

# LA AT020HBH

LED module Hyper Blue (450 nm)



## Important safety advice

Depending on the mode of operation, these devices emit highly concentrated light which can be hazardous to the human eye. Do not expose eyes or skin directly and/or through optical lenses. When handling the modules wear appropriate safety glasses.

Light Avenue's Sevengine LED module series is a highly efficient LED source with optimized thermal management and low viewing angle based on TIR technology. Modules can be connected in series up to 300 V and can be equipped with secondary lenses. The middle LED can be addressed separately per design, but in this case the same chip is placed there.



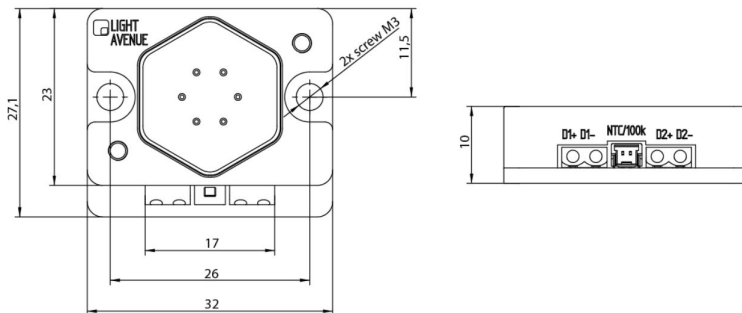
## Features

- Leading edge of light engine technology
- Viewing angle  $\pm 10^\circ$
- Ultra-high-brightness performance
- NTC monitoring

## Applications

- Illumination
- Projection
- Medical
- Architectural lighting

## Dimensions



All dimensions in mm.

## Material data

DESCRIPTION	MATERIAL
LED chip	InGaN
Package	Aluminum
Lens system	Silicone TIR lens system
PCB	Metal core with aluminum core
NTC	100k thermistor

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## Electro-optical characteristics ( $T_A = 25^\circ\text{C}$ )<sup>2</sup>

PARAMETER	SYMBOL	CONDITION	MIN.	TYP. <sup>1</sup>	MAX.	UNIT
Forward voltage	$V_F$	$I_F = 1000\text{ mA}$		24		V
Reverse voltage	$V_R$	not designed for reverse operation				
Dominant wavelength	$\lambda_{\text{dom}}$	$I_F = 1000\text{ mA}$	440	450	160	nm
Radiant power	$\Phi_e$	$I_F = 1000\text{ mA}$		9000		mW
Spectral width	RMS	$I_F = 1000\text{ mA}$		20		nm
Beam divergence angle	$\Theta$	$I_F = 1000\text{ mA}$		20		°

## Maximum ratings ( $T_A = 25^\circ\text{C}$ )<sup>3</sup>

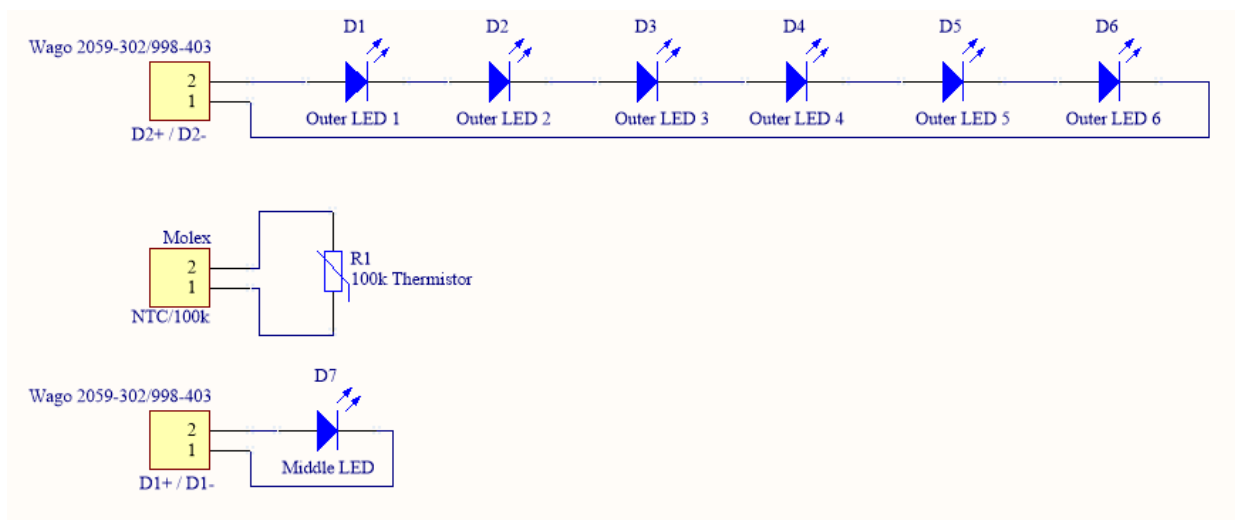
PARAMETER	SYMBOL	CONDITION	MINIMUM	MAXIMUM	UNIT
Operating current	$I_{f,\text{max}}$			3000	mA
Operating pulse current	$I_{fp,\text{max}}$	$t_p = 10\mu\text{s}$ , $D = 2\%$		4000	mA
Operating temperature	$T_{\text{op}}$		-40	100	°C
Storage temperature	$T_{\text{st}}$		-40	100	°C

## Thermal characteristics

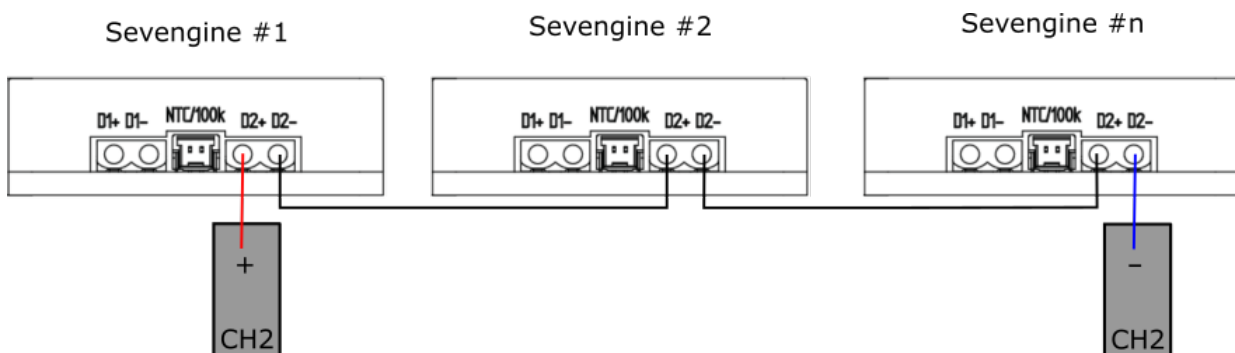
PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance junction ambient	$R\Theta_{JA}$	0.3	K/W

## Electrical connection

The outer LED chips of a Sevensine LED are connected in series and can be controlled via the Wago 2059-302/998-403 connector D2+ and D2-. It is controlled by directly plugging in fine-stranded conductors. The middle LED chip can be addressed separately per design via the wago 2059-302/998-403 connector D1+ and D1-. This connection is also contacted with fine-stranded conductors. The temperature sensor can be read out via the Molex connector with a suitable PicoBlade connector. The PicoBlade connectors with the following partnumber are suitable for this applications (Partnumber: 151340200, 151340201, 151340202, 151340203, 151340205, 151340206). A readout graph for the thermistor can be found on page 5. The schematic of a Sevensine is shown in the figure below.

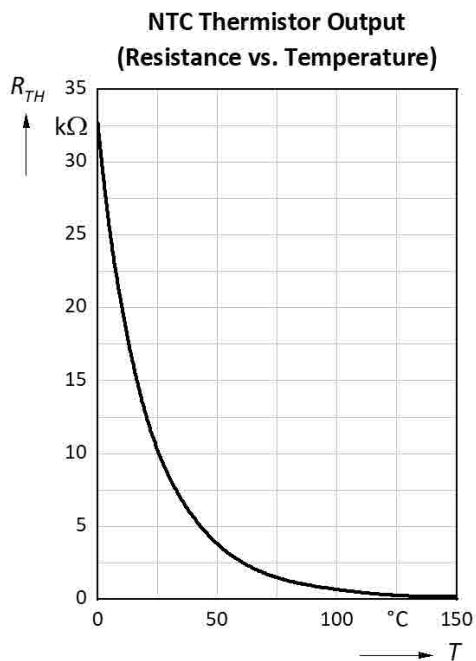
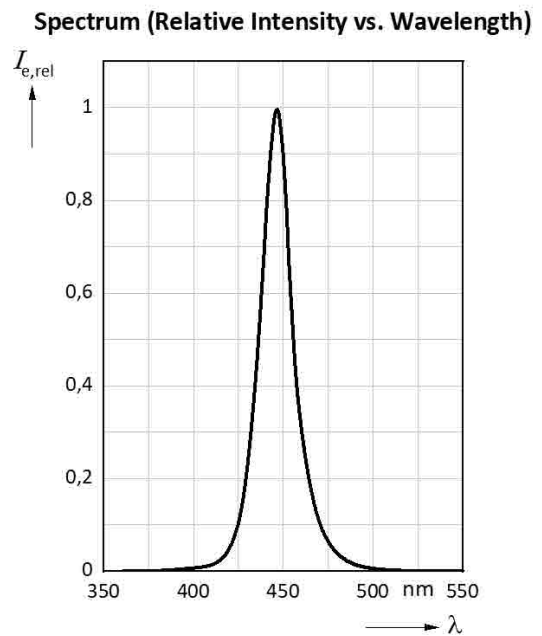
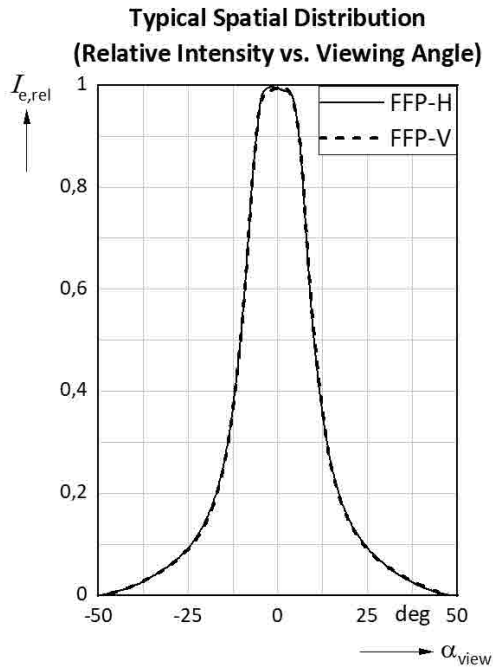


Sevensine LEDs of the same type can be connected in series. The following figure shows an example of how several Sevensines are connected in series.



To connect the middle LED (D1+ / D1-) of the various Sevensines in series, please proceed in the same way as for the outer LEDs (CH2).

## Typical characteristics graphs



## **Important usage and application information**

Lead free product - RoHS compliant. All products, product specifications and data to improve reliability, function, design or otherwise are subject to change without notice. The information describes the type of component and shall not be considered as assured characteristics. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization. The light output of the products may cause injuries to human eyes in circumstances where the products are viewed directly with unshielded eyes. LEDs can emit highly concentrated light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471. When using this product, please stay within the maximum ratings, pay attention to the other instructions, conditions and precautions described in this datasheet. We will assume no responsibility for any damages resulting from improper use of this product.

## **Handling and storage conditions**

The package is a not hermetic package. Please be careful by using this product in humid atmosphere or atmosphere containing caustic or corrosive gases as this may cause the product to fail.

## **Packing**

LED Modules are arranged in ESD safe bags. For shipment the bags are placed into a packaging box. Please use the recycling operators familiar to you. If required you can ask for our help. Please get in touch with your nearest sales office. By agreement we will take packing material back, if sorted. Transport costs of any kind must be paid by customers. For packing material that is returned to us unsorted or which we are not obliged to accept, any costs incurred will be invoiced to you.

## **Returns and Complaints**

For complaints and returns of material a RMA-number is necessary. Samples for analysis purposes can be send to us without credit.

## **Shipping Conditions**

If not otherwise arranged, the "General Terms of Business of Light Avenue GmbH" apply for any shipment. If this document is not familiar to you, please request it at our nearest sales office.

## Disclaimer

### Attention please!

- **Components used in life-support devices or systems must be expressly authorized for such purpose!**

Critical components<sup>4</sup> may only be used in life-support devices<sup>5</sup> or systems with the express written approval by us.

- All products, product specifications and data to improve reliability, function, design or otherwise are subject to change without notice .
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- The information describes the type of component and shall not be considered as assured characteristics. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.
- Lead free product - RoHS compliant.
- The quality level of the final visual inspection shall comply to an AQL of 1.0 (according to MIL-STD-105E, level II), if the customer performs an incoming visual inspection of a shipment.

- All chips are checked according to the producer's specification of the visual inspection. If this document is not familiar to you, please request it at our nearest sales office.

## Changes

VERSION	DATE	CONTENT
1.0	08.12.2019	Preliminary data.
2.0	29.07.2022	New address and technical graphs have been added (page 5).

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<sup>1</sup>Due to the special conditions of the manufacturing processes of LED, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

<sup>2</sup>Measurements are done with an accuracy of  $\pm 15\%$ . Correlation to customer's equipment and products is required.

<sup>3</sup>Maximum ratings are package dependent and may differ between packages. The forward current is not limited by the die but by the effect of the LED junction temperature on the package. If you need more information on pulsed operation, please contact your next sales office about possible driving conditions. If not otherwise specified the maximum pulse current may not exceed the maximum current in continuous mode.

<sup>4</sup>A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.

<sup>5</sup>Life support devices or systems are intended(a) to be implanted in the human body, or(b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health and the life of the user may be endangered.