
Features

- Quadrant APD Hybrid
- High QE for $\lambda = 850\text{-}1064\text{ nm}$
- 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

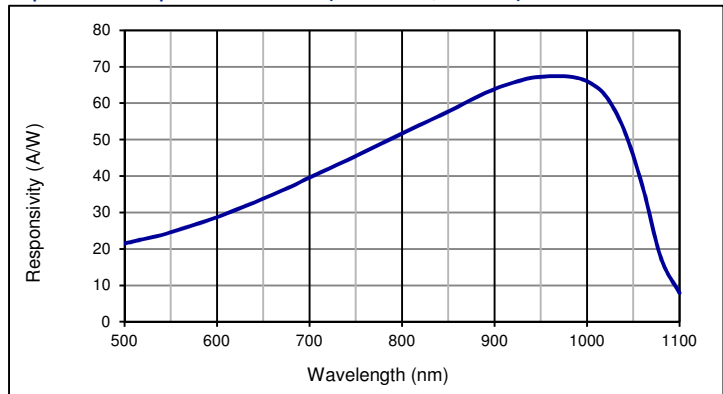
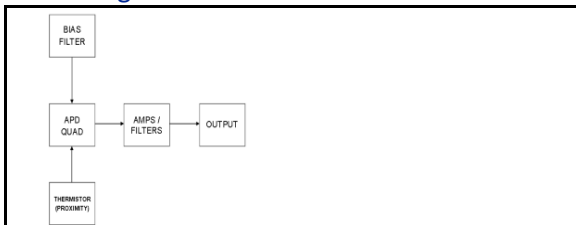
- Pulsed 1064 nm laser detection
- Laser range finding
- Laser guidance

RoHS

2002/95/EC


Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	°C
T_{OP}	Operating temp	-40*	85	°C
M_{max}	Overall gain	2.4 E6		

Spectral response of APD (M = 100; 23 °C)

Block diagramm

Electro-optical characteristics of APD chip @ 23°C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	No of elements			4		
	Active area	segmented in 4 quadrants		$\varnothing 4000$		μm
	Gap			110		μm
I_D	Dark current	M = 100; $\lambda = 905\text{ nm}$, per segment		7	75	nA
C	Capacitance	M = 100, per segment		4		pF
	Responsivity	M = 100; $\lambda = 1064\text{ nm}$		36		A/W
t_R	Rise time	M = 100; $\lambda = 905\text{ nm}$; $R_L = 50\ \Omega$		5		ns
V_{BR}	Breakdown voltage	$I_R = 2\ \mu\text{A}$	220	300	600	V
	Temperature coefficient			3.3		V/K
	Photo current uniformity	M = 50		± 5		%
	Dark current uniformity	M = 50		± 5		%

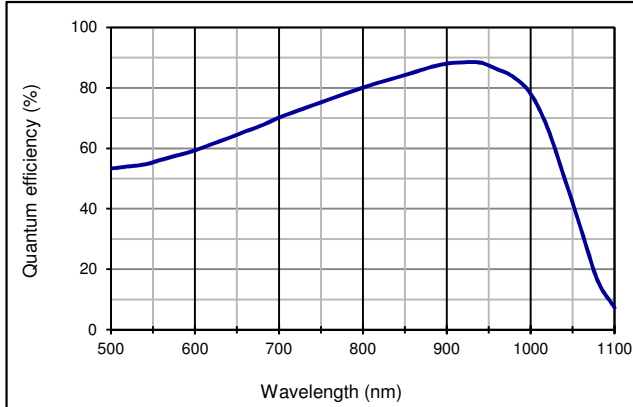
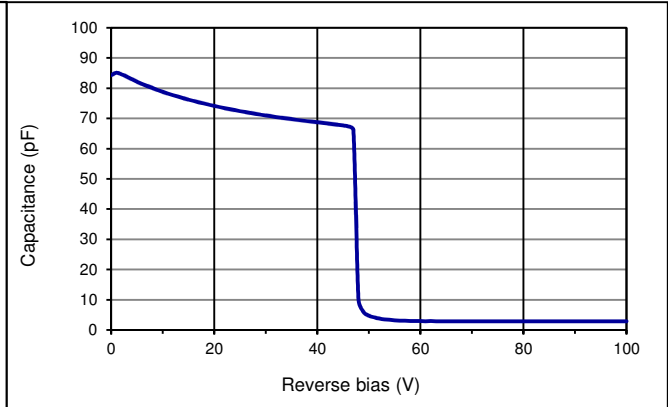
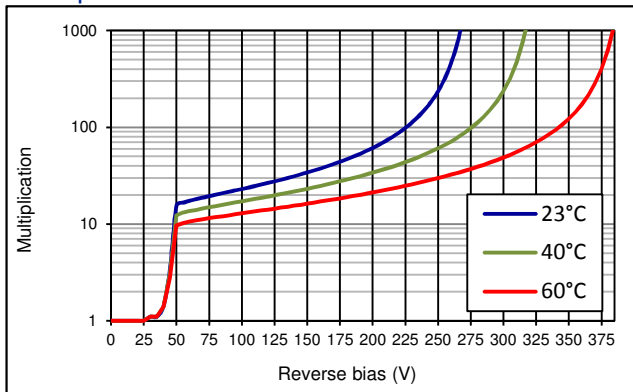
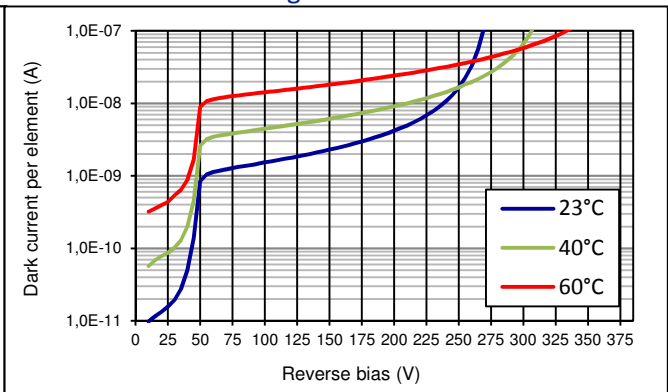
* please note that depending on operation voltage APD operation at temperatures below -15°C may require sophisticated control circuit.

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Quantum efficiency of APD (23 °C)

APD-segment capacitance as fct of reverse bias (23°C)

Multiplication of APD as fct of reverse bias

Dark current of APD-segment as fct of reverse bias

Characteristics of Hybrid @ 23°C

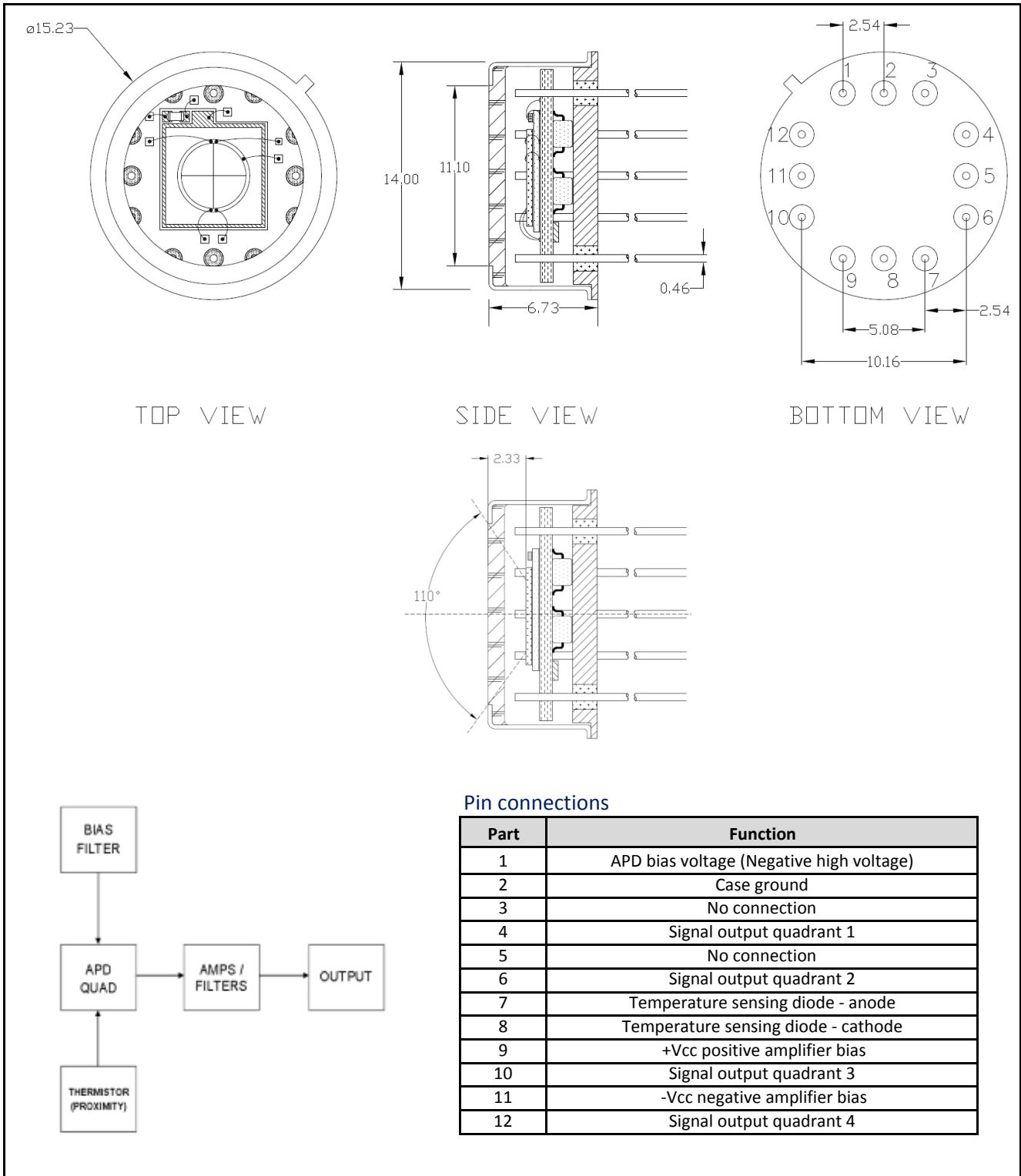
Part	Characteristic	Test Condition	Test Condition	Min	Typ	Max	Unit
Amplifier	Supply voltage			+/- 4.5	+/- 5	+/- 5.5	V
Amplifier	Supply current				50		mA
Amplifier	Transimpedance				12		kΩ
Amplifier	Output impedance				50		Ω
Amplifier	Differential output voltage					7 (+/-3.5)	V
Amplifier	Rise time		1 Volt Step		5		ns
Amplifier	Voltage noise		1 MHz		4.8		nV/√Hz
Amplifier	Current noise		1 MHz		1.3		fA/√Hz
Amplifier	Bandwidth		-3 db		68		MHz
Amplifier	Power supply rejection ratio				80		db
Amplifier	Offset voltage typical				+/- 0.25		mV
Amplifier	Coupling			AC (10 kHz min. signal frequency)			
Amplifier	Imput impedance				10E12		Ω
T-Diode	Thermistor resistance				10		kΩ

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

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