



APD0200-17-D

InGaAs Avalanche Photodiode Chip

FEATURES

- Highly Reliable Planar Device
- High Responsivity within 0.95 – 1.65 μm
- Low Leakage Current and Noise
- ≥ 750 -MHz 3dB Bandwidth
- Low Stray Absorption

APPLICATIONS

- Light Detection and Ranging (LIDAR)
- Fiber-Optic Communication / Testing
- Spectral Analysis
- Optical Coherence Tomography
- Single-Photodiode SWIR Detection
- Covert IR Sensing



GENERAL DESCRIPTIONS

| PARAMETER | UNIT | VALUE |
|-----------------|---------------|-------------------|
| Spectral Range | μm | 0.95 – 1.65 |
| Aperture Size | μm | $\varnothing 200$ |
| CHIP DIMENSIONS | | |
| Length | μm | 460 ± 15 |
| Width | μm | 460 ± 15 |
| Thickness | μm | 200 ± 20 |



SPECIFICATIONS ($T_{AMB} = 23^{\circ}\text{C}$)

| PARAMETER | UNIT | MIN. | TYP. | MAX. | CONDITIONS |
|-------------------------------------|------------------------------|------|------|------|--------------------------------------|
| Dark Current | nA | --- | 5 | 50 | $M = 10$ |
| Operating Voltage (V_{OP}) | V | 32 | | 50 | $M = 10$ |
| Breakdown Voltage (V_{BD}) | V | 35 | | 55 | $I_{BD} = 100 \mu\text{A}$ |
| Capacitance | pF | --- | 2.5 | 3.0 | $M = 10, f = 1 \text{ MHz}$ |
| Responsivity | A/W | 8 | 9 | | $M = 10, \lambda = 1.55 \mu\text{m}$ |
| | | 0.8 | 0.9 | | $M = 1, \lambda = 1.55 \mu\text{m}$ |
| Useable Gain | --- | 10 | 20 | --- | $\lambda = 1.55 \mu\text{m}$ |
| 3dB Bandwidth (f_{3dB}) | GHz | 0.75 | 0.85 | | $M = 10, \lambda = 1.55 \mu\text{m}$ |
| Spectral Noise Current | $\text{pA}/\sqrt{\text{Hz}}$ | --- | 0.5 | 1.5 | $M = 10, \Delta f = 1 \text{ kHz}$ |
| Temperature Coefficient of V_{BD} | $\text{V}/^{\circ}\text{C}$ | --- | 0.10 | 0.15 | |

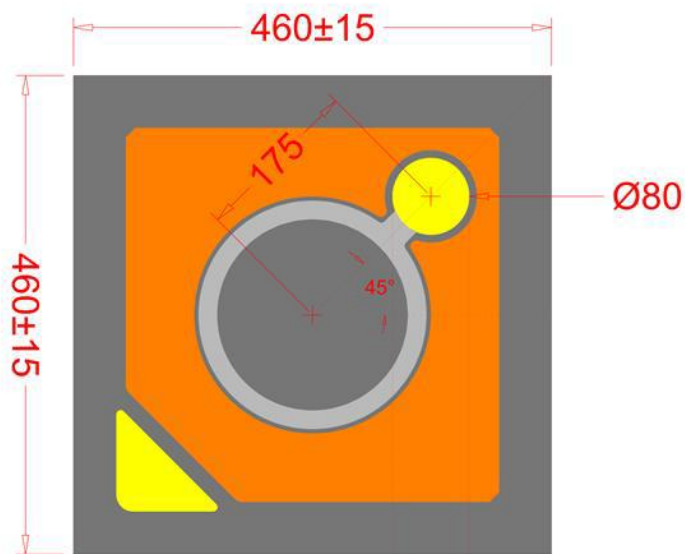
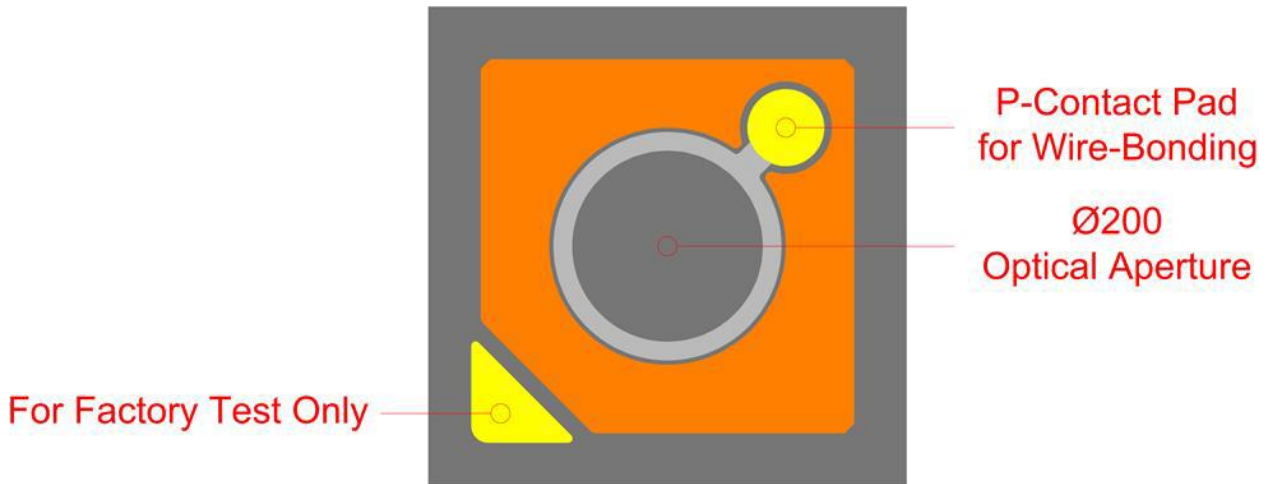
ABSOLUTE MAXIMUM RATINGS

| PARAMETER | | UNIT | MIN. | MAX. |
|----------------------------------|--------------|--------------------|------|------|
| Reverse Current | | mA | --- | 1 |
| Forward Current | | mA | --- | 5 |
| Ambient Temperature ¹ | In Operation | $^{\circ}\text{C}$ | -40 | +85 |
| | In Storage | $^{\circ}\text{C}$ | -55 | +125 |

¹Non-condensing environment



Chip Diagram (Unit: μm)



TOP VIEW

P-Contact (Anode)

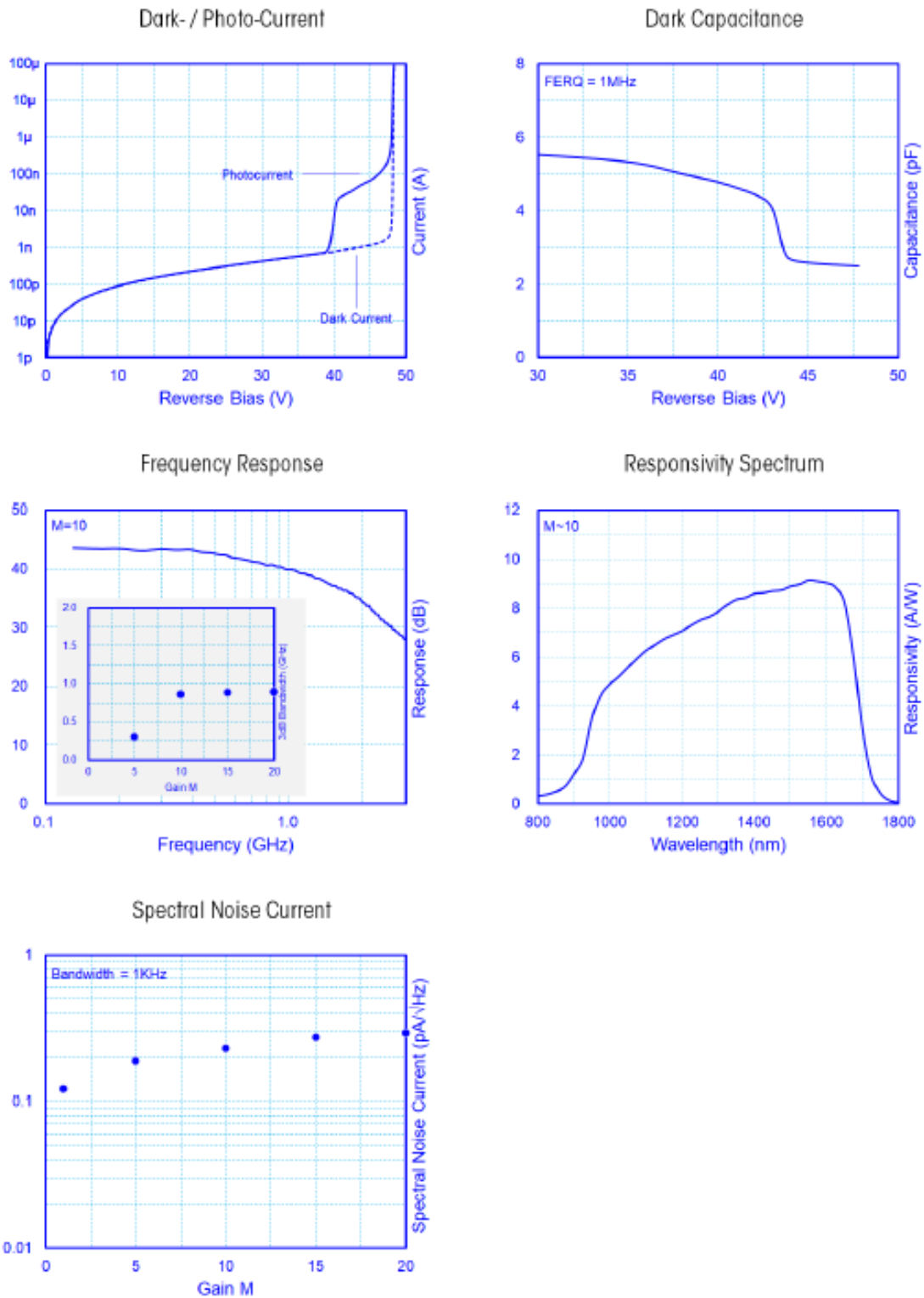


N-Contact (Cathode)

SIDE VIEW



EXAMPLE CURVES ($T_{AMB} = 23^{\circ}C$)



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