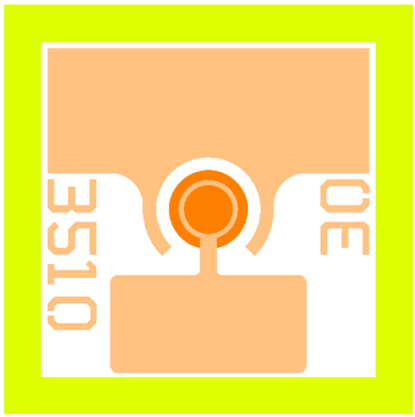
10Gbps Avalanche Photodiode (APD) Chip
P/N: ORS35A-10

DESCRIPTION

The ORS35A-10 product is a high performance InGaAs/InAlAs Avalanche photodiode (APD) for optical communications. The device has a 30μm diameter front-side illumination window.

InPhOE Tech's APD design achieves high reliability, low dark current and uniform breakdown voltage. These photodetectors are 100% tested, thinned, diced, and sorted prior to delivery as Known Good Dies.



FEATURES

- 250 x 250 x 120 μm size
- Front-side illumination with 30μm aperture
- Low dark current and uniform breakdown voltage
- Maximum of 0.15pF capacitance
- -40 to 85℃ operation range
- RoHS compliant

APPLICATIONS

- 10Gbps Ethernet
- Long-haul Networks
- Single Mode Datacom & Telecom
- SONET/SDH

OPTICAL AND ELECTRICAL CHARACTERISTICS

(Temperature = 25°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Illuminating Area Diameter	D		30		μm	
Response Range	Λ	900		1650	nm	
Breakdown Voltage	V_{BR}	26		36	V	I_R=10μA
V_{BR} Temperature Coefficient	dV_{BR}/dT		0.03	0.05	V /°C	I_R=10μA, -40 °C ~ +85 °C
Responsivity	R	0.85			A/W	M=1, λ=1550nm
Dark Current	I_d			50	nA	V_{BR}-3V, 25 °C
Dark Current at 85°C	I_d		150	300	nA	I_R=10μA, -40 °C ~ +85 °C
Bandwidth (V_{BR}-3V, -30dBm)	BW	7			GHz	M=9, R_L=50Ω
Capacitance	C		0.15	0.18	pF	V=V_{BR}-3, f=1MHz
Multiplication Factor	M	7	9			λ=1550nm, V=V_{BR}-3, -30dBm
Overload Power	P_{ovld}	-5		0	dBm	V=V_{BR}-3
Operating Temperature Range		-40		85	°C	

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Specifications

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Rating	Unit
Storage temperature	Non-operating, in dry nitrogen (dew point -60 at 1 ATM)	100	℃
Maximum continuous forward current	All	5	mA
Maximum forward voltage	All	1.5	V
Maximum reverse voltage	All	V_{BR}	V
Maximum power dissipation (including instantaneous)	All [1]	150	mW
Maximum reverse current	Biased at Vm3 or lower [2, 3]	4	mA
Maximum continuous input power	Photocurrent and bias voltage cannot exceed maximum power dissipation spec. Biased at Vm3 or lower [2, 3]	3	dBm

Notes:
[1] Power dissipation is the product of the APD photocurrent and reverse-bias voltage and gives rise to self-heating of the device junction. Dissipated power in excess of 200mW can damage the device.
[2] In the case of high optical power the device should be operated at low gain to limit the dissipated power. It is recommended that a fast-response current limiting diode or AGC be used in the protection circuit.
[3] The maximum power dissipation must not to be exceeded. Vm3 is the bias voltage which gives gain M=3 at low optical power: -20dBm.

ABOUT INPHOE TECH

InPhOE Technologies, Inc. (pronounced "Info Tech") is a designer and manufacturer of premium optoelectronic components. Our products are VCSELs, and photodetectors for high-speed communications and sensing applications. They are available as bare die or packaged devices.

We also support product development programs from proof of concept through qualification, and volume production.

For more information on InPhOE Tech's products, and to discover how we can provide the solutions you need, please contact us at sales@inphoetech.com