

LHP-5050-5000-6

Specification

HiPower LED 1,2W, daylight-white, 5000K(+/- 500K)
Rev. 1.3 (June 2019)

Features

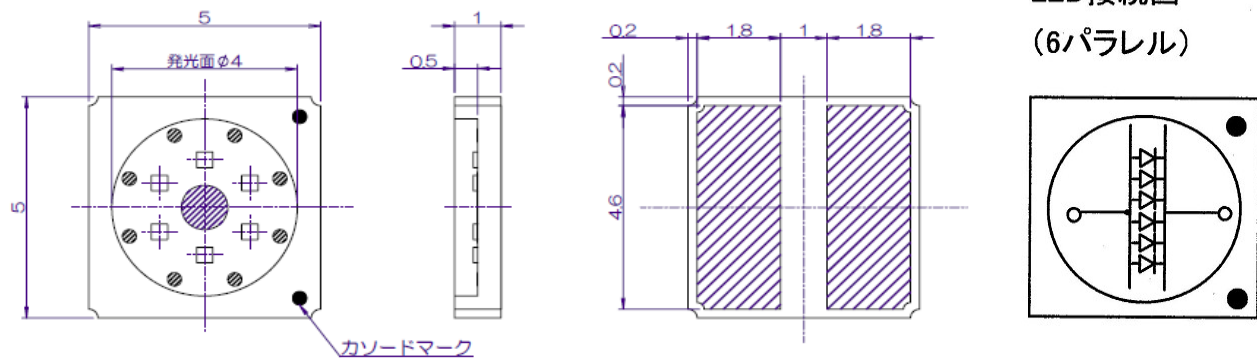
- ✓ CRI Ra 98 (typ.)
- ✓ emitted spectrum 390nm – 730nm
- ✓ 90lm (typ.)
- ✓ 120° viewing angle
- ✓ operating temperature range -40 to 85°C
- ✓ RoHS-compliant
- ✓ lifespan 50.000 hours



Application

- microscope
- spectroscopy
- human vision inspection
- medical lighting

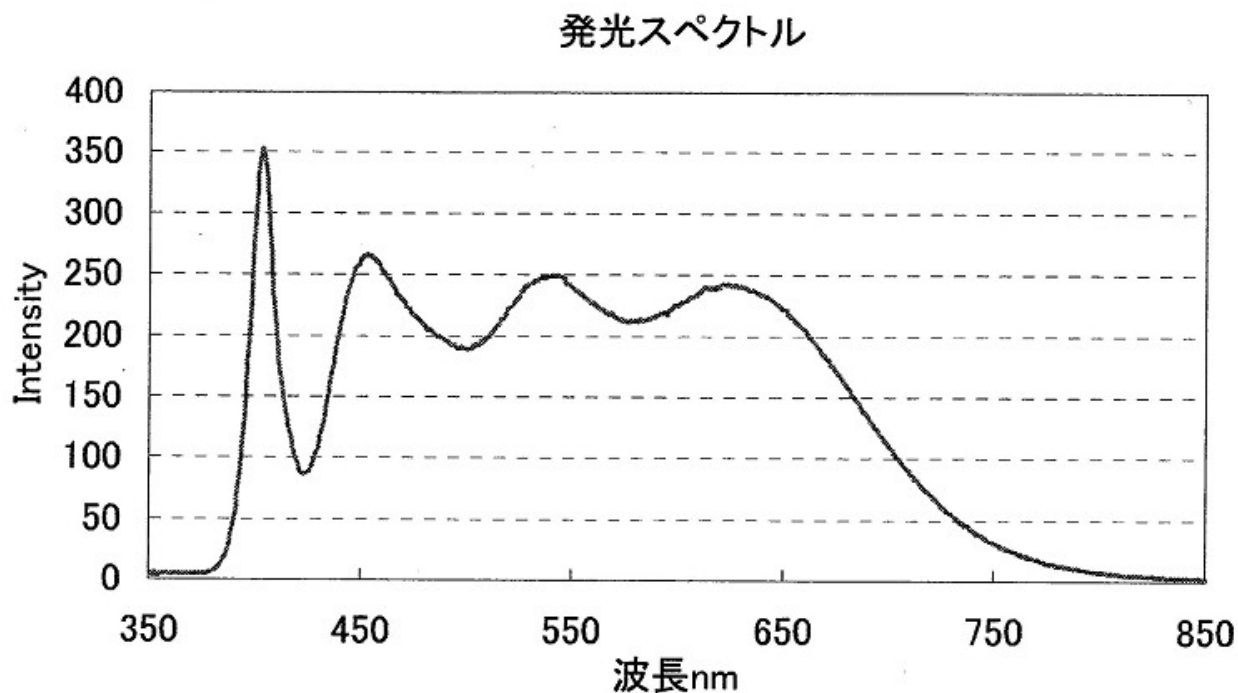
Dimensions


















Specification

LHP-5050-5000-6	
Outline Dimension	5mm * 5mm * 1mm
Active Area	d = 4mm
Power (P)	1,2 W
Forward Voltage (Vf)	2,9V – 3,7V
Reverse Voltage	5V
Forward Current (If)	360mA
Thermal Resistance	23,6°C/W
Chip Quantity	6 pcs
Lifespan	50.000h
Operating Temperature Range	-40°C - 85°C
Luminous Flux	90,4 lm
Color Rendering Index	Ra98 (typically)
Total Viewing Angle	120°

Spectrum



Color Rendering

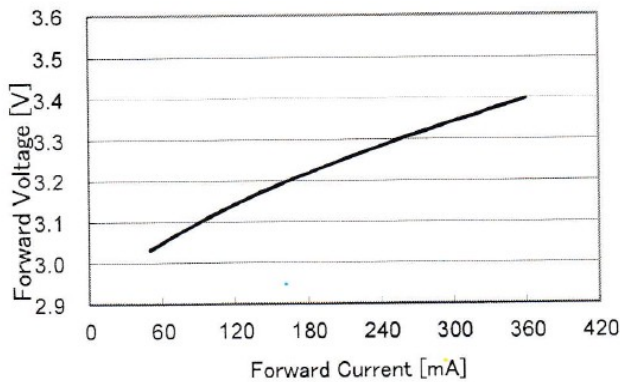
														
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15*
97	99	99	98	98	98	99	98	97	99	97	96	97	98	98

* available in JIS only

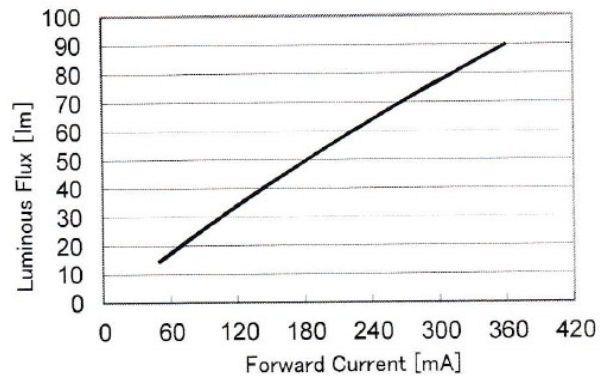
Ri	Munsell Hue Value / Chromaticity	Appearance color under daylight
R1	7.5R 6/4	light greyish red
R2	5Y 6/4	dark greyish yellow
R3	5GY 6/8	strong yellow green
R4	2.5G 6/6	moderate yellowish green
R5	10GB 6/4	light bluish green
R6	5PB 6/8	light blue
R7	2.5P 6/8	light violet
R8	10P 6/8	light reddish purple
R9	4.5R 4/13	strong red
R10	5Y 8/10	strong yellow
R11	4.5G 5/8	strong green
R12	3PB 3/11	strong blue
R13	5YR 8/4	light yellowish pink
R14	5GY 4/4	moderate olive green
R15	1YR 6/4	japanese complexion

Electrical and optical characteristics

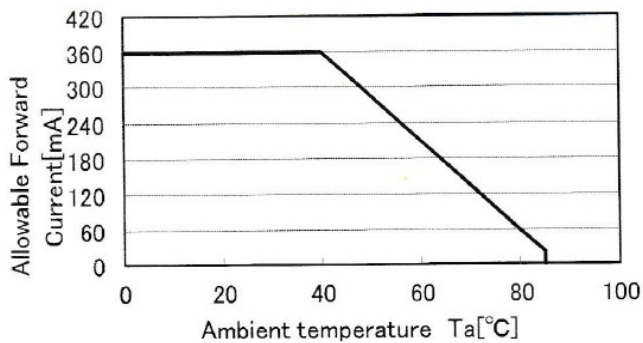
<Forward Current vs Forward Voltage>



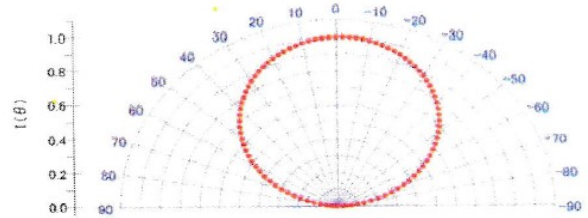
<Forward Current vs Luminous Flux>



<Ambient temperature vs Allowable Forward Current>

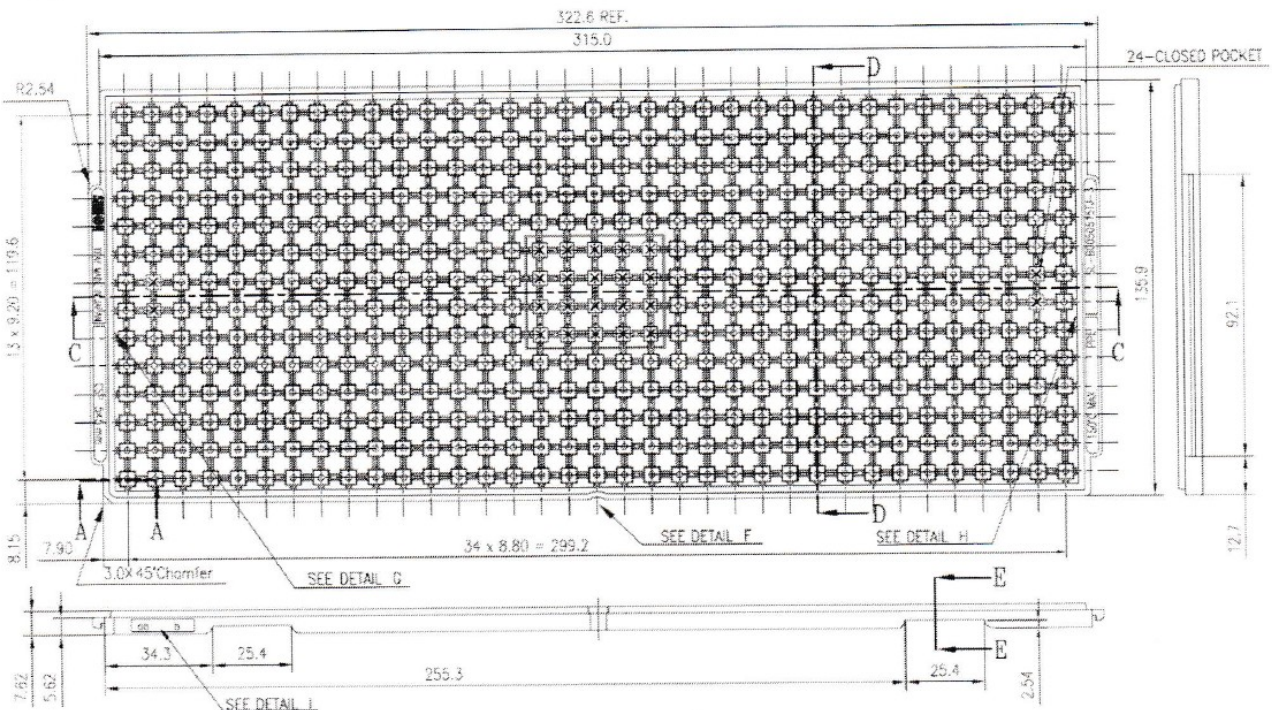


<Directivity>



Package

Tray Dimensions



(unit: mm)

Handling precaution

(1) Moisture-proof packing

The trays are shipped with desiccant in heat-sealed moisture-proof bags.

(2) Storage

It is preferred to store the product in a dry-box to keep it from moisture.

If it is not realizable to store in a dry-box, the following storage environment is recommended

Temperature $5 \sim 30^{\circ}\text{C}$

Humidity $\leq 60\% \text{RH}$

It is strongly recommended that the device is mounted soon after it is unpacked.

If the device is re-stored after unpacking, however, please store it in a dry-box.

(3) Baking

If the storage time has been exceeded, ensure that the LED are baked before use.

- Within six month from Delivery Date (Before Opening)
- 7 days or more (After Opening)

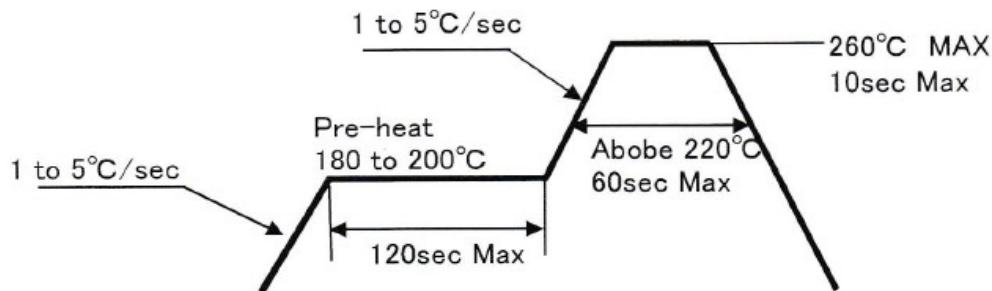
Condition

100°C , $\leq 45\text{min}$

(After removing the tray from the moisture-proof bag and removing the belt)

Soldering

(1) Recommended Reflow Soldering Condition (Lead-free Solder)



(2) When soldering, do not apply stress to the LED while the LED is hot.

Cleaning

- If required, use isopropyl alcohol
- Do not clean the LEDs with an ultrasonic cleaner

Electrostatic Discharge (ESD)

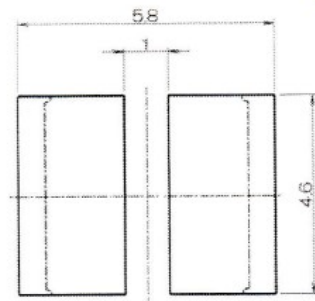
- This LED is sensitive to transient excessive voltage (e.g. ESD, lightning surge).
- If this excessive voltage occurs in the circuit, it may cause the LED to be damaged causing issue.
- Ensure that when handling the LEDs, necessary measures are taken to protect them from an ESD discharge.
- The following examples are recommended measures to eliminate the charge.
 - Grounded wrist strap, ESD footwear, clothes, and floors
 - Grounded workstation equipment and tools
 - ESD table/shelf mat made of conductive materials

Miscellaneous

- (1) Take care not to apply stress to the heated sealing resin.
- (2) Be careful not to touch the sealing resin with a pointed object.
- (3) Basically, do not make corrections after soldering.
- (4) Do not use in an environment such as corrosive gas or flammable gas.
- (5) Do not contact water, oil, liquids, chemicals, steam, etc. with this product.

7.Design Consideration

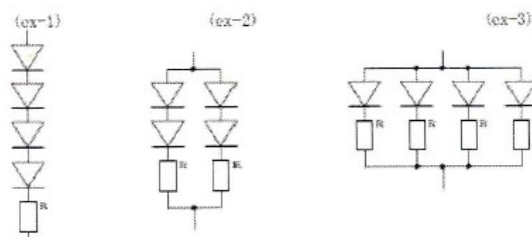
- (1) Be sure to connect a current limiting resistor to the circuit and design it to drive within the rating
In addition, please design so that reverse voltage (over current) does not occur at power ON / OFF.
- (2) recommended soldering pad pattern



unit : mm

The above dimensions do not guarantee mounting performance.
Please use it after performing sufficient verification.

- (3) When assembling the mounting board to the finished product, be careful not to make contact with other parts
- (4) When using multiple LEDs, provide a current limiting resistor so that there is no potential difference between each LED



- (5) The increase in the temperature of an LED while in operation may vary depending on the PCB thermal resistance and the density of LEDs on the PCB assembly.

Ensure that when using the LEDs for the chosen application, heat is not concentrated in an area and properly managed in the system/assembly

The Absolute Maximum Junction Temperature(T_j) must not be exceeded under any circumstances.

The operating current should be determined by considering the temperature conditions surrounding the LED

8. Warranty

- (1) The warranty period for the single device is six months upon delivery. note that the damage caused by any conditions that does not comply with this specification is not covered under the warranty.
- (2) The delivered product is under the warranty conditions described in this specification.
Our representative should be consulted regarding the lifetime or quality assurance of a product in your particular application.
- (3) It is out of warranty if any further processing on this product is performed.

9. Measure Concerning Defective Products

- (1) If it is evident that we are liable for a defective product, a replacement shall be delivered.
- (2) When returning a defective product, please attach a sheet specifying the deficiencies.
We will review the sheet, and inform you of the conclusions promptly.

10. Other

- (1) All agreements regarding the quality of this product have been noted in this specification.
Any declaration that is not written on this specification shall be invalid.
- (2) Any inquiry concerning the content of this specification shall be directed to our sales representative.
Also, any insufficiency concerning the content of this specification shall be resolved by good faith efforts.
- (3) Reverse engineering without our prior consent is strictly prohibited.
We should be directly notified of the malfunction of this product, if any.
- (4) The content of this specification is considered to be approved, if it is not returned within three weeks after issued.



Disclaimer

The information in this document is provided in connection with AMC HighTech products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of AMC products.

Except as set forth in AMC HighTechs terms and conditions of sale located on www.amc-hightech.com, AMC HighTech assumes no liability whatsoever and disclaims any express, implied or statutory.

Warranty related to its products including, but not limited to, the implied warranty of merchantability, fitness for a particular purpose, or non-infringement. In no event shall AMC HighTech be liable for any direct, indirect consequential punitive, special or incidental damages (including, without limitation, damages for loss of profits or business interruption) arising out of the use this document, even if a has been of the possibility of such damages. ,

AMC HighTech makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Atmel does not make any commitment to update the information contained herein. Unless specifically provided otherwise, AMC HighTech products are not suitable for, and shall not be used in, automotive applications. AMC HighTech products are not intended, authorized, or warranted for use as components in applications intended to support or sustain life.