
Features

- \varnothing 800 μm active area
- High QE for $\lambda = 850\text{-}1064$ 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

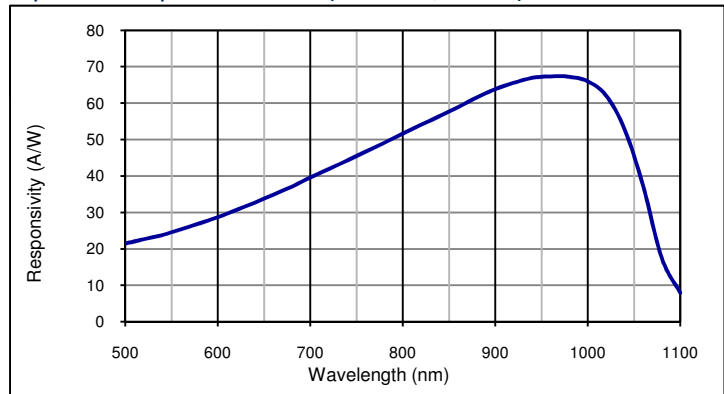
- Pulsed 1064 nm laser detection
- Laser range finding
- Fluorescence detection

RoHS

2002/95/EC


Absolute maximum ratings

| Symbol | Parameter | Min | Max | Unit |
|-----------|----------------|--------|-----|--------------------|
| T_{STG} | Storage temp | -55 | 125 | $^{\circ}\text{C}$ |
| T_{OP} | Operating temp | -15 | 70 | $^{\circ}\text{C}$ |
| M_{max} | Overall gain | 2.2 E7 | | |

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

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

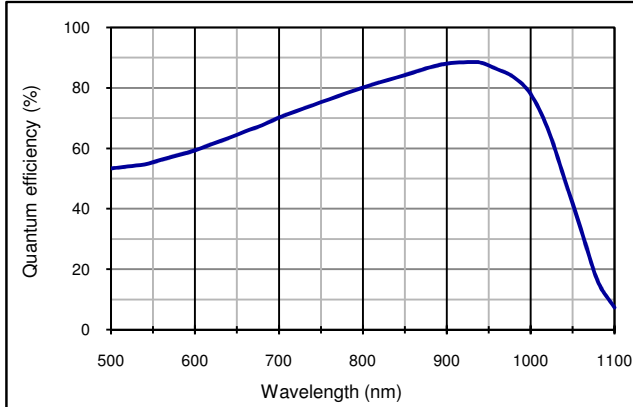
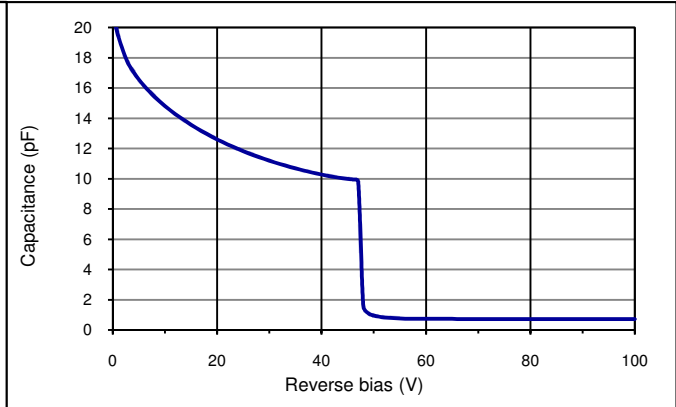
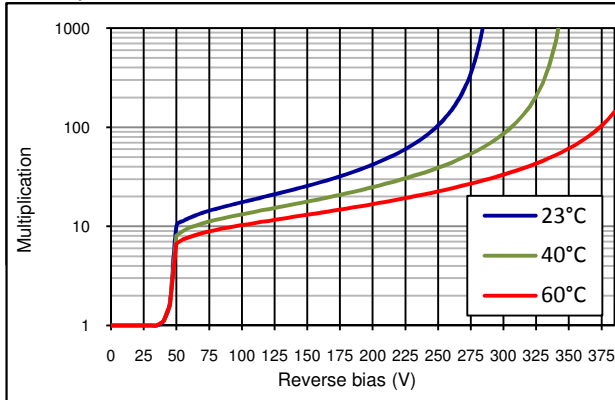
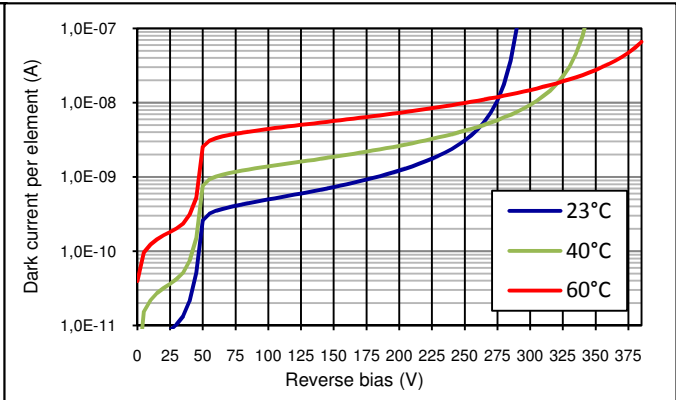
| Symbol | Characteristic | Test Condition | Min | Typ | Max | Unit |
|----------|-------------------------|---|-----|-------------------|-----|---------------|
| | Active area | | | \varnothing 800 | | μm |
| | Active area | | | 0.5 | | mm^2 |
| I_D | Dark current | M = 100 | | 3 | 25 | nA |
| C | Capacitance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

European, International Sales:


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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

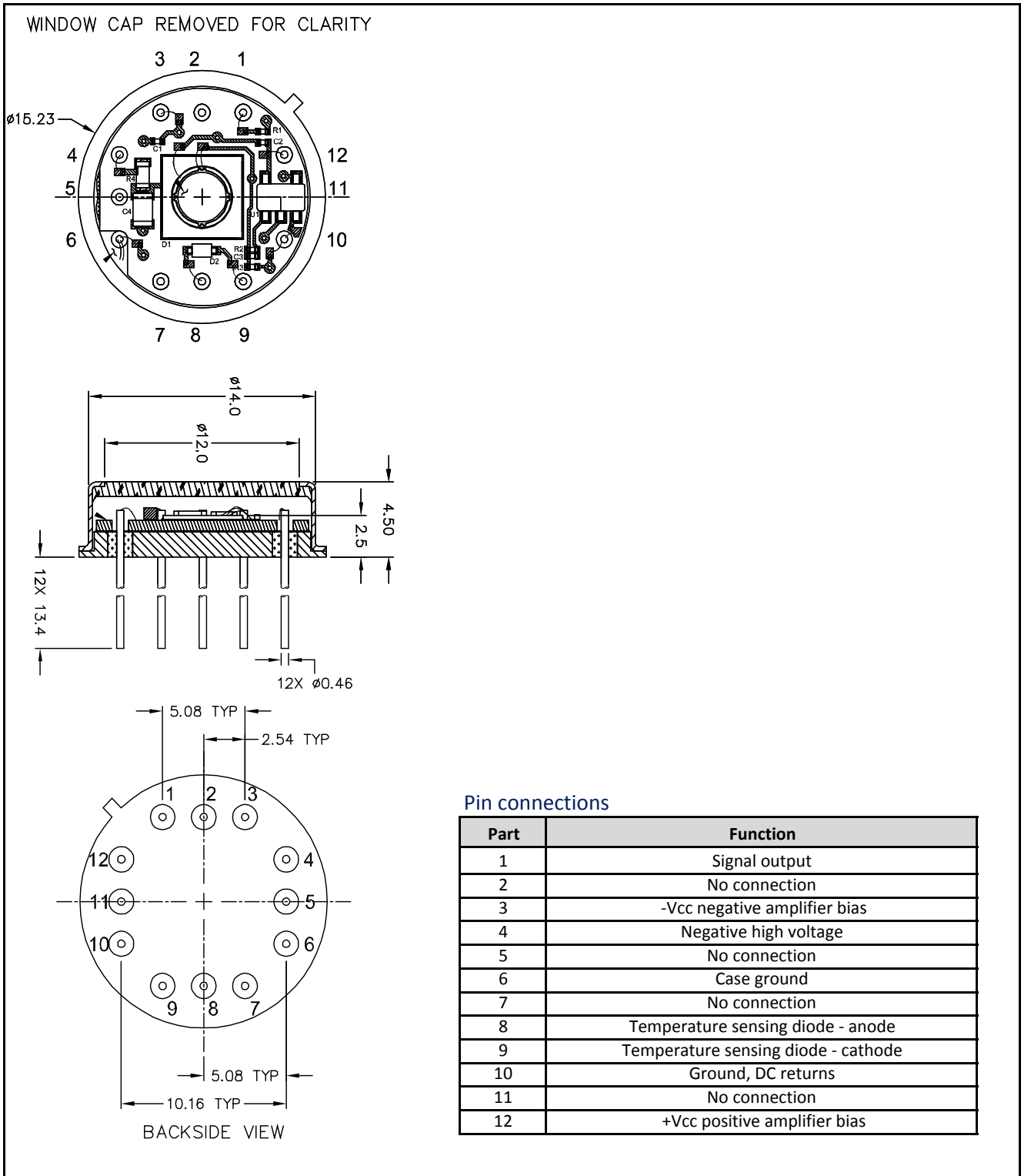
| Part | Characteristic | Test Condition | Test Condition | Min | Typ | Max | Unit |
|-----------|------------------------------|----------------|----------------|------------------------------|-------|------------|---------|
| Amplifier | Supply voltage | | | +/- 4.5 | +/- 5 | +/- 5.5 | V |
| Amplifier | 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 | | pAV/√Hz |
| Amplifier | Bandwidth | | -3 db | | 65 | | MHz |
| Amplifier | Power supply rejection ratio | | | | 73 | | db |
| Amplifier | Offset voltage typical | | | | 0.8 | | mV |
| Amplifier | Coupling | | | AC (DC upon special request) | | | |
| Amplifier | Offset voltage typical | | | | 0.8 | | mV |
| Amplifier | Imput resistance | | | | 1 | | MΩ |
| T-Diode | Temperature coefficient | | | | 2.2 | | mV / °C |

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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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