

Features

- ϕ 800 μ m active area
- High QE for λ = 850-1064 nm
- Low noise
- Low slope multiplication curve
- High-speed, low noise TIA

Description

Hybrid with transimpedance amplifier and IR - enhanced APD chip. Very low dark current due to guard ring diode. Metal can type hermetic TO8Si package.

Application

- Pulsed 1064 nm laser detection
- Laser range finding
- Fluorescence detection

RoHS

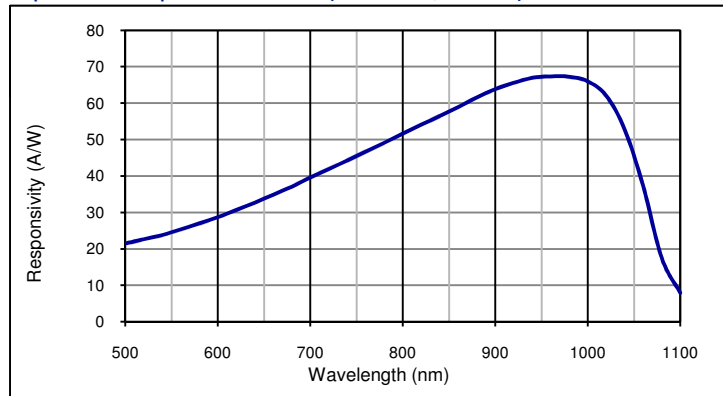
2002/95/EC



Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	$^{\circ}$ C
T_{OP}	Operating temp	-40*	85	$^{\circ}$ C
M_{max}	Overall gain	2.2 E7		

Spectral response of APD (M = 100; 23 $^{\circ}$ C)



Electro-optical characteristics of APD chip @ 23 $^{\circ}$ C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area		ϕ 800			μ m
	Active area		0.5			mm ²
I_D	Dark current	M = 100		3	25	nA
C	Capacitance	M = 100		1		pF
	Responsivity	M = 100; λ = 905 nm		65		A/W
	Responsivity	M = 100; λ = 1064 nm		36		A/W
t_R	Rise time	M = 100; λ = 1064 nm; R_i = 50 Ω		5		ns
t_R	Cut-off frequency	-3dB		70		MHz
V_{BR}	Breakdown voltage	I_R = 2 μ A	220	300	600	V
	Temperature coefficient			3.3		V/K

* please note that depending on operation voltage APD operation at temperatures below -15 $^{\circ}$ C may require sophisticated control circuit.

European, International Sales:



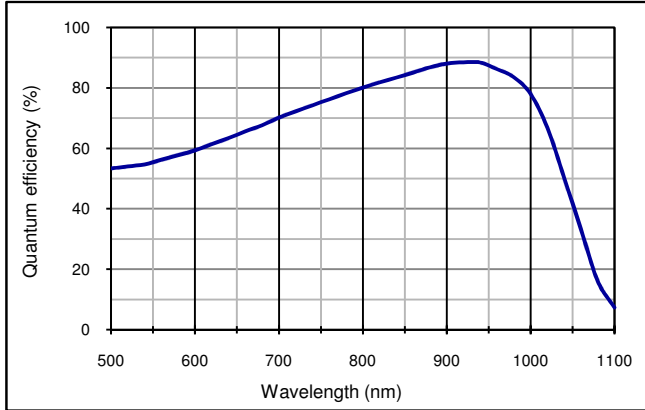
First Sensor AG
 Peter-Behrens-Strasse 15
 12459 Berlin
 Germany
 T +49 30 6399 2399
 F +49 30 639923-752
 sales.opto@first-sensor.com

USA:

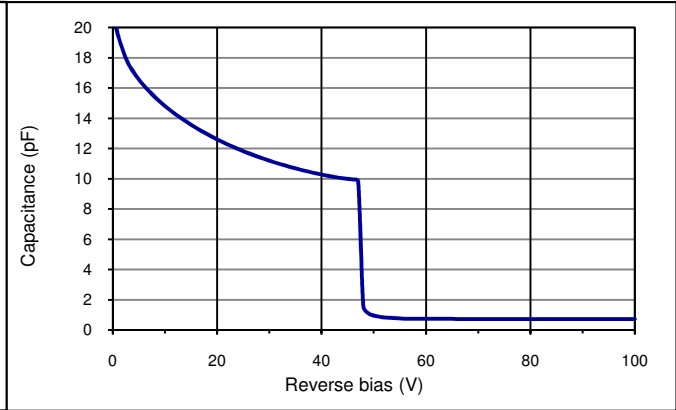


First Sensor Inc.
 5700 Corsa Avenue #105
 Westlake Village
 CA 91362 USA
 T +1 818 706 3400
 F +1 818 889 7053
 sales.us@first-sensor.com

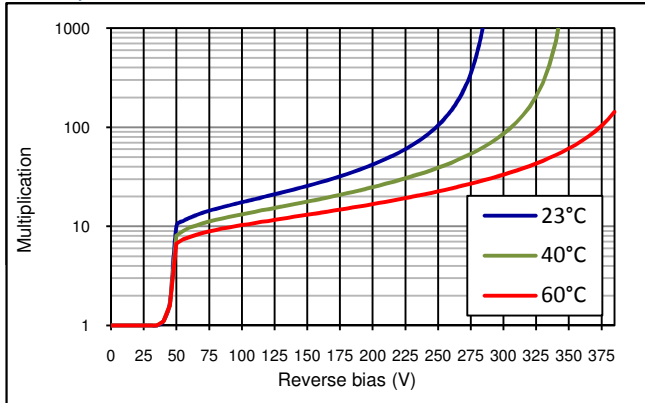
Quantum efficiency of APD (23 °C)



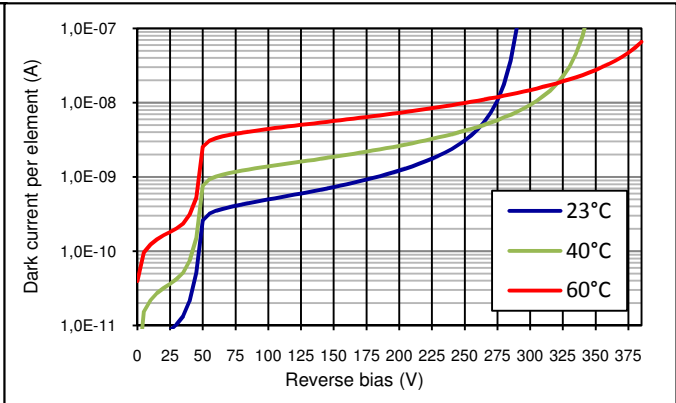
Capacitance of APD as fct of reverse bias (23°C)



Multiplication of APD as fct of reverse bias



Dark current of APD as fct of reverse bias



Characteristics of Hybrid @ 23°C

Part	Characteristic	Test Condition	Test Condition	Min	Typ	Max	Unit
Amplifier	Supply voltage			+/- 4.5	+/- 5	+/- 5.5	V
Amplifier	Supply current				7		mA
Amplifier	Transimpedance				10		kΩ
Amplifier	Output impedance				50		Ω
Amplifier	Differential output voltage					7 (+/-3.5)	V
Amplifier	Rise time		1 Volt Step		1.6		ns
Amplifier	Voltage noise		1 MHz		3.1		nV/√Hz
Amplifier	Current noise		1 MHz		1.6		pV/√Hz
Amplifier	Bandwidth		-3 db		65		MHz
Amplifier	Power supply rejection ratio				73		db
Amplifier	Offset voltage typical				0.8		mV
Amplifier	Coupling			AC (10 kHz min. signal frequency)			
Amplifier	Offset voltage typical				0.8		mV
Amplifier	Imput resistance				1		MΩ
T-Diode	Temperature coefficient				2.2		mV / °C

European, International Sales:

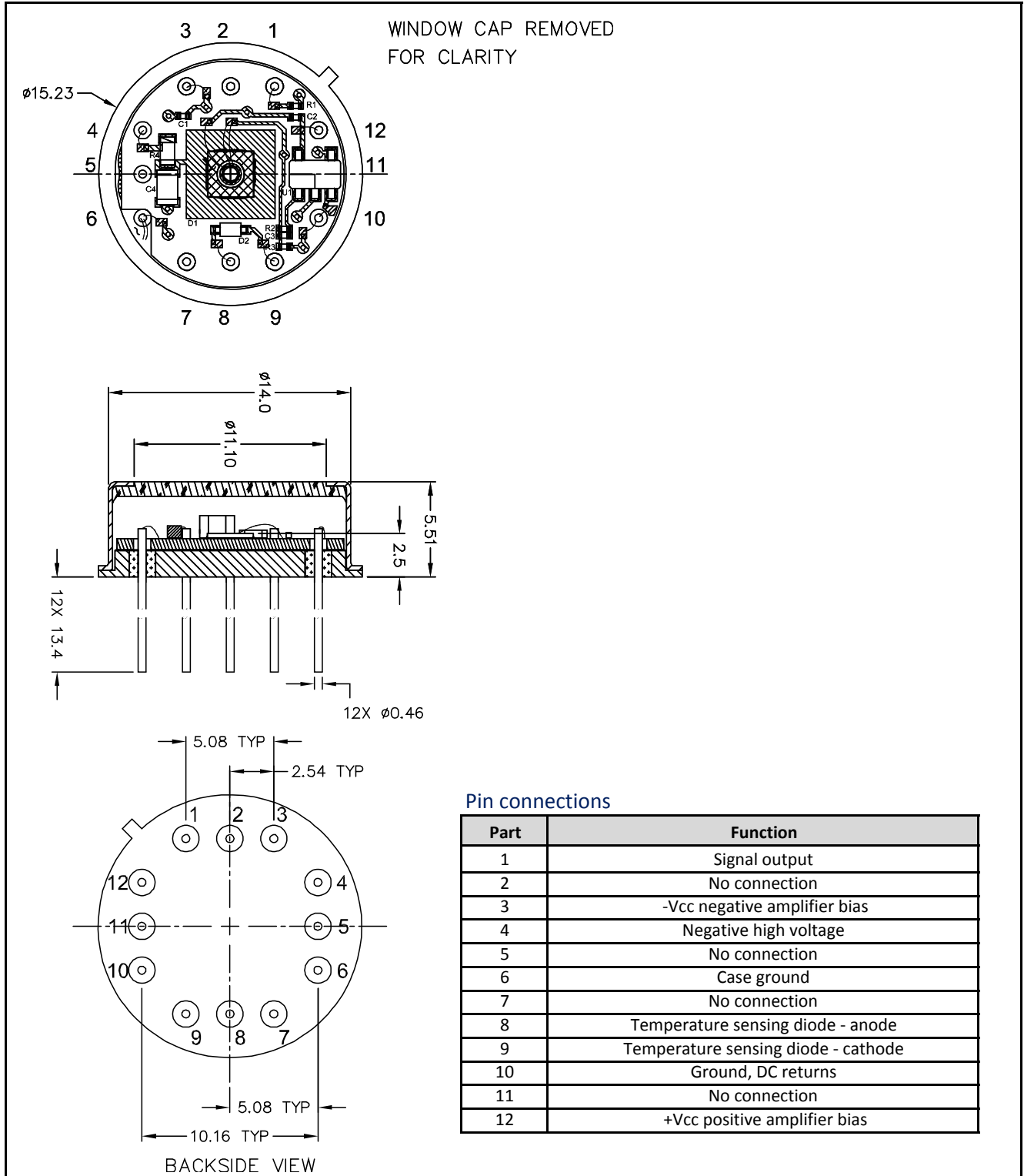


First Sensor AG
 Peter-Behrens-Strasse 15
 12459 Berlin
 Germany
 T +49 30 6399 2399
 F +49 30 639923-752
 sales.opto@first-sensor.com

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



Disclaimer: Due to our strive for continuous improvement, specifications are subject to change within our PCN policy according to JESD46C.

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