

### Features

- APD with 0.04 mm<sup>2</sup> 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 clear glass. Reflow solderable.

### Application

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

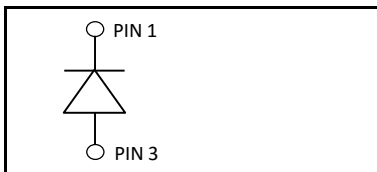
### RoHS

2011/65/EU

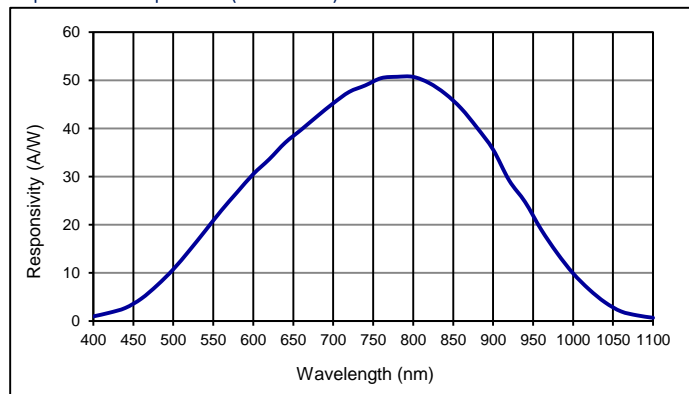
### Absolute maximum ratings

| Symbol            | Parameter                     | Min | Max  | Unit |
|-------------------|-------------------------------|-----|------|------|
| T <sub>STG</sub>  | Storage temp                  | -40 | 100  | °C   |
| T <sub>OP</sub>   | Operating temp                | -20 | 70   | °C   |
| M <sub>max</sub>  | Gain (I <sub>p0</sub> = 1 nA) | 200 |      |      |
| I <sub>PEAK</sub> | Peak DC current               |     | 0.25 | mA   |

### Schematic



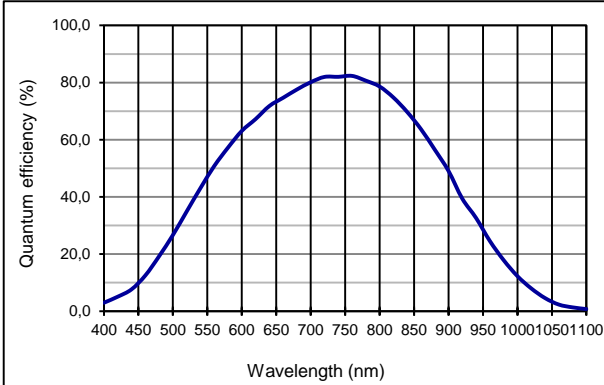
### Spectral response (M = 100)



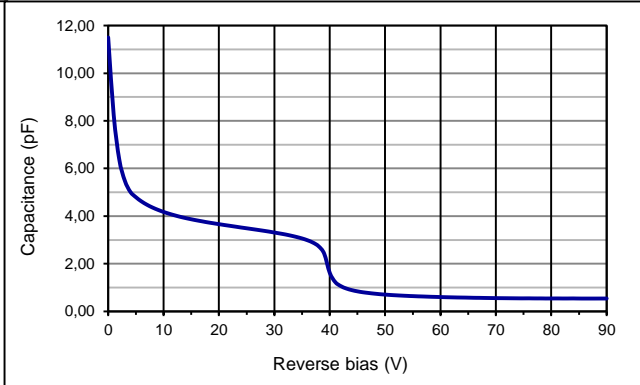
### Electro-optical characteristics @ 23 °C

| Symbol          | Characteristic          | Test Condition                             | Min          | Typ  | Max | Unit            |
|-----------------|-------------------------|--|--------------|------|-----|-----------------|
|                 | Active area             |  | diameter 230 |      |     | μm              |
|                 | Active area             |  | 0.04         |      |     | mm <sup>2</sup> |
| I <sub>D</sub>  | Dark current            | M = 100                                    |              | 0.2  | 0.5 | nA              |
| C               | Capacitance             | M = 100                                    |              | 0.6  |     | pF              |
|                 | Responsivity            | M = 100; λ = 800 nm                        | 45           | 50   |     | A/W             |
| t <sub>R</sub>  | Rise time               | M = 100; λ = 905 nm; R <sub>L</sub> = 50 Ω |              | 0.18 |     | ns              |
|                 | Cut-off frequency       | -3dB                                       |              | 2    |     | GHz             |
| V <sub>BR</sub> | Breakdown voltage       | I <sub>R</sub> = 2 μA                      | 80           |      | 120 | V               |
|                 | Temperature coefficient | Change of V <sub>BR</sub> with temperature |              | 0.45 |     | V/K             |
|                 | Excess noise factor     | M = 100                                    |              | 2.2  |     |                 |
|                 | Excess noise index      | M = 100                                    |              | 0.2  |     |                 |

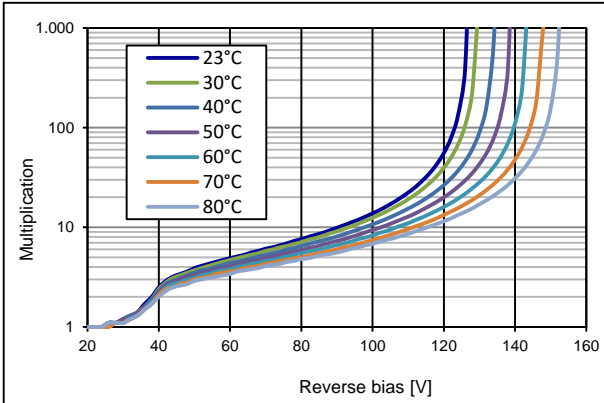
Quantum efficiency (23 °C)



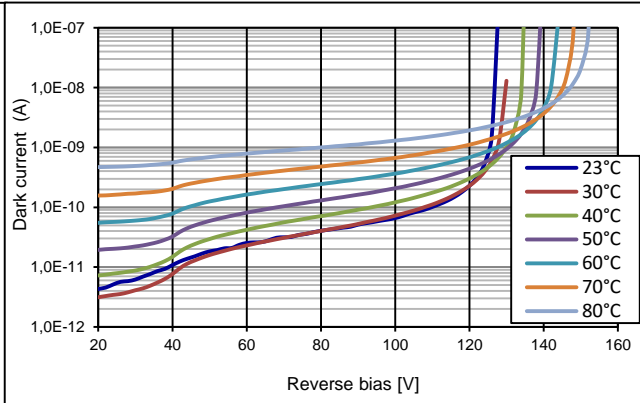
Capacitance as fct of reverse bias (23 °C)



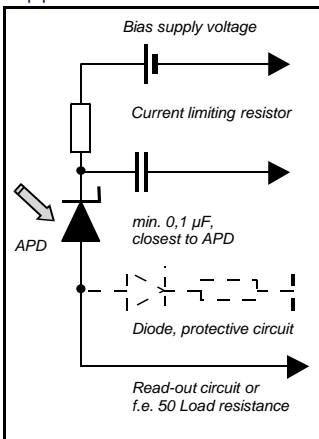
Multiplication as fct of bias and temperature



Dark current as fct of bias and temperature

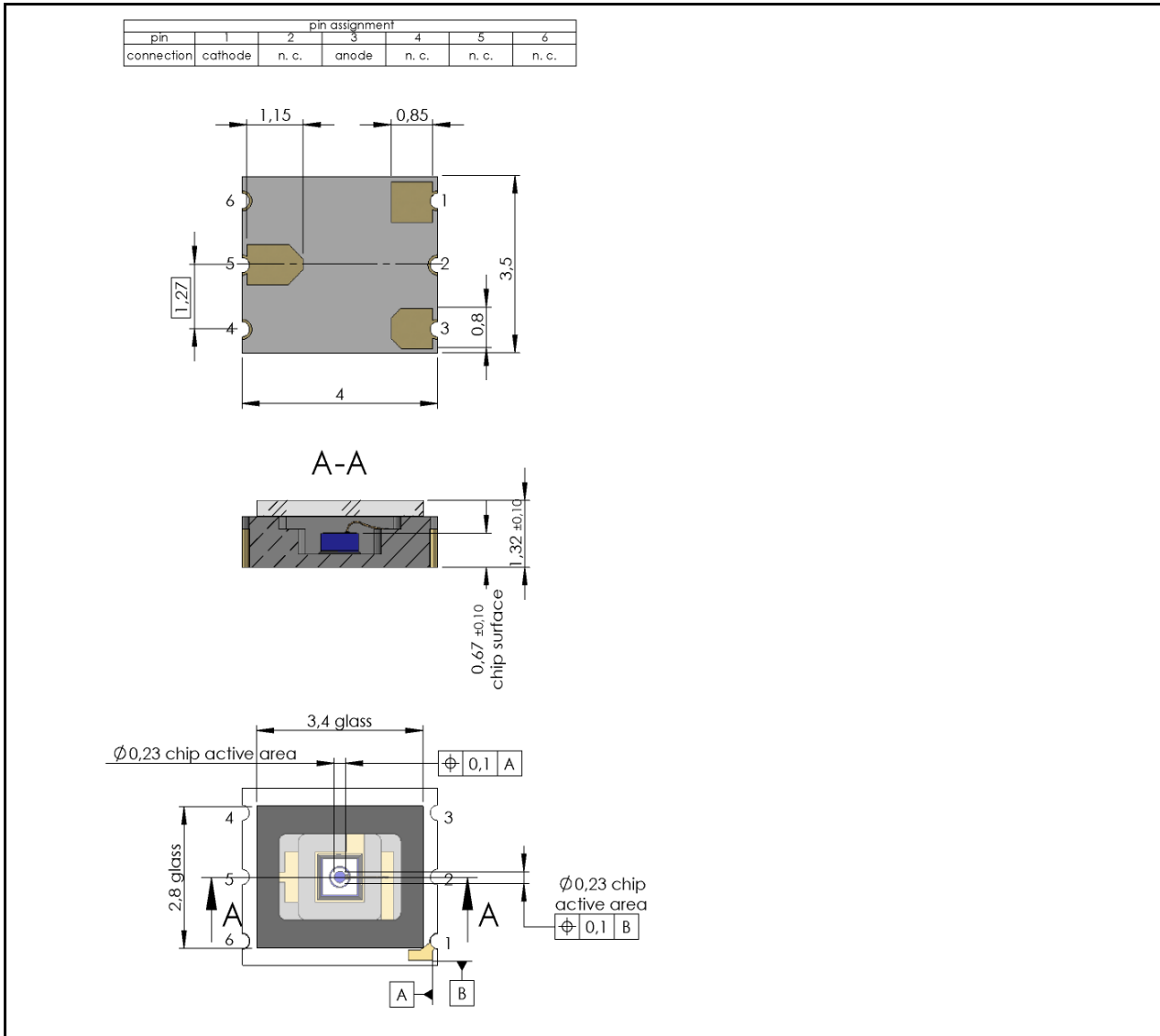


### Application hints:



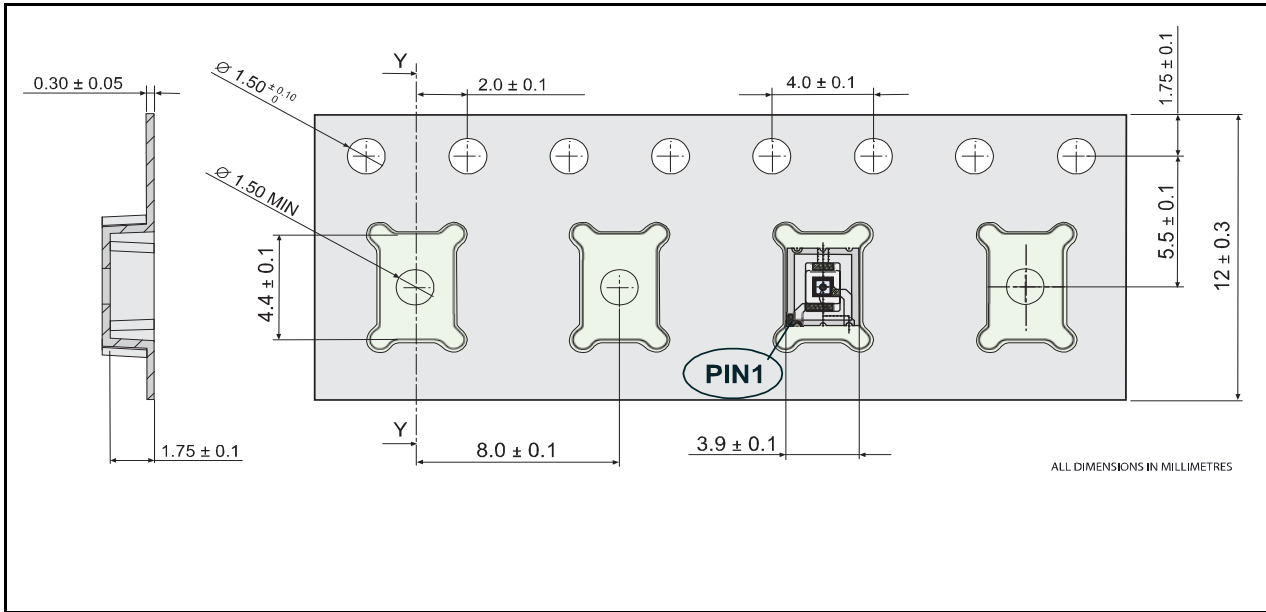
- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling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

Technical Drawing, Package: LCC6.1

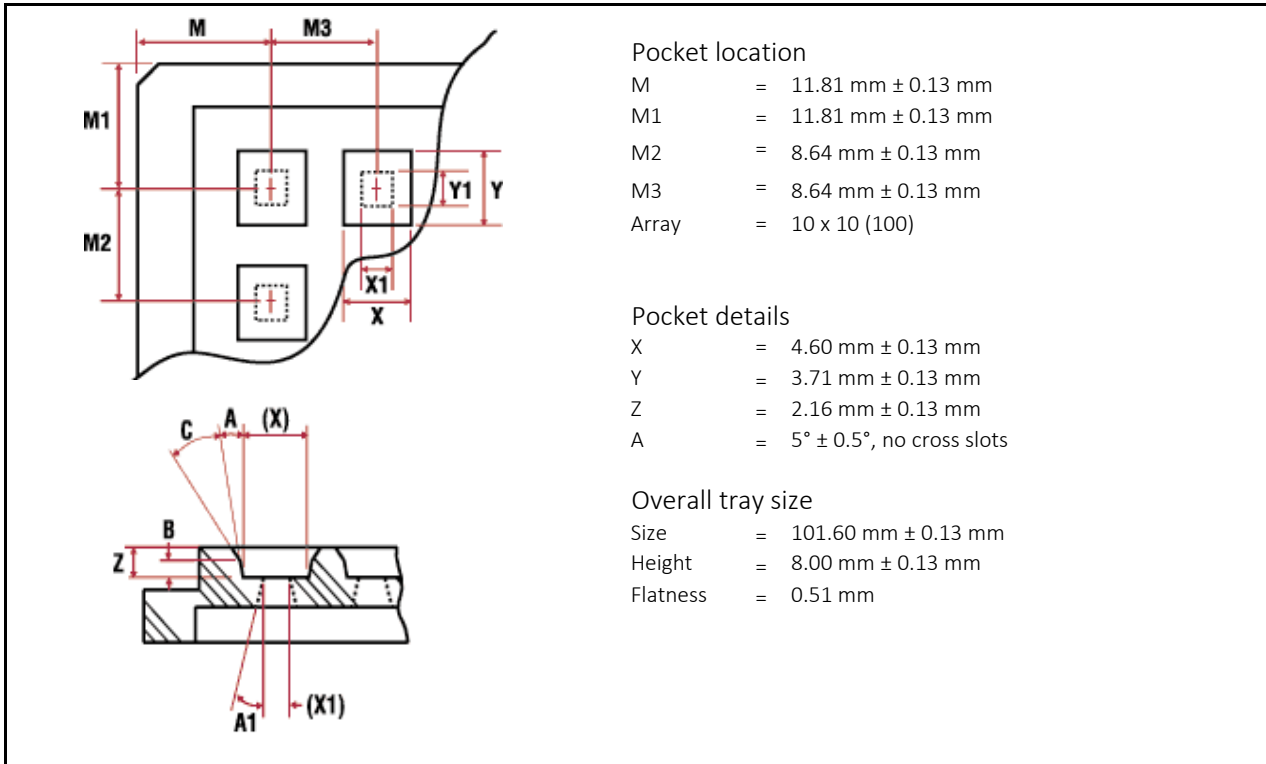


Package dimension, large quantities on reel

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.

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