



InGaAs Avalanche Photodiode

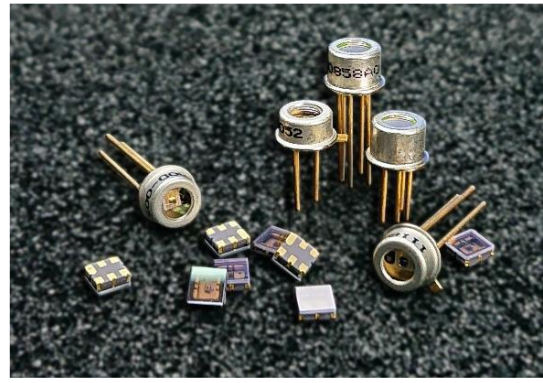
| | |
|---------------|--|
| APD0200-17-D | : Die only (Bare Chip) |
| APD0200-17-C | : Ceramic Package |
| APD0200-17-T0 | : TO-46 Package |
| APD0200-17-T1 | : TO-46 Package with 1-Stage Thermoelectric Cooler |

FEATURES

- Highly Reliable Planar Device
- High Responsivity in 0.95 – 1.65 μm
- Low Leakage Current and Noise
- $\geq 700\text{-MHz}$ 3dB Bandwidth
- Low Stray Absorption

APPLICATIONS

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



GENERAL DESCRIPTIONS

| MODEL NO. | Spectral Range | Aperture Size | Package Type |
|---------------|----------------|-------------------|---------------|
| | μm | μm | --- |
| APD0200-17-D | 0.95 – 1.65 | $\varnothing 200$ | --- |
| APD0200-17-C | | | 6CLCC (3.0SQ) |
| APD0200-17-T0 | | | TO-46 / 3P |
| APD0200-17-T1 | | | TO-46 / 5P |

ABSOLUTE MAXIMUM RATINGS

| MODEL NO. | Reverse Current | | Forward Current | | TEC Current | | Ambient Temperature ¹ | | | |
|---------------|-----------------|-----|-----------------|-----|-------------|------|----------------------------------|-----|--------------------|------|
| | mA | | mA | | A | | In Operation | | Storage | |
| | MIN | MAX | MIN | MAX | MIN | MAX | $^{\circ}\text{C}$ | | $^{\circ}\text{C}$ | |
| APD0200-17-D | --- | 1 | --- | 5 | --- | --- | -40 | +85 | -55 | +125 |
| APD0200-17-C | | | | | --- | --- | | | -40 | +85 |
| APD0200-17-T0 | | | | | --- | --- | | | -40 | +85 |
| APD0200-17-T1 | | | | | --- | 0.65 | | | -40 | +85 |

¹Non-condensing environment



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

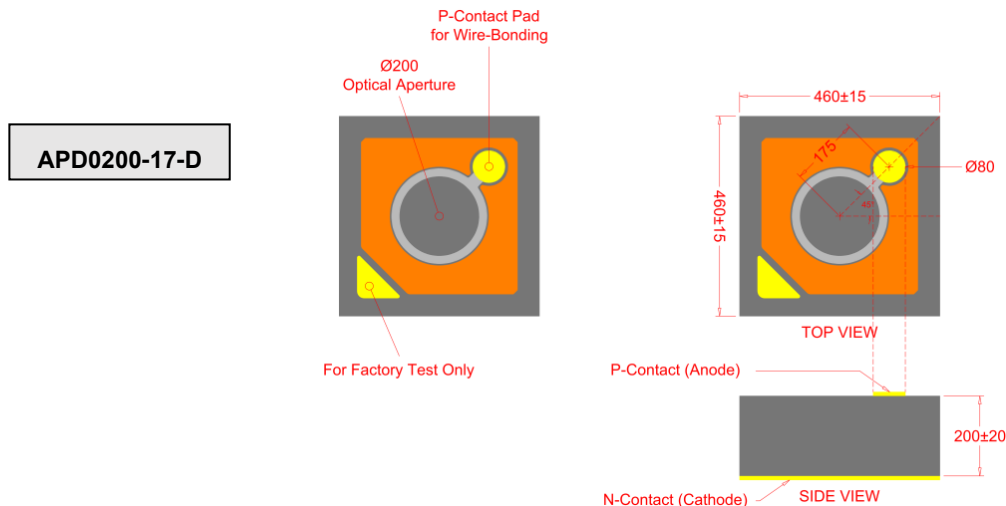
| PARAMETER | Dark Current | | | Operating Voltage (V_{OP}) | | | Breakdown Voltage (V_{BD}) | | | Capacitance | | |
|---------------|--------------|-----|-----|--------------------------------|-----|-----|--------------------------------|-----|-----|-------------------|-----|-----|
| UNIT | nA | | | V | | | V | | | pF | | |
| CONDITIONS | M = 10 | | | M = 10 | | | $I_{BD} = 100 \mu\text{A}$ | | | M = 10, f = 1 MHz | | |
| MODEL NO. | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| APD0200-17-D | --- | 5 | 50 | 32 | | 50 | 35 | | 55 | --- | 2.5 | 3.0 |
| APD0200-17-C | | | | | | | | | | | | |
| APD0200-17-T0 | | | | | | | | | | | | |
| APD0200-17-T1 | | | | | | | | | | | | |

| PARAMETER | Responsivity | | | Useable Gain | | | 3dB Bandwidth (f_{3dB}) | | | Spectral Noise Current | | |
|---------------|--------------------------------------|-----|-----|------------------------------|-----|-----|--|------|-----|------------------------------------|-----|-----|
| UNIT | A/W | | | --- | | | GHz | | | pA/ $\sqrt{\text{Hz}}$ | | |
| CONDITIONS | M = 10, $\lambda = 1.55 \mu\text{m}$ | | | $\lambda = 1.55 \mu\text{m}$ | | | M = 10, $\lambda = 1.55 \mu\text{m}$ 50 Ω | | | M = 10, $\Delta f = 1 \text{ kHz}$ | | |
| MODEL NO. | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| APD0200-17-D | 8 | 9 | --- | 10 | 20 | --- | 0.7 | 0.85 | --- | --- | 0.5 | 1.5 |
| APD0200-17-C | | | | | | | 0.7 | 0.85 | --- | | | |
| APD0200-17-T0 | | | | | | | 0.8 | 1 | --- | | | |
| APD0200-17-T1 | | | | | | | 0.8 | 1 | --- | | | |

| PARAMETER | Temperature Coefficient of V_{BD} | | | Max. Cooling Capability ² , ΔT_{MAX} | | |
|---------------|-------------------------------------|------|------|---|-----|-----|
| UNIT | V/ $^{\circ}\text{C}$ | | | --- | | |
| CONDITIONS | --- | | | $T_{\text{Heatsink}} = 20^{\circ}\text{C}$ | | |
| MODEL NO. | MIN | TYP | MAX | MIN | TYP | MAX |
| APD0200-17-D | --- | 0.10 | 0.15 | --- | --- | --- |
| APD0200-17-C | | | | --- | --- | --- |
| APD0200-17-T0 | | | | --- | --- | --- |
| APD0200-17-T1 | | | | 35 | 40 | --- |

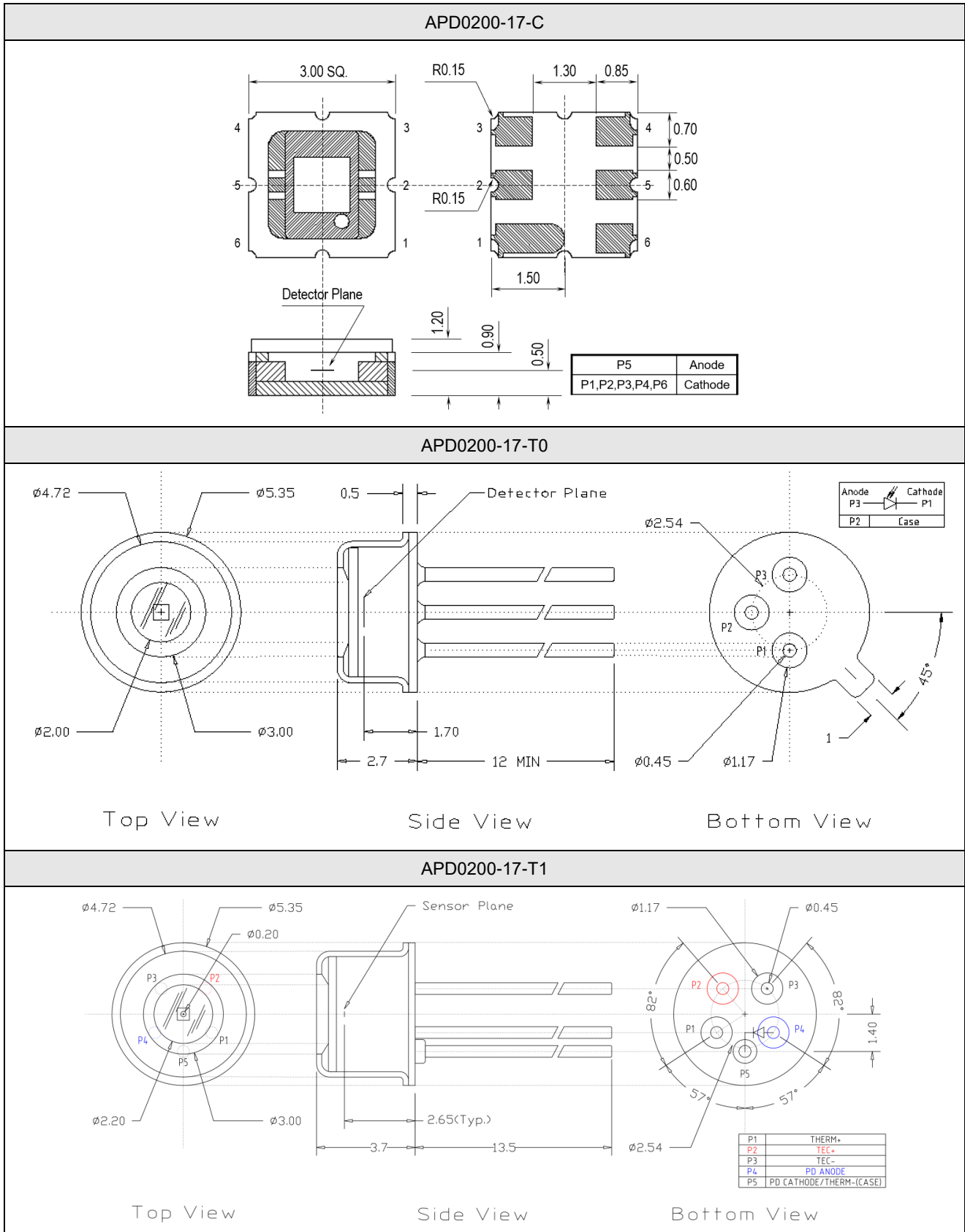
² Adequate heatsink and thermal interface material are the prerequisites for stable operation.

CHIP DIAGRAMME (UNIT: μm)



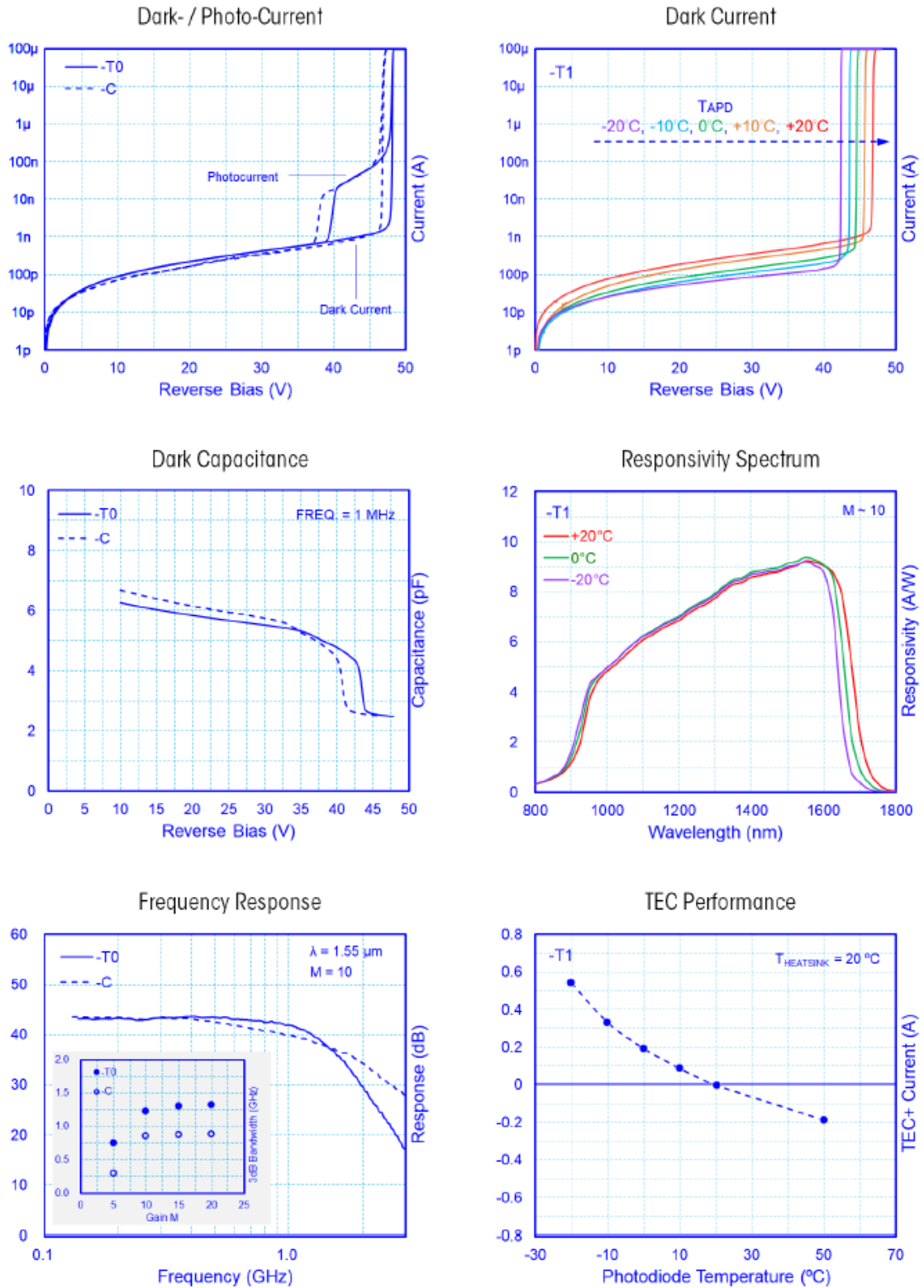


PACKAGE OUTLINE (UNIT: mm)





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



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