

Dr. Licht GmbH

Vorlaenderweg 9 51588 Nuembrecht Germany
Tele.: +49 2295 9035459 info@dr-licht.de



Features

- Fluoreszenz emission according absorption of water
- One 850nm LED power the NIR fluoreszenz between 1000nm and 1800nm
- Fluoreszenz light without thermal radiation shift ideal for spectral analytic
- Qualified according to JEDEC moisture sensitivity level 2
- Long operating life

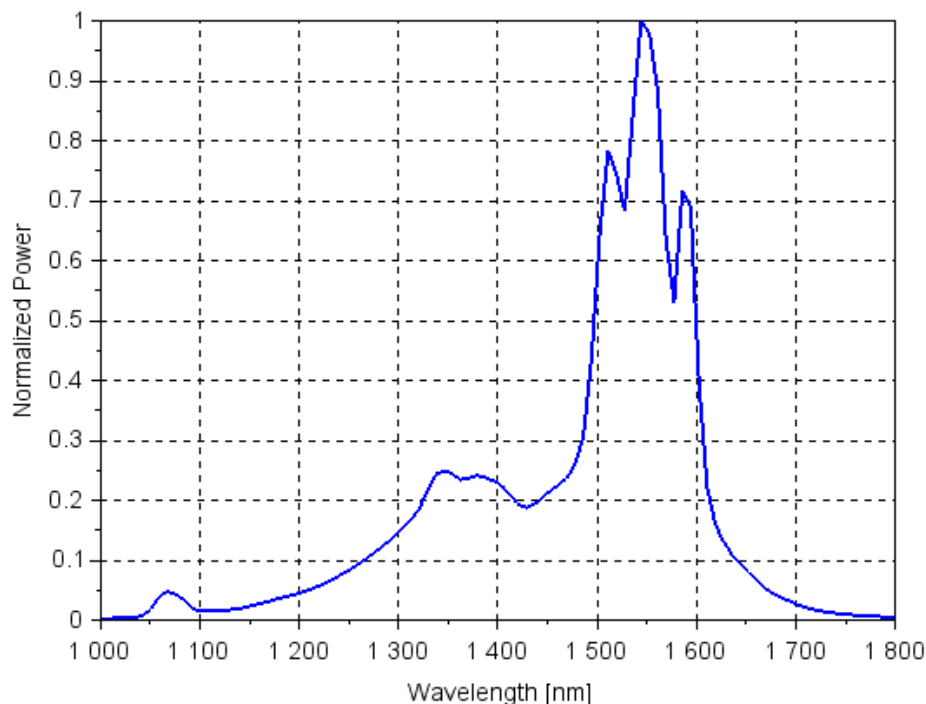


Figure. 1 Spectrum of the NIR-LED H2O according with spegg © NIR22 and silizium filter



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Absolute Maximum Ratings at Ta=25°C		
Parameter	Value	Unit
Forward Current ^[1,2]	300	mA
Peak Forward Current ^[1,3]	3000	mA
Emitter Junction Temperature	145	°C
ESD Sensitivity (ANSI/ESDA/JEDEC JS-001-2012)	2	kV
Operating Case Temperature ^[1]	-40 to 105	°C
Emitter Storage Temperature	-40 to 105	°C
Reverse Voltage ^[4]	0	V

1. Proper current derating must be observed to maintain the junction temperature below the maximum allowable junction temperature.
2. Residual periodic variations due to power conversion from alternating current (AC) to direct current (DC), also called "ripple," are acceptable if the following conditions are met:
 - The frequency of the ripple current is 100Hz or higher
 - The average current for each cycle does not exceed the maximum allowable DC forward current
 - The maximum amplitude of the ripple does not exceed the maximum peak pulsed forward current
3. For pulse handling capability details see figure 2.
4. The NIR LED H20 is not designed to be driven in reverse bias.

Table 1. Absolute maximum ratings for NIR LED H20.

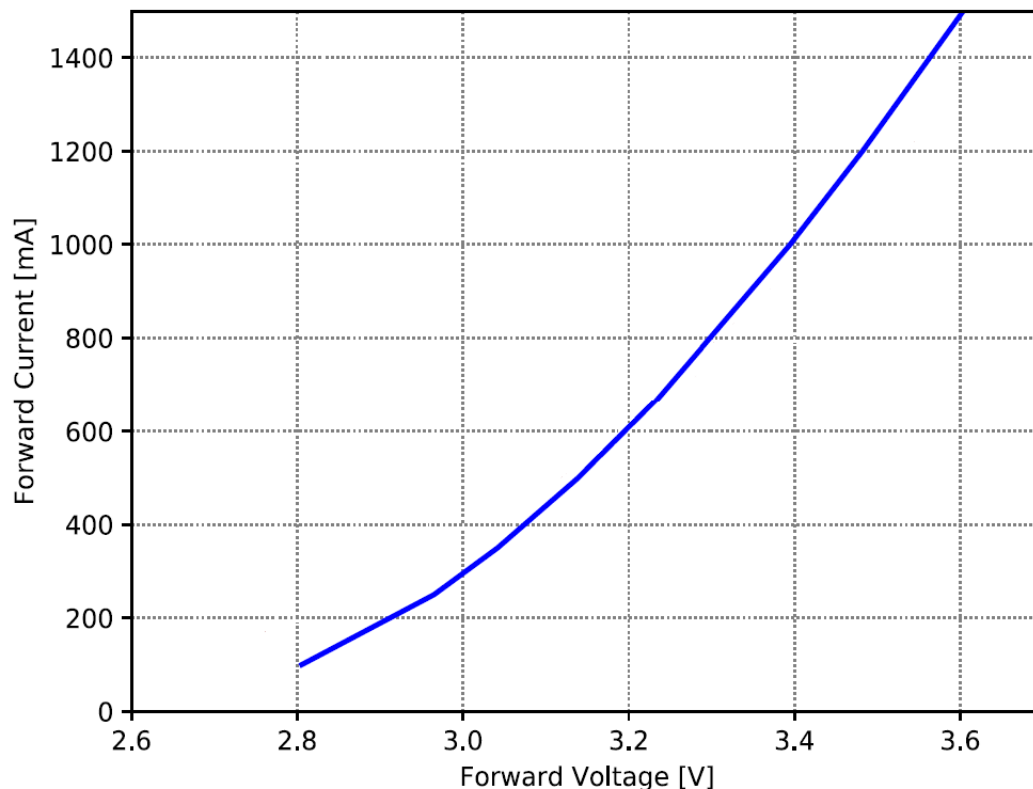


Figure. 2 Typical forward current vs. forward voltage for NIR LED H20 at Tj=25°C..



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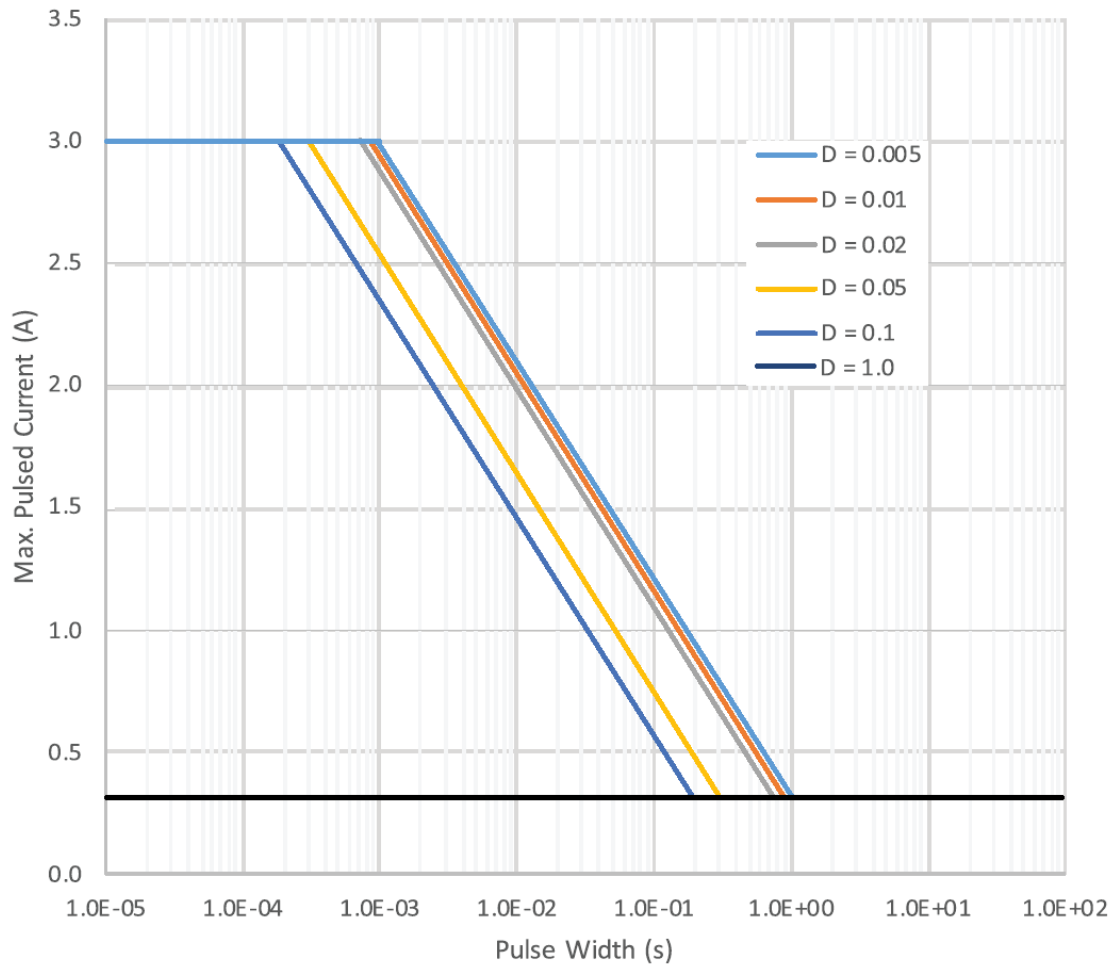


Figure. 3 Permissible pulse handling capability for NIR LED H2O at $T_a=25^\circ\text{C}$ for various dutycycles (D).



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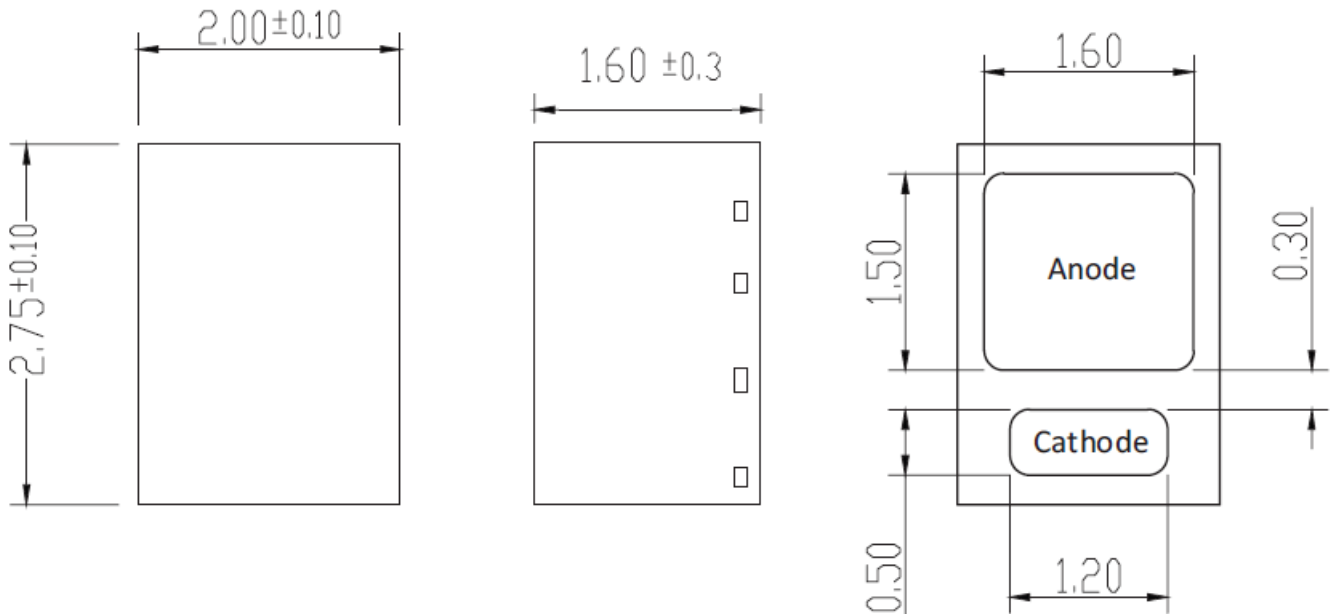


Figure. 3 Mechanical dimensions of NIR LED H2O.

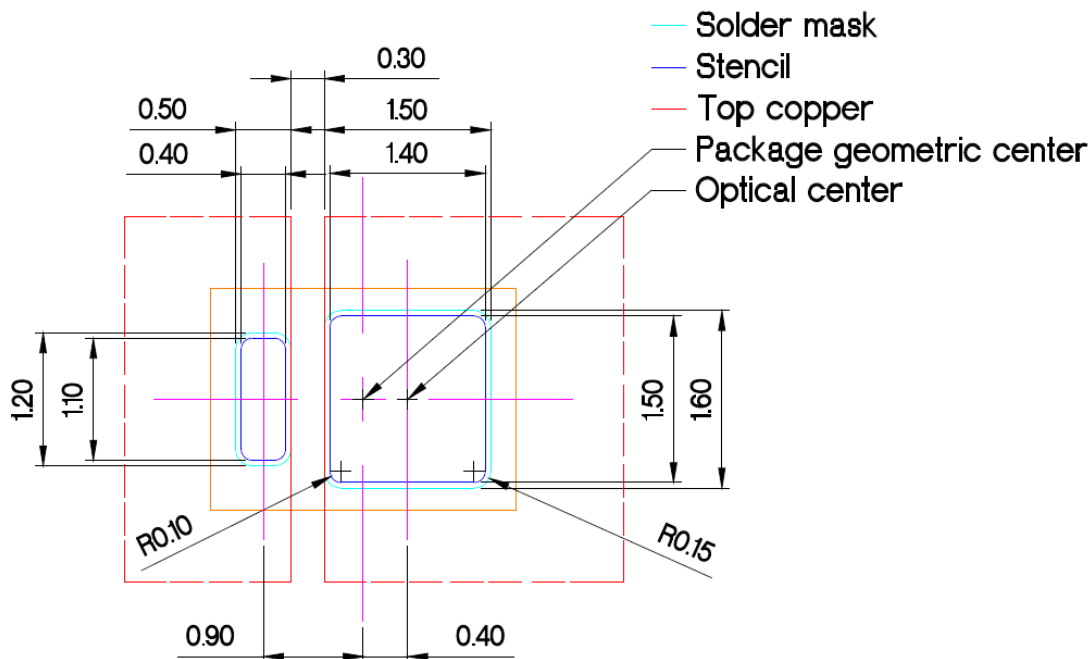


Figure 4. Recommended PCB solder pad layout for NIR LED H2O.

Notes for Figure 3 and 4:

1. Drawings are not to scale.
2. All dimensions are in millimeters.

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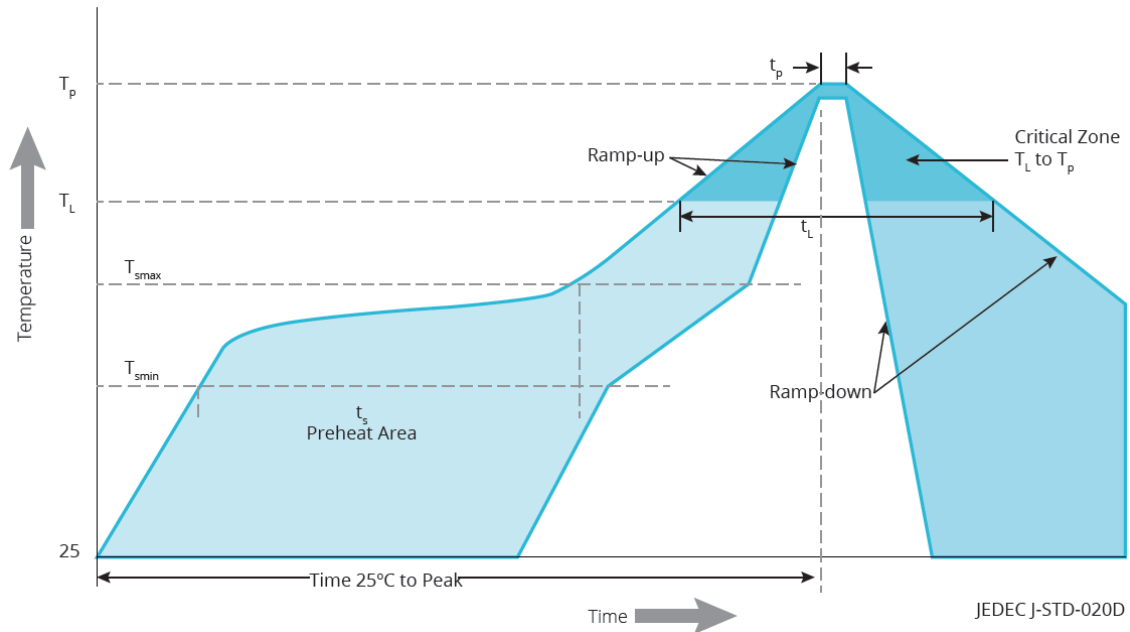


Figure 5. Visualization of the acceptable reflow temperature profile as specified in Table 2

PROFILE FEATURE	LEAD-FREE ASSEMBLY
Preheat Minimum Temperature (T_{smin})	150°C
Preheat Maximum Temperature (T_{smax})	200°C
Preheat Time (t_{smin} to t_{smax})	120 seconds
Ramp-Up Rate (T_L to T_p)	3°C / second maximum
Liquidus Temperature (T_L)	217°C
Time Maintained Above Temperature T_L (t_L)	150 seconds
Peak / Classification Temperature (T_p)	260°C
Time Within 5°C of Actual Temperature (t_p)	10 to 30 seconds
Ramp-Down Rate (T_p to T_L)	6°C / second maximum
Time 25°C to Peak Temperature	8 minutes maximum

Table 2. Reflow profile characteristics for LUXEON IR 2720 Line.

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Precaution for Use

1. Cautions

- This device is a NIR LED, which radiates NIR light during operation.
- DO NOT look directly into the NIR light or look through the optical system. To prevent in adequate exposure of NIR radiation, wear NIR protective glasses.

2. Static Electricity

- The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.

3. Heat Generation

- The powered LEDs generate heat. Heat dissipation should be considered in the application design to avoid the environmental conditions for operation in excess of the absolute maximum ratings.

The NIR LED H20 is free of mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated and diphenyl ethers (PBDE).