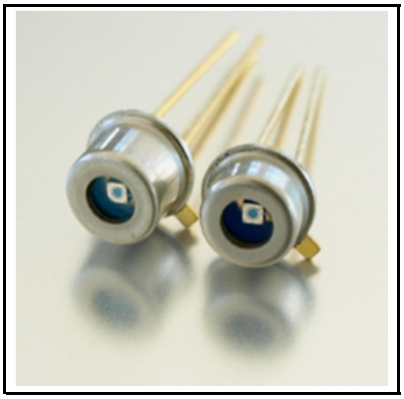
First Sensor

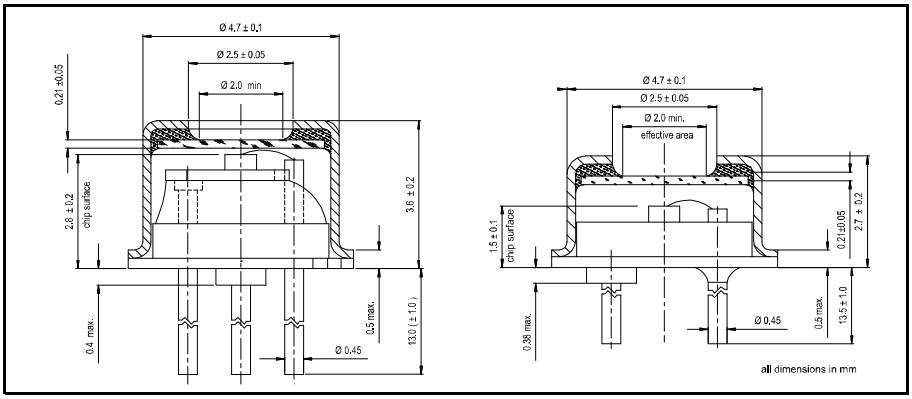
First Sensor PIN Photo Diode Data Sheet

Part Description PS1.0-5b TO

Order # 501424

Version 29-02-12





Features

- 1000 µm x 1000 µm active area
- Low dark current
- Fast response time
- High speed epitaxy
- Fully depleted at 3.5 V
- Optimized for blue light

Description

High speed epitaxy PIN photodiode with 1.0 mm² square active area. Metal can type hermetic isolated TO52 package with clear glass window. Other packaging options available upon special request.

Application

- Pulsed light detection
- High speed photometry
- High speed optical communications
- Laser monitoring

RoHS

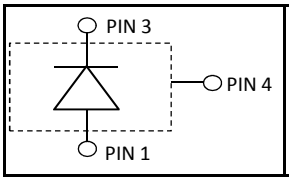
2002/95/EC

RoHS COMPLIANT

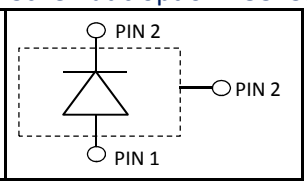
Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	°C
T_{OP}	Operating temp	-40	100	°C
V_{max}	Max reverse voltage		40	V
I_{PEAK}	Peak DC current		10	mA

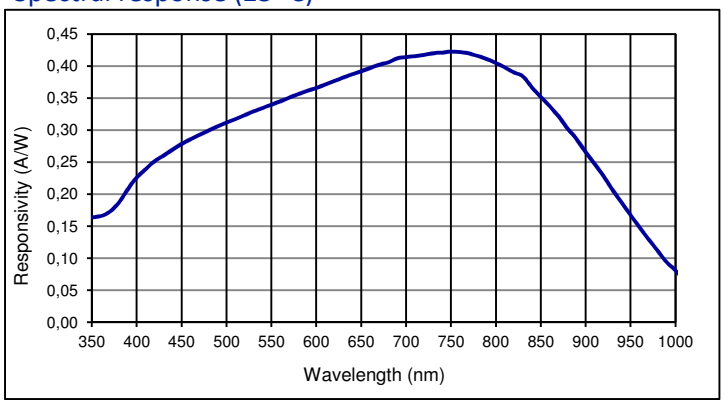
Schematic 501424



Schematic option TO52S3



Spectral response (23 °C)



Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area			1000 x 1000		µm
	Active area			1.0		mm²
I_D	Dark current	V_R = 0 V		0.005	0.025	nA
		V_R = 3.5 V		0.01	0.05	nA
C	Capacitance	V_R = 0 V		20	30	pF
		V_R = 3.5 V		8.5	10	pF
	Responsivity	λ = 355 nm		0.16		A/W
		λ = 405 nm		0.23		A/W
t_R	Rise time	V_R = 3.5 V; λ = 405 nm; R_L = 50 Ω		1.3		ns
		V_R = 20 V; λ = 405 nm; R_L = 50 Ω		1.0		ns
V_{BR}	Breakdown voltage	I_R = 2 µA	40			V
	Shunt resistance	V_R = 10 mV		2000		MΩ
	N.E.P.	V_R = 3.5 V; λ = 405 nm		8 E-15		W/√Hz

European, International Sales:

First Sensor

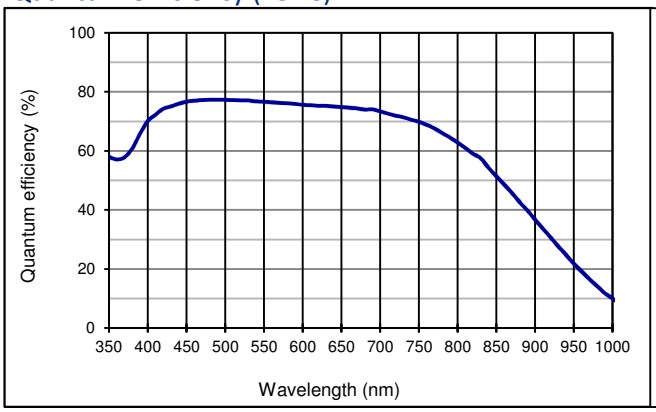
First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:

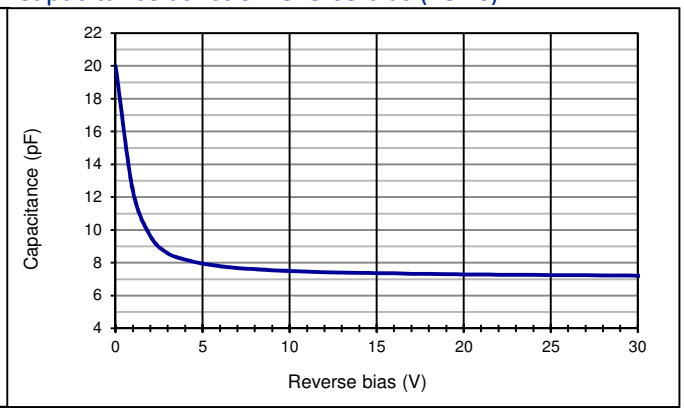
First Sensor

First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

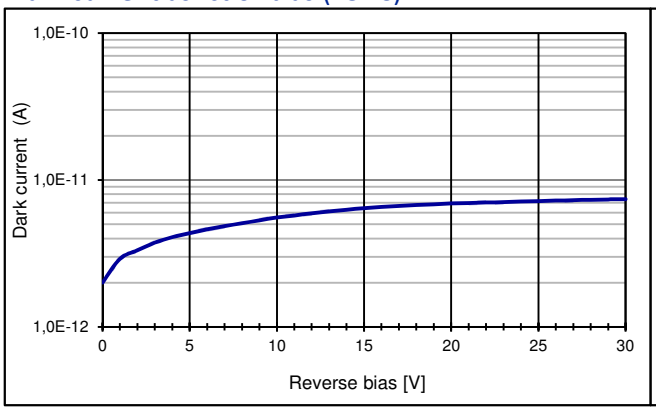
Quantum efficiency (23 °C)



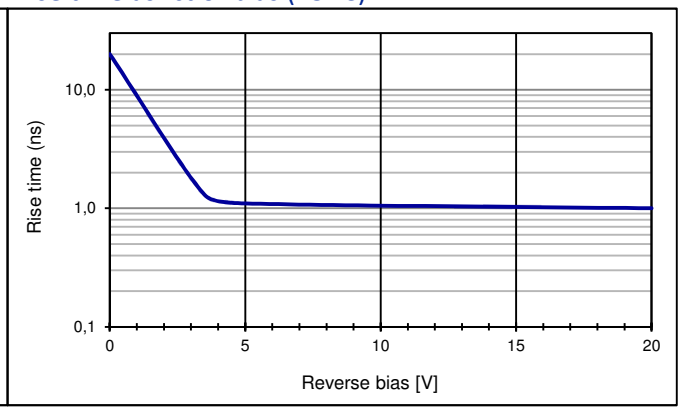
Capacitance as fct of reverse bias (23 °C)



Dark current as fct of bias (23 °C)



Rise time as fct of bias (23 °C)



Application hints:

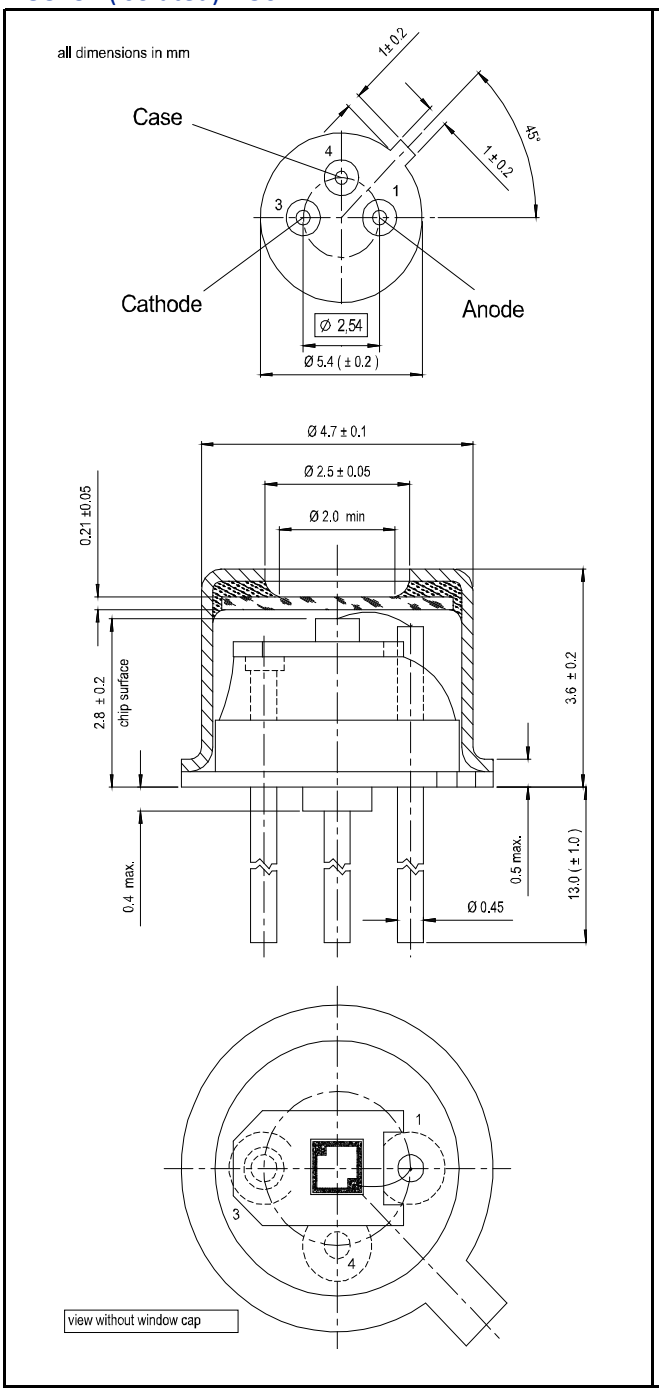
Please refer to document "Instructions for handling and processing"

European, International Sales:
First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

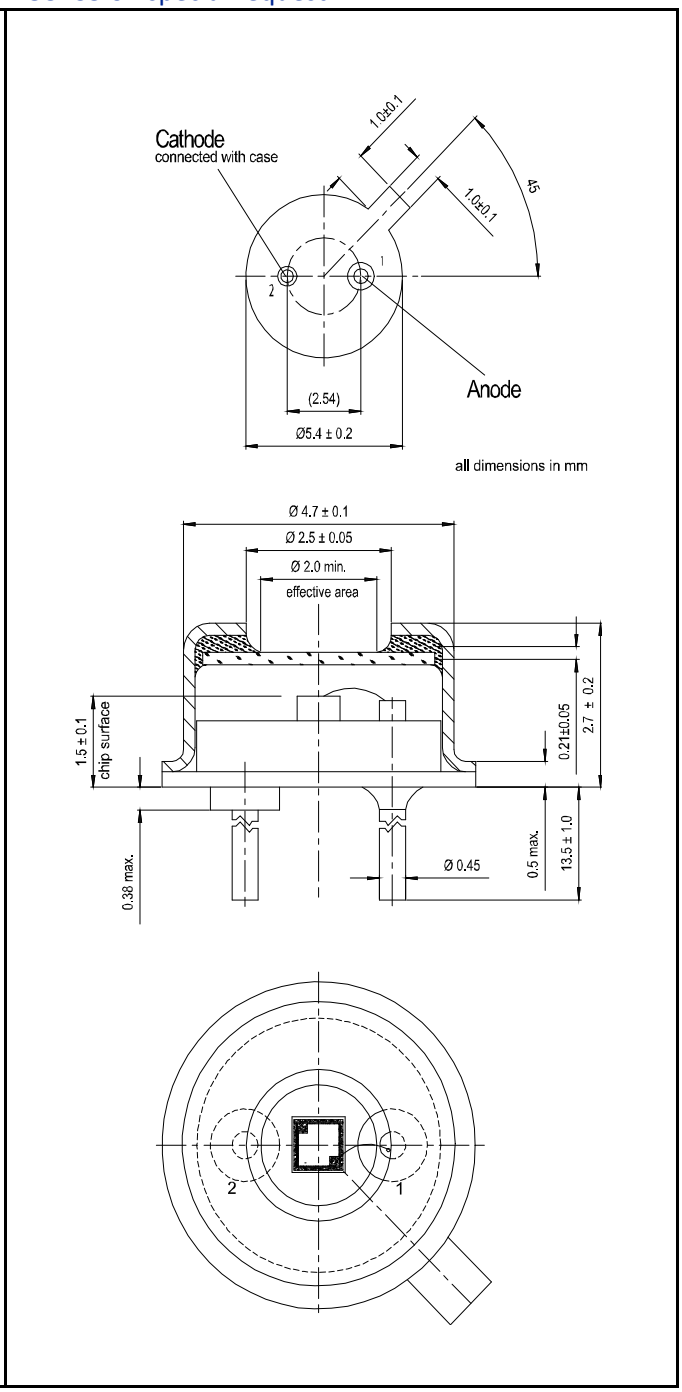
USA:
First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

Technical Drawing

TO52S1 (isolated) # 501424



TO52S3 on special request



European, International Sales:

First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:

First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

First Sensor:

PS1.0-5B-TO52S1.3