

# 20 GHz ULTRA-HIGH-POWER PHOTODETECTOR

## VPDV2120

The VPDV2120 is a very compact, hermetically packaged, optical detector module with an ultra-high RF output power of >22 dBm at a frequency of 10 GHz. It offers a high responsivity of 0.55 A/W (1550 nm) and a very high saturation photocurrent of 120 mA at 10 GHz. The device exhibits a high linearity, with typical OIP3 values above 30 dBm at a frequency of 10 GHz and does not require any cooling. The device is using a modified uni-travelling carrier (MUTC) photodetector chip. The VPDV2120 is not matched to 50  $\Omega$ . For applying a bias voltage of -6 V, an external Bias-Tee is required.



Picture shows product example, actual product might differ

## FEATURES

- Ultra-High RF Output Power of  $\geq 22$  dBm at 10 GHz
- High Linearity (OIP3 > 30 dBm at 10 GHz)
- High Saturation Photocurrent of 120 mA at 10 GHz
- No cooling required
- Operational up to 20 GHz and beyond

## APPLICATIONS

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

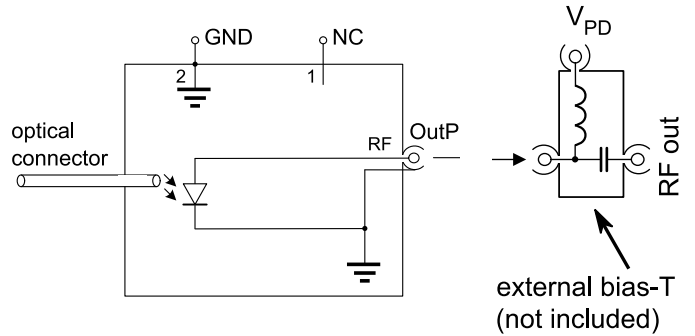
# 20 GHz ULTRA-HIGH-POWER PHOTODETECTOR

## Product Selection

### VPDV2120R-VF-zz

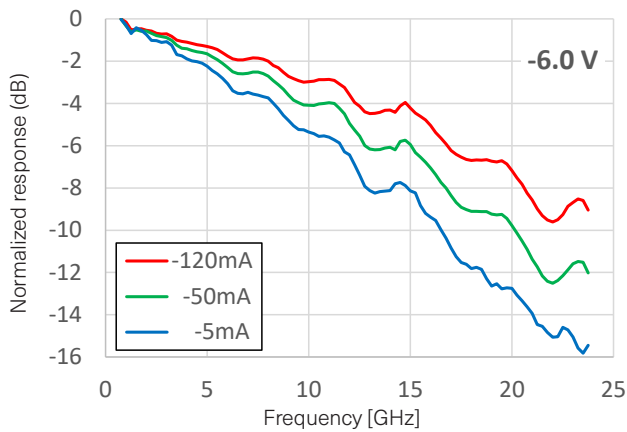
<b>VF</b>	VF	= Female V <sup>®</sup> connector
<b>zz</b>	FP	= FC/PC connector (standard)
	FA	= FC/APC connector

## Block Diagram

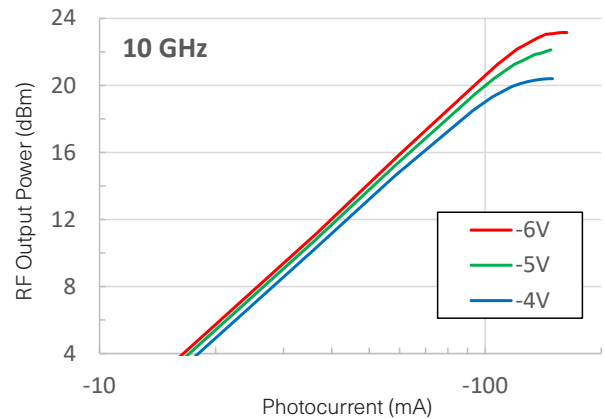


## Key Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Case Temperature	$T_{CASE}$		0		75	°C
Storage Temperature	$T_{STORE}$		-40		85	°C
Wavelength Range	$\lambda$	C-band		1550		nm
Photodiode Supply Voltage	$V_{PD}$			-5.0		V
Average Optical Input Power	$P_{OPT\_avg}$				10	dBm
Photodiode DC Responsivity	R	Optimum polarization	0.4			A/W
Photodiode Dark Current	$I_{DARK}$	$T_{CASE} = 25\text{ °C}$		-10		nA
RF output power	$P_{out}$	1)		22		dBm
Output 3 <sup>rd</sup> order intercept point	OIP3	1)		33		dBm



Frequency response of the VPDV2120 measured with a heterodyne signal



RF output power as a function of the photocurrent