

Features

- APD with 0.008 mm² active area
- 100 μm diameter active area
- High gain at low bias voltage
- Fast rise time, low capacitance
- Optimum gain: 50-60

Description

Circular active area APD chip with 100μm diameter. Ceramic carrier type non hermetic SMD package with clear glass or filter window. Reflow solderable.

Application

- Laser range finder
- High speed photometry
- High speed optical communications
- Medical equipment

RoHS

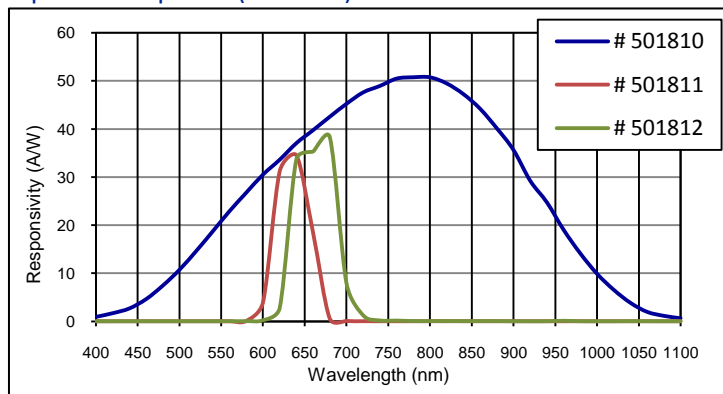
2002/95/EC



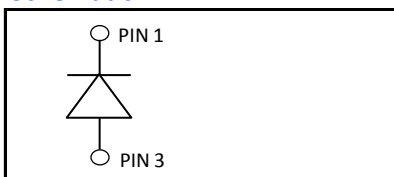
Absolute maximum ratings

| Symbol | Parameter | Min | Max | Unit |
|-------------------|-------------------------------|-----|------|------|
| T _{STG} | Storage temp | -40 | 100 | °C |
| T _{OP} | Operating temp | -20 | 70 | °C |
| M _{max} | Gain (I _{PO} = 1 nA) | 200 | | |
| I _{PEAK} | Peak DC current | | 0.25 | mA |

Spectral response (M = 100)



Schematic



Electro-optical characteristics @ 23°C

| Symbol | Characteristic | Test Condition | Min | Typ | Max | Unit |
|-----------------|---------------------------|---|--------------|------|------|-----------------|
| | Active area | | diameter 100 | | | μm |
| | Active area | | 0.00785 | | | mm ² |
| I _D | Dark current | M = 100 | | 0.05 | 0.1 | nA |
| C | Capacitance | M = 100 | | 0.5 | | pF |
| | Responsivity | Order # 501810 ; M = 100; λ = 800 nm | 45 | 50 | | A/W |
| | Responsivity | Order # 501811 ; M = 100; λ = 635 nm | 30 | 32 | | A/W |
| | Responsivity, preliminary | Order # 501812 ; M = 100; λ = 650 nm | 30 | 35 | | A/W |
| t _R | Rise time | M = 100; λ = 905 nm; R _i = 50 Ω | | | 0.18 | ns |
| | Cut-off frequency | -3dB | 2 | | | GHz |
| V _{BR} | Breakdown voltage | I _R = 2 μA, V _{BR} - binning available* | 80 | | 160 | V |
| | Temperature coefficient | Change of V _{BR} with temperature | 0.35 | 0.45 | 0.55 | V/K |
| | Excess noise factor | M = 100 | | 2.2 | | |
| | Excess noise index | M = 100 | | 0.2 | | |

*please add a "01" to the order number for VBR-class 80V-120V and a "02" for VBR-class 120V-160V

European, International Sales:



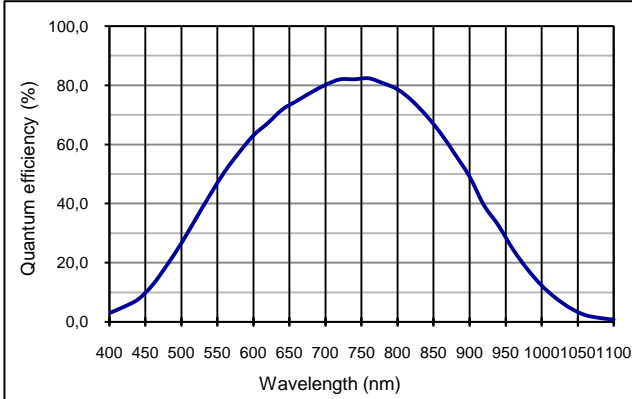
First Sensor AG
 Peter-Behrens-Strasse 15
 12459 Berlin
 Germany
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 F +49 30 639923-752
 sales.opto@first-sensor.com

USA:

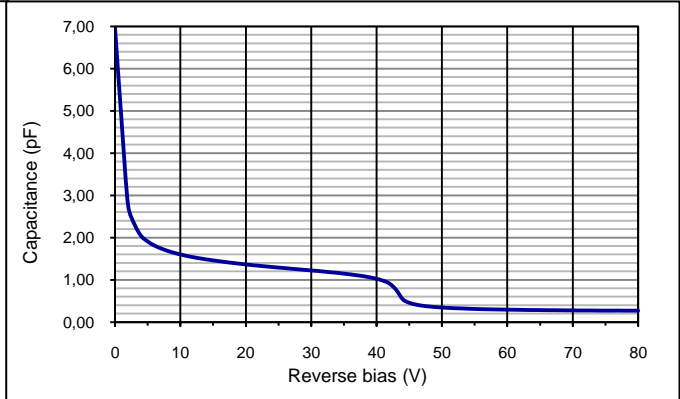


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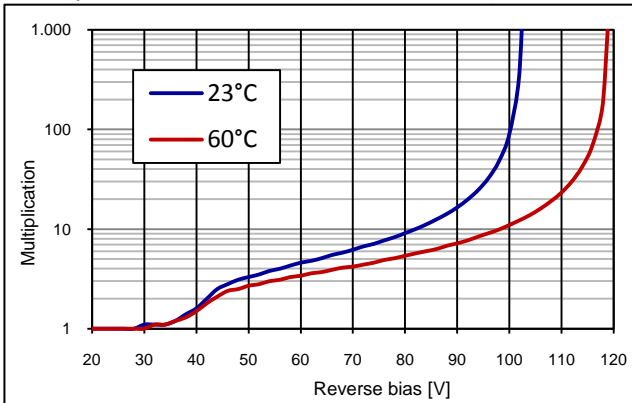
Quantum efficiency (23 °C)



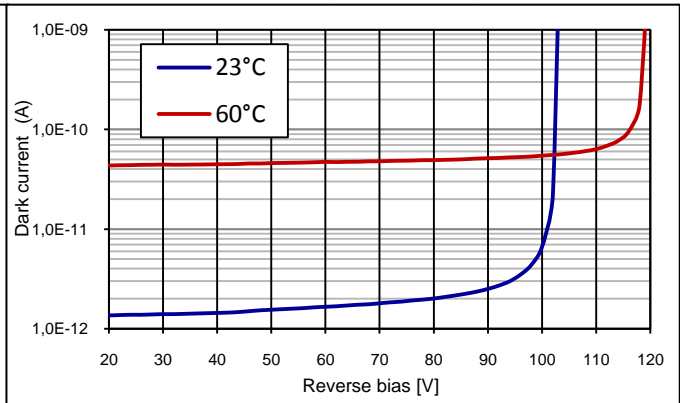
Capacitance as fct of reverse bias (23 °C)



Multiplication as fct of bias (23 °C, 60 °C)

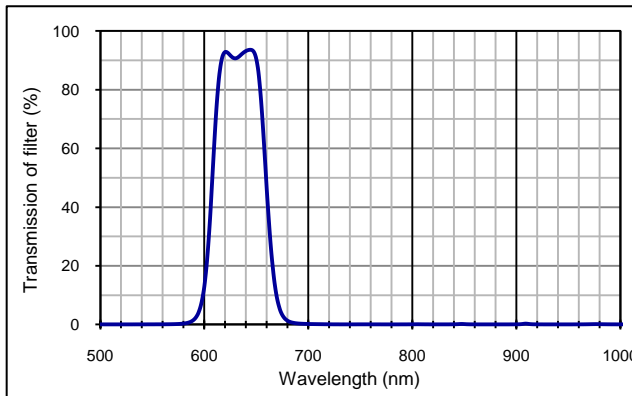


Dark current as fct of bias (23 °C, 60 °C)



Order # 501811:

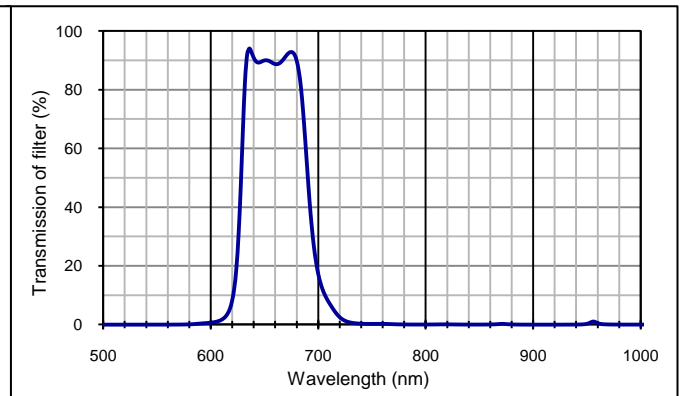
Typ. filter characteristics (center 635 nm)



full filter specification upon request

Order # 501812:

Typ. filter characteristics (center 650 nm)



full filter specification upon request

European, International Sales:



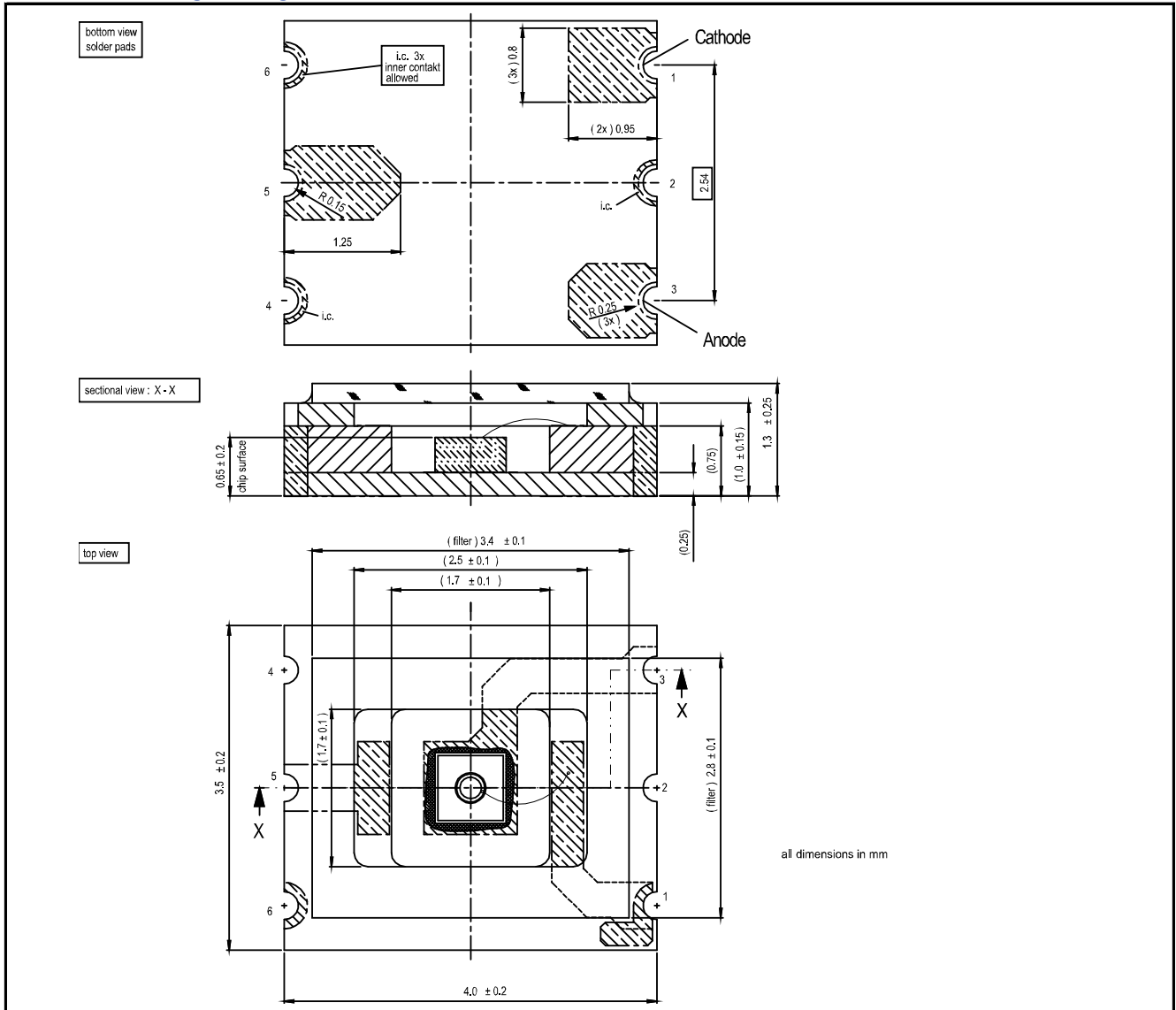
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USA:

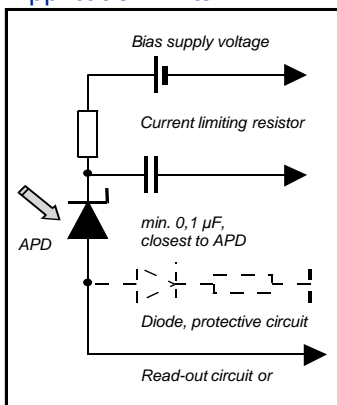


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Technical Drawing, Package: LCC6.1



Application hints:



- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling
- Use low noise read-out - IC
- For further questions please refer to document "Instructions for handling and processing"
- Optimum gain: 50-60

European, International Sales:



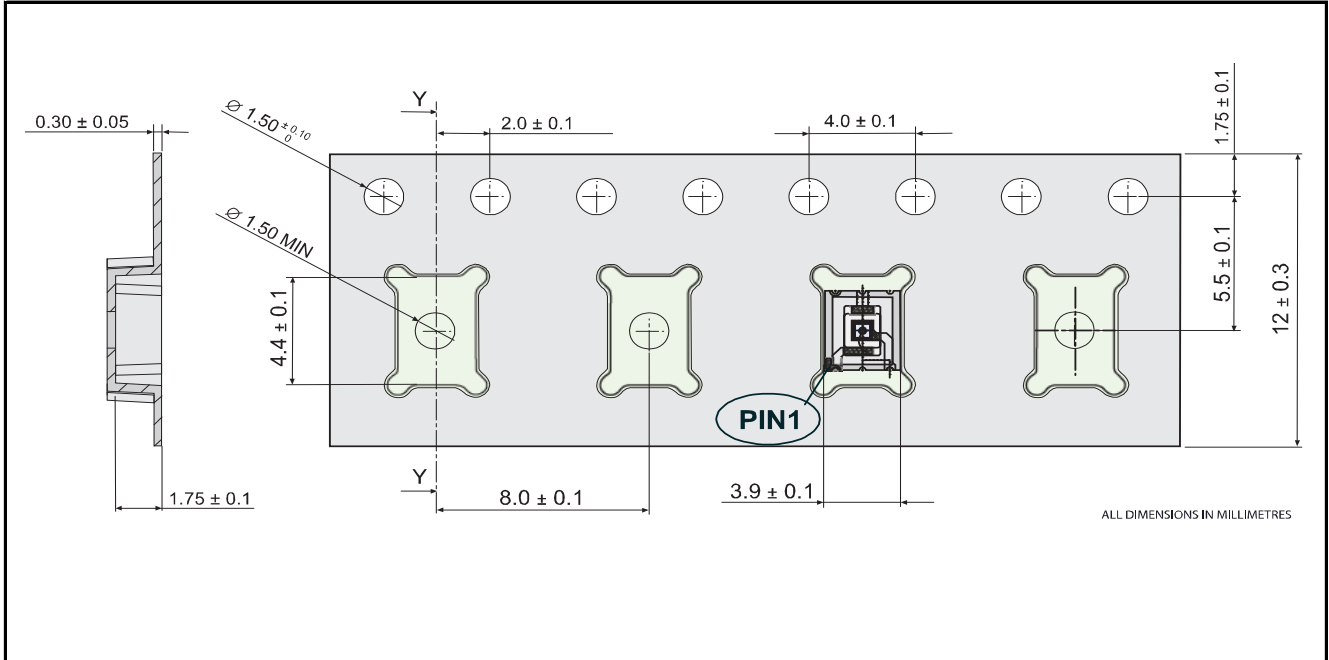
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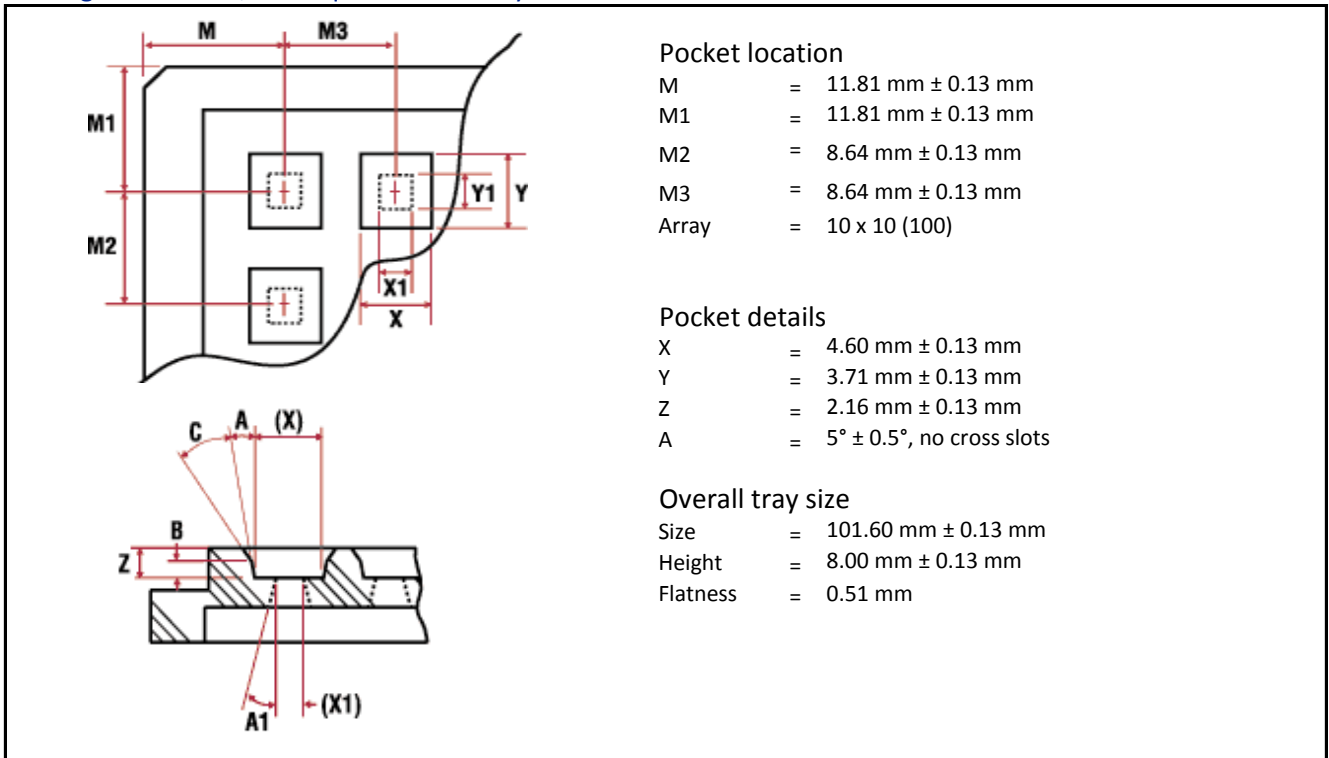


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Package dimension, large quantities on reel



Package dimension, small quantities in trays



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

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