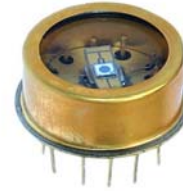


### NIRDAPD TEC Series Discrete Amplification Photon Detector



Amplification Technologies NIRDAPD TEC series photodetector is a near infrared photodetector designed for wide-bandwidth analog detection of low-level light signals with sensitivity in the signal pulse that is unique for NIR analog detectors - down to a few photons.

The NIRDAPD TEC series takes advantage of the breakthrough Discrete Amplification (DA) method, developed and patented by Amplification Technologies, Inc. Use of DA technology allows high-quality internal amplification with high gain ( $>1E5$ ), fast response ( $< 0.5$  ns rise time) and negligible excess noise factor ( $< 1.05$ ).

The photodetector is packaged in a hermetically sealed TO-8 package with a two-stage thermoelectric cooler. Used in conjunction with the DEM2DAPD10 series Evaluation Module, it can cool anywhere in the range of room temperature to  $-30^{\circ}$  C.

The NIRDAPD TEC series photodetector is available in two different active area sizes:  $80\mu\text{m}$  and  $210\mu\text{m}$ .

## Key Features

### Electro-optical

- Near infrared spectral response from 1000 to 1700 nm
- Fast response
- High gain
- Low noise-factor

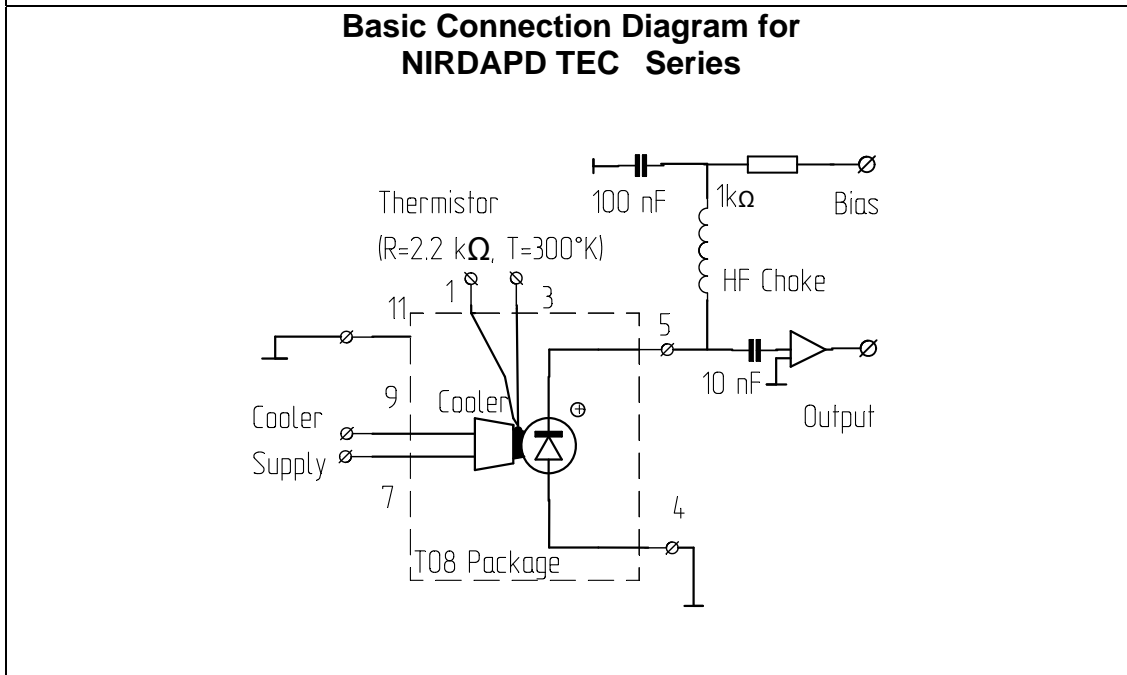
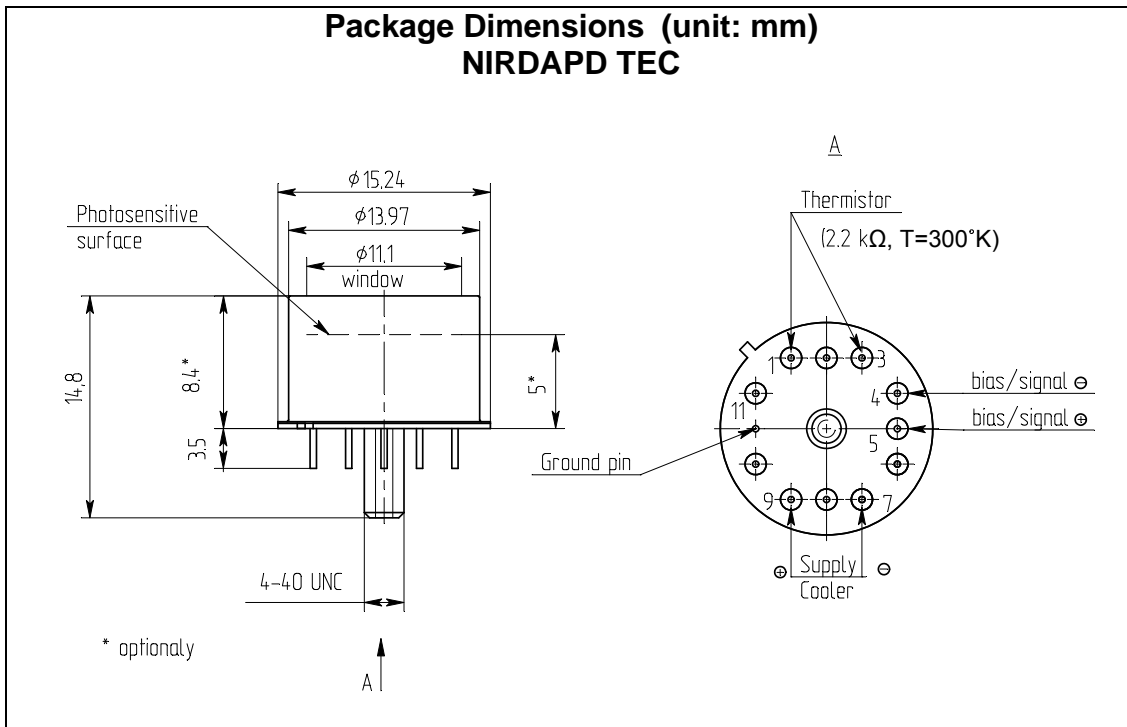
### Applications

- Lidar and environmental monitoring
- Spectroscopy and Instrumentation
- Fluorescence detection
- 3D Imaging
- Homeland security
- Biological Sensors
- Quantum Communications
- Night Vision

## Specifications (at an operating temperature of -10°C)

Parameter	NIRDAPD TEC series		Unit
	-80	-200	
Chip size	700 x 700		μm <sup>2</sup>
Active area diameter	80	200	μm
Spectral response range (λ)	900 – 1700		nm
Typical gain (M)	8x10 <sup>4</sup>		-
Excess Noise Factor	< 1.05		-
Photon Detection Efficiency @1550 nm (PDE) <sup>1</sup>	8 – 16		%
Single Electron Response pulse width (FWHM)	0.6	0.7	ns
Typical dark count rate	1-10		Mcps
Operating bias	50 – 60		V

(1) Photon detection efficiency includes cross-talk and afterpulsing.



## NIRDAPD TEC Series



### Precautions for Use

Use of grounding straps, anti-static mats and other standard electrostatic discharge protective equipment and methods are recommended when handling or testing these devices.

### Quality Vision

Amplification Technologies Inc is committed to providing products with the highest levels of quality and reliability using best available manufacturing processes. Our top priority is total customer satisfaction. Amplification Technologies Inc maintains a strict quality control program to ensure that all products meet or surpass published specifications.

### Ordering Information

When ordering, please specify the following information: NIRDAPD TEC-XXX where XXX corresponds to the photodetector chip active area. Please call for other custom options such as custom chip active area, custom optical windows, etc.

#### **Contact Information:**

**AMPLIFICATION TECHNOLOGIES INC  
1400 Coney Island Avenue  
Brooklyn, New York 11230**

P (718) 951-8021

F (718) 951-8030

[sales@amplificationtechnologies.com](mailto:sales@amplificationtechnologies.com)

[www.amplificationtechnologies.com](http://www.amplificationtechnologies.com)