

# 10Gbps 1310nm /1550nm InGaAs PIN PD

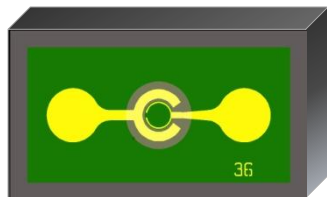
P/N: DO048\_36um\_B1



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 responsivity, extremely low dark current and excellent reliability. This product has a 36 $\mu$ m 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 9/125 $\mu$ m single mode fiber.

### Key Features

- Mesa structure with GCS proprietary epi design and process technologies
- 36 $\mu$ m 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°)

	Conditions	Min.	Typical	Max.	Unit	Notes
Bandwidth	-5V		12	-	GHz	
Wavelength range		910	1310/1550	1650	nm	
Capacitance	-5 V, 1 MHz		0.12	0.17	pF	
Responsivity	@1310 nm	0.8	0.9	-	A/W	
Dark current	-5V	-	0.3	3	nA	
Reverse Breakdown	-20V	-	-	1	$\mu$ A	

### Absolute Maximum Rating

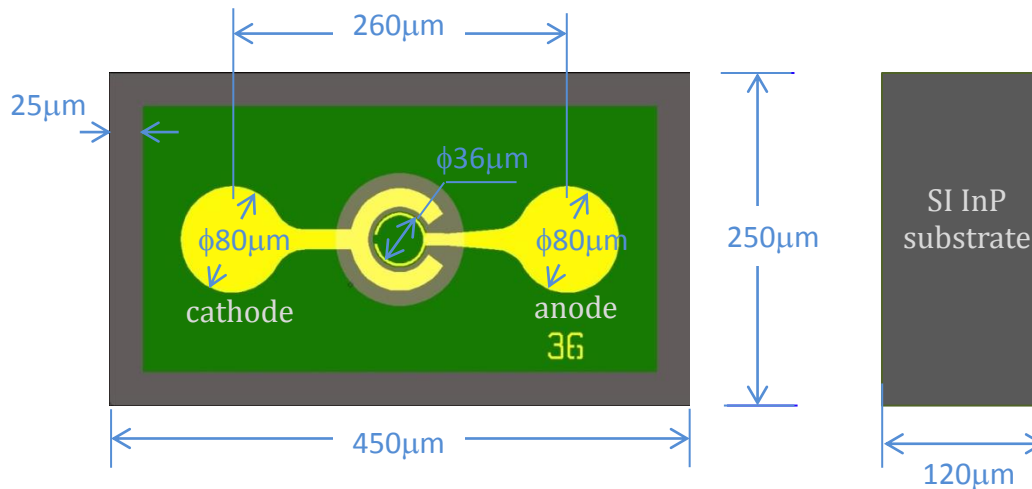
Parameter	Rating
Operating Temperature	-40C to 85C
Storage Temperature	-40C to 125C
Soldering Temperature	320C / 5 sec



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## Dimensions

	Conditions	Min.	Typical	Max.	Unit	Notes
Detection window			36		$\mu\text{m}$	
Bonding pad size			80		$\mu\text{m}$	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		240	250	260	$\mu\text{m}$	
Die length		440	450	460	$\mu\text{m}$	



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

## Contact Information

Global Communication Semiconductors, LLC. 23155 Kashiwa Court, Torrance, CA 90505, USA

- Simon Yu: Tel (310) 530-7274 Ext. 138 Cell (650) 892-8676 Email: syu@gcsincorp.com
- Michael Cheng: Tel (310) 530-7274 Ext. 220 Cell (408) 717-1388 Email: mcheng@gcsincorp.com

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.



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