InGaAs Avalanche Photodiode Chip

FEATURES

- Highly Reliable Planar Device
- High Responsivity in 0.95 -1.65 μm
- Low Leakage Current and Noise
- ≥ 750-MHz 3dB Bandwidth
- Low Stray Absorption

APPLICATIONS

- Light Detection and Ranging (LIDAR)
- Fiberoptic Communication / Testing
- Spectral Analysis
- Optical Coherence Tomography
- Single-Photodiode SWIR Camera
- Covert IR Sensing

GENERAL DESCRIPTIONS

PARAMETER	UNIT	VALUE
Spectral Range	μm	0.95 – 1.65
Aperture Size	μm	Ø 200
Chip Dimension		
Length	μm	460 ± 15
Width	μm	460 ± 15
Thickness	μm	200 ± 20

ABSOLUTE MAXIMUM RATINGS

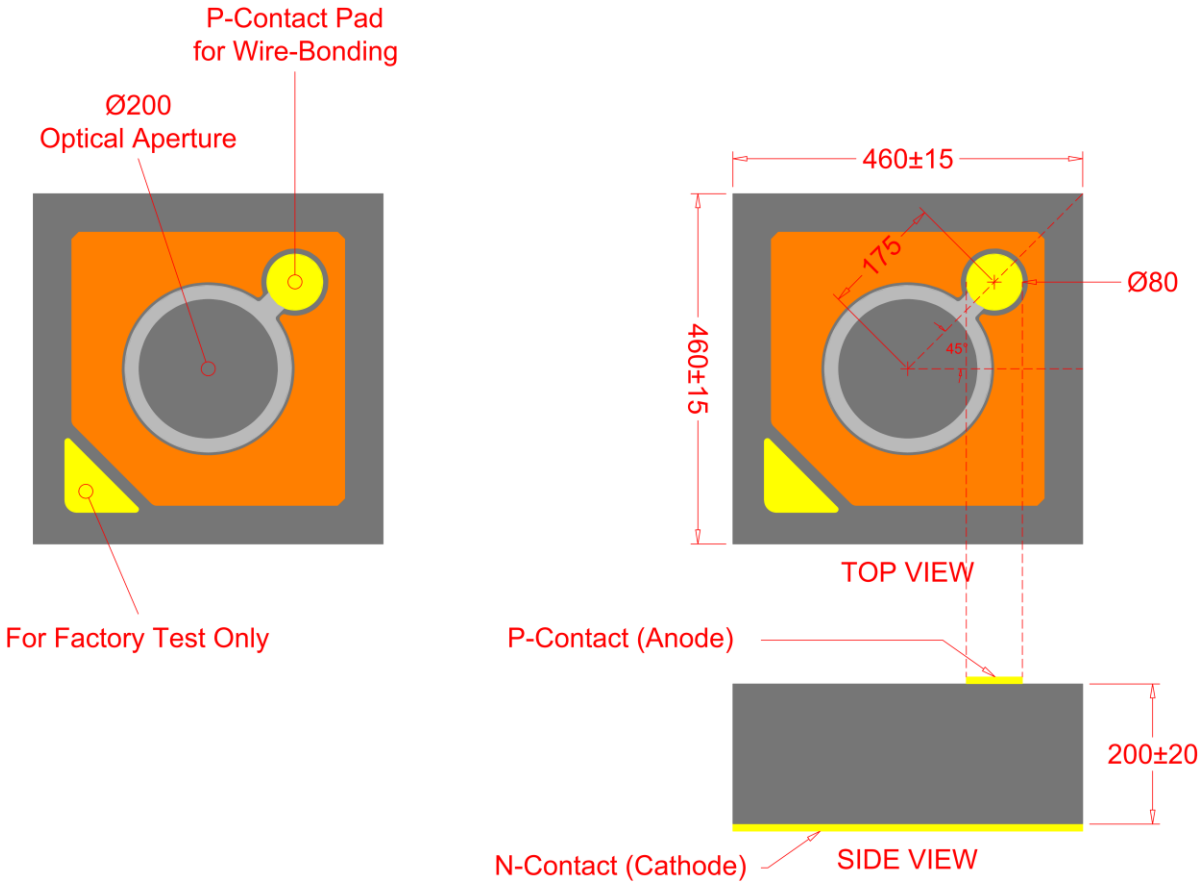
PARAMETER		UNIT	MIN.	MAX.
Reverse Current		mA	---	1
Forward Current		mA	---	5
[1]Ambient Temperature	In Operation	°C	-40	+85
	Storage	°C	-55	+125

[1]Non-condensing environment.

SPECIFICATIONS (T_{AMB} = 23°C)

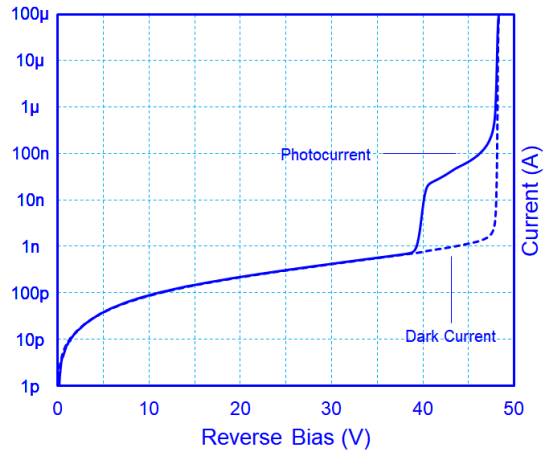
Parameter	Unit	Min.	Typ.	Max.	Conditions
Dark Current	nA	---	5	50	M=10
Operating Voltage (V_{OP})	V	32		50	M=10
Breakdown Voltage (V_{BD})	V	35		55	I_{BD}=100μA
Capacitance	pF	---	2.5	3.0	M=10, f=1MHz
Responsivity	A/W	8	9		M=10, λ=1.55μm
		0.8	0.9		M=1, λ=1.55μm
Useable Gain	---	10	20	---	λ=1.55μm
3dB Bandwidth (f_{3dB})	GHz	0.75	0.85		M=10, λ=1.55μm
Spectral Noise Current	pA/√Hz	---	0.5	1.5	M=10, Δf=1kHz
Temperature Coefficient of V_{BD}	V/°C	---	0.10	0.15	

CHIP DIAGRAM (Unit: μm)

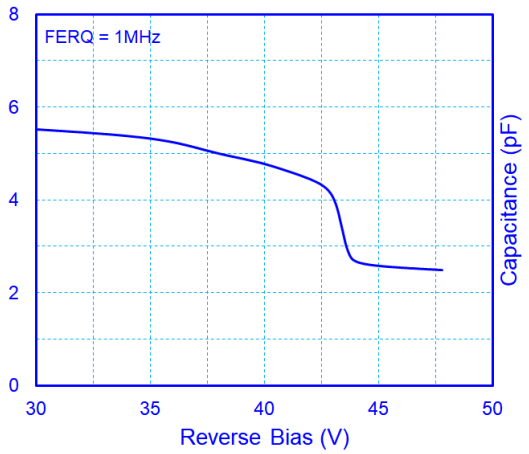


EXAMPLE CURVES (T_{AMB} = 23°C)

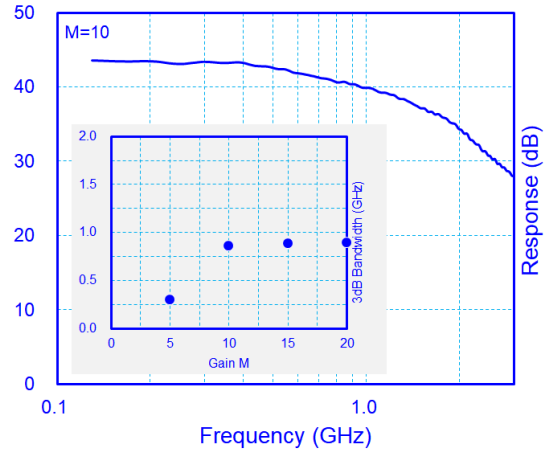
Dark- / Photo-Current



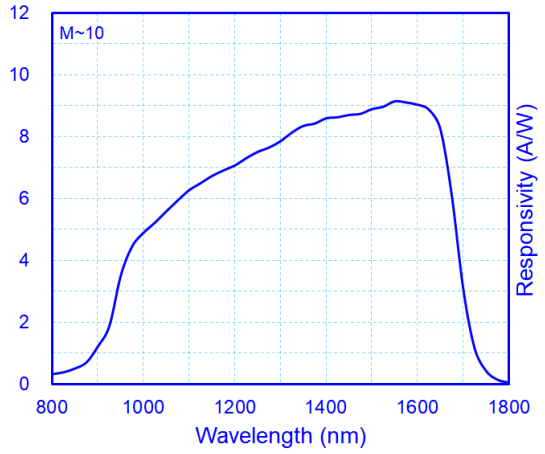
Dark Capacitance



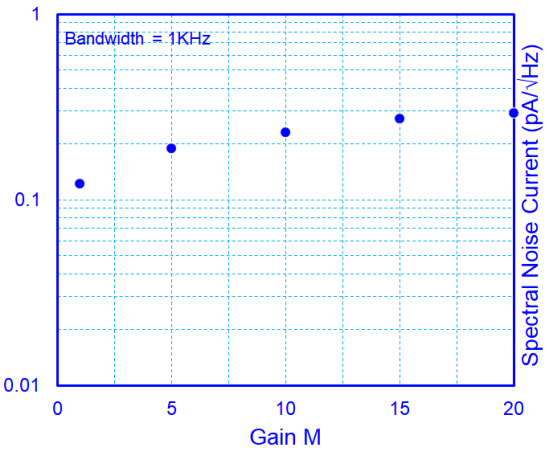
Frequency Response



Responsivity Spectrum



Spectral Noise Current



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