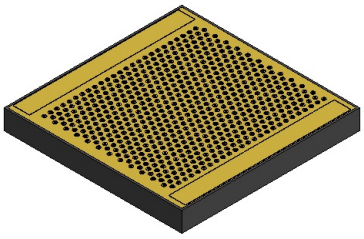
LA LM40NIV3

Infrared Laser Diode Chip (850 nm), Multimode

A Brand of Chips 4 Light GmbH



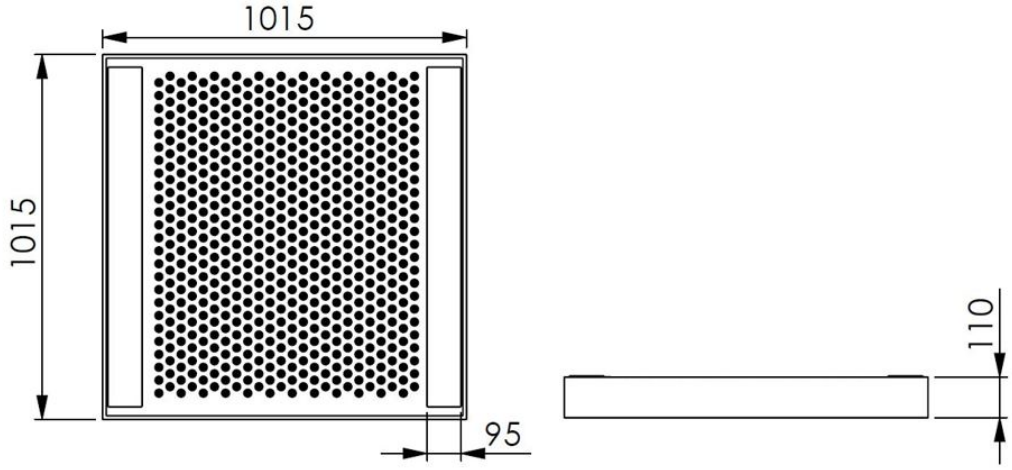
Important Safety Advice

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 eyes or skin to any laser light directly and/or through optical lenses.
When handling the laser diodes wear appropriate safety glasses.

Features

- Optical Power 2500 mW
- Peak wavelength 850 nm
- Multimode
- VCSEL Chip

Dimensions



All dimensions in mm.

Mechanical characteristics

DESCRIPTION		MINIMUM	TYPICAL[1]	MAXIMUM
Chip width	(µm)	1000	1015	1030
Chip length	(µm)	1000	1015	1030
Chip height	(µm)	95	110	125
Bond pad diameter	(µm)		95	
Top contact		Anode (p), Au alloy		
Bottom contact		Cathode (n), Au alloy		
Die attach		glueing, soldering		

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

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.[1]	MAX.	UNIT
Threshold Current	I_{th}			500		mA
Differential efficiency	η_d		0.9	1		W/A
Radiant power	Φ_e	$I_f = 3000$ mA		2500		mW
Forward voltage	V_F	$I_f = 3000$ mA		2.1		V
Peak wavelength	λ_{peak}	$I_f = 3000$ mA	840	850	860	nm
Beam Divergence Angle	θ	$I_f = 3000$ mA		25		°
WL-T-Coefficient	$\frac{d\lambda}{dT}$			0.07		nm/K

Maximum ratings ($T_A = 25°C$)

PARAMETER	SYMBOL	CONDITION	MINIMUM	MAXIMUM	UNIT
Operating Current	$I_{f,max}$			3000	mA
Operating Temperature	T_{op}		-20	85	° C
Storage Temperature	T_{st}		-40	85	° C
Reverse Voltage	V_R	not designed for reverse operation			

Thermal characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Soldering temperature	T_{sold}	260	°C

Note: Soldering time must not exceed 10 seconds

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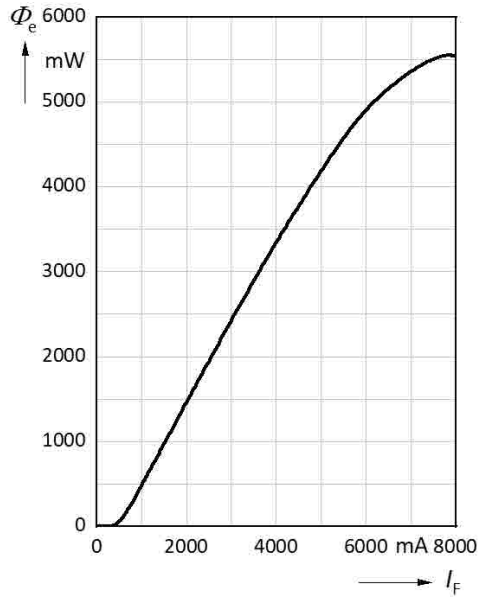
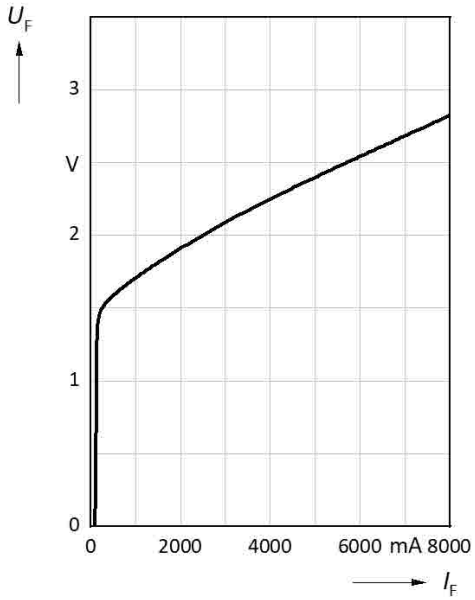
Typical characteristics graphs

Radiant Flux vs. Forward Current



Forward Current vs. Forward Voltage



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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

Storage time for wafers in sealed condition is not limited by the die itself, but may be limited by the adhesion of the blue foil (storage ambient conditions: $T_a = 15 \ldots 30°C$; relative humidity: < 60%, vertical storage). Customer has to make sure that there is no glue from the adhesive foil on the backside either by a die shear test or by visual inspection of the backside before production. The hermetically sealed shipment lot shall be opened under temperature and moisture controlled cleanroom environment only. Customers have to follow the according rules for desposition as the material can be hazardous for humans and the environment. Chips are placed on a blue foil or gel pack. Dice have to be handled ESD sensitive.

Packing

Chips are placed on a blue foil inside a 6 inch ring or alternatively on a blue foil (mylar). For shipment the wafers of a shipment lot are arranged to stacks. 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.

Visual Inspection

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 performes an incoming visual inspection of a shipment.
All products are checked according to the producer's specification of the visual inspection. If this document

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is not familiar to you, please request it at our nearest sales office.

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 Chips 4 Light GmbH" apply for any shipment. If this document is not familiar to you, please request it at our nearest sales office.

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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.

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[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..

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