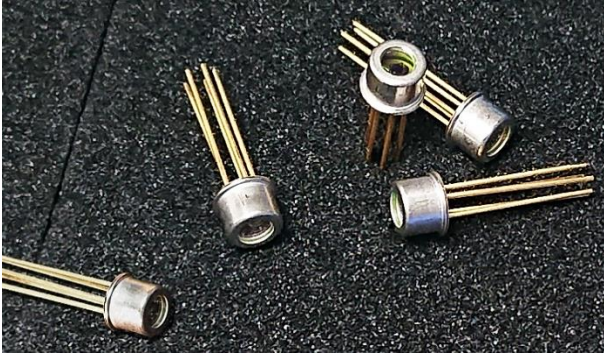




InGaAs PIN Photodiode

PIN1000-17-T1: Standard 1.7- μm -Cutoff InGaAs PIN Photodiode with Embedded 1-Stage Thermoelectric Cooler



FEATURES

- Highly Reliable Planar Device
- High Spectral Response in 0.9 -1.7 μm
- Thermoelectric-Cooled TO-46 Package
- Low Leakage Current
- High Shunt Resistance
- Low Stray Absorption

APPLICATIONS

- Power Monitoring
- Spectral Analysis
- Light Detection and Ranging (LIDAR)
- Remote Temperature Sensors
- Moisture/Water Detection
- Ice/Slush Detection
- Gas Leak Detection
- Single-Photodiode SWIR Camera
- Covert IR Sensing
- Optical Powering

GENERAL DESCRIPTIONS

MODEL NO.		PIN1000-17-T1
PARAMETER	UNIT	VALUE
¹ Spectral Range	μm	0.9 – 1.7
² Aperture Size	μm	\varnothing 950
Package Type	---	TO-46 / 5P

¹Options with 0.6-1.7 μm and 1.2-2.2 μm spectral range are also available.

²Option with \varnothing 500- μm aperture is also available.

ABSOLUTE MAXIMUM RATINGS

PARAMETER		UNIT	MIN.	MAX.
Reverse Voltage		V	---	10
Reverse Current		mA	---	10
Forward Current		mA	---	10
TEC Current		A	-0.2	0.65
³ Ambient Temperature	In Operation	$^{\circ}\text{C}$	-40	+85
	Storage	$^{\circ}\text{C}$	-45	+90

³Non-condensing environment.



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

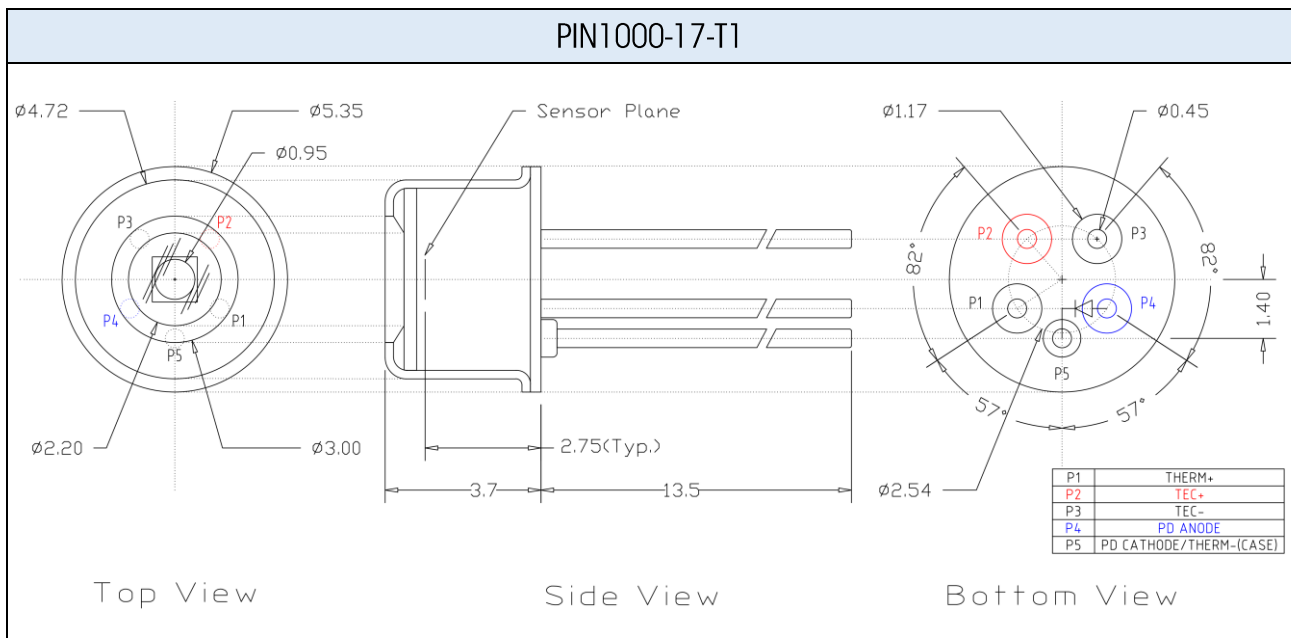
Model No.		PIN1000-17-T1		
Spectral Range (μm)		0.9 – 1.7		
PARAMETER	UNIT	MIN.	TYP.	MAX.
Dark Current @ -5 V	nA	---	0.5	1
Shunt Resistance @ -10 mV	G Ω	0.5	2	---
⁴ Capacitance @ 1 MHz	@ 0 V	---	120	160
	@ -5 V	---	60	80
⁴ 3dB Bandwidth @ -5 V, 50 Ω	MHz	30	40	---
Responsivity @ 0 V	@ 0.65 μm	---	---	---
	@ 0.85 μm	0.10	0.15	---
	@ 1.30 μm	0.80	0.90	---
	@ 1.55 μm	0.90	0.95	---
^{4,5} Saturation Power @ 1.55 μm , 0 V, -0.2 dB	mW	5.0	7.0	---
NEP @ 1.55 μm , 0 V, 1 KHz	fW/ $\sqrt{\text{Hz}}$	---	2.5	5
⁶ Max. Cooling Capability (ΔT_{MAX}) $T_{\text{Heatsink}} = 23\text{ }^{\circ}\text{C}$	$^{\circ}\text{C}$	35	40	---

⁴ $T_{\text{Photodiode}} = 23\text{ }^{\circ}\text{C}$.

⁵Measured at the aperture center with an $1/e^2$ beam diameter of 250 μm .

⁶Adequate heatsink and thermal interface material are the prerequisites for stable operation.

PACKAGE OUTLINE (UNIT: mm)



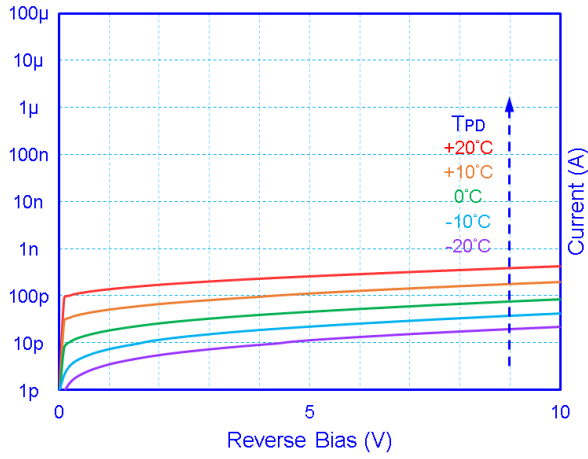
⁷Make sure correct polarity is observed before powering on the device. For instance, from **top-view**, **P2** for applying positive TEC current to cool down the photodiode is **on the right-hand side of case pin P5**.

⁸Product serial number is printed on the side wall of the cap.

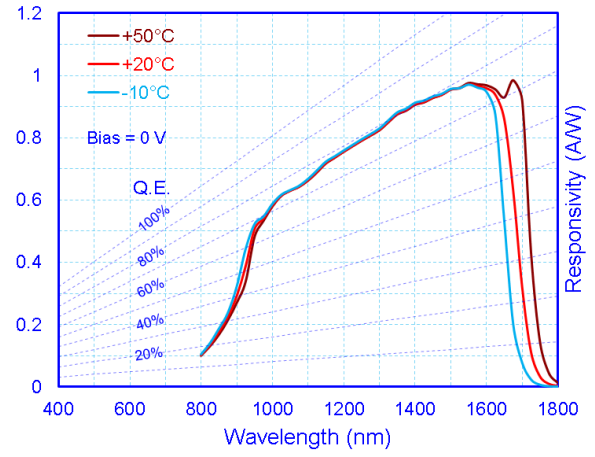


EXAMPLE CURVES

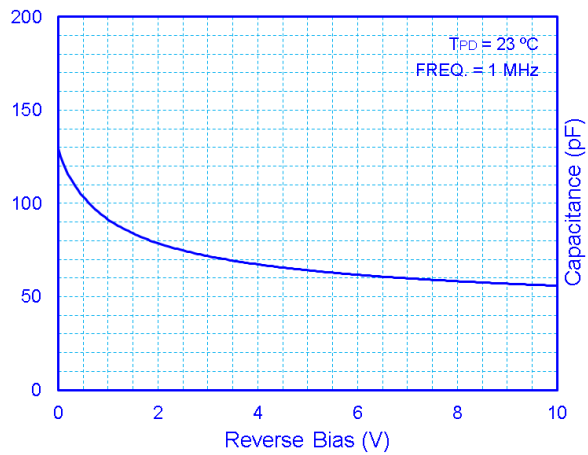
Dark Current



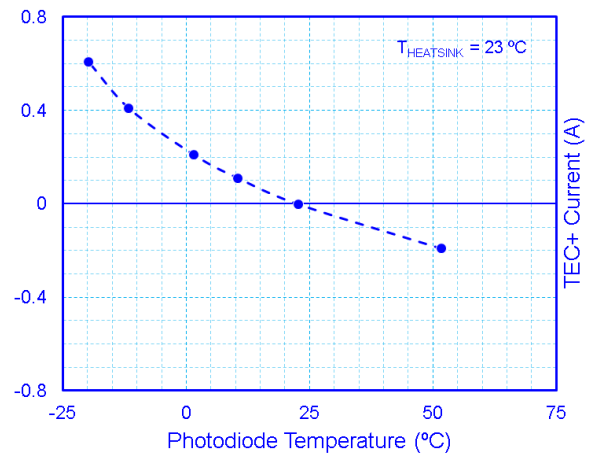
Responsivity Spectrum



Dark Capacitance



TEC Performance



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