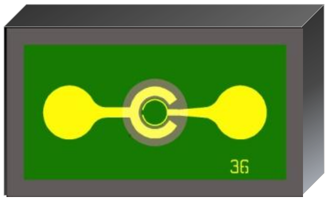
# 10Gbps 1310nm /1550nm InGaAs PIN PD

## P/N: DO048_36um_E1

GCS™
Known Good Die

**DATASHEET**

## Introduction



This high performance product is a front side illuminated InGaAs PIN photodiode chip that features dumbbell contact pads for versatile wire-bonding. It has very low capacitance, high respsonsivity, extremely low dark current and excellent reliability. This product has a 36µm detection window, and is intended primary to be integrated with a pre-amplifier in a hermetic TO package, for 10Gbps optical receivers operating at 1310nm or 1550nm with 9/125µm single mode fiber.

## Key Features

- Mesa structure with GCS proprietary epi design and process technologies
- 36µm optical detection window
- High bandwidth up to 12GHz
- Front-sided dumbbell contact pads for versatile wire bonding
- Excellent low dark current and capacitance
- -40C to 85C operation range
- Highly robust 4" IC wafer fab with fast cycle-time
- Deliverable in GCS Known Good Die™ with 100% testing and inspection
- RoHS compliant

## Applications

- IEEE 10GBASE-LR/ER
- 10G Ethernet
- 8G Fiber Channel
- SONET OC-192 SR1/IR2
- WDM, ATM

### SPECIFICATIONS (T=25C$^o$)

| | Conditions | Min. | Typical | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| Bandwidth | -5V | | 12 | - | GHz | |
| Wavelength range | | 910 | 1310/1550 | 1650 | nm | |
| Capacitance | -5 V, 1 MHz | | 0.10 | 0.15 | pF | |
| Responsivity | @1310 nm | 0.8 | 0.9 | - | A/W | |
| Dark current | -5V | - | 0.3 | 3 | nA | |
| Reverse Breakdown | -20V | - | - | 1 | µA | |

### Absolute Maximum Rating

| Parameter | Rating |
|---|---|
| Operating Temperature | -40C to 85C |
| Storage Temperature | -40C to 125C |
| Soldering Temperature | 320C / 5 sec |

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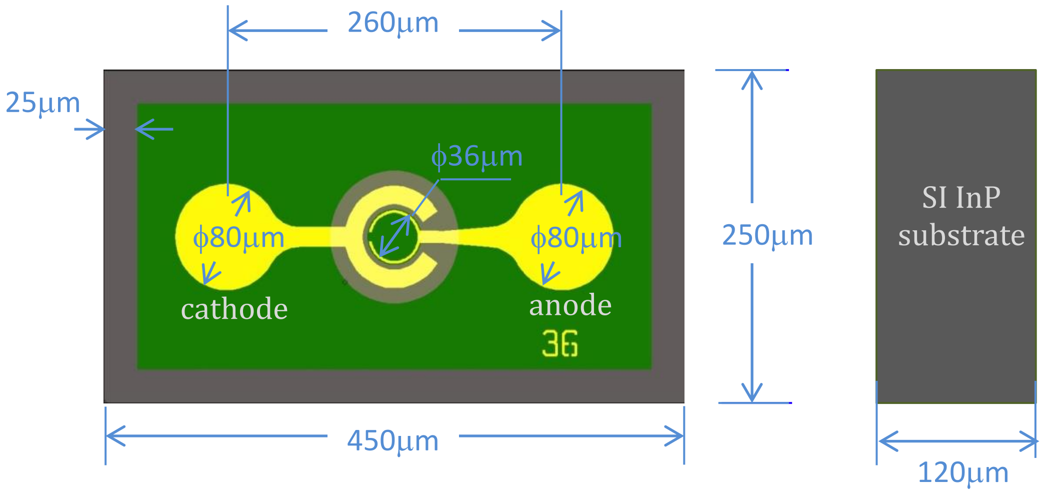
## Dimensions

| | Conditions | Min. | Typical | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| Detection window | | | 36 | | µm | |
| Bonding pad size | | | 80 | | µm | for both p- and n- pads |
| Metal height of bond pad | | 1.4 | 1.6 | - | µm | Au metal |
| Die height | | 110 | 120 | 130 | µm | |
| Die width | | 240 | 250 | 260 | µm | |
| Die length | | 440 | 450 | 460 | µm | |



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Attention: InP brittle material and electrostatic sensitive device, observe precaution for handling.

## Contact Information

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About GCS: GCS has a long history manufacturing and shipping both GaAs and InGaAs based photo diodes since 2000. Our state of art manufacturing facility is located in Torrance, California, and has about 10,000 square feet of fab space with a capability of about 1200 4-inch wafers per month and expandable to 2000 wafers per month. GCS as a world-class semiconductor device manufacturer has been delivering a total of over 30 million photo diodes with various date rates and applications used for optical communications, which have been deployed in field by top tier optical transceiver companies worldwide.