
**Features**

- APD with 0.008 mm<sup>2</sup> active area
- Optimized for 550 nm to 750 nm
- Very high sensitivity
- High cut-off frequency
- Ultra low temperature coefficient

**Description**

Circular active area APD chip with 100 μm diameter. Clear QFN package with very compact design. Lead-free reflow solderable (MSL3).

**Application**

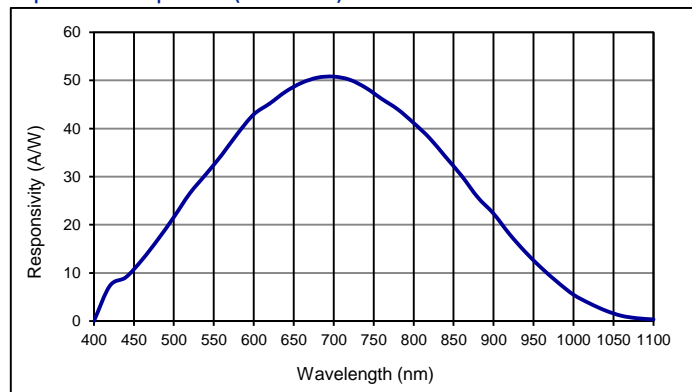
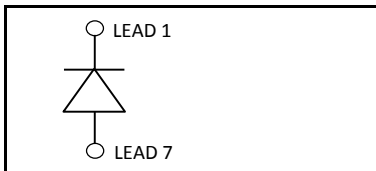
- Laser range finder
- High speed photometry
- High speed optical communications
- Medical equipment

**RoHS**

2002/95/EC


**Absolute maximum ratings**

| Symbol            | Parameter                     | Min | Max  | Unit |
|-------------------|-------------------------------|-----|------|------|
| T <sub>STG</sub>  | Storage temp                  | -40 | 100  | °C   |
| T <sub>OP</sub>   | Operating temp                | -20 | 85   | °C   |
| M <sub>max</sub>  | Gain (I <sub>p0</sub> = 1 nA) | 200 |      |      |
| I <sub>PEAK</sub> | 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             |  | 0.0078       |      |     | mm <sup>2</sup> |
| I <sub>D</sub>  | Dark current            | M = 100  |              | 0.05 | 0.5 | nA              |
| C               | Capacitance             | M = 100  |              | 0.5  |     | pF              |
|                 | Responsivity            | M = 100; λ = 660 nm  | 0.45         | 0.50 |     | A/W             |
| t <sub>R</sub>  | Rise time               | M = 100; λ = 660 nm; R <sub>L</sub> = 50 Ω                 |              | 0.12 |     | ns              |
|                 | Cut-off frequency       | -3dB, phase shift mode                                     |              | 3    |     | GHz             |
| V <sub>BR</sub> | Breakdown voltage       | I <sub>R</sub> = 2 μA, V <sub>BR</sub> - binning available | 60           | 90   | 120 | V               |
|                 | Temperature coefficient | Change of V <sub>BR</sub> with temperature                 |              | 0.2  |     | V/K             |
|                 | Excess noise factor     | M = 100  |              | 2.0  |     |                 |
|                 | Excess noise index      | M = 100  |              | 0.15 |     |                 |

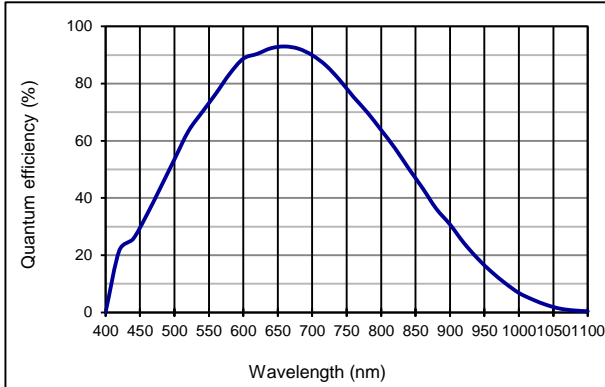
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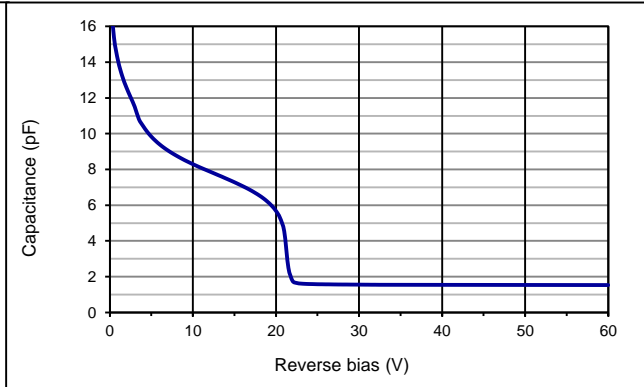
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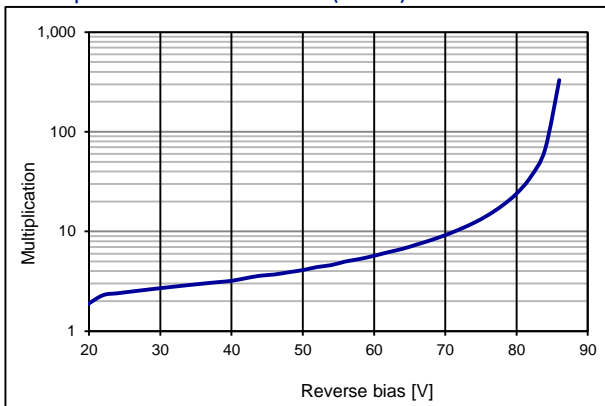
Quantum efficiency (23 °C)



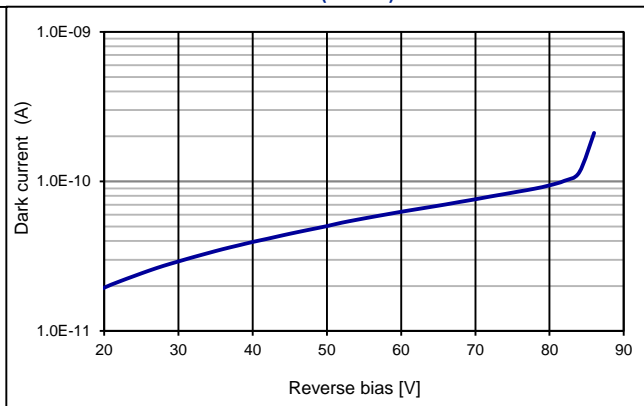
Capacitance as fct of reverse bias (23 °C)



Multiplication as fct of bias (23 °C)



Dark current as fct of bias (23 °C)



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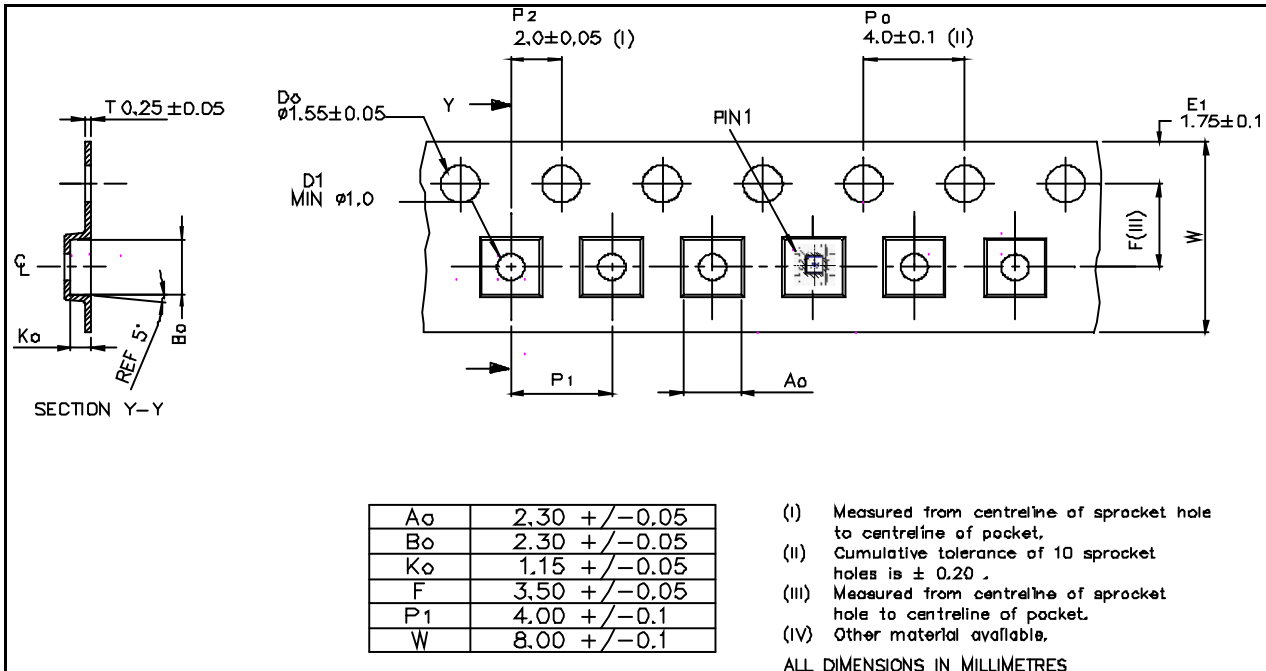
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**Package dimension**

Production quantities on reel (3000 pcs/ reel), sample quantities in tray


**Application hints moisture sensitivity:**

- This product has MSL 3 according to JEDEC, i.e. a floor life of 168h at 30°C and 60% relative humidity.
- The reels are shipped in dry packs. Once dry packs are opened or damaged the floor life has to be considered.
- Reflow soldering after floor life is exceeded might cause damage to the component.
- After floor life is exceeded the reel has to be baked or dried before reflow soldering to avoid failures.
- The recommended baking condition according to JEDEC STD-033C is 13 days at 40°C and 5% relative humidity.

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

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