



# APD0200-17-T1 InGaAs Avalanche Photodiode

## FEATURES

- Highly Reliable Planar Device
- Thermoelectric-Cooled TO-46 Package
- High Responsivity in 0.95 – 1.65  $\mu\text{m}$
- Low Leakage Current and Noise
- $\geq 800\text{-MHz}$  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

PARAMETER	UNIT	VALUE
Spectral Range	$\mu\text{m}$	0.95 – 1.65
Aperture Size	$\mu\text{m}$	$\varnothing 200$
Package Type	---	TO-46 / 5P

## ABSOLUTE MAXIMUM RATINGS

PARAMETER		UNIT	MIN.	MAX
Reverse Current		mA	---	1
Forward Current		mA	---	5
TEC Current		A	---	0.65
Ambient Temperature <sup>1</sup>	In Operation	$^{\circ}\text{C}$	-40	+85
	Storage	$^{\circ}\text{C}$	-45	+90

<sup>1</sup>Non-condensing environment



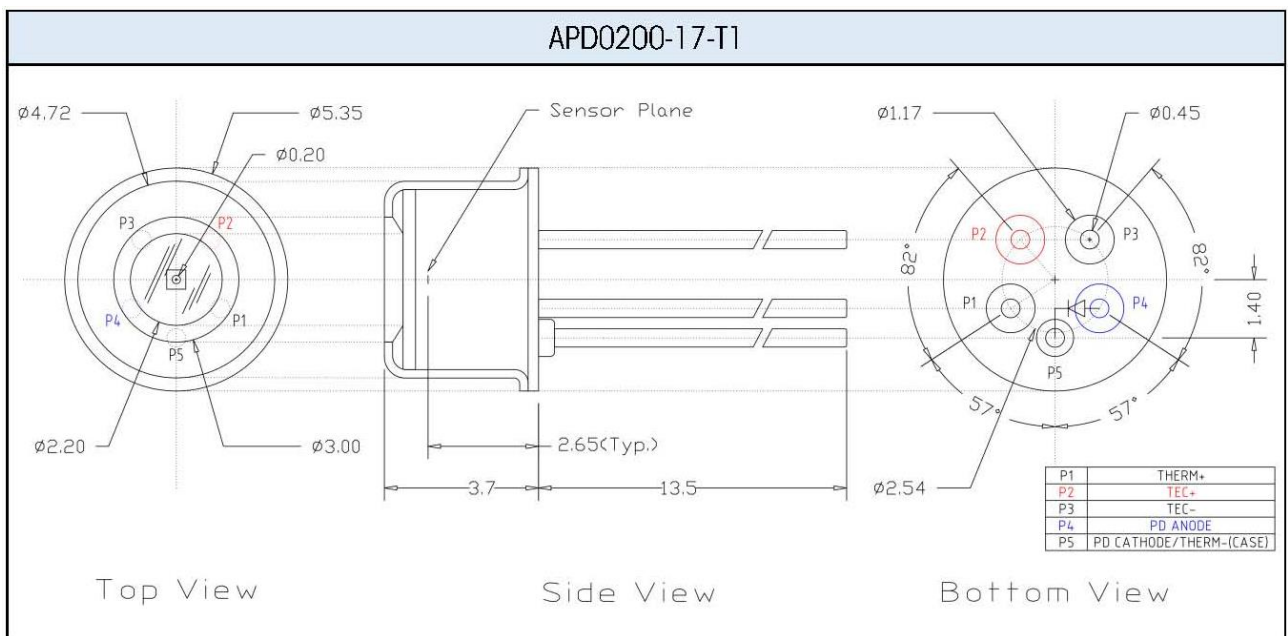
## SPECIFICATIONS ( $T_{\text{Photodiode}} = 0\text{ }^{\circ}\text{C}$ )

PARAMETER	UNIT	MIN.	TYP.	MAX.	CONDITIONS
Dark Current	nA	---	2	20	$M = 10$
Operating Voltage ( $V_{\text{OP}}$ )	V	30	---	48	$M = 10$
Breakdown Voltage ( $V_{\text{BD}}$ )	V	33	---	53	$I_{\text{BD}} = 100\text{ }\mu\text{A}$
Capacitance <sup>2</sup>	pF	---	2.5	3.0	$M = 10, f = 1\text{ MHz}$
Responsivity	A/W	8	9	---	$M = 10, \lambda = 1.55\text{ }\mu\text{m}$
		0.8	0.9	---	$M = 1, \lambda = 1.55\text{ }\mu\text{m}$
Useable Gain	---	10	20	---	$\lambda = 1.55\text{ }\mu\text{m}$
3dB Bandwidth ( $f_{3\text{dB}}$ ) <sup>2</sup>	GHz	0.8	1	---	$M = 10, \lambda = 1.55\text{ }\mu\text{m}, 50\text{ }\Omega$
Spectral Noise Current	$\text{pA}/\sqrt{\text{Hz}}$	---	0.5	1.5	$M = 10, \Delta f = 1\text{ kHz}$
Max. Cooling Capability ( $\Delta T_{\text{MAX}}$ ) <sup>3</sup>	$^{\circ}\text{C}$	35	40	---	$T_{\text{Heatsink}} = 23\text{ }^{\circ}\text{C}$

<sup>2</sup>  $T_{\text{Photodiode}} = 23^{\circ}\text{C}$

<sup>3</sup> Adequate heatsink and thermal interface material are the prerequisites for stable operation.

## PACKAGE OUTLINE (UNIT: mm)

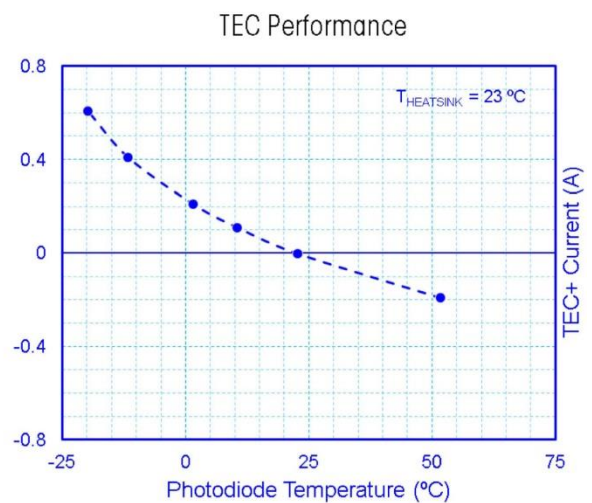
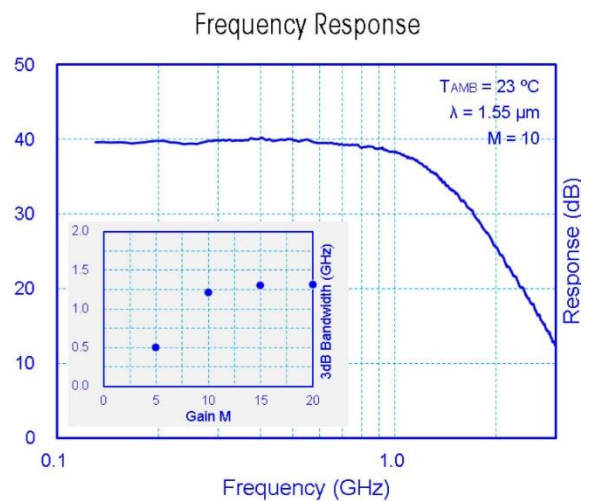
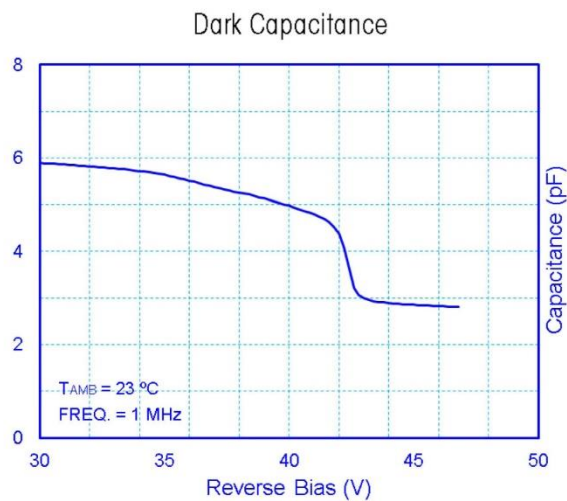
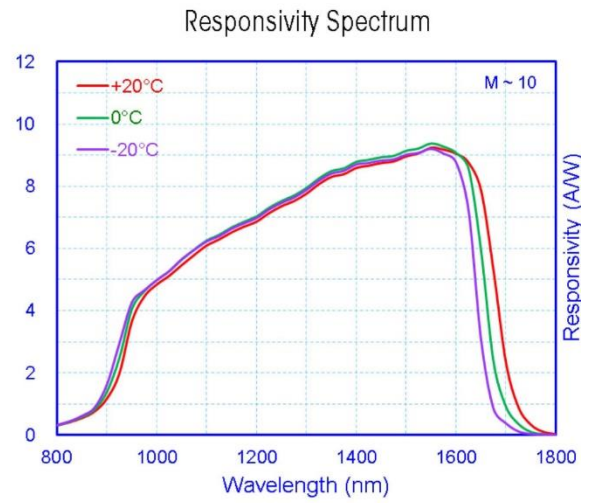
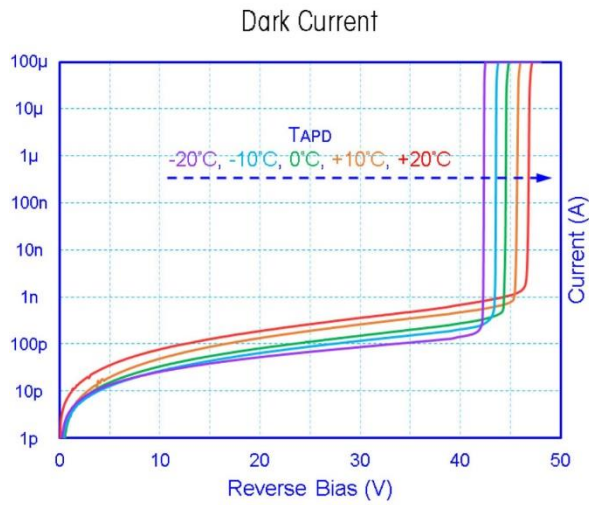


<sup>4</sup> Make sure correct polarity is observed before powering on the device. For instance, from **top-view**, P2 for applying positive TEC current to cool down the photodiode **is on the right-hand side of case pin P5**.

<sup>5</sup> Product serial number is printed on the side wall of the cap.



## EXAMPLE CURVES



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