Finisar

Product Specification

Ultra-High Power Photodetector

VPDV2120

PRODUCT FEATURES

- Operational up to 20 GHz
- ≥ 23 dBm RF output power @ 10 GHz
- High Linearity (> 30 dBm OIP3 @ 10GHz)
- No cooling required

APPLICATIONS

- Microwave Photonics
- Analog Photonic links
- Radio-over-fiber

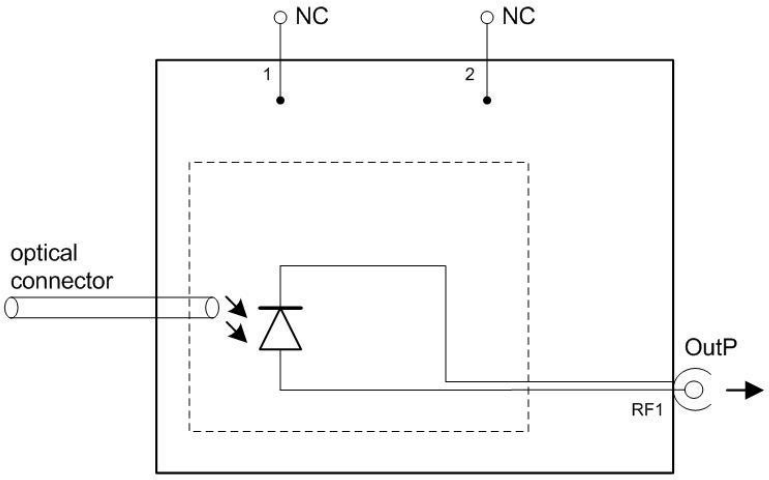
The VPDV2120 is a compact module that is based on a modified uni-travelling carrier (MUTC) photodetector chip. The VPDV2120 is not matched to 50 Ω. For applying a bias voltage of 6 V, an external bias-Tee is required. It has a responsivity of 0.35 A/W (1550 nm) and a high saturation photocurrent of 150 mA @ 10 GHz. The Ultra-high power PD is capable of delivering ≥ 23 dBm RF output power @ 10 GHz. The device exhibits a high linearity with typical OIP3 values above 30 dBm at a frequency of 10 GHz.

ORDERING INFORMATION

VPDV2120-VF-FP

VF: = V connector, female
FP: = FC/PC connector

I. Block Diagram



II. Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photodiode Bias Voltage	V_{PD}		0		8	V
Maximum Average Optical Input Power	P_{OPT}	continuous wave (CW)			28	dBm
Electro Static Discharge	V_{ESD}	C=100 pF, R= 1.5 kΩ HBM	-250		250	V

Notice

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.

III. Environmental Conditions

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage Temperature	$T_{storage}$	non condensing	-40		+85	°C
Operating Case Temperature Range	T_{CASE}		0		+75	°C
Relative Humidity Range	RH	non condensing	5		85	%

IV. Operating Conditions

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Wavelength Range	λ		1520		1570	nm
Average Optical Input Power Range	P_{OPT}				27	dBm
Photodiode Bias Voltage	V_{PD}		5	6	7	V

V. Electro-Optical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photodiode DC Responsivity	R	optimum polarization	0.3	0.4		A/W
Polarization Dependent Loss	PDL			0.3	0.7	dB
Optical Return Loss	ORL		27			dB
3dB Cut-off Frequency [1)]	f_{3dB}		12	18		GHz
RF Output Power	P_{out}	10 GHz, V_{PD} = 6.0V		23		dBm
Output 3rd Order Intercept Point	OIP3	10 GHz, V_{PD} = 6.0V		30		dBm
Photodiode Dark Current	I_{dark}			100	500	nA

Notes:
1. measured using Agilent 86030A 50GHz Lightwave component analyzer

VI. Typical Performance Curves

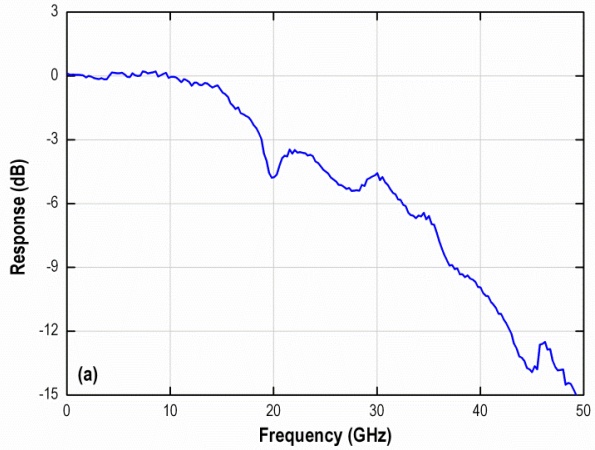


Fig. 1(a): Frequency response of the VPDV2120 measured with a Lightwave Component Analyzer. The device is operational up to 20 GHz.

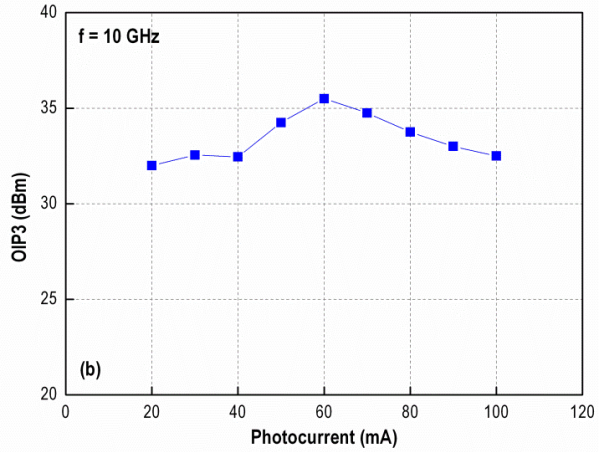


Fig. 1(b): Output IP3 at a frequency of 10 GHz versus photocurrent.

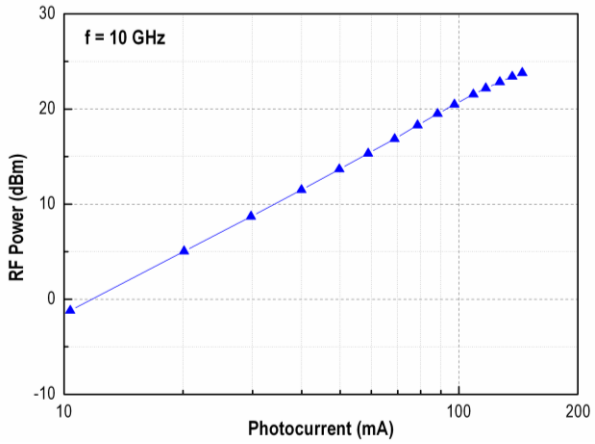


Fig. 2(a): RF output power as a function of the photocurrent at a bias voltage of 6 V and a frequency of 10 GHz.

VII. Revision History

Revision	Date	Description
A1	04/09/2014	• Document created.

Notes

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- Finisar Corporation reserves the right to make changes without notice.

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II-VI:
VPDV2120-VF-FP