

# LA PD120HP1

PIN diode 120 mil



Light Avenue Premium Edition detector series is designed for high performance consumer applications. This chip is a high speed and high sensitive PIN photodiode chip with 7.7 mm<sup>2</sup> sensitive area detecting visible and near infrared radiation. Anode is the bond pad on top of the chip.

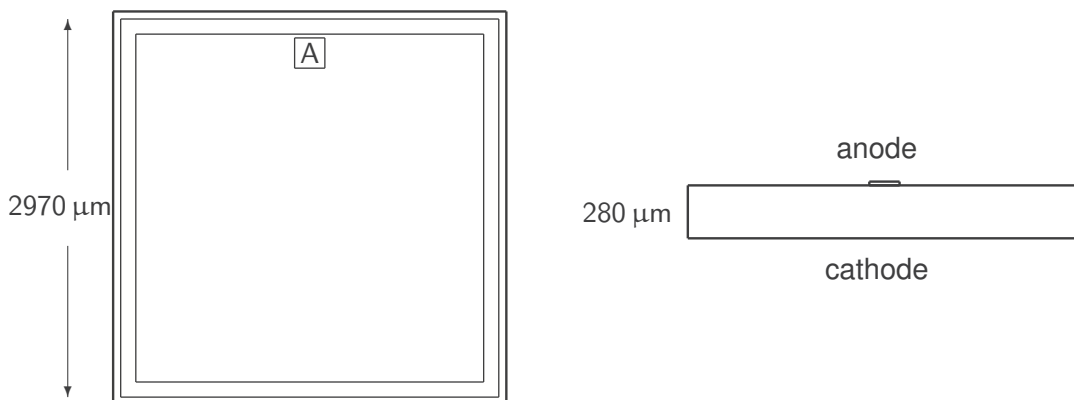
## Features

- High sensitivity silicon PIN photodiode
- Fast response times
- Suitable for visible and IR radiation
- Radiant sensitive area: 7.7 mm<sup>2</sup>

## Applications

- Industrial electronics
- High speed photo detector
- Sensors

## Delineation



## Mechanical characteristics

DESCRIPTION	MINIMUM	TYPICAL <sup>1</sup>	MAXIMUM
Chip length (μm)		2970	
Sensitive area length (μm)		2740	
Chip height (μm)		280	
Bond pad anode (μm <sup>2</sup> )		200 x 200	
Anode contact	Al		
Cathode contact	NiV		
Die attach	Epoxy bonding		

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

PARAMETER	SYMBOL	CONDITION	MIN.	TYP. <sup>1</sup>	MAX.	UNIT
Breakdown voltage	$V_{BR}$	$I_R = 100 \mu\text{A}, E = 0$		60		V
Forward voltage	$V_F$	$I_F = 50 \text{ mA}$		1	1.3	V
Reverse dark current	$I_{r0}$	$V_R = 10 \text{ V}, E = 0$		2	5	nA
Junction capacitance	$C_D$	$V_R = 0 \text{ V}, E = 0,$ $f = 1 \text{ MHz}$		70		pF
	$C_D$	$V_R = 3 \text{ V}, E = 0,$ $f = 1 \text{ MHz}$		25		pF
Reverse light current	$I_{ra}$	$E_e = 1 \text{ mW/cm}^2,$ $\lambda = 950 \text{ nm}, V_R = 5 \text{ V}$		55		$\mu\text{A}$
Wavelength of peak sensitivity	$\lambda_p$			940		nm
Range of spectral bandwidth	$\lambda_{0.1}$			430 - 1100		nm
Rise time	$t_r$	$V_R = 10 \text{ V}, \lambda = 820 \text{ nm},$ $R_L = 1 \text{ k}\Omega$		100		ns
Fall time	$t_f$	$V_R = 10 \text{ V}, \lambda = 820 \text{ nm},$ $R_L = 1 \text{ k}\Omega$		100		ns

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

PARAMETER	SYMBOL	VALUE	UNIT
Reverse voltage	$V_R$	60	V
Operating temperature range	$T_{op}$	-40...+100	$^\circ\text{C}$
Storage temperature range	$T_{st}$	-40...+100	$^\circ\text{C}$
Detector junction temperature	$T_j$	100	$^\circ\text{C}$

### Notes:

- The measurements are based on samples of die which are mounted on a TO-header without resin coating
- The usage of detectors in life-support devices or systems has to be expressly and written authorized by the supplier!
- Dice are shipped on blue foil with or without frame and have therefore to be stored between 15 and 30 $^\circ\text{C}$  and below 60% relative humidity.
- Lead free product - RoHS compliant.
- The information in this document is subject to change without notice and describes the die generally. It shall not be considered as assured characteristics or detailed specification.

- 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 "Failure Catalog of Light Avenue dice" dated 2009-11-14. The visual inspection shall be made in accordance with the "specification of visual inspection as referenced". The visual inspection of chip backside is performed with stereo microscope with incident light and 40x to 80x magnification. The quality inspection (final visual inspection) is performed by production. An additional visual inspection step as special release procedure by QM is not installed. If this document is not familiar to you, please request it at your next sales office.
- The hermetically sealed shipment lots shall be opened in temperature and moisture controlled cleanroom environment only. It is mandatory to follow the rules for disposition of material that can be hazardous for humans and environment.
- Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- Singulated die are not to be handled with tweezers. A vacuum wand with non metallic ESD protected tip should be used.

## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Light Avenue 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. Light Avenue 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, Light Avenue 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 Light Avenue's knowledge of typical requirements that are often placed on Light Avenue'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 Light Avenue's terms and conditions of business, including but not limited to the warranty expressed therein. Except as expressly indicated in writing, Light Avenue'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 Light

Avenue product could result in personal injury or death. Customers using or selling Light Avenue products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Light Avenue 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 Light Avenue. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

Light Avenue GmbH hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant. Please note that some Light Avenue documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU. Light Avenue GmbH hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Light Avenue documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Published by:  
Light Avenue GmbH  
Nuernberger Strasse 13a, 93152 Etterzhausen, Germany  
[www.light-avenue.com](http://www.light-avenue.com)  
[info@light-avenue.com](mailto:info@light-avenue.com)  
© All Rights Reserved

---

<sup>1</sup>Typical (Typ) data are defined as long-term production mean values. These values are not specified and only given for information.

<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.