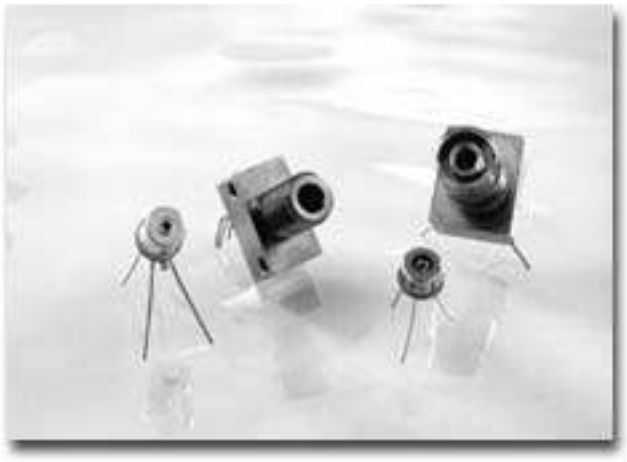


# FIBER OPTIC SERIES



## APPLICATIONS

- Fiber Optic Communication Links
- Video Systems
- Laser Monitoring Systems
- Computers and Peripherals
- Industrial Controls
- Guidance Systems
- FDDI Local Area Networks
- High Speed Optical Communications

## FEATURES

- Speeds in sub ns
- High gain
- Low dark current
- Low capacitance
- TO-46 metal can  
With lensed cap

UDT Sensors offers a variety of fiber optic detectors. They include:

**Fiber Optic Series-Silicon:** are several families of small active area silicon photodiodes divided into High Responsivity Series (HR), High Speed Series (HS) and Ultra High Speed (UHS) series.

**Fiber Optic Series-Silicon / Hybrid:** is a 90 MHz integrated silicon photodetector / transimpedance amplifier hybrid with a single power supply and linear differential output voltage for applications such as Ethernet and token ring systems. This detector is available with a micro lens cap.

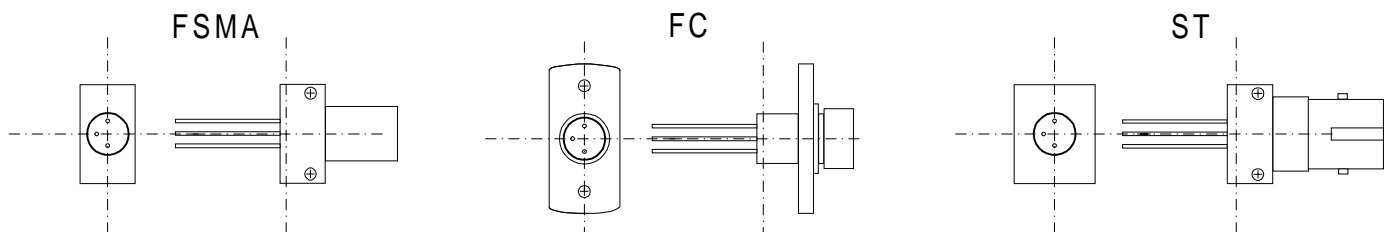
**Fiber Optic Series-Silicon APD:** is a small active area Silicon Avalanche Photodiode with gains up to a few hundred with a typical reverse bias of

only 325 V. It provides high gain bandwidth product and high responsivity compared to detector/transimpedance amplifier combination.

**Fiber Optic Series-Silicon BPX-65:** is a 1 x 1 mm active area high speed silicon photodetector for high modulation bandwidth applications where a large active area is needed.

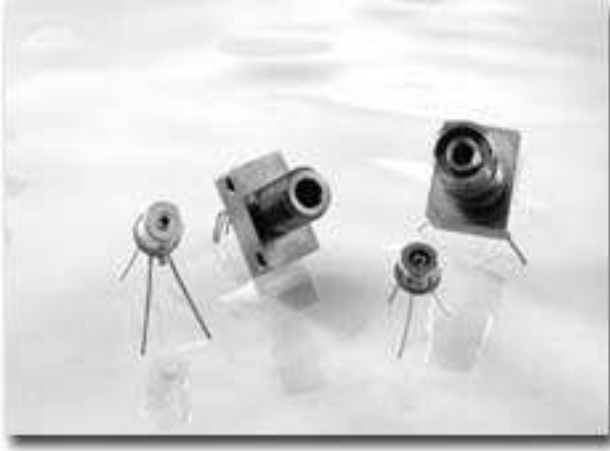
**Fiber Optic Series-InGaAs:** devices are high speed InGaAs detectors exhibiting a spectral range of 850 to 1700 nm. These detectors are specifically designed for NIR optical communication, providing high responsivity, low capacitance and high speed. They are available with micro lens cap.

All of the above detectors and/or hybrids are also available with a spherical micro lens cap to enhance fiber optic coupling efficiency. They can also be provided with any of the standard receptacles such as SMA, ST, FC, etc., for direct optical fiber coupling.



# PIN-APD032

## FIBER OPTIC AVALANCHE PHOTODIODE



### APPLICATIONS

- Pulse Detectors
- Optical Communications
- Bar Code Reader
- Optical Remote Control
- Medical Equipment
- High Speed Photometry

### FEATURES

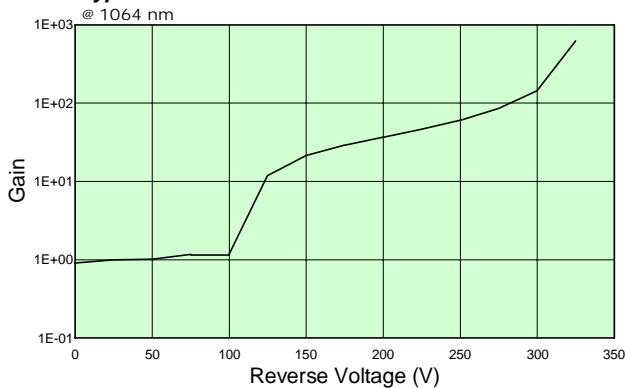
- Very High Sensitivity / QE
- Low Noise
- Fast Response time
- Low Bias Voltage

There are a few applications where a normal photodiode becomes Johnson noise limited when used with a low impedance load resistor for fast response. Silicon Avalanche Photodiodes (APD) make use of internal multiplication, to achieve gain due to impact ionization. The result is high responsivity as well as high gain bandwidth product with superior sensitivity compared to regular PIN photodiode/amplifier combinations for high bandwidth applications. Sili-

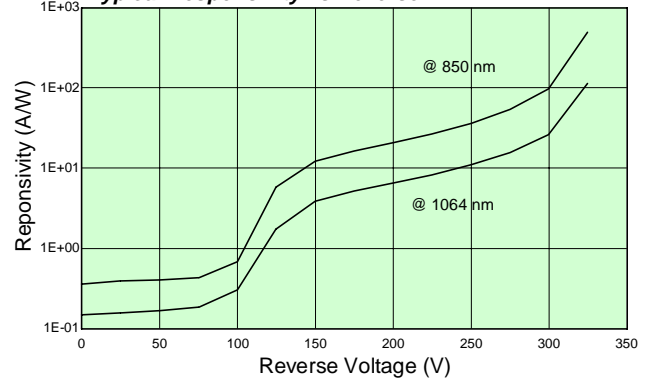
con is especially suited for making good avalanche photodiodes, as the ionization coefficient for electrons is much higher than for holes.

PIN-APD032 is manufactured using a double implanted "reach through" structure, which is the optimum structure for good gain and temperature stability combined with low noise and dark current.

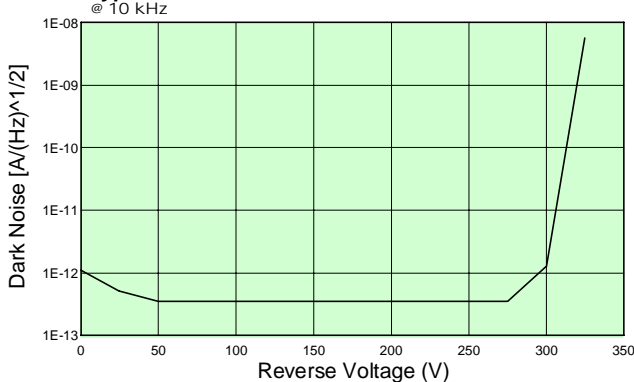
**Typical Gain vs Reverse Bias**



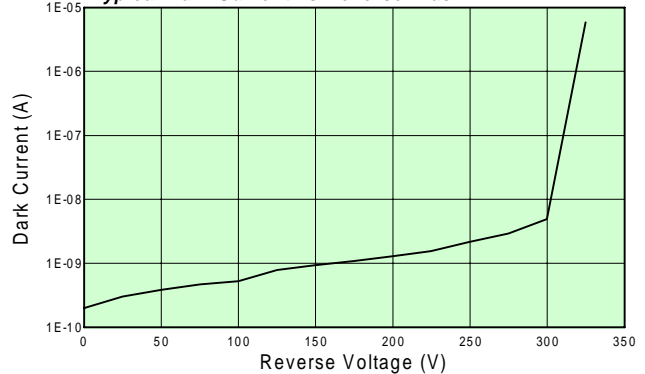
**Typical Responsivity vs Reverse**



**Typical Dark Noise vs Reverse Bias**

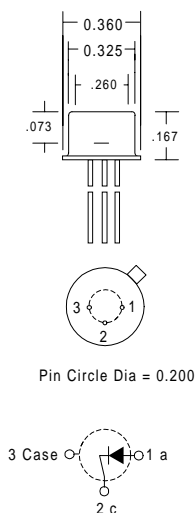


**Typical Dark Current vs Reverse Bias**



PARAMETER	UNIT	CONDITION	MINIMUM	TYPICAL	MAXIMUM
Active Area	mm <sup>2</sup>	---	---	0.5	---
Active Area Diameter	mm	---	---	0.8	---
Operational Voltage	V	Gain=120	---	275	---
Responsivity	A/W	850 nm	45	75	---
		1064 nm	10	20	---
Dark Current	nA	Gain=120	---	3	10
Capacitance	pF	Gain=120	---	2	4
Series Resistance	$\Omega$	---	---	---	15
Temperature Coeff. * Const. Responsivity	V/°C	---	---	2.2 *	---
Noise Current	pA/Hz <sup>1/2</sup>	f=10 kHz, $\Delta f=1.0$ Hz	---	0.5	2
Rise Time	ns	50 $\Omega$ , 900 nm	---	2.0	3.0
Breakdown Voltage	V	---	300	375	---
Operating Temperature	°C		-40	---	+70
Storage Temperature	°C	---	-60	---	+100
Package Style ¶	Isolated 3 pin TO-5				

\* Measured between 0° - 40° C



[For Tolerances and General Packaging Notes Click Here](#)