



## GENERAL DESCRIPTION

The LNDOPA1 is a next generation photodetector featuring six photodetectors – five visible and one infrared. The LNDOPA1 is designed with on chip lensing to improve signal to noise ratio by limiting side light interference especially for loose fitting band applications where the operating distance and angle of reception can change during motion. The LNDOPA1 employs multiple on chip detectors and a wide optical cavity opening to provide increased effective operating distance from the subject.

The LNDOPA1 operates from a +1.7V to 7V range, utilizes <10uA in a typical applications and is useful for measuring heart rate (PPG), blood oxygen and in proximity applications. The LNDOPA1 offers a dynamic range of 1 to 4900 lux and integrates easily with an external transconductor/amplifier such as one of the LND33x series.

The LNDOPA1 is available in a compact QFN 5x5mm 32 pin package or as a custom multi-chip module (MCM) including emitters, transconductor and tuning circuitry.

## APPLICATIONS

- Smart Glasses & Goggles
- Ear Buds & Headsets
- Watches and Wearable Arm Bands
- Wearable Electronics
- Electronic Jewelry
- Wearable Garments
- Medical Devices

## FEATURES

- Six Element Photodetector:
  - Five Visible Light Photodetectors
  - One Infrared Photodetector
- Measures:
  - Heart Rate PPG
  - Blood Oxygenation
  - Proximity
- +1.7 to +7V Input Range
- <10uA Typical Current Consumption
- On Chip Lensing:
  - Minimizes Side Light Sensitivity
  - Maximizes Signal to Noise Ratio
- 5nA Typical Dark Current
- 1 to 4900 lux Dynamic Range
- Sub-1 lux Measurements Possible
- Temperature Range: 0C to +70C
- Compact QFN 5x5mm 32 pin Package or;
- Custom widebonded form factors



## PHOTO DETECTOR ARRAY BLOCK DIAGRAM

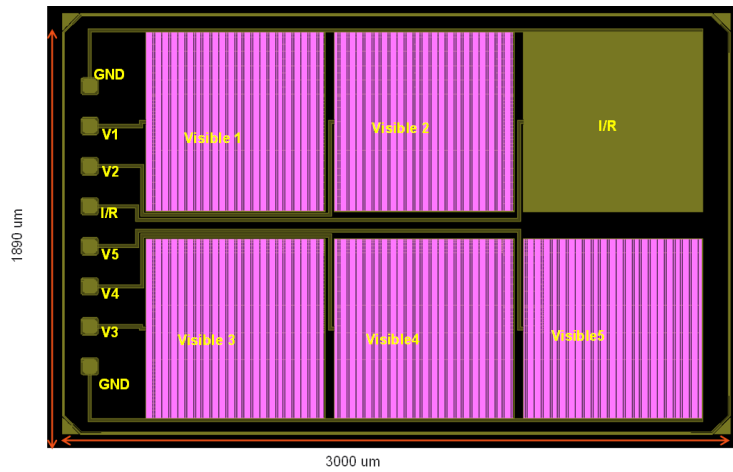


Figure 1 – Photo Detector Array

## KEY SPECIFICATIONS

Parameter	Min	Typ	Max	Units
<b>ELECTRICAL PROPERTIES</b>				
V1-V6 Current Output	0.04		150	uA
Saturation Current		150		uA
Dark Current		5		nA
<b>OPTICAL PROPERTIES</b>				
Dynamic Range	<1		4900	lux
<b>POWER SUPPLY</b>				
VBias	+1.7		+7	V
<b>TEMPERATURE RANGE</b>				
Specified Temperature Range	0		+70	C

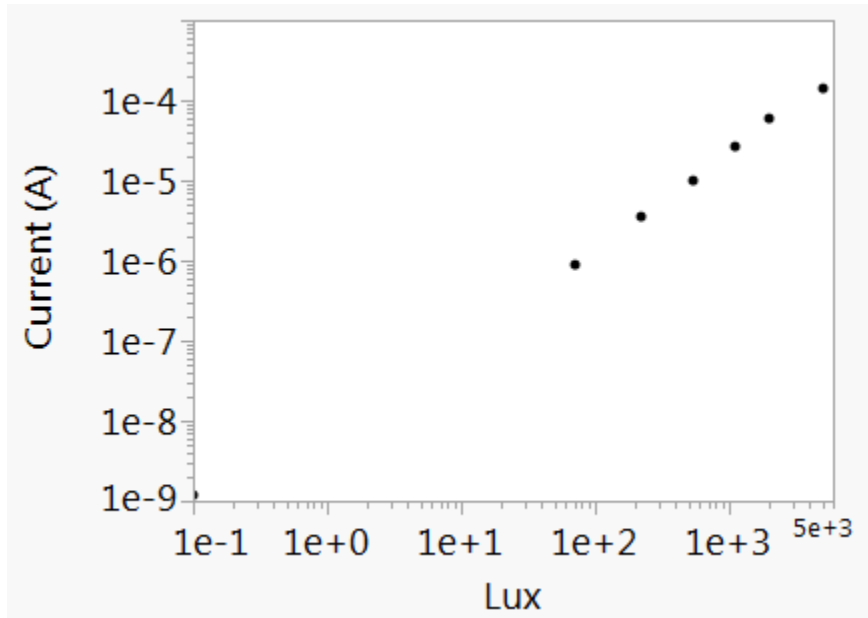


Figure 2 – Optical Power vs. Output Current

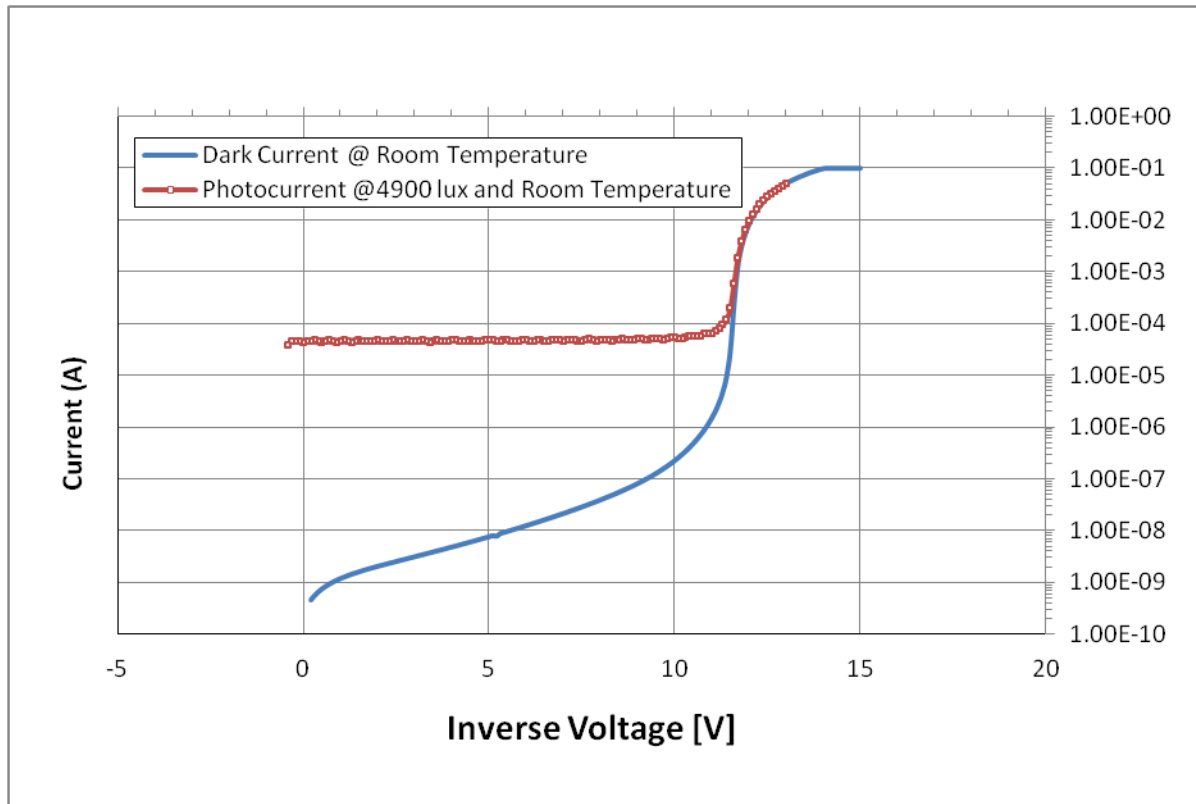


Figure 3 – Optical Power vs. Output Current

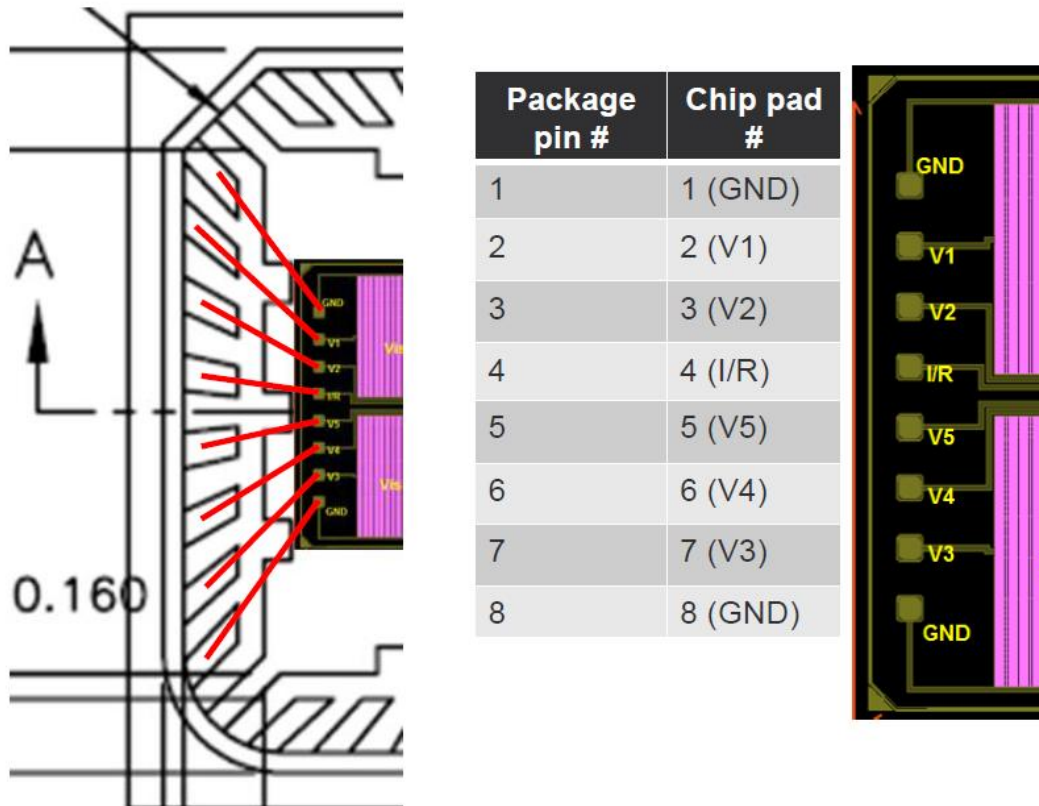


Figure 4 – Pinout

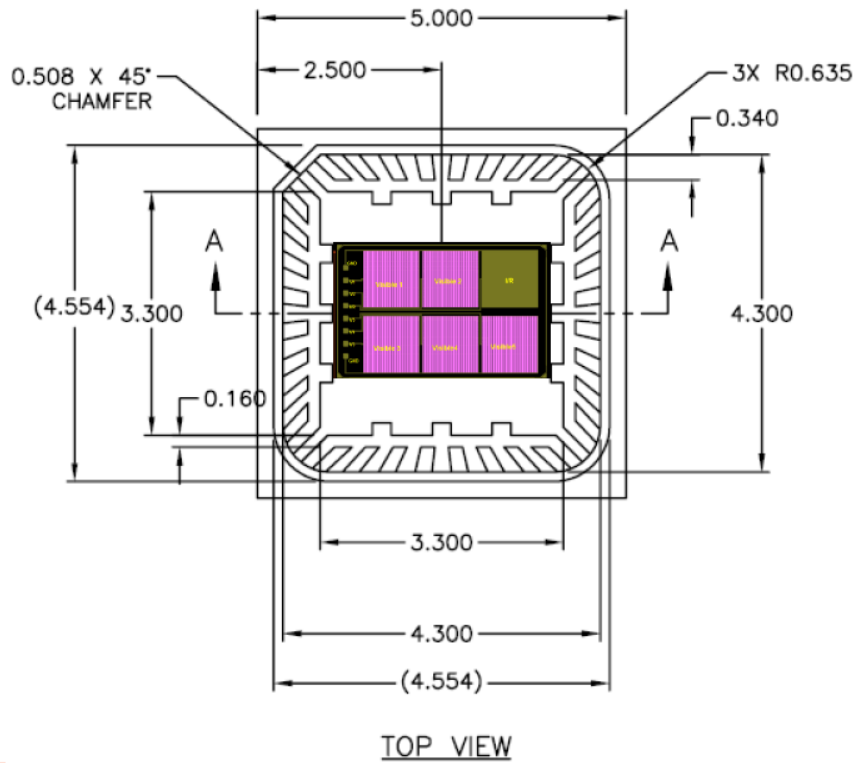


Figure 5 – Package Dimensions