

Features

- APD with 0.04 mm² active area
- 230 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 230 μm diameter. Ceramic carrier type non hermetic SMD package with filter window (BP-Filter for 635nm). Reflow solderable.

Application

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

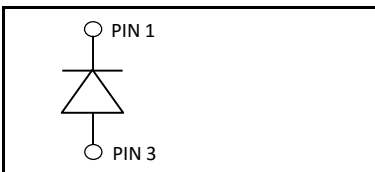
RoHS

2011/65/EU

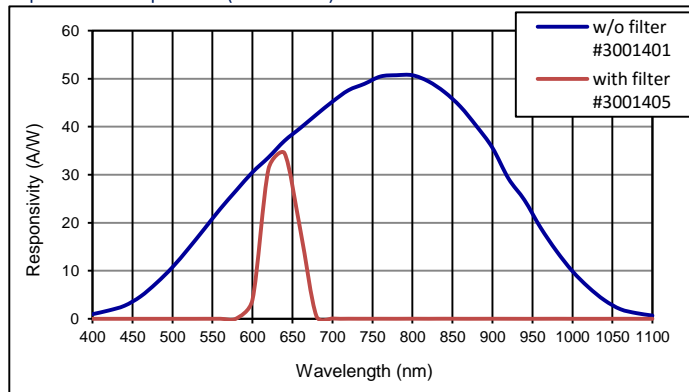
Absolute maximum ratings

| 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 |

Schematic



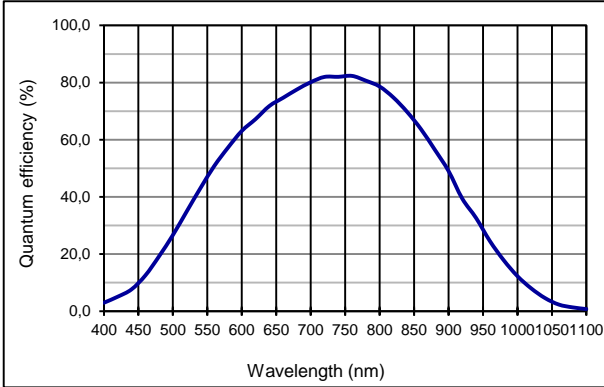
Spectral response (M = 100)



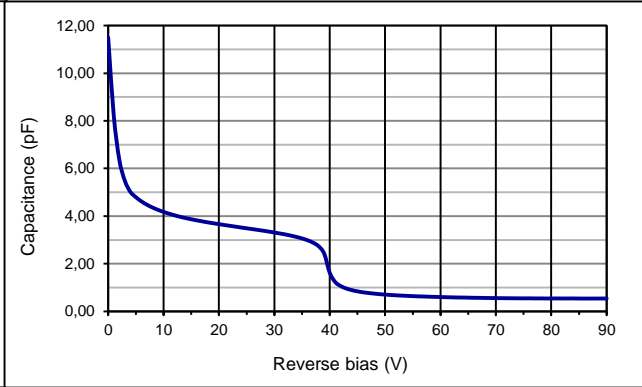
Electro-optical characteristics @ 23 °C

| Symbol | Characteristic | Test Condition | Min | Typ | Max | Unit |
|-----------------|-------------------------|--|--------------|------|-----|-----------------|
| | Active area | | diameter 230 | | | μm |
| | Active area | | 0.04 | | | mm ² |
| I _D | Dark current | M = 100 | | 0.2 | 0.5 | nA |
| C | Capacitance | M = 100 | | 0.6 | | pF |
| | Responsivity | M = 100; λ = 635 nm | 30 | 32 | | A/W |
| t _R | Rise time | M = 100; λ = 905 nm; R _L = 50 Ω | | 0.18 | | ns |
| | Cut-off frequency | -3dB | | 2 | | GHz |
| V _{BR} | Breakdown voltage | I _R = 2 μA | 80 | | 120 | V |
| | Temperature coefficient | Change of V _{BR} with temperature | | 0.45 | | V/K |
| | Excess noise factor | M = 100 | | 2.2 | | |
| | Excess noise index | M = 100 | | 0.2 | | |

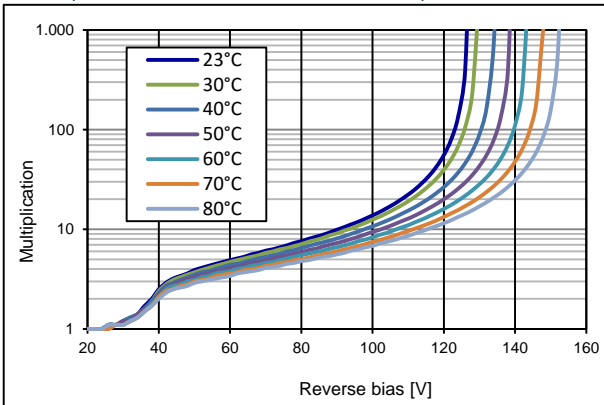
Quantum efficiency (23 °C)



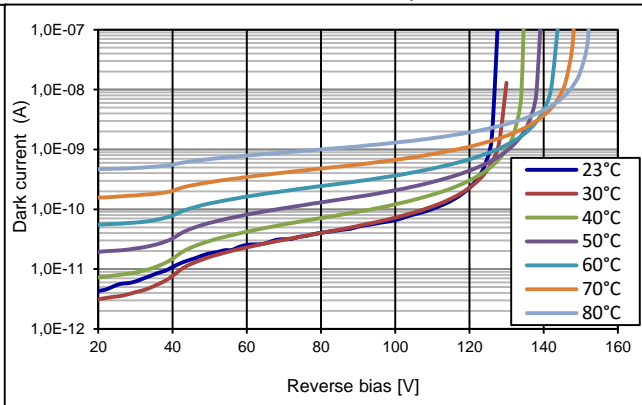
Capacitance as fct of reverse bias (23 °C)



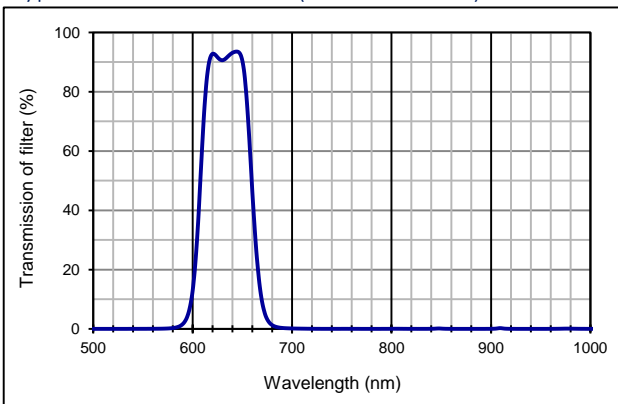
Multiplication as fct of bias and temperature



Dark current as fct of bias and temperature

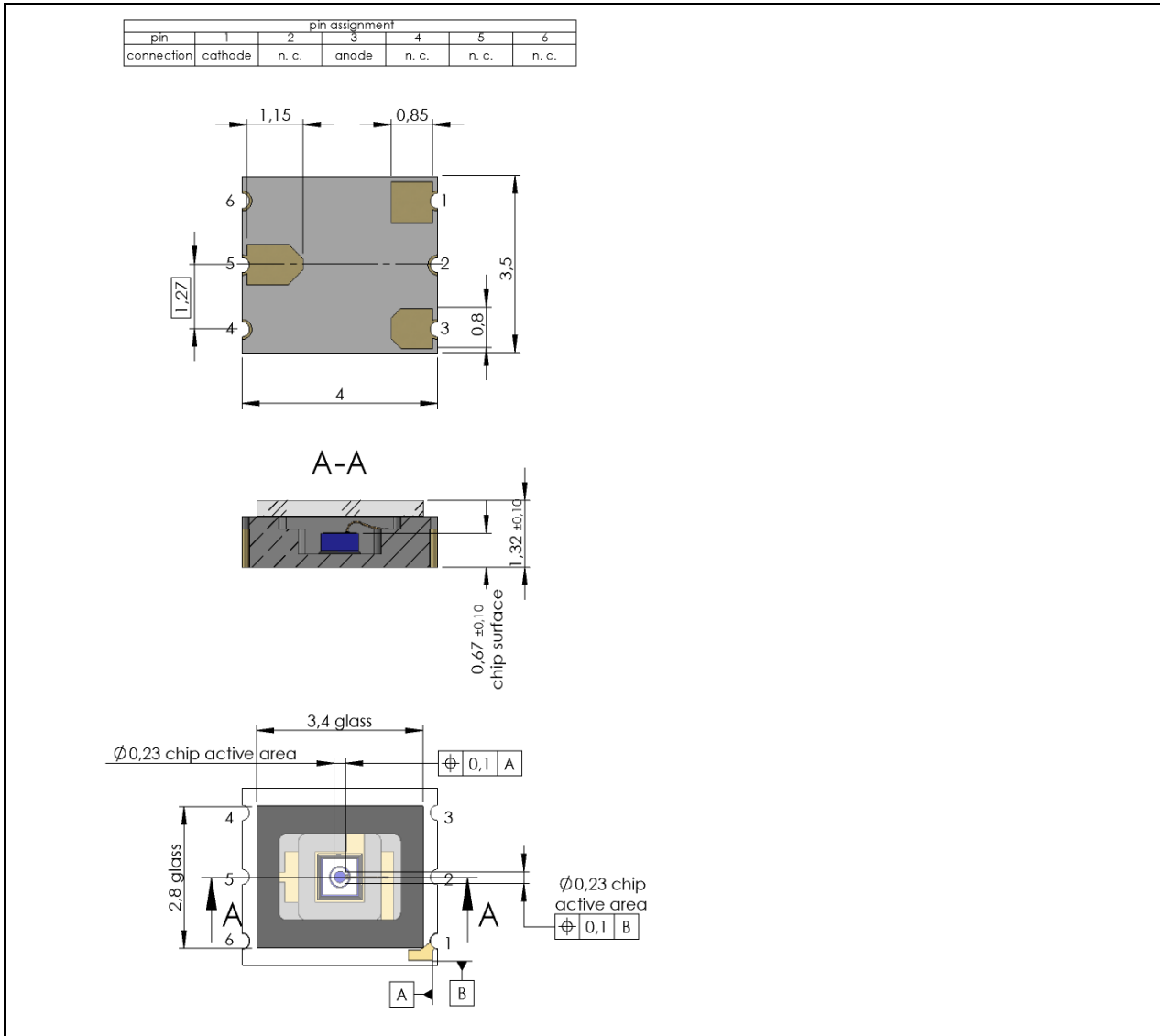


Typ. filter characteristics (center 635 nm)

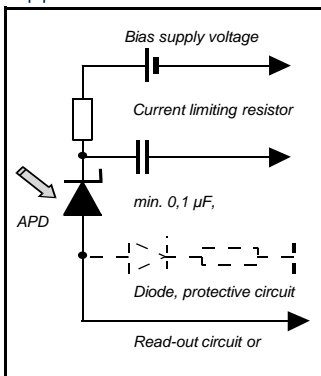


full filter specification upon request

Technical Drawing, Package: LCC6.1



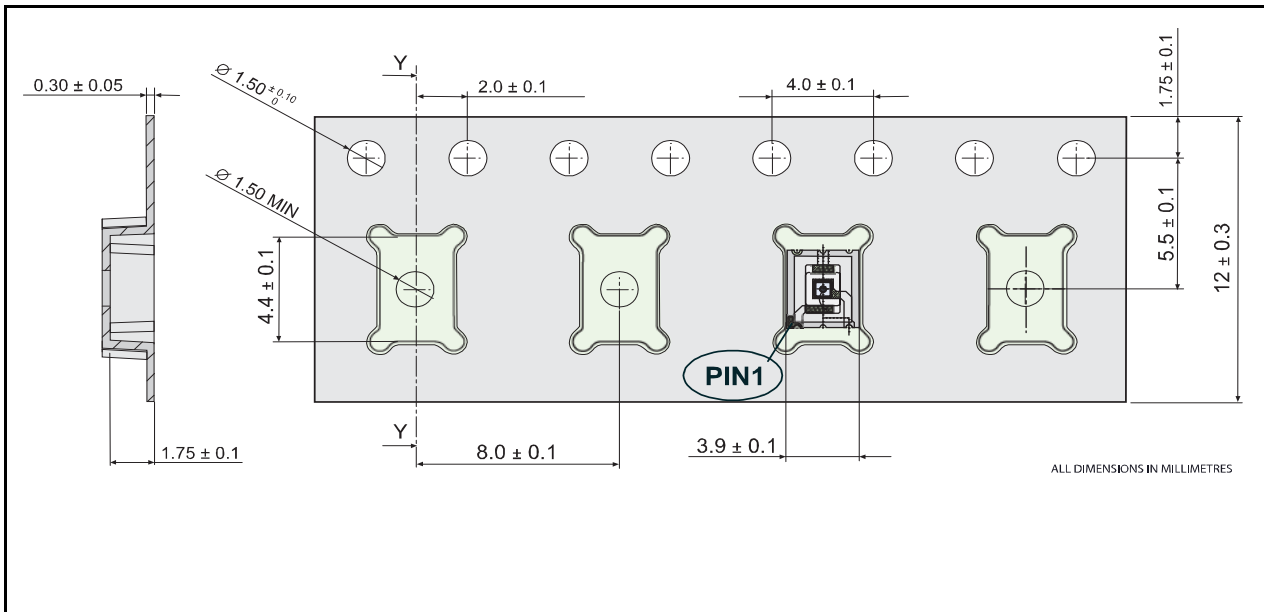
Application hints:



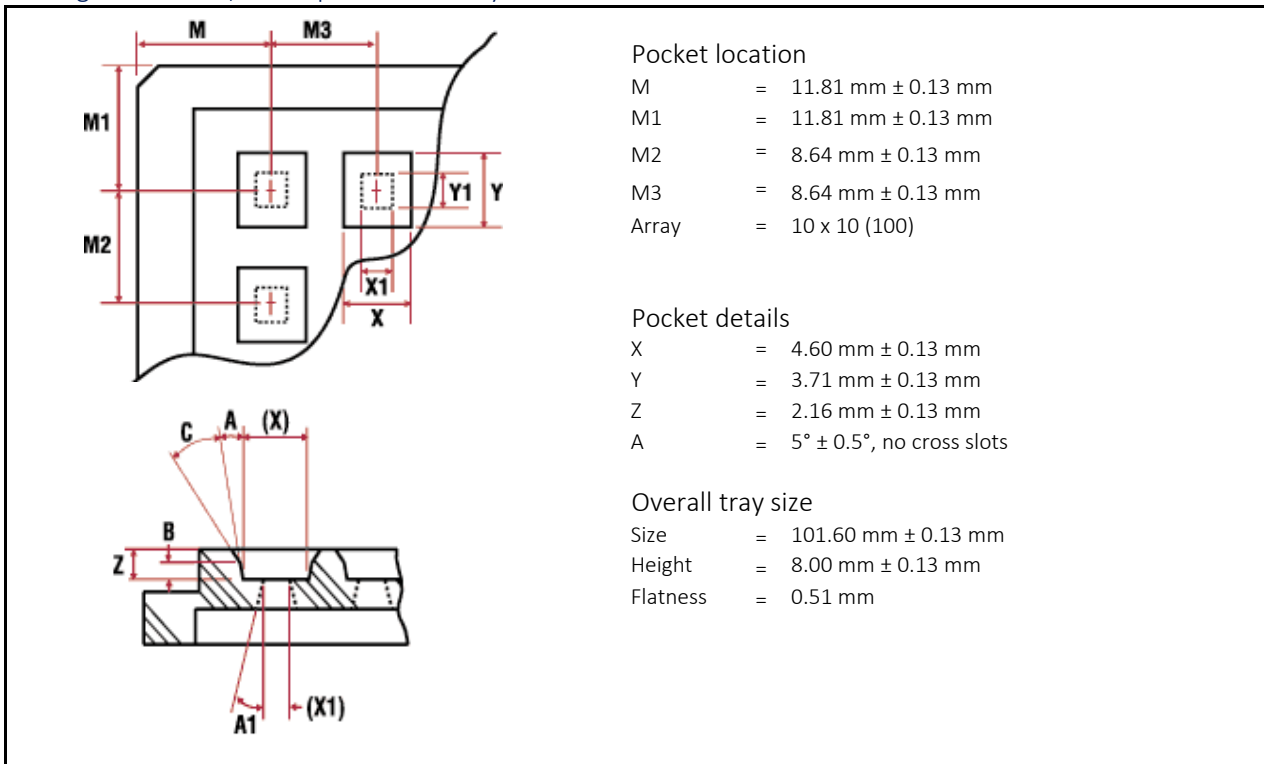
- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling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

Package dimension, large quantities on reel

Production quantities on reel (2000 pcs/ 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.