

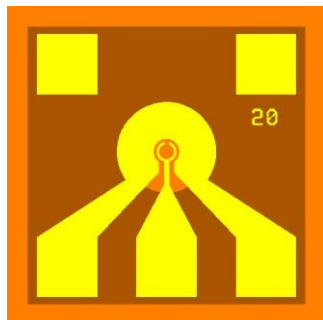
# 25Gbps 1310nm /1550nm InGaAs PIN PD

P/N: DO231\_20um\_C3



Known Good Die

## PRELIMINARY DATASHEET



### Introduction

This high performance product is a top-side illuminated InGaAs PIN photodiode chip that features very low capacitance, high responsivity, extremely low dark current and excellent reliability. This product has a 20 $\mu$ m detection window, and is intended primarily to be integrated with a pre-amplifier in a hermetic TO package, for 25Gbps optical receivers operating at 1310nm or 1550nm with 9/125 $\mu$ m single mode fiber.

### Key Features

- Mesa structure with GCS proprietary epi design and process technologies
- 20 $\mu$ m optical detection window
- Top-sided 50 $\Omega$  coplanar GSG contact pads with SI substrate
- Excellent low dark current and capacitance
- -40C to 85C operation range
- Low cost 4" wafer manufacturing with fast cycle-time
- Deliverable in GCS Known Good Die™ with 100% testing and inspection
- Customized layout dimensions available
- RoHS compliant

### Applications

- IEEE 100 Gigabit Ethernet

### SPECIFICATIONS (T=25C°)

|                  | Conditions  | Min. | Typical   | Max. | Unit | Notes |
|------------------|-------------|------|-----------|------|------|-------|
| Bandwidth        | -3 V        |      | 22        | -    | GHz  |       |
| Wavelength range |             | 910  | 1310/1550 | 1650 | nm   |       |
| Capacitance      | -5 V, 1 MHz |      | 0.07      | 0.10 | pF   |       |
| Responsivity     | @ 1310 nm   | 0.8  | 0.9       | -    | A/W  |       |
| Dark current     | -5V         | -    | 0.3       | 3    | nA   |       |

### ABSOLUTE MAXIMUM RATING

| Parameter             | Rating        |
|-----------------------|---------------|
| Operating Temperature | -40C to 85C   |
| Storage Temperature   | -40C to 125C  |
| Soldering Temperature | 260C / 10 sec |

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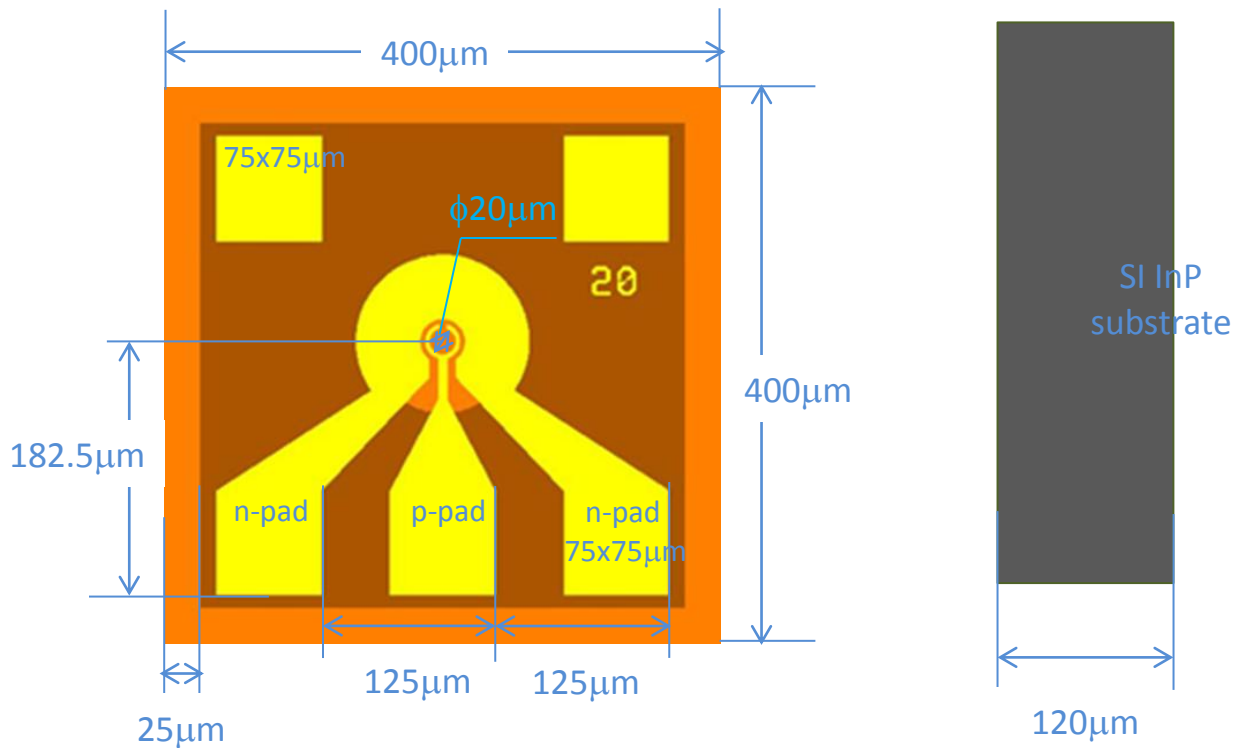
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## DIMENSIONS

|                          | Conditions | Min. | Typical | Max. | Unit          | Notes                   |
|--------------------------|------------|------|---------|------|---------------|-------------------------|
| Detection window         |            |      | 20      |      | $\mu\text{m}$ |                         |
| Bonding pad size         |            |      | 75x75   |      | $\mu\text{m}$ | for both p- and n- pads |
| Metal height of bond pad |            | 1.4  | 1.6     | -    | $\mu\text{m}$ | Au metal                |
| Die height               |            | 110  | 120     | 130  | $\mu\text{m}$ |                         |
| Die width                |            | 390  | 400     | 410  | $\mu\text{m}$ |                         |
| Die length               |            | 390  | 400     | 410  | $\mu\text{m}$ |                         |



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

### 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 data rates and applications used for optical communications, which have been deployed in field by top tier optical transceiver companies worldwide. ■

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