LA LS56UXSM1

Near Ultraviolet Laser Diode (405 nm), Singlemode

LIGHT AVENUE
A Brand of Chips 4 Light GmbH

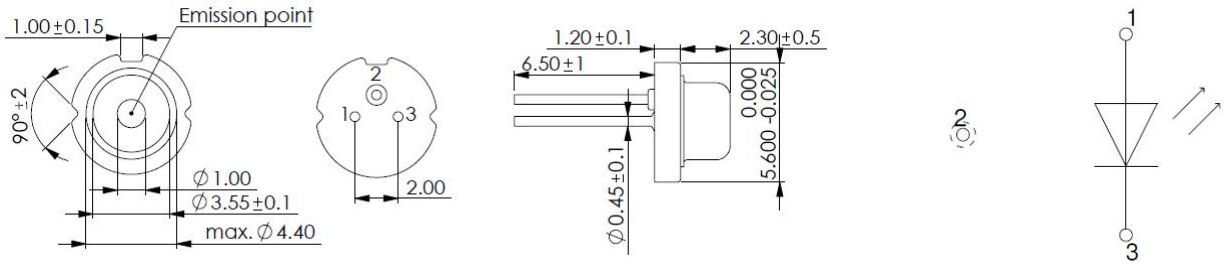
Important Safety Advice

Depending on the mode of operation, these devices emit highly concentrated visible light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions found in IEC 60825-1 (Safety of laser products).
Do not expose the eyes or skin to any laser light directly and/or through optical lenses. When handling the laser diodes wear appropriate safety glasses.

Features

- Peak wavelength 405 nm
- Optical power 150 mW
- 5.6 mm TO package
- Singlemode

Dimensions



All dimensions in mm.

Material data

DESCRIPTION	MATERIAL	FINISH
Laser Diode chip	InAlGaN	
Stem	Cu/Fe	Au plated
Cap	Kovar	Ni-plated
Lead Pins	Kovar	Au plated
Window	Borosilicated glass	

Copyright ©, Chips 4 Light GmbH. All Rights Reserved. Content is subject to change without notice.

Electro-optical characteristics ($T_A = 25°C$)[2]

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.[1]	MAX.	UNIT
Threshold current	I_{th}			40	70	mA
Differential efficiency	η_d		1.2	1.7		W/A
Forward voltage	V_F	$\Phi_e = 150\,mW$		5	6	V
Forward current	I_F	$\Phi_e = 150\,mW$		130	180	mA
Peak wavelength	λ_{peak}	$\Phi_e = 150\,mW$	400	405	410	nm
FWHM parallel	$\Theta_{\parallel}$	$\Phi_e = 150\,mW$	6	9	12	°
FWHM perpendicular	$\Theta_{\perp}$	$\Phi_e = 150\,mW$	15	19	23	°
Tilt Angle parallel	$\Delta\Theta_{\parallel}$	$\Phi_e = 150\,mW$	-3		3	°
Tilt Angle perpendicular	$\Delta\Theta_{\perp}$	$\Phi_e = 150\,mW$	-3		3	°

Maximum ratings ($T_A = 25°C$)

PARAMETER	SYMBOL	CONDITION	MINIMUM	MAXIMUM	UNIT
Optical Power	$\Phi_{e,max}$			155	mW
Operating Temperature	T_{op}		-10	75	° C
Storage Temperature	T_{st}		-40	85	° C
Reverse Voltage	V_R		2		V

Thermal characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Soldering temperature	T_{sold}	350	°C

Note: Soldering temperature refers to an iron tip temperature (max 30W power) during the solder process. Soldering positions should be 1.6 mm away from the bottom edge of the case. The immersion time must be less than 3s.

Copyright ©, Chips 4 Light GmbH. All Rights Reserved. Content is subject to change without notice.

Caution: Laser radiation!

Depending on the mode of operation, these devices emit highly concentrated visible and/or invisible (IR) light which can be very hazardous to the human eyes and skin. Avoid eye or skin exposure to direct, scattered radiation or through optical lenses. When operating the lasers wear protective glasses with the appropriate level of protection and ensure compliance with the necessary technical, organizational and personal protective measures in accordance with the currently valid safety regulations of laser products. To ensure safe laser operation please contact your laser protection officer. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1.

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.
These laser diodes are designed as consumer goods in production and quality. Please do not use this product for equipment, which needs extremely high reliability and safety in function and precision. Operating the laser diode above the maximum rating even for very short periods of time can damage the laser diode or reduce its lifetime. The laser diode must be operated with a suitable power supply with minimized electrical noise. 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 laser diode is very sensitive to electrostatic discharge (ESD). Proper precautions must be taken.
When the product is soldered, please do not apply pyhsical stress to the lead pins. Avoid the heating of the complete package by preheating or reflow. Please only heat the lead section for a short time.
When the leads are formed or cutted, please do not apply physical stress.

Packing

Laser diodes are arranged in trays. A cover is put on the top of the tray. For shipment the trays are arranged to stacks and placed into an ESD bag and 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

Copyright ©, Chips 4 Light GmbH. All Rights Reserved. Content is subject to change without notice.

If not otherwise arranged, the "General Terms of Business of Chips 4 Light GmbH" apply for any shipment.
If this document is not familiar to you, please request it at our nearest sales office.

Copyright ©, Chips 4 Light GmbH. All Rights Reserved. Content is subject to change without notice.

Disclaimer

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

Critical components[3] may only be used in life-support devices[4] or systems with the express written approval by us.

Chips 4 Light GmbH, its affiliates, agents, and employees, and all persons acting on its or their behalf, disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product. Chips 4 Light makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Chips 4 Light disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability. Statements regarding the suitability of products for certain types of applications are based on Chips 4 Light 's knowledge of typical requirements that are often placed on Chips 4 Light 's products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Chips 4 Light 's terms and conditions of business, including but not limited to the warranty expressed therein. Except as expressly indicated in writing, Chips 4 Light 's products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Chips 4 Light product could result in personal injury or death. Customers using or selling Chips 4 Light products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Chips 4 Light personnel to obtain written terms and conditions regarding products designed for such applications. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Chips 4 Light. Product names and markings noted herein may be trademarks of their respective owners.

Published by:
Chips 4 Light GmbH
Am Kuehlen Kasten 8
93161 Sinzing
Germany
www.chips4light.com
info@chips4light.com
All Rights Reserved

[1]Due to the special conditions of the manufacturing processes of lasers, 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.

[2]Light Measurements are done with an accuracy of ±15%. Voltage and wavelength are measured with an accuracy of ± 0.1 V and ± 1 nm. Correlation to customer's equipment and products is required.

[3]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.

[4]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..

Copyright ©, Chips 4 Light GmbH. All Rights Reserved. Content is subject to change without notice.