

LA PD120BP1

PIN diode blue enhanced 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 mm² sensitive area detecting blue enhanced visible and near infrared radiation. Anode is the bond pad on top of the chip.

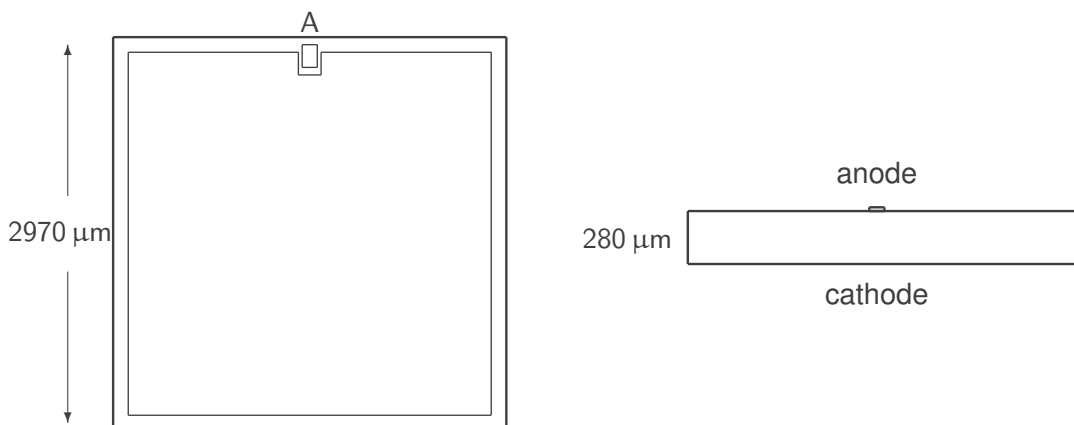
Features

- High sensitivity silicon PIN photodiode
- Blue enhanced sensitivity
- Fast response times
- Suitable for visible and IR radiation
- Radiant sensitive area: 7.7 mm²

Applications

- Blue enhanced photodetectors
- High speed photo detector
- Sensors

Delineation



Mechanical characteristics

DESCRIPTION	MINIMUM	TYPICAL ¹	MAXIMUM
Chip length (μm)		2970	
Sensitive area length (μm)		2770	
Chip height (μm)		280	
Bond pad anode (μm ²)		125 x 110	
Anode contact	Al		
Cathode contact	NiV		
Die attach	Epoxy bonding		

Electro-optical characteristics ($T_A = 25^\circ\text{C}$)²

PARAMETER	SYMBOL	CONDITION	MIN.	TYP. ¹	MAX.	UNIT
Breakdown voltage	V_{BR}	$I_R = 100 \mu\text{A}, E = 0$		25		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	$V_R = 0 \text{ V}, E = 0,$ $f = 1 \text{ MHz}$		90		pF
	C_D	$V_R = 3 \text{ V}, E = 0,$ $f = 1 \text{ MHz}$		30		pF
Reverse light current	I_{ra}	$E_e = 1 \text{ mW/cm}^2,$ $\lambda = 950 \text{ nm}, V_R = 5 \text{ V}$		43		μA
Reverse light current	I_{ro}	$E_e = 1 \text{ mW/cm}^2,$ $\lambda = 400 \text{ nm}, V_R = 5 \text{ V}$		13		μA
Wavelength of peak sensitivity	λ_p			940		nm
Range of spectral bandwidth	$\lambda_{0.1}$			350 - 1100		nm
Rise time	t_r	$V_R = 5 \text{ V}, \lambda = 850 \text{ nm},$ $R_L = 500 \Omega$		40		ns
Fall time	t_f	$V_R = 10 \text{ V}, \lambda = 820 \text{ nm},$ $R_L = 500 \Omega$		40		ns

Maximum ratings ($T_A = 25^\circ\text{C}$)³

PARAMETER	SYMBOL	VALUE	UNIT
Reverse voltage	V_R	25	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.

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

²Measurements are done with an accuracy of $\pm 15\%$. Correlation to customer's equipment and products is required.

³Maximum ratings are package dependent and may differ between packages.