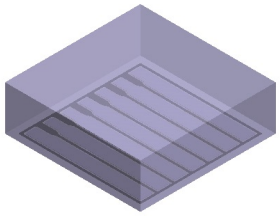
LA UZ481P3

LED Chip Ultraviolet (308 nm) 48 mil

Light Avenue Premium Edition LED series is designed for high performance consumer applications. Remarkable light extraction is reached by a particular top emitting design. It is possible to group this flip chip as narrow as possible without losing any space on the PCB. The product can be soldered with a classical reflow process.



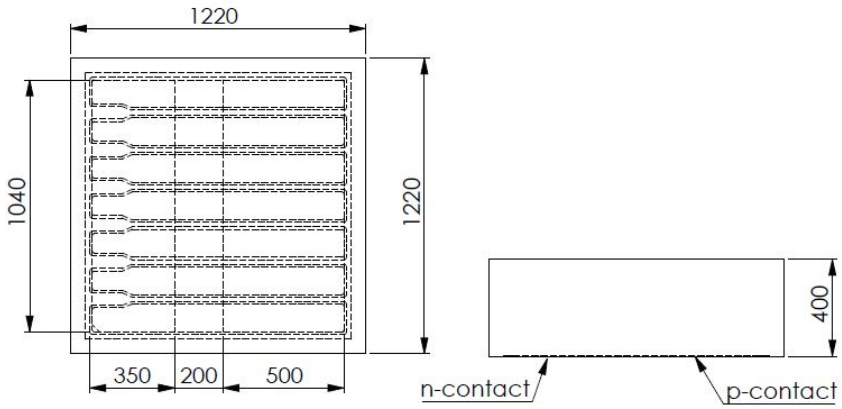
Features

- AlGaN base flip type LED chip
- High power and efficiency
- Long lifetime
- RoHS Compliant

Applications

- Medical and analytic instrumentation
- UV curing
- Fluorescent spectroscopy
- Phototherapy
- Disinfection

Delineation



All dimensions in µm.

Mechanical characteristics

DESCRIPTION		MINIMUM	TYPICAL[1]	MAXIMUM
Chip size	(µm)	1170	1220	1270
Chip height	(µm)	350	400	450
Dimension cathode (n)	(µm)	320x1020	340x1040	360x1060
Dimension anode (p)	(µm)	480x1020	500x1040	520x1060
Bottom contact		Cathode (n), AuSn and Anode (p), AuSn		
Die attach		Soldering		

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

Parameter	Symbol	Condition	Min.	Typ.[1]	Max.	Unit
Forward voltage	V_F	$I_F = 350$ mA	5	5.7	7	V
Reverse voltage	V_R	not designed for reverse operation				
Peak wavelength	λ_{peak}	$I_F = 350$ mA	300	308	315	nm
Radiant power	Φ_e	$I_F = 350$ mA		50		mW
Full width half maximum	FWHM	$I_F = 350$ mA		11		nm
Viewing angle	$2\Theta_{1/2}$	$I_F = 350$ mA		125		°

Maximum ratings ($T_A = 25°C$)[3]

Parameter	Symbol	Value	Unit
Operating temperature range	T_{op}	-30...60	°C
Storage temperature range	T_{stg}	-40...100	°C
LED junction temperature	T_j	85	°C
Forward current	I_F	500	mA

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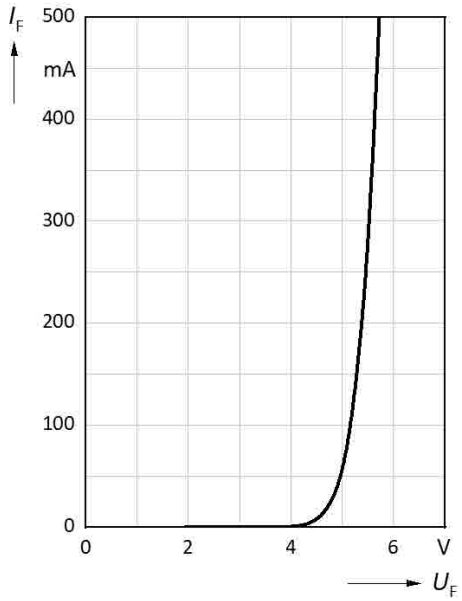
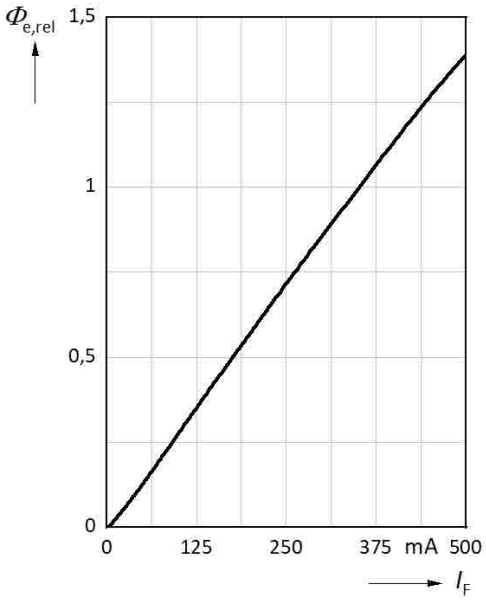
Typical characteristics graphs

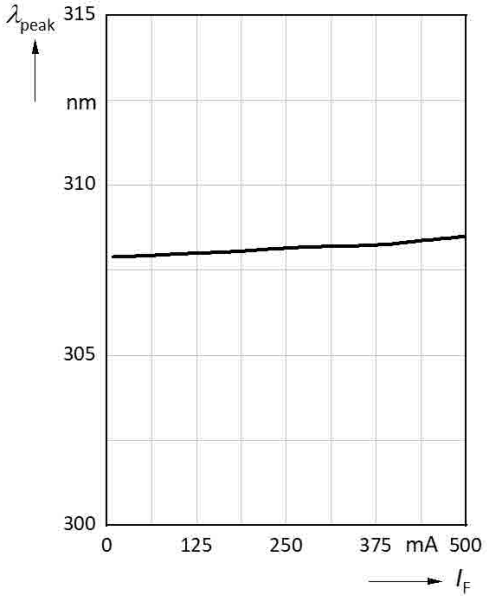
Forward Current vs. Forward Voltage



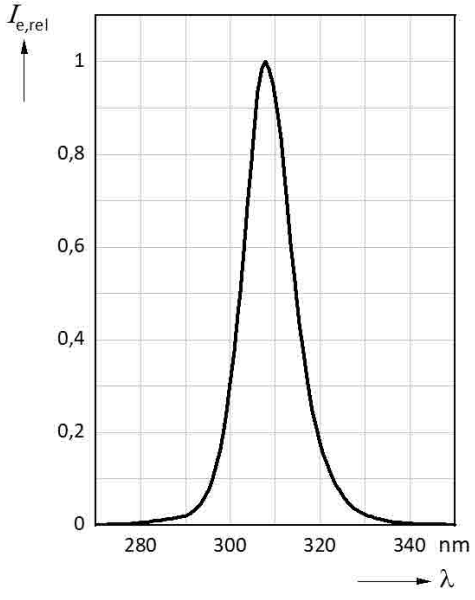
Relative Radiant Flux vs. Forward Current



Peak Wavelength vs. Forward Current



Spectrum (Relative Intensity vs. Wavelength)



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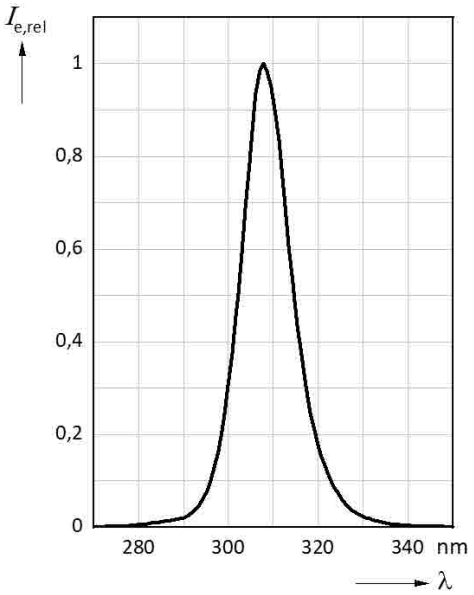
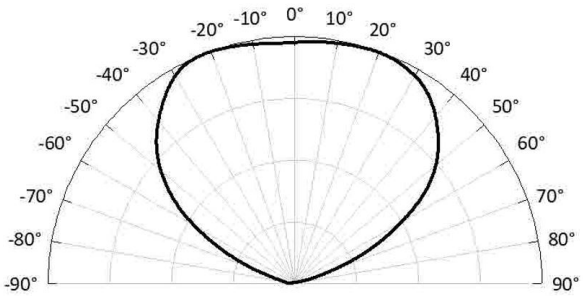
Spectrum (Relative Intensity vs. Wavelength)



Radiation Pattern



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Caution – UV radiation!

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. Ultraviolet products emit high energetic light. Exposure to light with strong ultraviolet light can cause damage to the human eye and skin. Do not look directly or indirectly at ultraviolet light. If exposure to ultraviolet light is unavoidable, the body should be protected by suitable protection devices such as googles and clothing.

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 disposition as the material can be hazardous for humans and the environment. Chips are placed on a blue foil, which may contain the following substance in a concentration of circ.18% wt: Bis (2-ethyl(hexyl)phthalate) (DEHP) [CAS #: 117-81-7; EC # 204-211-0]. 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.

Design objectives

The chip design was developed and released based on the producer's standard assembly procedures and packaging. Bond strength properties are in accordance to MIL-STD-750D, method 2037. Whether the chip fits to the customer's products with its according die and wire bond procedures and packaging must be evaluated by the customer himself. If workability problems arise after this release a mutually conducted problem solving procedure has to be set up, if the chips are suspected of contributing to the problems.The chips are produced with best effort, but on chip level a subset of the chip characteristics can be determined only. Performance of the chip in the customer's products can only be determined by the customer himself.

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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

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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 performes an incoming visual inspection of a shipment.

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- 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	24.11.2020	Change management has started, technical graphs have been added (page 3-4).
1.1	06.07.2021	Adjustment of FWHM.

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[1]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.

[2]Measurements are done with an accuracy of ±15%. Correlation to customer's equipment and products is required.

[3]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.

[4]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.

[5]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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