



UVLED-385-1200-SMD

SPECIFICATIONS

Absolute Maximum Ratings

(Ts=25°C)

| Item | Symbol | Absolute Maximum Rating | Unit |
|---------------------------|--------|-------------------------------------|------|
| Forward Current | IF | 700 | mA |
| Pulse Forward Current | IFP | 1000 | mA |
| Allowable Reverse Current | IR | 85 | mA |
| Power Dissipation | PD | 12.0 | W |
| Operating Temperature | Topr | -10 ~ + 85 | °C |
| Storage Temperature | Tstg | -40 ~ +100 | °C |
| Dice Temperature | Tj | 130 | °C |
| Soldering Temperature | Tsld | Reflow Soldering : 260°C for 10sec. | |

IFP Conditions : Pulse Width ≤ 10msec. and Duty ≤ 1/10

Initial Electrical/Optical Characteristics

(Ts=25°C)

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---------------------|---------------|------------|------|--------|------|------|
| Forward Voltage | VF | IF=500[mA] | - | (14.8) | 17.2 | V |
| Peak Wavelength | Rank Uc λP | IF=500[mA] | 380 | (385) | 390 | nm |
| Spectrum Half Width | Δλ | IF=500[mA] | - | (10) | - | nm |
| Radiant Flux | φe | IF=500[mA] | 950 | - | 1600 | mW |

* Forward Voltage Measurement allowance is ± 0.14V.

* Radiant flux Values are traceable to the CIE 127:2007-compliant national standards.

* Radiant flux Measurement allowance is ±10%.

* Peak Wavelength Measurement allowance is ±3nm.

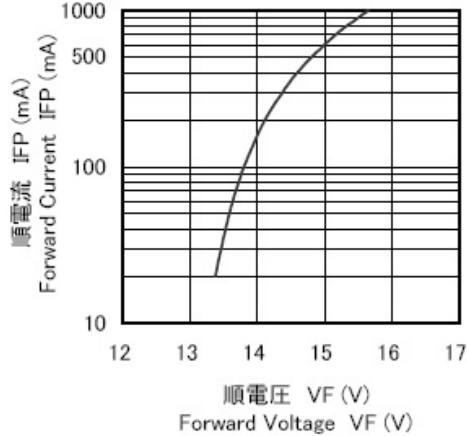
* Basically, a shipment shall consist of the LEDs of a combination of the above ranks.



■ 順電圧-順電流特性

Forward Voltage vs.
Forward Current

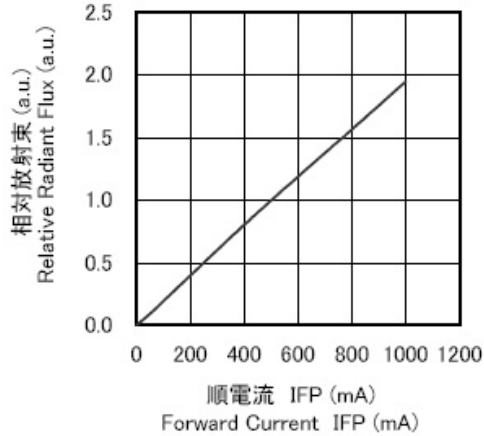
Ta=25°C



■ 順電流-相对放射束特性

Forward Current vs.
Relative Radiant Flux

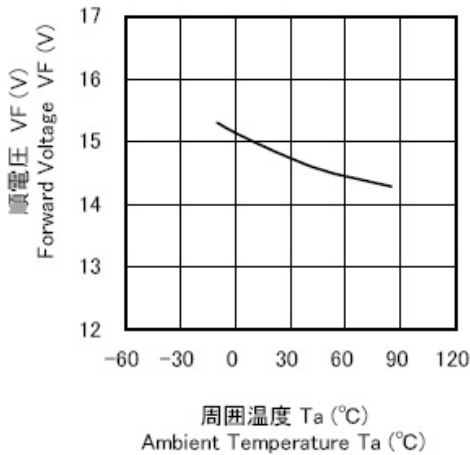
Ta=25°C



■ 周囲温度-順電圧特性

Ambient Temperature vs.
Forward Voltage

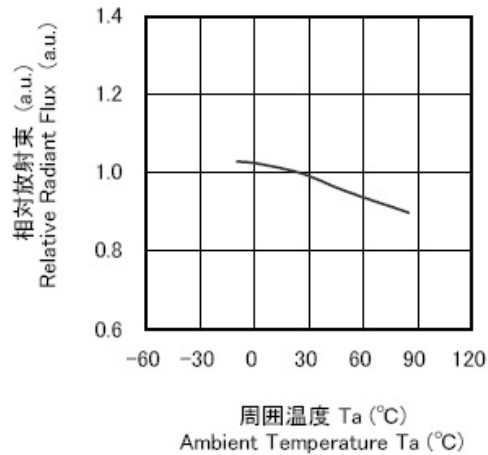
IFP=500mA



■ 周囲温度-相对放射束特性

Ambient Temperature vs.
Relative Radiant Flux

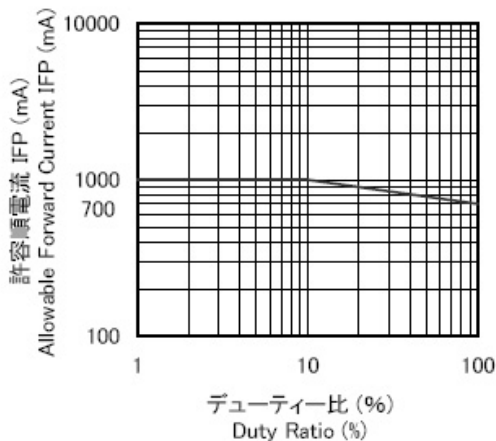
IFP=500mA



■ デューティー比-許容順電流特性

Duty Ratio vs.
Allowable Forward Current

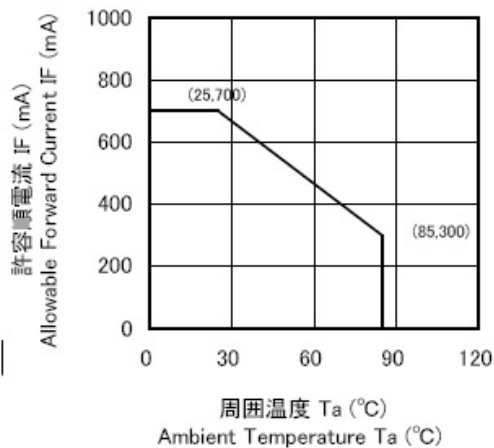
Ta=25°C



■ 周囲温度-許容順電流特性

Ambient Temperature vs.
Allowable Forward Current

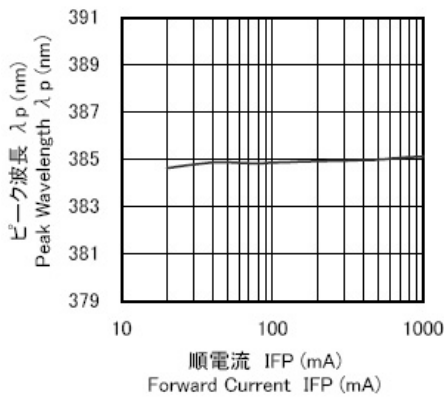
Rja=9°C/W





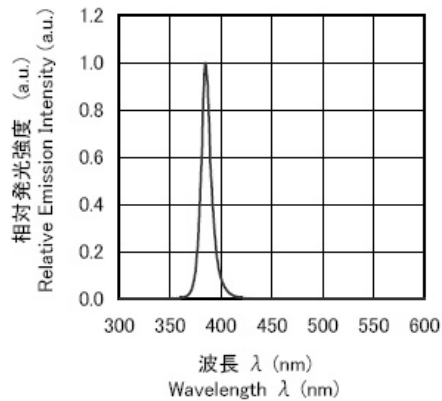
■ 順電流-ピーク波長特性
Forward Current vs.
Peak Wavelength

Ta=25°C



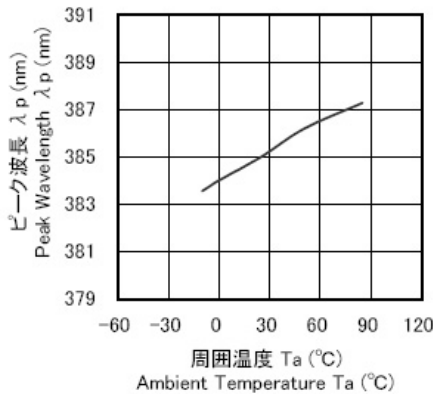
■ 発光スペクトル
Spectrum

Ta=25°C
IFP=500mA



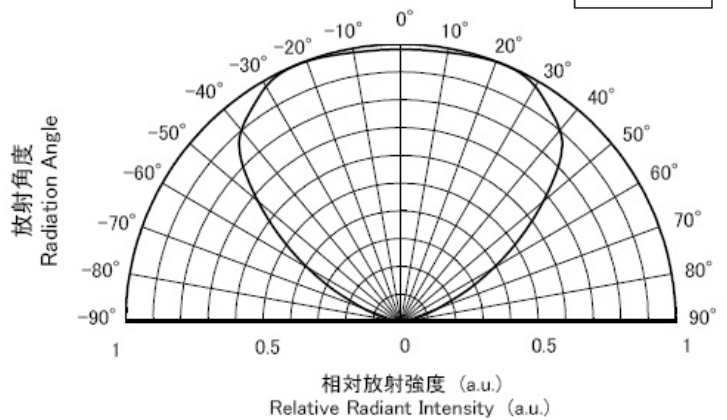
■ 周囲温度-ピーク波長特性
Ambient Temperature vs.
Peak Wavelength

IFP=500mA



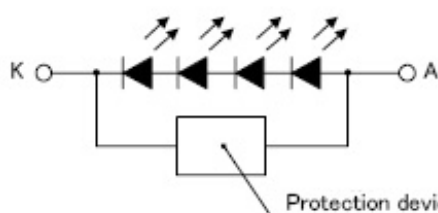
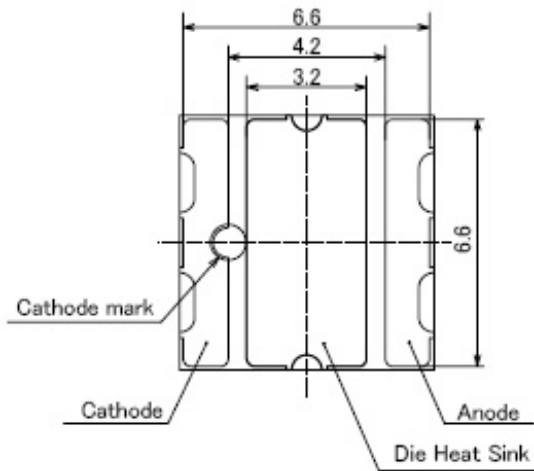
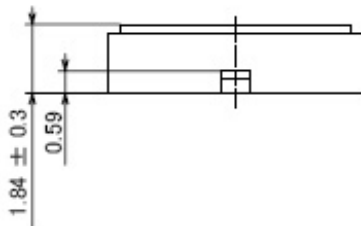
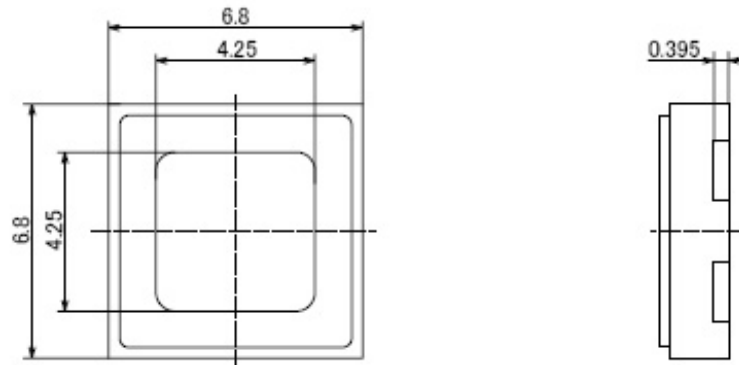
■ 指向特性
Directivity

Ta=25°C
IFP= 500mA





Drawing:

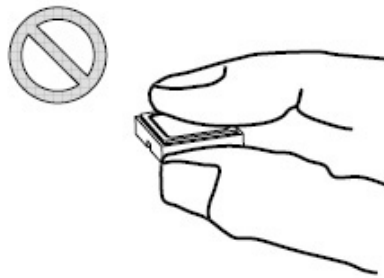


| 項目 Item | 材質 Materials |
|---------------------------|------------------------------------|
| パッケージ材質 Package | セラミックス Ceramics |
| ガラス窓 Glass | 硬質ガラス / コバール Hard Glass / Kovar |
| 電極 Electrodes | 金メッキ Au Plating |
| ダイヒートシンク Die Heat Sink | 金メッキ Au Plating |

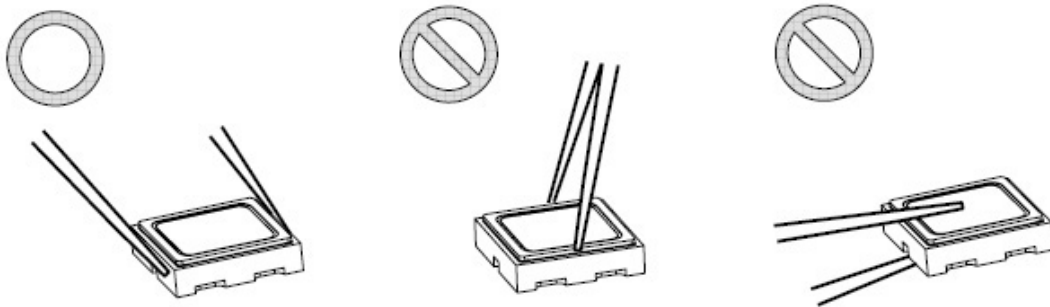


Handling Precautions

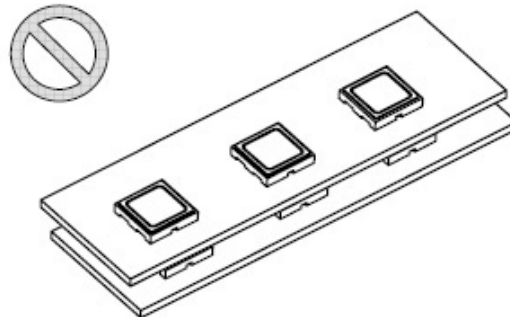
- The LEDs may be damaged if these are dropped or receive a strong impact, so precautions must be taken to prevent any damage.
- Bare Hand
- When handling the product, touching the glass with bare hands will contaminate its surface that could affect optical characteristics.



- Tweezers
- When handling it with tweezers, the product should only be held by the ceramics body, not by the glass. Failure to comply might result in glass breakage.



- Printed Circuit Board Assembled (PCB with LEDs soldered)
Do not stack assembled PCBs together. Stacking boards may cause the glasses of assembled LEDs to break due to the board stacked above.





Soldering Conditions

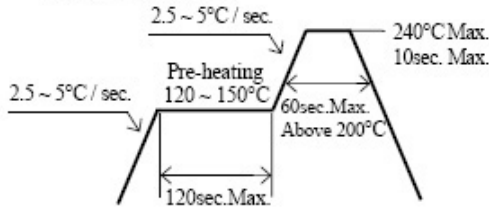
- The LEDs can be soldered in place using the reflow soldering method. Nichia cannot make a guarantee on the LEDs after they have been assembled using the dip or hand soldering method.
- Recommended soldering conditions

| Reflow Soldering | | |
|------------------|-----------------------------------|--|
| | Lead Solder | Lead-free Solder |
| Pre-heat | 120 ~ 150°C | 180 ~ 200°C |
| Pre-heat time | 120 sec. Max. | 120 sec. Max. |
| Peak temperature | 240°C Max. | 260°C Max. |
| Soldering time | 10 sec. Max. | 10 sec. Max. |
| Condition | refer to Temperature - profile ①. | refer to Temperature - profile ②. (N ₂ reflow is recommended.) |

- * Although the recommended soldering conditions are specified in the above table, reflow soldering at the lowest possible temperature is desirable for the LEDs.
- * A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.

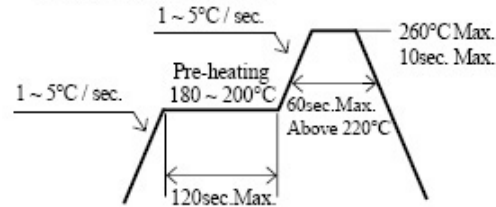
[Temperature-profile (Surface of circuit board)]

<① : Lead Solder>



Use the conditions shown to the under figure.

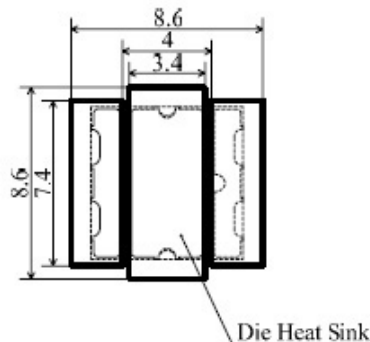
<② : Lead-free Solder>



[Recommended soldering pad design]

Use the following conditions shown in the figure.

The product has a floating die heat sink. Please make sure that the die heat sink is soldered for proper heat dissipation.



(Unit : mm)

- Occasionally there is a brightness decrease caused by the influence of heat or ambient atmosphere during air reflow. It is recommended that the customer use the nitrogen reflow method.
- Repairing should not be done after the LEDs have been soldered. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
- Reflow soldering should not be done more than two times.
- When soldering, do not put stress on the LEDs during heating.



Cleaning

- The LED module should not be cleaned, washed or soaked in water or solvent. Some cleaning agents attack or dissolve the package and the glass. Care must be taken to ensure that no problems are encountered with the use of the solvents. Freon solvents should not be used to clean the LEDs because of worldwide regulations.
- Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power and the assembled condition. Before cleaning, a pre-test should be done to confirm whether any damage to the LEDs will occur.

Safety Guideline for Human Eyes

- The International Electrical Commission (IEC) published in 2006 IEC 62471:2006 *Photobiological safety of lamps and lamp systems* which includes LEDs within its scope. Meanwhile LEDs were removed from the scope of the IEC 60825-1:2007 laser safety standard, the 2001 edition of which included LED sources within its scope. However, keep in mind that some countries and regions have adopted standards based on the IEC laser safety standard IEC 60825-1:2001 which includes LEDs within its scope.

Following IEC 62471:2006, most of Nichia LEDs can be classified as belonging to either Exempt Group or Risk Group 1. Optical characteristics of a LED such as radiant flux, spectrum and light distribution are factors that affect the risk group determination of the LED. Especially a high-power LED, that emits light containing blue wavelengths, may be in Risk Group 2.

Great care should be taken when viewing directly the LED driven at high current or the LED with optical instruments, which may greatly increase the hazard to your eyes.

CAUTIONS

- The devices are UV light LEDs. The LED during operation radiates intense UV light, which precautions must be taken to prevent looking directly at the UV light with unaided eyes. Do not look directly into the UV light or look through the optical system. When there is a possibility to receive the reflection of light, protect by using the UV light protective glasses so that light should not catch one's eye directly.

