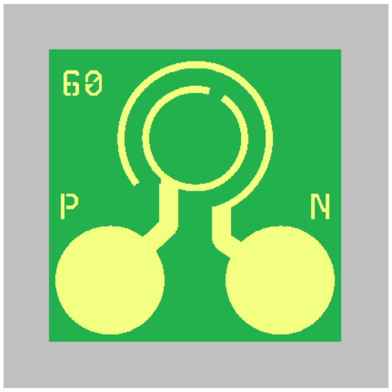
# 14Gbps GaAs PIN Photodiode & Array

## P/N: DO433_60um_G14 (1x4, _1x8, _1x12 for arrays)

Known Good Die

**DATASHEET**



## Introduction

The DO433_60um_G14 products are high performance front side illuminated GaAs PIN photodiode arrays that feature low capacitance, high responsivity, and extremely low dark current with proven excellent reliability. These products have a 60µm detection window. Primarily designed to meet the performance requirements for 14Gbps short range optical data communication, the product chip dimensions are specially tailored to meet the packaging requirement for up to 14Gbps Active Optical Cable (AOC) receiver operating at 850nm with multimode fibers. Singlets, 1x4, 1x8 and 1x12 array are all provided.

## Key Features

- Mesa structure with 60µm optical detection window
- Excellent low dark current and capacitance
- -40C to 85C operation range
- Suitable for non-hermetic package
- Customization for 1x4, 1x8 and 1x12 array configuration
- Different pad sequence available
- Highly robust 4" GaAs IC wafer fab with fast cycle-time
- Deliverable with 100% testing and inspection
- RoHS compliant

## Applications

- 14Gbps AOC (Active Optical Cable) receiver at 850nm
- Singlets, 1x4, 1x8, 1x12
- Infiniband
- SONET/SDH

## SPECIFICATIONS (T=25C)

| | Conditions | Min. | Typical | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| Bandwidth | -3V | - | 12 | - | GHz | |
| Wavelength range | | 760 | 850 | 860 | nm | |
| Capacitance | -3 V | - | 0.17 | 0.20 | pF | |
| Responsivity | @850 nm | 0.5 | - | 0.6 | A/W | |
| Dark current | -3V | - | <0.1 | 0.3 | nA | |
| Reverse Breakdown | -20V | - | - | 1 | µA | |

## ABSOLUTE MAXIMUM RATING

| Parameter | Rating |
|---|---|
| Operating Temperature | -40C to 85C |
| Storage Temperature | -55C to 125C |
| Forward Current | 10mA |

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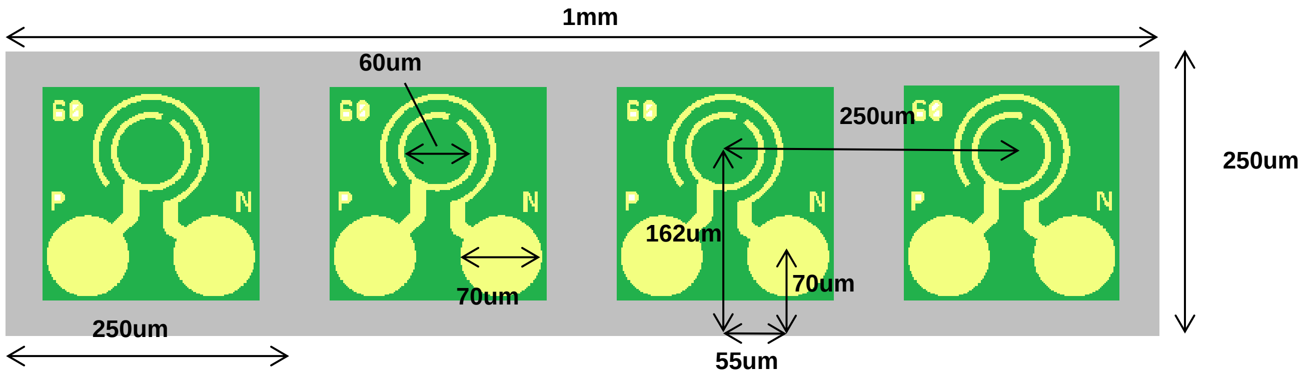
## DIMENSIONS

| | Conditions | Min. | Typical | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Detection window** | | - | 60 | - | µm | |
| **Die pitch** | | - | 250 | - | um | |
| **Bonding pad diameter** | | - | 70 | - | µm | for both p- and n- pads |
| **Die height** | | 140 | 150 | 160 | µm | |
| **Die width** | | 240 | 250 | 260 | µm | |
| **Die length** | | | 250 | | um | For Singlet |
| | | | 1 | | mm | For 1x4 Array |
| | | | 2 | | mm | For 1x8 Array |
| | | | 3 | | mm | For 1x12 Array |
| | | | | | | |

## BONDING PAD CONFIGURATION



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Attention: Avoid ESD; the device may be permanently damaged.

## About GCS:

GCS is a world-class semiconductor manufacturer specializing in advanced photodiode technologies. We provide advanced GaAs and InGaAs photodiodes of varying data rate and application to multiple top tier optical transceiver customers throughout the world. With over 15 years' experience and over 150 million units delivered, our state of the art manufacturing facility has the capacity to produce 2,000 (100mm) wafers per month.

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