



InGaAs Avalanche Photodiode

FEATURES

- Highly Reliable Planar Device
- Thermoelectric-Cooled TO-46 Package
- High Responsivity in 0.95 -1.65 μm
- 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 Camera
- Covert IR Sensing



GENERAL DESCRIPTIONS

MODEL NO.		APD0200-17-T1
PARAMETER	UNIT	VALUE
Spectral Range	μm	0.95 – 1.65
Aperture Size	μm	$\varnothing 200$
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
¹ Ambient Temperature	In Operation	$^{\circ}\text{C}$	-40	+85
	Storage	$^{\circ}\text{C}$	-45	+90

¹Non-condensing environment.



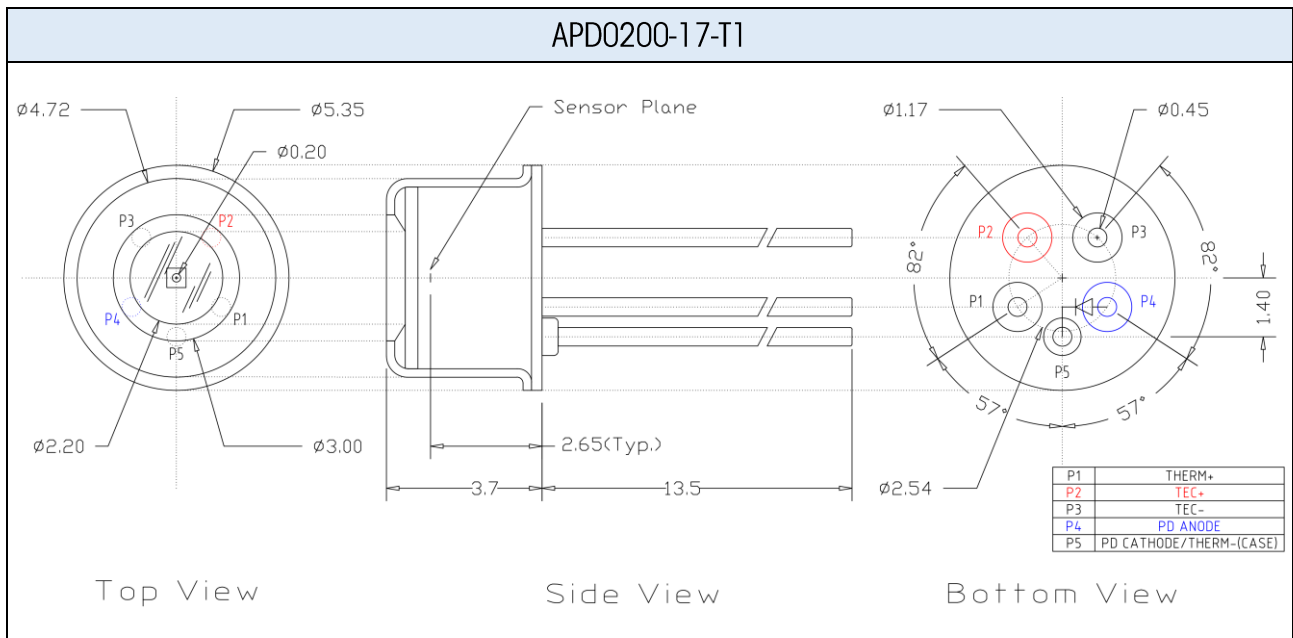
SPECIFICATIONS ($T_{\text{Photodiode}} = 0\text{ }^{\circ}\text{C}$)

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

² $T_{\text{Photodiode}} = 23\text{ }^{\circ}\text{C}$.

³Adequate heatsink and thermal interface material are the prerequisites for stable operation.

PACKAGE OUTLINE (UNIT: mm)



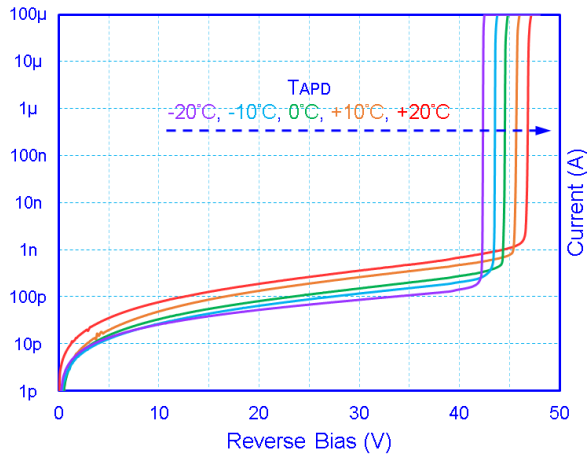
⁴Make sure correct polarity is observed before powering on the device. For instance, from **top-view**, P2 for applying positive TEC current to cool down the photodiode is **on the right-hand side of case pin P5**.

⁵Product serial number is printed on the side wall of the cap.

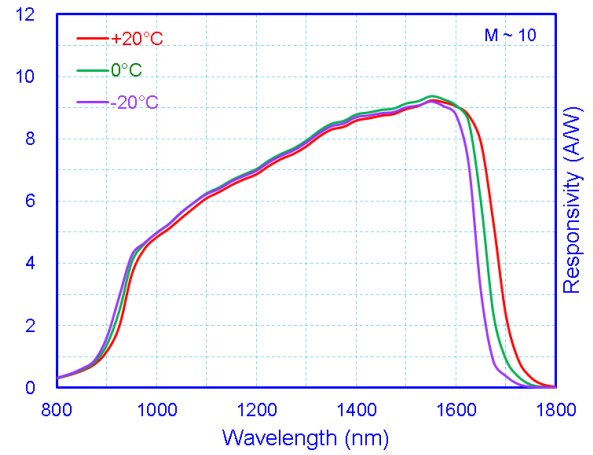


EXAMPLE CURVES

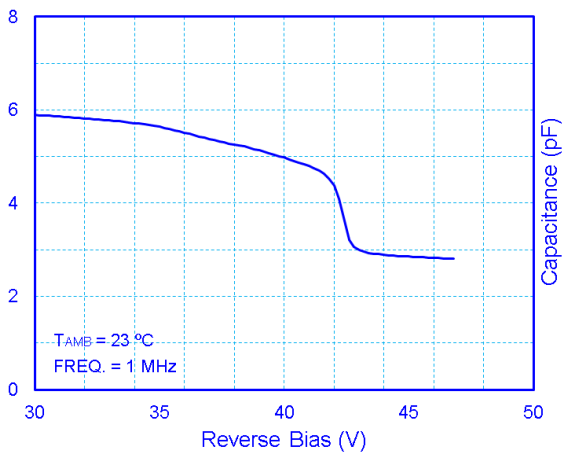
Dark Current



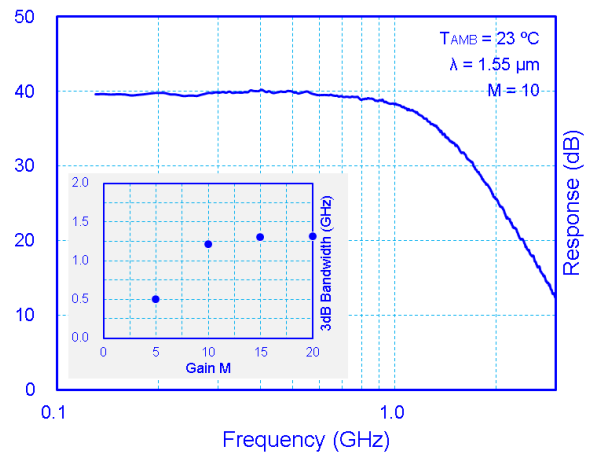
Responsivity Spectrum



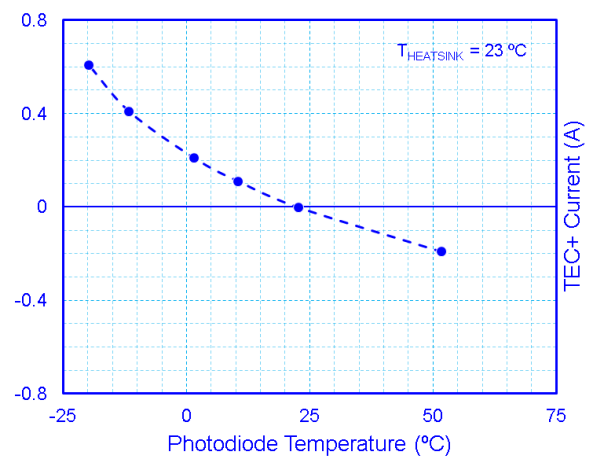
Dark Capacitance



Frequency Response



TEC Performance



Note: The example curves are subject to change without notice.