



## InGaAs PIN Photodiode

PIN1000-17-T1: Standard 1.7  $\mu\text{m}$  Cutoff InGaAs PIN Photodiode with embedded 1-Stage Thermoelectric Cooler

### FEATURES

- Highly reliable planar device
- High Spectral Response in 0.9 – 1.7  $\mu\text{m}$
- 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 detection
- Covert IR sensing
- Optical powering



## GENERAL DESCRIPTIONS

MODEL NO.		PIN1000-17-T1
PARAMETER	UNIT	VALUE
Spectral Range <sup>1</sup>	$\mu\text{m}$	0.9 - 1.7
Aperture Size <sup>2</sup>	$\mu\text{m}$	$\varnothing$ 950
Package Type	---	TO-46 / 5P

<sup>1</sup> Options with 0.6 - 1.7  $\mu\text{m}$  and 1.2 - 2.2  $\mu\text{m}$  spectral range are also available

<sup>2</sup> Option with  $\varnothing$  500  $\mu\text{m}$  aperture is also available. Please contact us for further information.



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

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

<sup>3</sup>  $T_{\text{Photodiode}} = 23^{\circ}\text{C}$ .

<sup>4</sup> Measured at the aperture centre with an  $1/e^2$  beam diameter of 250  $\mu\text{m}$ .

<sup>5</sup> Adequate heatsink and thermal interface material are the prerequisites for stable operation.

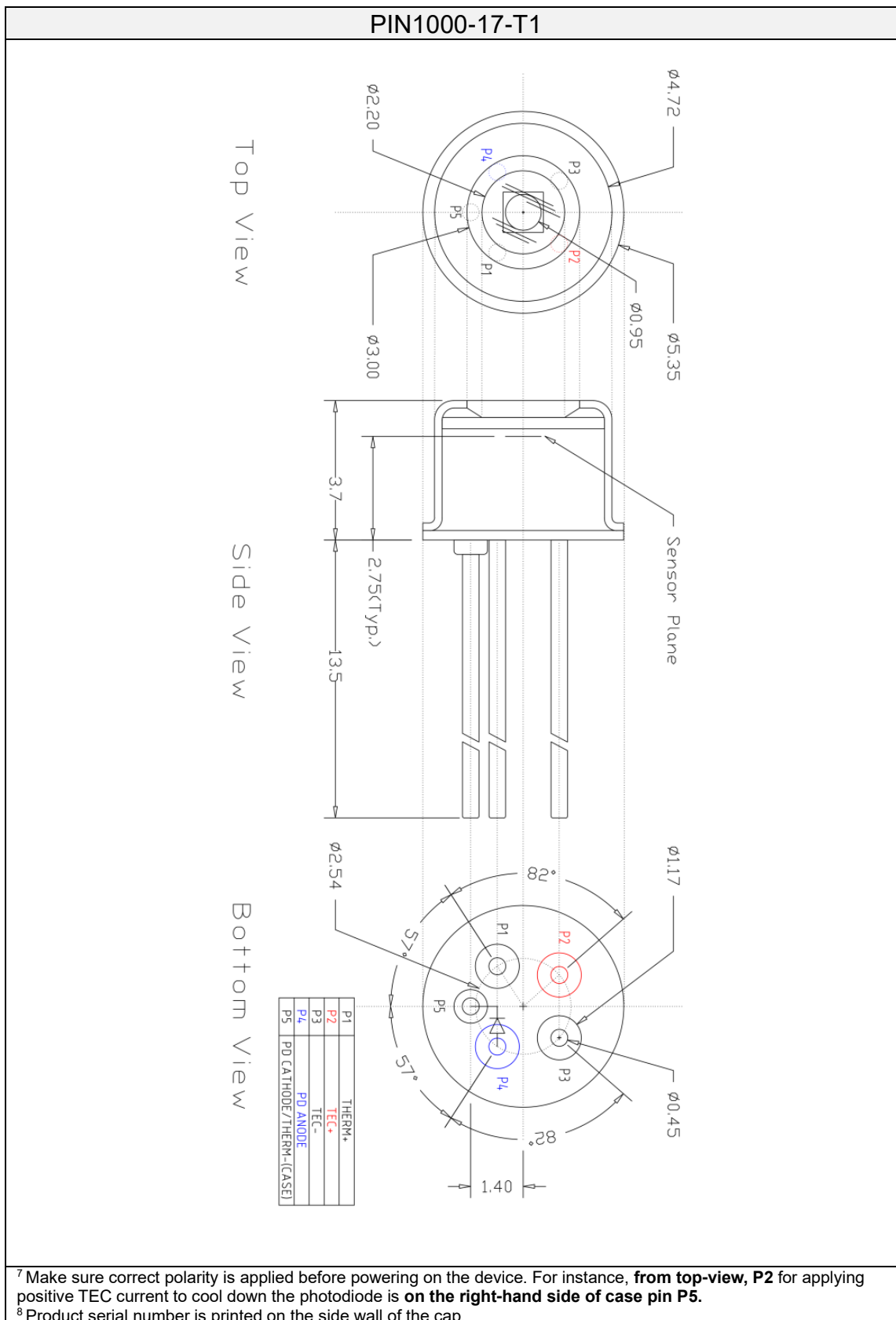
## ABSOLUTE MAXIMUM RATINGS

Model No.		PIN1000-17-T1		
PARAMETER	UNIT	MIN.	MAX.	
Reverse Voltage	V	---	10	
Reverse Current	mA	---	10	
Forward Current	mA	---	10	
TEC Current	A	-0.2	0.65	
Ambient Temperature <sup>6</sup>	In Operation	$^{\circ}\text{C}$	-40	+85
	Storage	$^{\circ}\text{C}$	-45	+90

<sup>6</sup> Non condensing environment.



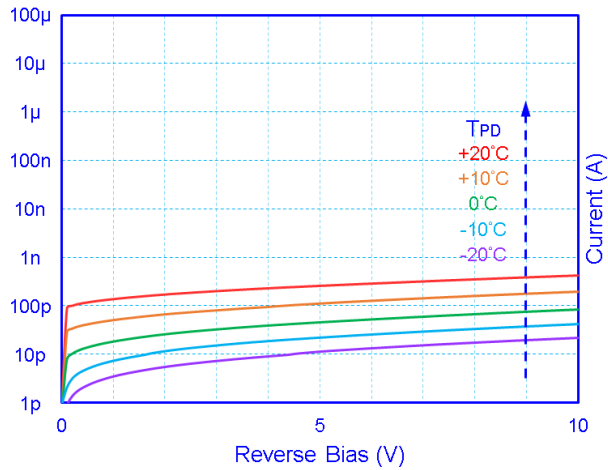
PACKAGE OUTLINE (UNIT: mm)



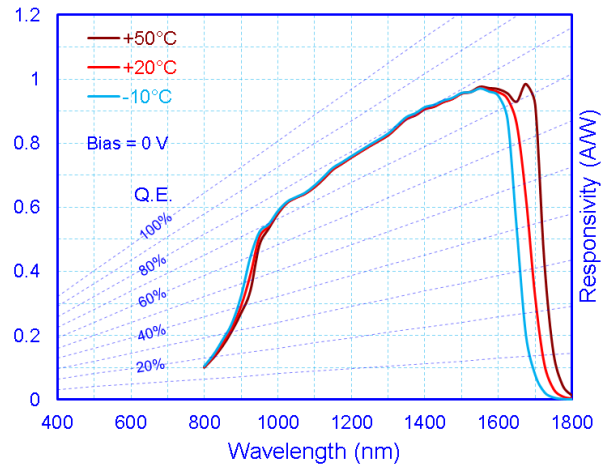


## EXAMPLE CURVES

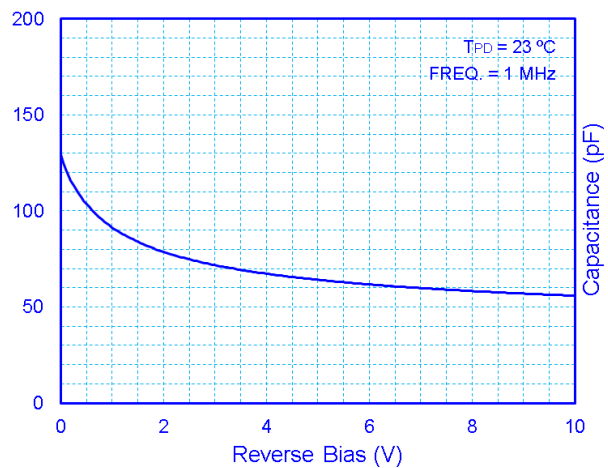
Dark Current



Responsivity Spectrum



Dark Capacitance



TEC Performance

