NICHIA

Under Development	
Mass Production	●

High Power White LED

NSPW315BS

■ Characteristics

- High Power LEDs
- Lens Color : Milky Diffusion
- Half Angle ($2\theta_{1/2}$) : 70 °
- Superior Weather-resistance
- UV Resistant Epoxy

■ Applications

- Advertising Signs
- Indicators
- LCD Back Lights
- Illuminations

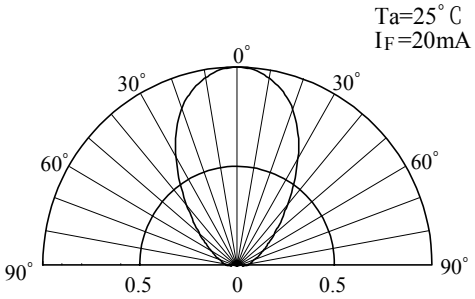
■ Absolute Maximum Rating

(Ta = 25℃)

Item	Symbol	Absolute Maximum Rating	Unit
DC Forward Current	IF	30	mA
Pulse Forward Current ※	IFP	100	mA
Reverse Voltage	VR	5	V
Power Dissipation	PD	120	mW
Operating Temperature	Topr	-30 ～ +85	℃
Storage Temperature	Tstg	-40 ～ +100	℃

※ Pulse width Max.10ms Duty ratio Max 1/10

■ Directivity



■ Electrical・Optical Characteristics

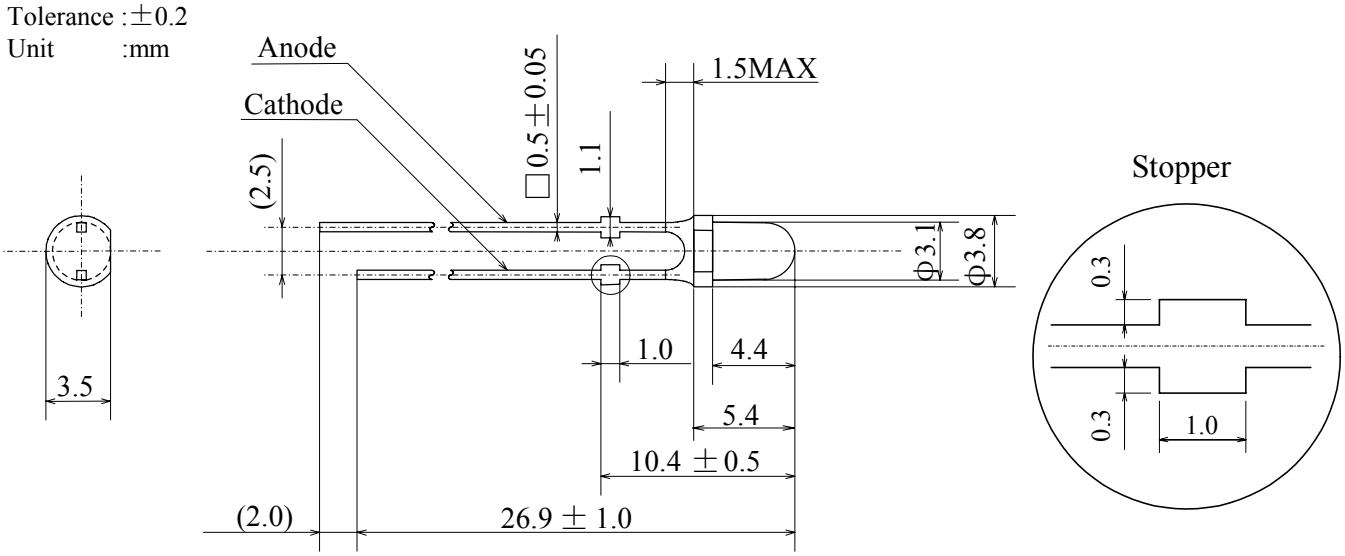
(Ta = 25℃)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
DC Forward Voltage	VF	IF=20mA	-	3.6	4.0	V
DC Reverse Current	IR	VR=5V	-	-	50	μA
Luminous Intensity	Iv	IF=20mA	-	0.68	-	cd
Chromaticity Coordinate※	x	IF=20mA	-	0.31	-	-
Chromaticity Coordinate※	y	IF=20mA	-	0.32	-	-

※ Please refer to CIE 1931 chromaticity diagram.

■ Outline Dimension

Tolerance : ±0.2
Unit : mm



NICHIA CORPORATION

STLD-AW0072B
<Cat.No.990701>

☐Headquarters
491 Oka Kaminaka-Cho Anan-Shi TOKUSHIMA 774-8601,JAPAN
Phone : (0884)22-2311 Telefax : (0884)21-0148

☐Tokyo Office
13F Tamachi Center Building
34-7 Shiba 5-Chome Minato-Ku TOKYO 108-0014,JAPAN
Phone : (03)3456-3746 Telefax : (03)5440-7516

■ CAUTIONS

- White LEDs are devices which are materialized by combining Blue LEDs and special phosphors. Consequently, the color of White LEDs is changed a little by an operating current. Care should be taken after due consideration when using LEDs.

(1) Lead Forming

- When forming leads, the leads should be bent at a point at least 3mm from the base of the epoxy bulb. Do not use the base of the leadframe as a fulcrum during lead forming.
- Lead forming should be done before soldering.
- Do not apply any bending stress to the base of the lead. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- When mounting the LEDs onto a printed circuit board, the holes on the circuit board should be exactly aligned with the leads of the LEDs. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

(2) Soldering conditions

- The leadframes of Nichia LEDs are made of copper-allay by special considering of heat conductance, so that very careful attention must be paid for the handling when soldering the LEDs.
- Solder the LEDs no closer than 3mm from the base of the epoxy bulb. Soldering the LEDs beyond the tie-bar is recommended.
- Maximum Allowable Soldering Conditions

Soldering	Solder Dipping
Soldering Iron : 30W Max. Temperature : 300℃ Max. Soldering Time : 3 seconds Max. Position : No closer than 3 mm from the base of the epoxy bulb.	Pre-Heat : 100℃ Max. Pre-Heat Time : 60 seconds Max. Solder Bath Temperature : 260℃ Max. Dipping Time : 5 seconds Max. Dipping Position : No lower than 3 mm from the base of the epoxy bulb.

- Do not apply any stress to the lead particularly when heated.
- When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.
- Cut the LED leadframes at room temperature. Cutting the leadframes at high temperature may cause failure of the LEDs.

(3) Static Electricity

- Static Electricity and surge damages the LEDs. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. All devices, equipment and machinery must be properly grounded.
- When inspecting own final products on which LEDs were mounted, it is recommended to check also whether the mounted LEDs are damaged by static electricity or not. It is easy to find static-damaged LEDs by light emission test at lower current (below 1mA is recommended).
- Damaged LEDs will show some unusual characteristics such as leak current remarkably increases, starting forward voltage becomes lower, or the LEDs get unlighted at the low current.

(4) Heat Generation

- Heat generation must be taken into design consideration when using the LEDs. The coefficient of temperature increase per input electric power at room temperature is about 0.5 degrees C/mW at the LED's active layer. This temperature gets higher when the LEDs are densely mounted. It is necessary to design the circuit so that the operating conditions are within the absolute maximum ratings.
- The operating current should be decided after considering the ambient maximum temperature when the LEDs are illuminating.

(5) Others

- Care must be taken so that reverse voltage will not exceed the absolute maximum rating when using LEDs with matrix drive.
- The leads are plated with silver. They will become discolored by contact with hydrogen sulfide and other gaseous chemicals. Precautions must be taken to maintain a clean storing atmosphere. Also, if the LEDs are stored for 3 months or more after being shipped from Nichia, a sealed container with a nitrogen atmosphere should be used for storage.
- The LED light output is strong enough to injure human eyes. Precautions must be taken to prevent looking directly at the LEDs with unaided eyes for more than a few seconds.
- These LEDs described in this brochure are intended to be used for ordinary electronic equipment (such as office equipment, communications equipment, measurement instruments and household appliances). Consult Nichia's sales staff in advance for information on the applications in which exceptional quality and reliability are required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health (such as for airplanes, aerospace, automobiles, traffic control equipment, life support systems and safety devices.)
- User shall not reverse engineer by disassembling or analysis of the LEDs without having the prior written consent of Nichia. When defective LEDs are found, User shall inform to Nichia directly before disassembling or analysis.
- The formal specifications must be exchanged and signed by both parties before large volume purchase begins.
- The appearance and specifications of the product may be modified for improvement without notice.