

# LA KH120U8F

125° ultraviolet 6060 SMD (275 nm)



Light Avenue's 6060 SMD LED series is a deep UV LED package based on an aluminum reflector with a peak wavelength of 275 nm. The LED is protected with a transparent quartz glass that maximizes light output. The LED is optimized for best performance vs. price ratio and offers good thermal and reliability behavior. A protection diode offers Class 2 ESD Classification.

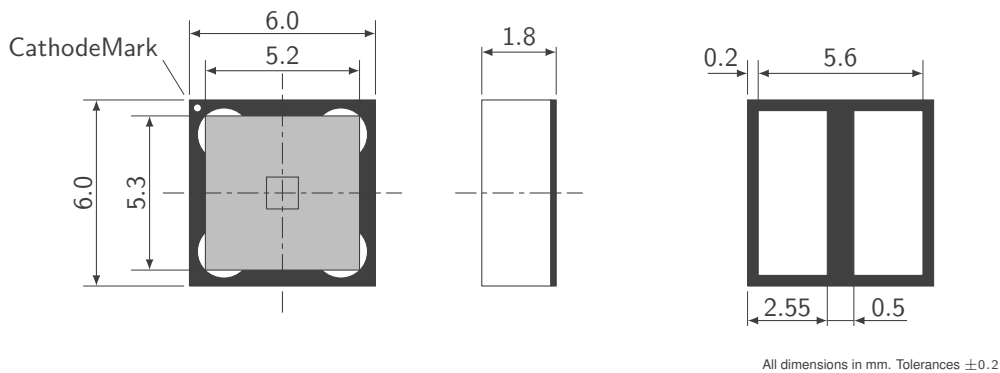
## Features

- Peak wavelength 275 nm
- Aluminum SMT package
- Radiant power typ. 100 mW
- ESD protection diode

## Applications

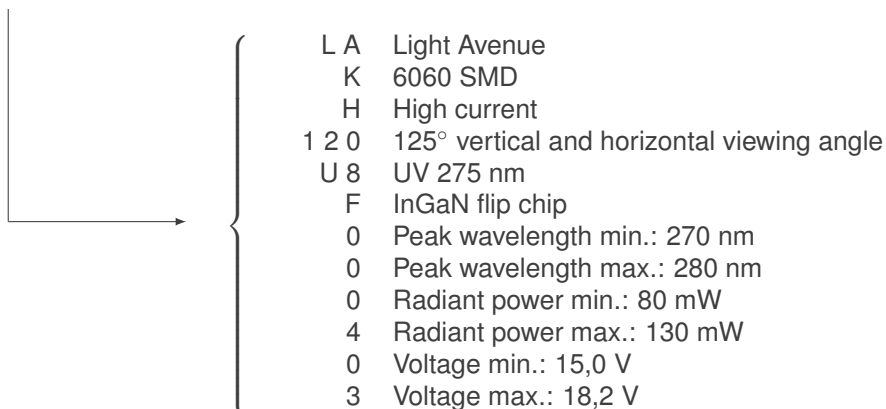
- Disinfection
- Sterilization
- Spectroscopy
- Medical
- Sensor

## Dimensions



## Ordering information

TYPE	PEAK WAVELENGTH	RADIANT POWER
LA KH120U8F-000403	270 ... 280 nm	80 ... 125 mW



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125° ultraviolet 6060 SMD (275 nm)



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

PARAMETER	SYMBOL	CONDITION	MIN.	TYP. <sup>1</sup>	MAX.	UNIT
Radiant power	$\Phi_e$	$I_f = 240\text{ mA}$	80	100	130	mW
Radiant intensity	$I_e$	$I_f = 240\text{ mA}$		3		mW/sr
Forward voltage	$V_F$	$I_f = 240\text{ mA}$	15	16,5	18,5	V
Peak wavelength	$\lambda_{peak}$	$I_f = 240\text{ mA}$	270	275	280	nm
Spectral width	$RMS$	$I_f = 240\text{ mA}$		10		nm
Beam Divergence Angle	$\theta$	$I_f = 240\text{ mA}$		125		°

## Maximum ratings ( $T_A = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	CONDITION	MINIMUM	MAXIMUM	UNIT
Operating Current	$I_{f,max}$			300	mA
Operating Pulse Current	$I_{fp,max}$	$t_p = 10\mu\text{s}, D = 2\%$		300	mA
Operating Temperature	$T_{op}$		-30	60	° C
Storage Temperature	$T_{st}$		-40	100	° C
Reverse Voltage	$V_R$		not designed for reverse operation		
Power Consumption	$P_{tot}$			5500	mW

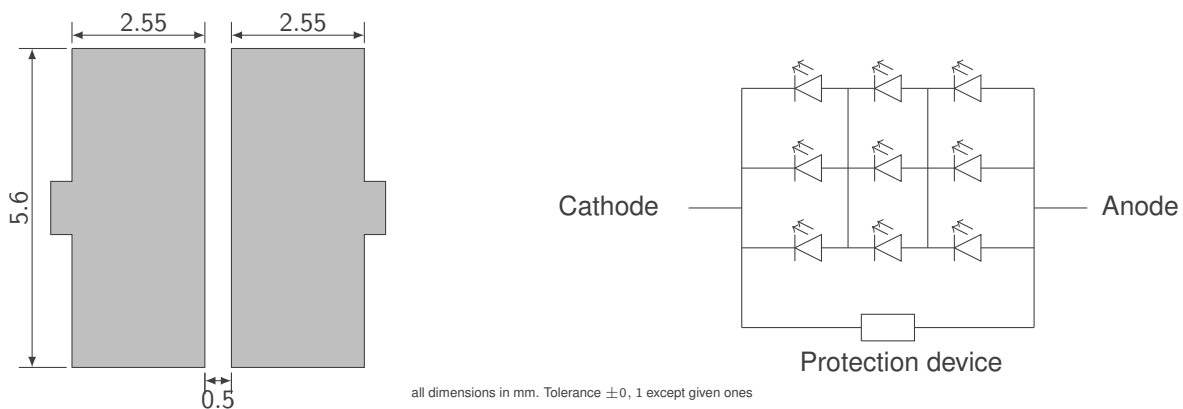
## Binning ( $I_F = 240\text{ mA}$ )

PEAK WAVELENGTH (NM)			RADIANT POWER (MW)			VOLTAGE (V)		
Bin	Min.	Max.	Bin	Min.	Max.	Bin	Min.	Max.
0	270	280	0	80	90	0	15,0	15,8
			1	90	100	1	15,8	16,6
			2	100	110	2	16,6	17,4
			3	110	120	3	17,4	18,2
			4	120	130			

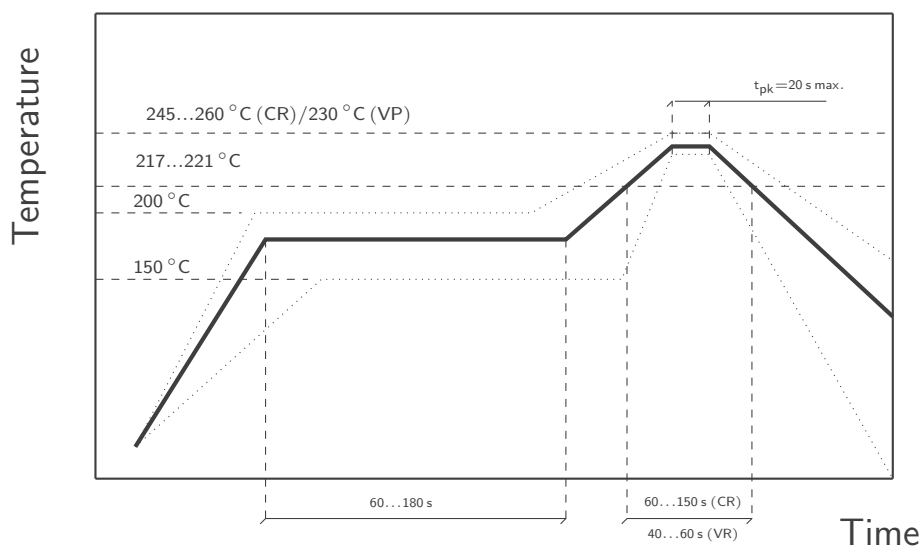
## Thermal characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance junction ambient	$R\theta_{JA}$		K/W
Soldering temperature	$T_{sold}$	260	°C

## Recommended Solderpad



## Soldering



Recommended reflow soldering conditions following IPS/JEDEC J-STD-020.

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	MAXIMUM
Temperature maintained between 150 and 200 °C	180 s
Temperature maintained above 217 °C, Convection Reflow (CR)	150 s
Temperature maintained above 217 °C, Vapor Phase (VP)	60 s
Ramp-Up Rate	+3 °C/s
Peak Temperature ( $t_{pk}$ ), Convection Reflow (CR)	245 to 260 °C
Peak Temperature ( $t_{pk}$ ), Vapor Phase (VP)	230 °C
Time to Peak Temperature	8 min
Time within 5°C of actual Peak Temperature	20 s
Ramp-Down Rate	-6°C/s

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Actual solder profile may vary from the example given, and is very much depending on wave type, machine configuration, geometrical configuration, board shape etc. It is strongly recommended to optimize and evaluate the actual soldering conditions carefully for each individual project before releasing the soldering process. All temperatures refer to the topside of the package. The LED is designed to be reflow soldered. Hand or dip soldering is not recommended and also not suitable for this package. Reflow soldering must not be done more than two times.

### 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. 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 sbody should be protected by suitable protection devices such as goggles and clothing

### Handling and Storage Conditions

Please be careful when handling the products, particularly if an over-voltage exceeds the maximum rating. The overflow in energy may cause damage to the products. In addition these products are sensitive to static electricity. Customers have to take care when handling the products to ensure that the handling process is fully protected against static generation. Ensure that products are grounded and that the facility has conductive mats, antistatic uniforms and shoes. Antistatic containers are considered to be a good insurance against static electricity. The soldering iron point should be properly grounded. An atmospheric ionizer is recommended for use in the facility where static could be generated.

Storage ambient conditions for all LEDs in sealed packages must be within  $T_A = 10..40^{\circ}\text{C}$  and relative humidity < 60%. LEDs in opened packages must be used within 2 weeks after opening. Storage time under the conditions above in sealed packages must not exceed 24 months. It is recommended to do a heat

treatment of the LEDs before soldering. The baking should be at  $65 \pm 5^\circ\text{C}$  for 10 to 24 hours. Humidity in this case should not exceed 10% relative humidity. When handling the LED with tweezers, please take it in a direction parallel to the electrode separation line. Do not touch the quartz glass.

## **Packing**

LEDs are packaged automatically on reels with a quantity of 500 pieces. Labels for identification of cathode and anode and with the lot data are placed on the reel.

## **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>3</sup> may only be used in life-support devices<sup>4</sup> or systems with the express written approval by us.

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<sup>1</sup>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.

<sup>2</sup>Light Measurements are done with an accuracy of  $\pm 15\%$ . Voltage and wavelength are measured with an accuracy of  $\pm 0.2$  V and  $\pm 3$  nm. Correlation to customer's equipment and products is required.

<sup>3</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>4</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.