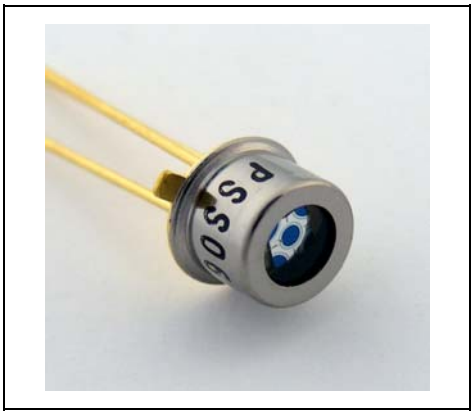
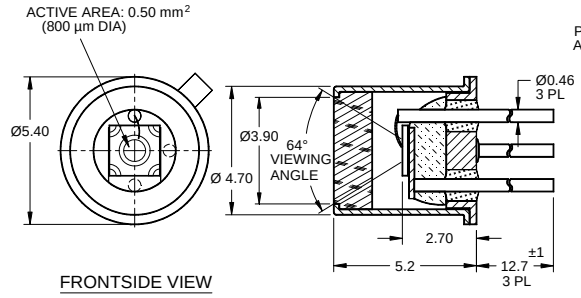
PACIFIC SILICON SENSOR Incorporated

Pacific Silicon Sensor Series 11 Data Sheet

Part Description AD800-11-TO52-S1

Order # 06-112





FEATURES

- ∅ 800 µm active area
- Blue enhanced
- High QE at blue range
- Fast rise time

DESCRIPTION

0.50 mm^2 High Speed, High Gain, Blue Enhanced Avalanche Photodiode with P on N construction. Hermetically packaged in a case isolated TO-52-S1 with a UV transmitting clear glass window cap.

APPLICATIONS

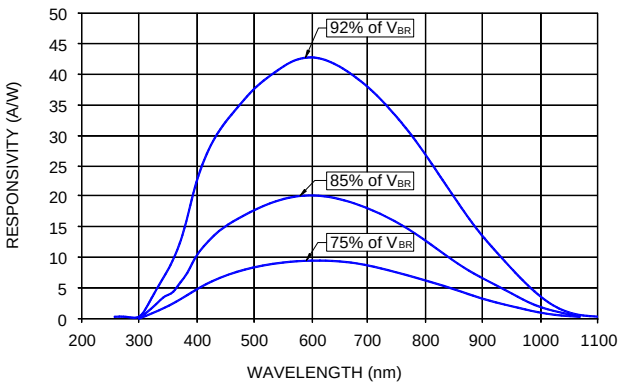
- Analytical equipment
- Scintillation
- Medical equipment
- High speed photometry

RoHS COMPLIANT

ABSOLUTE MAXIMUM RATING

SYMBOL	PARAMETER	MIN	MAX	UNITS
T_{STG}	Storage Temp	-55	+125	°C
T_{OP}	Operating Temp	-40	+85	°C
$T_{SOLDERING}$	Soldering Temp 10 seconds		+260	°C
	Electrical Power Dissipation @ 22°C	-	100	mW
	Optical Peak Value, once for 1 second	-	200	mW
I_{PH} (DC)	Continuous Optical Operation ≤ 1 mA for signal 50 µs "on" / 1 ms "off"	-	250	µA

SPECTRAL RESPONSE M=100

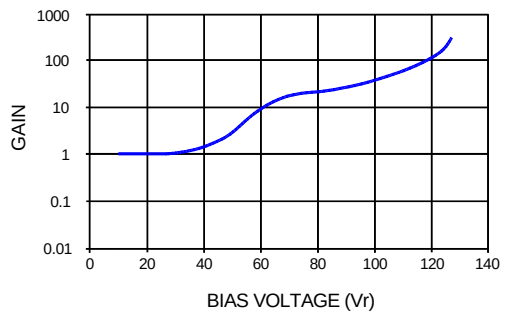


ELECTRO-OPTICAL CHARACTERISTICS @ 23 °C

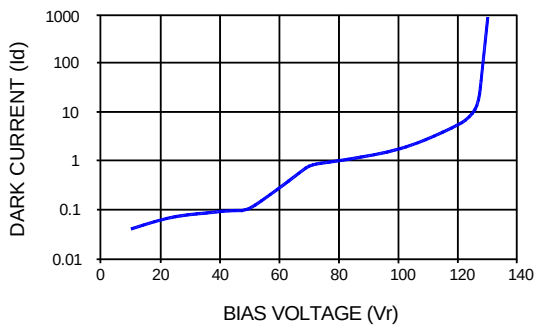
SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_D	Dark Current	M = 100	---	1.0	5.0	nA
C	Capacitance	M = 100	---	2.5	---	pF
V_{BR}	Breakdown Voltage	I_D = 2 µA	100	200	---	V
	Temperature Coefficient of V_{BR}		---	0.88	---	V/K
	Responsivity	M = 100; λ = 400 nm	---	25	---	A/W
		M = 100; λ = 500 nm	---	35	---	
		M = 100; λ = 600 nm	---	40	---	
Δf_{3dB}	Bandwidth	-3dB	---	175	---	MHz
t_r	Rise Time	λ = 410 nm; R_L = 50 Ω	---	1	---	ns
	Optimum Gain		50	---	80	
	Noise Current	M = 100	---	0.25	---	pA/Hz$^{1/2}$
	Max Gain		200	500	---	
NEP	Noise Equivalent Power	M = 100; λ = 410 nm	---	1.0 X 10^{-14}	---	W/Hz$^{1/2}$

Disclaimer: Due to our policy of continued development, specifications are subject to change without notice.

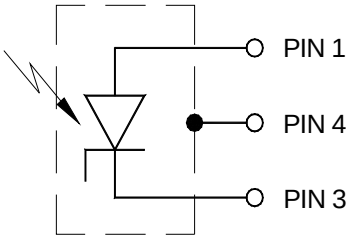
TYPICAL GAIN vs BIAS VOLTAGE



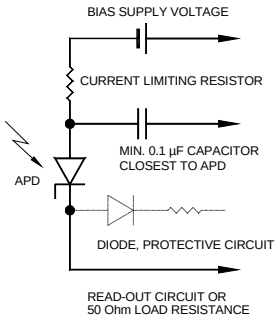
TYPICAL DARK CURRENT vs BIAS VOLTAGE



DEVICE SCHEMATIC



SUGGESTED CIRCUIT SCHEMATIC



APPLICATION NOTES

- Current should be limited by a protecting resistor or current limiting IC inside the power supply.
- Use of low noise read-out IC.
- For high gain applications (M>50) bias voltage should be temperature compensated.
- For low light level applications, blocking of ambient light should be used.

HANDLING PRECAUTIONS:

- Soldering temperature - 260°C for 10 seconds max. The device must be protected against solder flux vapor.
- Minimum pin length - 2 mm
- ESD protection - Standard precautionary measures are sufficient.
- Storage - Store devices in conductive foam.
- Avoid skin contact with window.
- Clean window with Ethyl alcohol if necessary.
- Do not scratch or abrade window.

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