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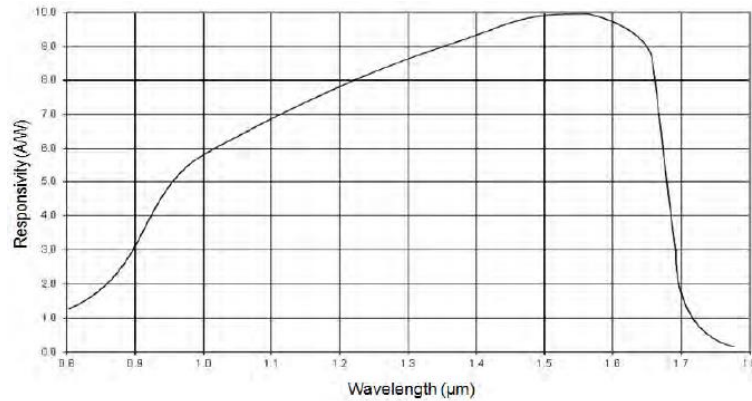


# InGaAs Avalanche Photodiodes

## InGaAs APD

0,8 $\mu$ m – 1,7 $\mu$ m

### Spectral Response $M = 10, @1,55\mu\text{m}$



### Electro-optical Data

23°C  $\pm$ , -2°C

### Basic Type

Performance Specification	IAV80	IAV200	IAV350	Units
Active Diameter	80	200	350	$\mu\text{m}$
Wavelength Range	1.0 - 1.63	1.0 - 1.63	1000 to 1630	$\mu\text{m}$
Responsivity @ $M=1 @ 1.55 \mu\text{m}$	0.85 min 0.90 typ 0.95 max	0.85 min 0.94 typ 1.05 max	0.85 min 0.90 typ 0.95 max	A/W
Dark Current @ $M = 10$	4 typ 15 max	8 typ 25 max	30 typ 250 max	nA
Operating Voltage, $V_R @ M = 10$	43 min 55 typ 70 max	43 min 55 typ 70 max	37 min 52 typ 68 max	V
Breakdown Voltage, $V_{BR} (I_D=10 \mu\text{A})$	40 min 65 typ 80 max	50 min 63 typ 75 max	45 min 60 typ 75 max	V
Capacitance @ $M = 10$	0.35 min 0.38 typ 0.45 max	1.8 typ 2.2 max	3.2 typ 4.0 max	pF
$V_{BR}$ temperature coefficient	0.06 typ	0.075 typ 0.08 max	0.075 typ	V/°C
Bandwidth @ $M = 5$	2 min 2.5 typ 3 max	0.5 min 1.5 typ 2 max	0.6 typ	GHz
Bandwidth @ $M = 10$	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	0.6 typ	GHz
Bandwidth @ $M = 20$	1.5 min 2.2 typ 2.5 max	0.5 min 1 typ 1.5 max	0.6 typ	GHz
Excess Noise Factor, $F @ M = 10$	3.2 typ 3.7 max	3.2 typ 3.7 max	3.2 typ 3.7 max	
Excess Noise Factor, $F @ M = 20$	5.5 typ 6 max	5.5 typ 6 max	5.5 typ 6 max	
Noise Equivalent Power, @ $M = 10$	10 typ 40 max	32 typ 100 max	80 typ 100 max	$\text{fW}/\text{Hz}^{1/2}$
Package	TO-46 window cap	TO-46 window cap	TO-46 window cap	

### Maximum Ratings

Performance Specification	IAV80	IAV200	IAV350	Units
Storage Temperature	-40 to 85	-40 to 85	-40 to 85	°C
Operating Temperature	-40 to 70	-40 to 70	-40 to 70	°C
Reverse Current	1	1	1	mA
Forward Current	10	10	10	mA
Optical Input Density (10 ns pulse width)	200	200	200	$\text{kW}/\text{cm}^2$
Optical Input (average)	1	1	1	mW



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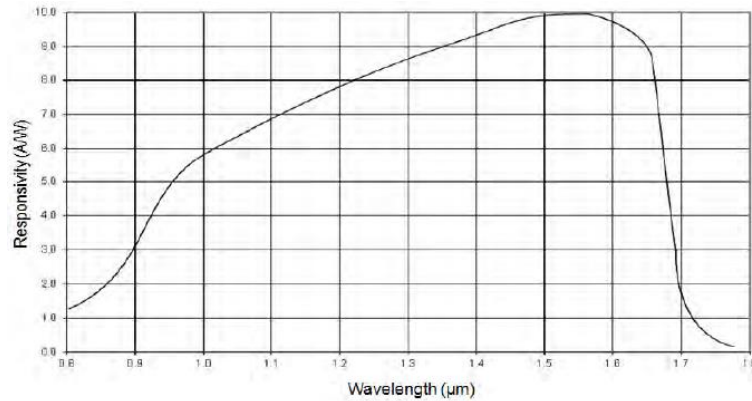


# InGaAs Avalanche Photodiodes

## InGaAs APD

### 0,8 $\mu$ m – 1,7 $\mu$ m

### Spectral Response M = 10, @1,55 $\mu$ m



### Electro-optical Data

23°C  $\pm$ , -2°C

80 $\mu$ m Type

Performance Specification	IAV81	IAV82	IAV80BL	IAV80PTS	Units
Active Diameter	80	80	80	80	$\mu$ m
Wavelength Range	1.0 - 1.63	1.0 - 1.63	1.0 - 1.63	1.0 - 1.63	$\mu$ m
Responsivity @ M=1 @ 1.55 $\mu$ m	0.85 min 0.90 typ  0.95 max	0.85 min 0.90 typ  0.95 max	0.85 min 0.90 typ 0.95 max	0.85 min 0.90 typ  0.95 max	A/W
Dark Current @ M = 10	4 typ 15 max	4 typ 15 max	4 typ 15 max	4 typ 15 max	nA
Operating Voltage, $V_R$ @ M = 10	43 min 55 typ 70 max	43 min 55 typ 70 max	43 min 55 typ 70 max	43 min 55 typ 70 max	V
Breakdown Voltage, $V_{BR}$ ( $I_D=10 \mu$ A)	40 min 65 typ 80 max	40 min 65 typ 80 max	40 min 65 typ 80 max	40 min 65 typ 80 max	V
Capacitance @ M = 10	0.35 min 0.38 typ 0.45 max	0.35 min 0.38 typ 0.45 max	0.35 min 0.38 typ 0.45 max	0.35 min 0.38 typ 0.45 max	pF
$V_{BR}$ temperature coefficient	0.06 typ	0.06 typ	0.06 typ	0.06 typ	V/°C
Bandwidth @ M = 5	2 min 2.5 typ 3 max	2 min 2.5 typ 3 max	2 min 2.5 typ 3 max	2 min 2.5 typ 3 max	GHz
Bandwidth @ M = 10	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	GHz
Bandwidth @ M = 20	1.5 min 2.2 typ 2.5 max	1.5 min 2.2 typ 2.5 max	1.5 min 2.2 typ 2.5 max	1.5 min 2.2 typ 2.5 max	GHz
Excess Noise Factor, F @ M = 10	3.2 typ 3.7 max	3.2 typ 3.7 max	3.2 typ 3.7 max	3.2 typ 3.7 max	
Excess Noise Factor, F @ M = 20	5.5 typ 6 max	5.5 typ 6 max	5.5 typ 6 max	5.5 typ 6 max	
Noise Equivalent Power, @ M = 10	10 typ 40 max	10 typ 40 max	10 typ 40 max	10 typ 40 max	fW/Hz <sup>1/2</sup>
Package	Ceramic submount w/ ball lens	Ceramic submount	TO-46 w/ AR coated ball lens cap	TO-46 w/ singlemode fiber	

#### Maximum Ratings

Performance Specification	IAV81	IAV82	IAV80BL	IAV80PTS	Units
Storage Temperature	-40 to 85	-40 to 85	-40 to 85	-40 to 85	°C
Operating Temperature	-40 to 70	-40 to 70	-40 to 70	-40 to 70	°C
Reverse Current	1	1	1	1	mA
Forward Current	10	10	10	10	mA
Optical Input Density (10 ns pulse width)	200	200	200	200	kW/cm <sup>2</sup>
Optical Input (average)	1	1	1	1	mW



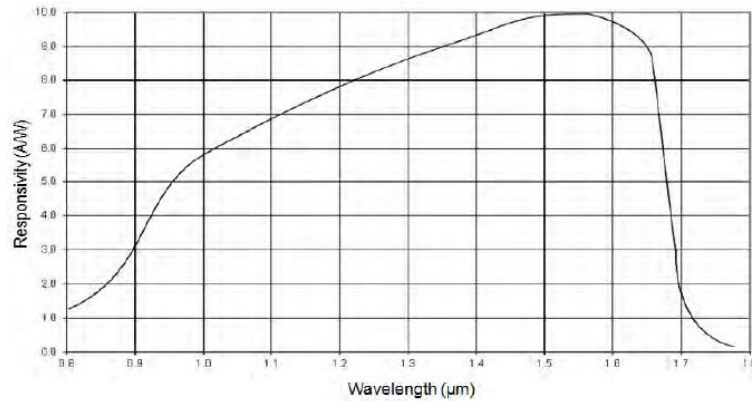
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# InGaAs Avalanche Photodiodes InGaAs APD

## 0,8 $\mu$ m – 1,7 $\mu$ m

### Spectral Response $M = 10, @1,55\mu\text{m}$



### Electro-optical Data

23°C  $\pm$ , -2°C

200 $\mu$ m Type

Performance Specification	IAV202	IAV203	IAV204	IAV205	Units
Active Diameter	200	200	200	200	$\mu\text{m}$
Wavelength Range	1.0 - 1.63	1.0 - 1.63	1.0 - 1.63	1.0 - 1.63	$\mu\text{m}$
Responsivity @ $M=1 @ 1.55 \mu\text{m}$	0.85 min 0.94 typ 1.05 max	0.85 min 0.90 typ 0.95 max	0.85 min 0.90 typ 0.95 max	0.85 min 0.90 typ 0.95 max	A/W
Dark Current @ $M = 10$	8 typ 25 max	8 typ 25 max	8 typ 25 max	8 typ 25 max	nA
Operating Voltage, $V_R @ M = 10$	43 min 55 typ 70 max	43 min 55 typ 70 max	43 min 55 typ 70 max	43 min 55 typ 70 max	V
Breakdown Voltage, $V_{BR} (I_D=10 \mu\text{A})$	50 min 63 typ 75 max	50 min 63 typ 75 max	50 min 63 typ 75 max	50 min 63 typ 75 max	V
Capacitance @ $M = 10$	1.8 typ 2.2 max	1.8 typ 2.2 max	1.8 typ 2.2 max	1.8 typ 2.2 max	pF
$V_{BR}$ Temperature Coefficient	0.075 typ 0.08 max	0.075 typ 0.08 max	0.075 typ 0.08 max	0.075 typ 0.08 max	V/°C
Bandwidth @ $M = 5$	0.5 min 1.5 typ 2 max	0.5 min 1.5 typ 2 max	0.5 min 1.5 typ 2 max	0.5 min 1.5 typ 2 max	GHz
Bandwidth @ $M = 10$	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	1 min 1.5 typ 2 max	GHz
Bandwidth @ $M = 20$	0.5 min 1 typ 1.5 max	0.5 min 1 typ 1.5 max	0.5 min 1 typ 1.5 max	0.5 min 1 typ 1.5 max	GHz
Excess Noise Factor, $F @ M = 10$	3.2 typ 3.7 max	3.2 typ 3.7 max	3.2 typ 3.7 max	3.2 typ 3.7 max	
Excess Noise Factor, $F @ M = 20$	5.5 typ 6 max	5.5 typ 6 max	5.5 typ 6 max	5.5 typ 6 max	
Noise Equivalent Power, @ $M = 10$	32 typ 100 max	32 typ 100 max	32 typ 100 max	32 typ 100 max	fW/Hz <sup>1/2</sup>
Package	Ceramic Package	TO-46 2 lead	TO-46 aperture cap	TO-46 2 lead aperture cap	

### Maximum Ratings

Performance Specification	IAV202	IAV203	IAV204	IAV205	Units
Storage Temperature	-40 to 70	-40 to 70	-40 to 70	-40 to 70	°C
Operating Temperature	-40 to 85	-40 to 85	-40 to 85	-40 to 85	°C
Reverse Current	1	1	1	1	mA
Forward Current	10	10	10	10	mA
Optical Input Density (10 ns pulse width)	200	200	200	200	kW/cm <sup>2</sup>
Optical Input (average)	1	1	1	1	mW



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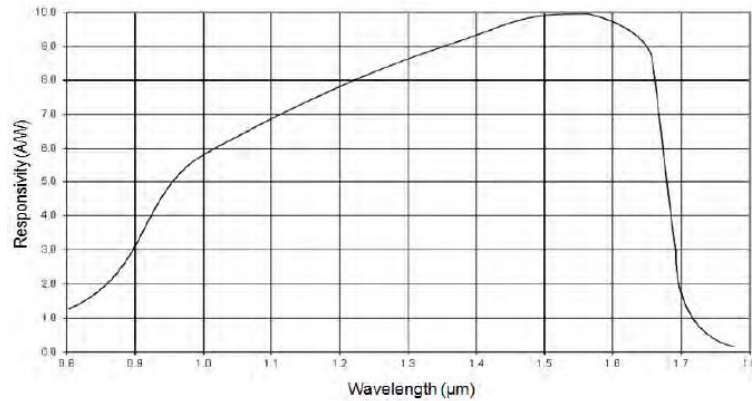


# InGaAs Avalanche Photodiodes

## InGaAs APD

### 0,8 $\mu$ m – 1,7 $\mu$ m

### Spectral Response $M = 10, @1,55\mu\text{m}$



### Electro-optical Data

 $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 

### 350 $\mu\text{m}$ Type

Performance Specification	IAV350	IAV352	IAV353	Units
Active Diameter	350	350	350	$\mu\text{m}$
Wavelength Range	1000 to 1630	1000 to 1630	1000 to 1630	nm
Responsivity @ $M=1$ @ 1550 nm	0.85 min 0.90 typ 0.95 max	0.85 min 0.90 typ 0.95 max	0.85 min 0.90 typ 0.95 max	A/W
Dark Current @ $M = 10$	30 typ 250 max	30 typ 250 max	30 typ 250 max	nA
Operating voltage, $V_R$ @ $M = 10$	37 min 52 typ 68 max	37 min 52 typ 68 max	37 min 52 typ 68 max	V
Breakdown Voltage, $V_{BR}$ ( $I_D=10 \mu\text{A}$ )	45 min 60 typ 75 max	45 min 60 typ 75 max	45 min 60 typ 75 max	V
Capacitance @ $M = 10$	3.2 typ 4.0 max	3.2 typ 4.0 max	3.2 typ 4.0 max	pF
VBR temperature coefficient	0.075 typ	0.075 typ	0.075 typ	V/ $^{\circ}\text{C}$
Bandwidth @ $M = 5$	0.6 typ	0.6 typ	0.6 typ	GHz
Bandwidth @ $M = 10$	0.6 typ	0.6 typ	0.6 typ	GHz
Bandwidth @ $M = 20$	0.6 typ	0.6 typ	0.6 typ	GHz
Excess Noise Factor, $F$ @ $M = 10$	3.2 typ 3.7 max	3.2 typ 3.7 max	3.2 typ 3.7 max	
Excess Noise Factor, $F$ @ $M = 20$	5.5 typ 6 max	5.5 typ 6 max	5.5 typ 6 max	
Noise Equivalent Power, @ $M = 10$	80 typ 100 max	80 typ 100 max	80 typ 100 max	$\text{fW}/\text{Hz}^{1/2}$
Package	TO-46-3 pin	Ceramic submount	Wrap Around Ceramic	

#### Maximum Ratings

	IAV350	IAV352	IAV353	Units
Storage Temperature	-40 to 85	-40 to 85	-40 to 85	$^{\circ}\text{C}$
Operating Temperature	-40 to 70	-40 to 70	-40 to 70	$^{\circ}\text{C}$
Reverse Current	1	1	1	mA
Forward Current	10	10	10	mA
Optical Input Density (10 ns pulse width)	200	200	200	$\text{kW}/\text{cm}^2$
Optical Input (average)	0	0	0	dBm

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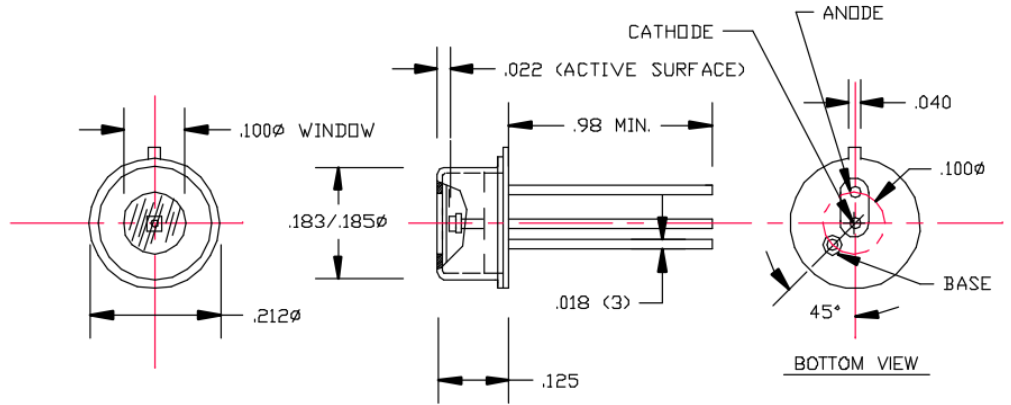
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# InGaAs Avalanche Photodiodes InGaAs APD

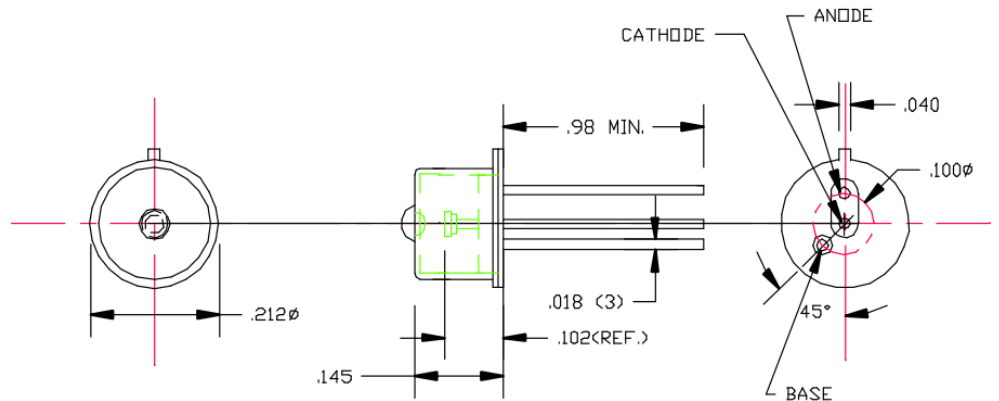
0,8 $\mu$ m – 1,7 $\mu$ m

## Packages IAV80x

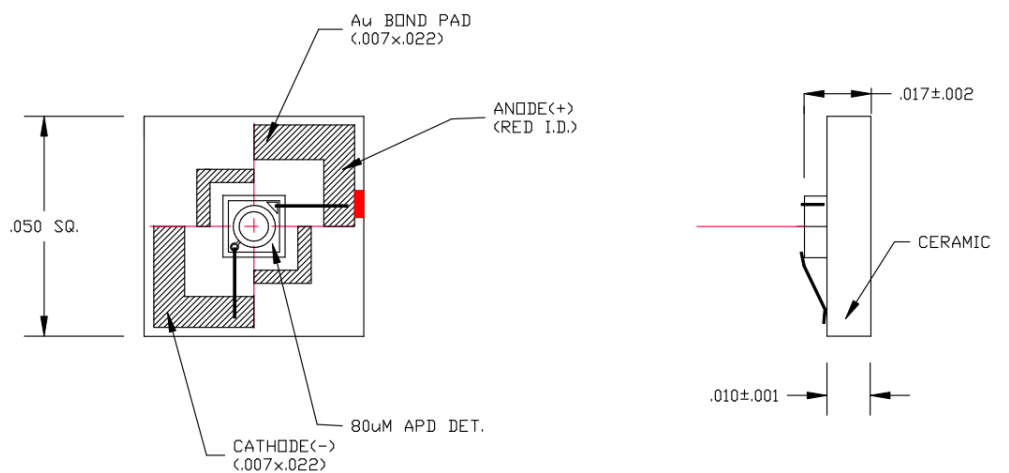
TO46, Cap with flat window



TO46, Cap with ball lens

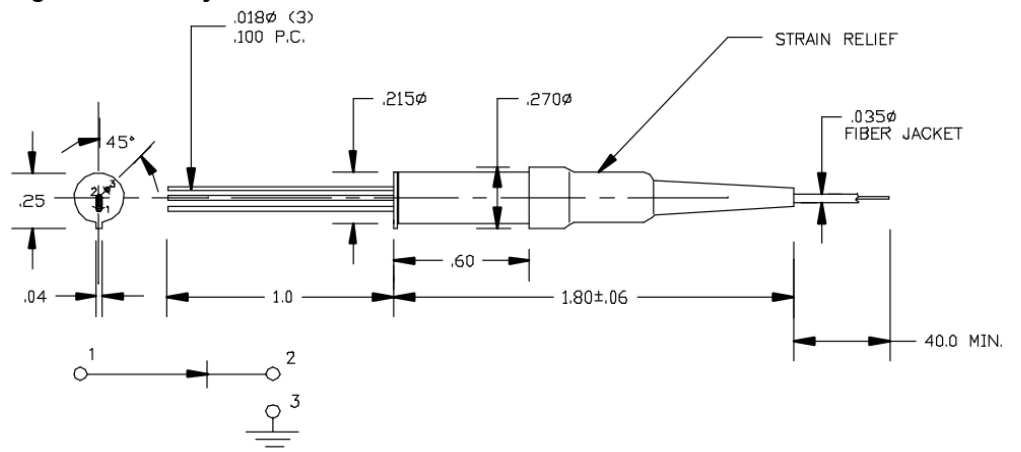


Ceramic Carrier





### Pigtail-Assembly

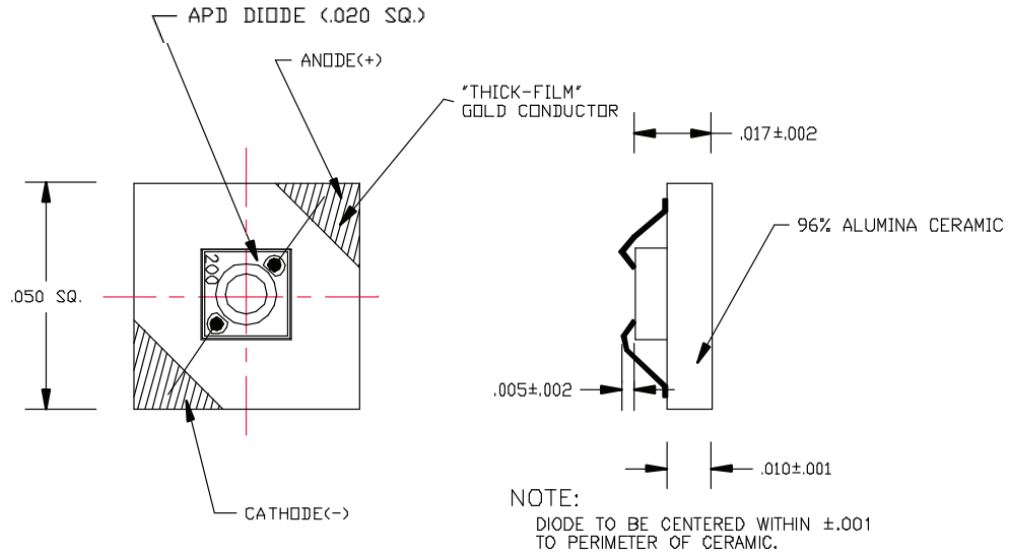


# InGaAs Avalanche Photodiodes InGaAs APD

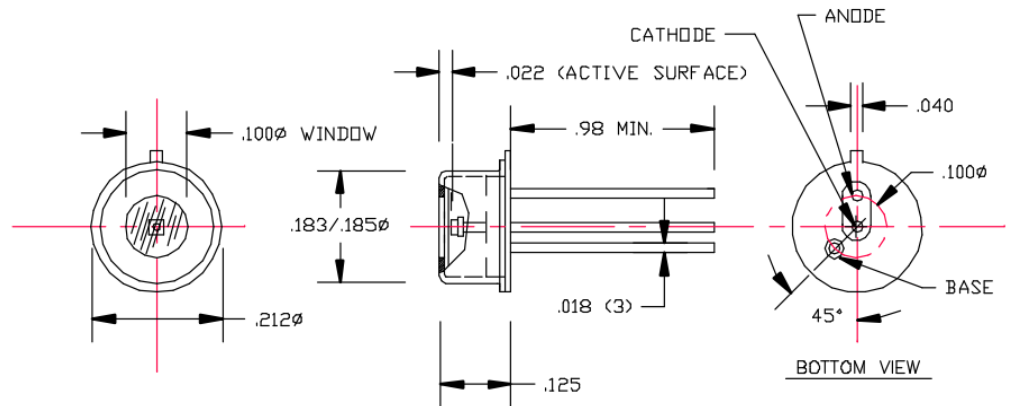
0,8 $\mu$ m – 1,7 $\mu$ m

## Packages IAV20x

Ceramic carrier



TO46, Cap with flat window

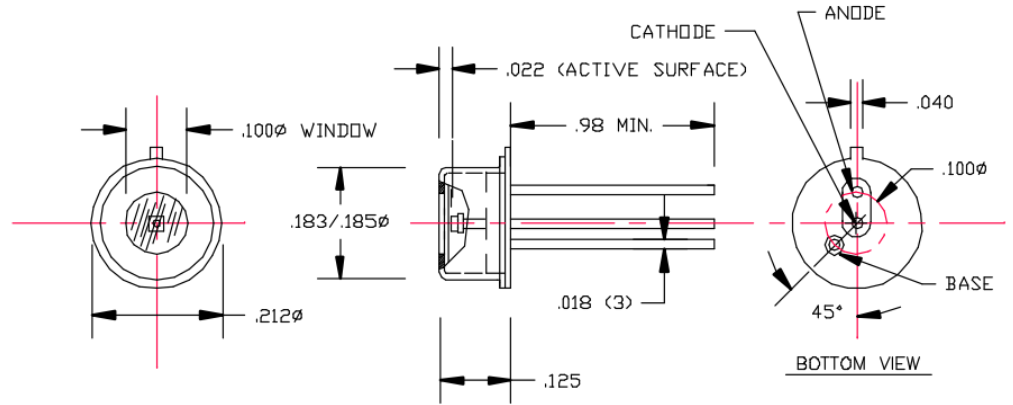


# InGaAs Avalanche Photodiodes InGaAs APD

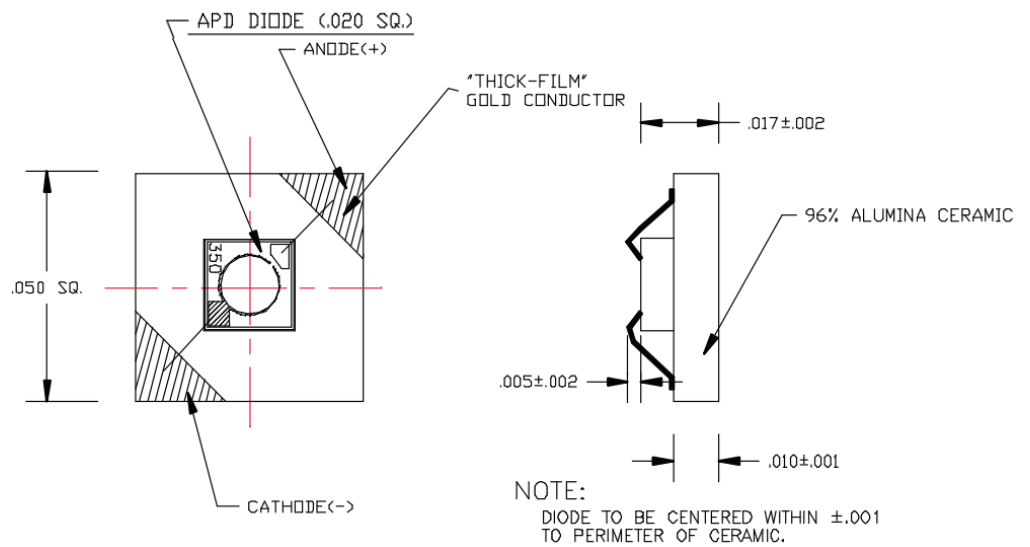
0,8 $\mu$ m – 1,7 $\mu$ m

## Packages IAV35x

TO46, Cap with flat window



Ceramic carrier



TO5 with trans-Impedance amplifier

