



# Global Communication Semiconductors

## “GCS Known Good Die” Fiber Optical Components

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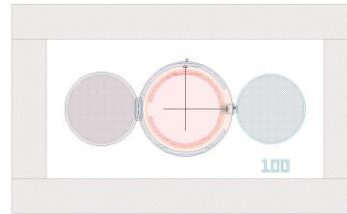
## **“GCS Known Good Die” Fiber Optical Components**

- **GaAs & InGaAs PDs**
- **MPDs**
- **APD**
- **VCSEL**

# GaAs PIN PD up to 32G



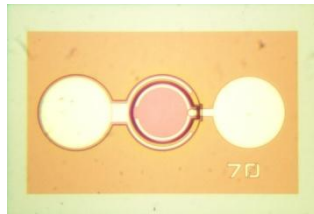
- **850 nm Detection**
- **Dark Current < 100 pA**
- **Responsivity > 0.55 A/W**
- **Mesa structures**
- **Data Rate: 1-32 Gb/s**
- **Custom Die Size & Array**



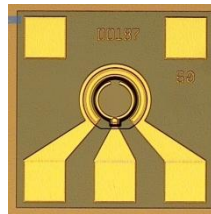
Do007\_100um\_PIN4 (1-4G)



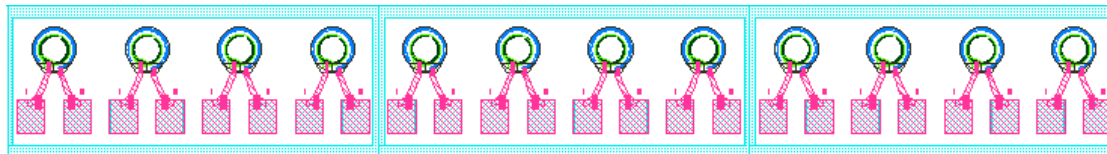
Do079\_100um\_PIN4\_1x4 (1-4G)



Do091\_70um\_PIN4 (10G)

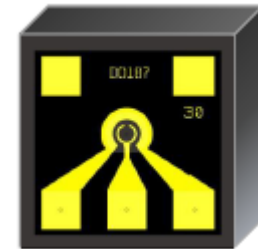


Do187\_60um\_PIN4 (10G)



Do136\_70um\_PIN4 Array (1x4, 1x8, 1x12) (10G)

Do173\_60um\_PIN4 Array (1x4, 1x8, 1x12) (10G)



Do187\_30um\_PIN4 (28G)

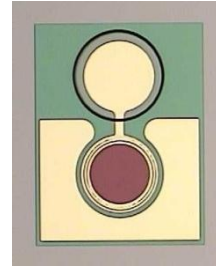
Do187\_20um\_PIN4 (32G)

**Preliminary**

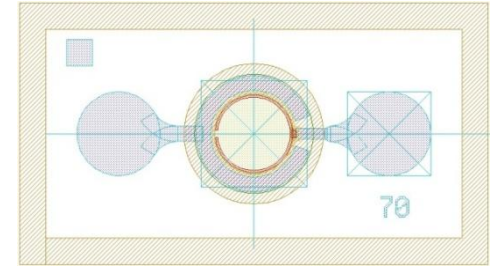
# InGaAs PIN PD up to 32G



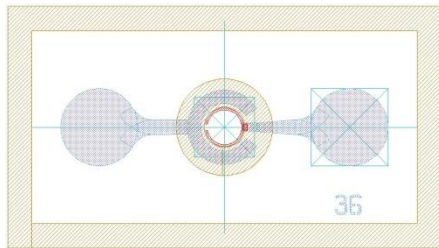
- **1310/1550 nm Detection**
- **Dark Current < 0.5 nA**
- **Responsivity > 0.9 A/W**
- **Mesa or planar structures**
- **Data Rate: 1-30 Gb/s**
- **Custom Die Size & Array**



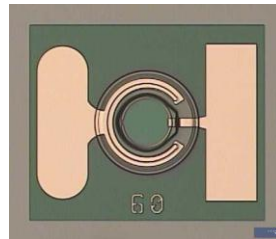
Do105\_68um (Planar, 5G)



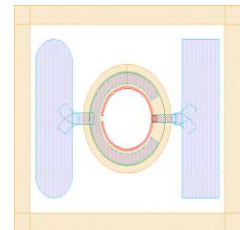
Do039\_70um (Mesa, 5G)



Do048\_36um (Mesa, 10G SM)



Do122\_60um (Mesa, 10G MM)



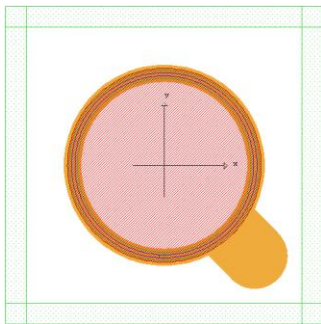
Do073\_80um (Mesa, 5G)



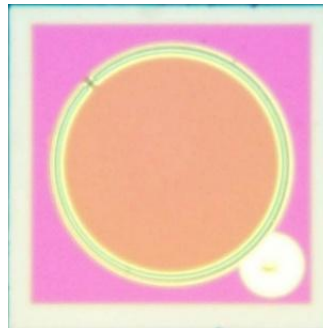
**Preliminary**

Do1xx\_30um, 20um, 16um (Mesa, up to 32G)

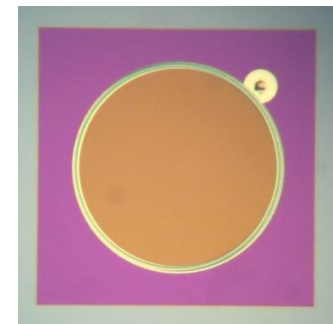
- 1310/1550 nm Detection
- Dark Current  $< 0.5$  nA
- Responsivity  $> 0.9$  A/W
- Planar structures



Do064\_200um\_P2



Do051\_300um\_P2



Do062\_500um\_P2



260um  
Aperature

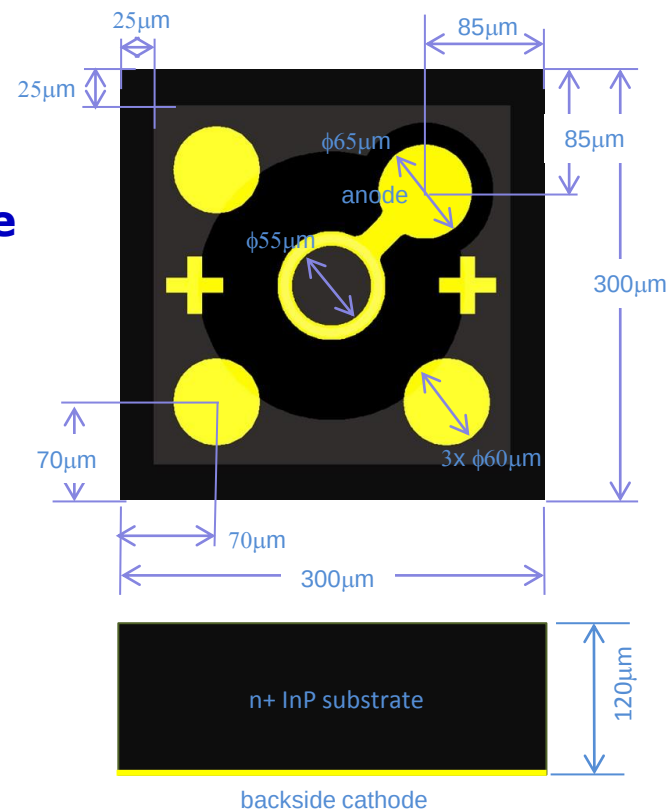
**In development**

# DO198\_55um\_APD



## Key Features

- GCS proprietary design and process technologies
- 55 $\mu\text{m}$  optical detection window
- Backside common cathode and topside anode
- -33dBm typical sensitivity with low-noise
- -40C to 85C operation range
- High reliability with GCS robust 4" wafer manufacturing with fast cycle-time
- Deliverable in GCS Known Good Die™ with 100% testing and inspection
- Customized layout dimensions available
- RoHS compliant



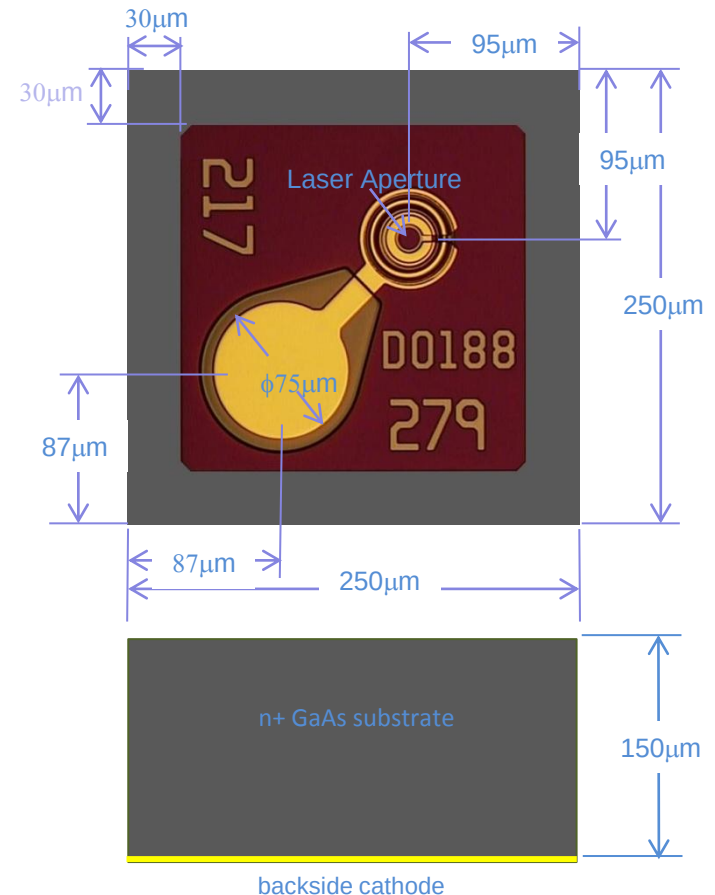
**Preliminary**

## 10Gbps 850nm VCSEL

### Key Features

- 850nm multimode emission
- Low threshold and operation current
- Excellent reliability
- Data rates up to 10 Gb/s for singlet chip
- Optimized for -5C to 70C operation
- High reliability with GCS robust 4" wafer manufacturing with fast cycle-time
- Deliverable in GCS Known Good Die™ with 100% testing and inspection
- customized 1x4 array or other arrays layout available
- RoHS compliant

**Preliminary**





# ***Thank you!***

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