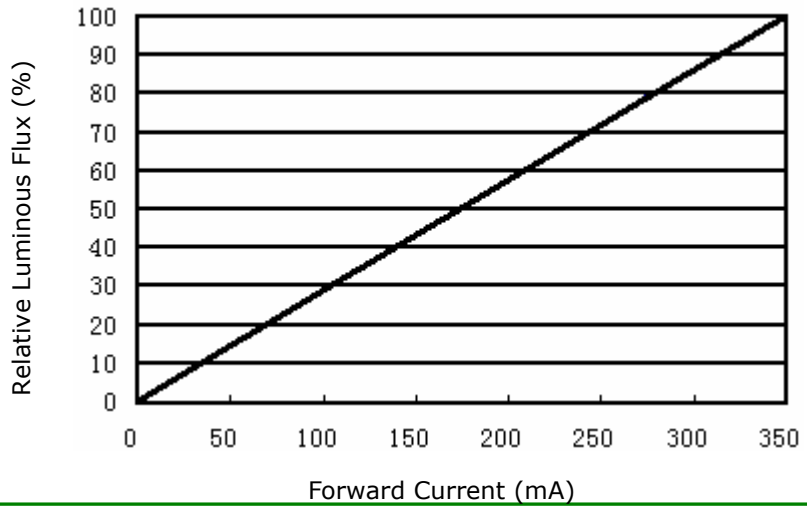
Relative Spectral Distribution



Forward Current VS Forward Voltage

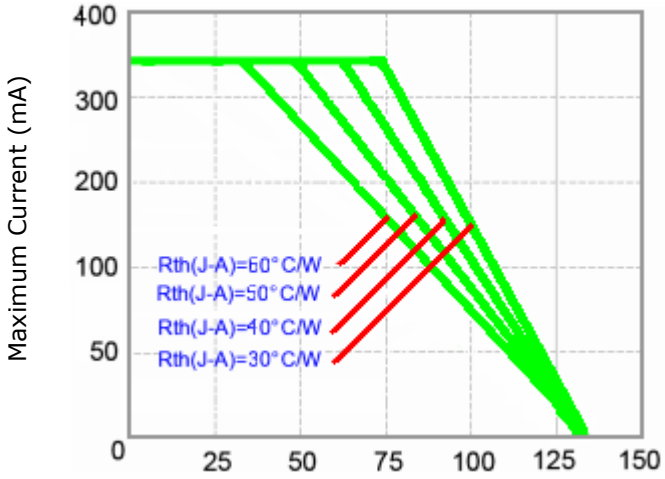


Luminous Flux VS Forward Current

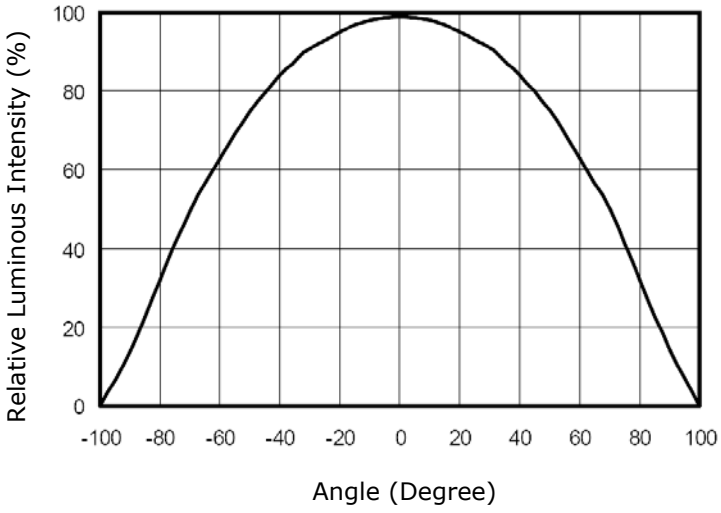


Typical Electrical-Optical Characteristics Curves

Maximum Current VS Ambient Temperature



Typical Spatial Radiation Pattern



Precautions For Use:

1. Over-current-proof

Though HP60N 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 enormou current change and burn out failure would happen.

2. Storage

① Do not open moisture proof bag before the products are ready to use.

② Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.

③ The LEDs should be used within a year.

④ After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

⑤ The LEDs should be used within 168 hours (7 days) after opening the package.

⑥If the moisture absorbent material (silicone gel) has faded away or the LEDs have exceeded the storag time, baking treatment should be performed using the following conditions.

⑦ Pre-curing treatment: 60±5℃ for 24 hours.

3. Thermal Management

① Because HP60N LED is a high power dissipation device, special and sufficient consideration in thermal management design must be made to optimize the thermal performance.

② Heat sink design is implemented in the device for an additional thermal connection. Since the device is capable of SMT process, tin must be spread both heat sink and solder pads areas to dissipate the heat.

③ A high thermal conductivity substrate, such as Aluminum or Copper plate etc, must be applied for external thermal management. It is strongly recommended that the outer heat sink or PCB dimension per LED can not be less than 25 x 25 x 1 (L x W x H) mm. The materials for outer heat sink can be FR4 on Aluminum, MCPCB, or FPC on Aluminum.

④ 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.

⑤ 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.

4. Soldering Condition

① Soldering should not be done more than two times.

② While soldering, do not put stress on the LEDs during heating.

③ After soldering, do not warp the circuit board.

5. Soldering Iron

① For prototype builds or small series production runs it is possible to place and solder the LED by hand.

② 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.

③ Be careful because the damage of the product is often started at the time of the hand solder.

6. Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible.

Sharp objects of all types should not be used to pierce the sealing compound.

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