Finisar®

50 GHz Photodetector

XPDV21x0R

PRODUCT BRIEF

KEY FEATURES

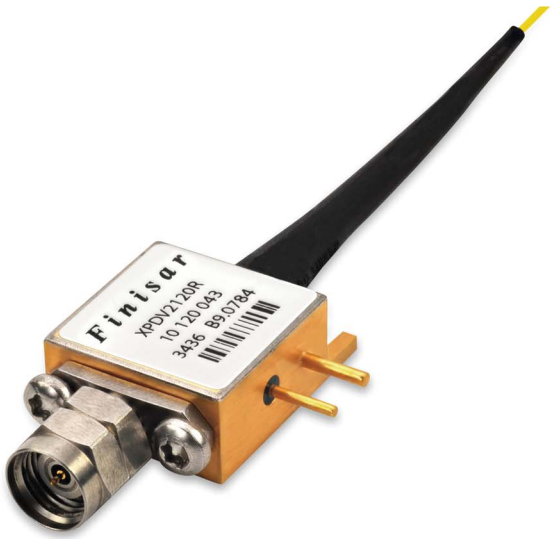
- High bandwidth combined with flat response
- Excellent pulse behavior
- Unsurpassed High-Power handling
- High responsivity
- Unique on-chip integrated bias network
- Well matched to 50 Ω

APPLICATIONS

- DWDM
- Communication systems at 40 Gb/s (OC-768) and beyond
- Microwave photonics up to 60 GHz
- High-speed Lightwave characterization

OVERVIEW

The XPDV photodetector consists of a well-established, waveguide-integrated single photodiode chip. Designed to exhibit an optimized frequency response in both, power and phase. Due to experienced RF packaging, the pulse response shows almost no ringing. Our integrated on-chip spot size converter leads to a high responsivity and ensures reliability and robustness of the XPDV. An advantage of the waveguide structure is the unsurpassed high-power behavior with linear response up to an optical input power of 10 dBm. For short pulses, an output voltage swing of more than 1 Vpp can be achieved without any degradation of the pulse response. XPDVs contain a unique on-chip integrated bias network and ensures undisturbed frequency response from DC to the 3 dB cut-off frequency.



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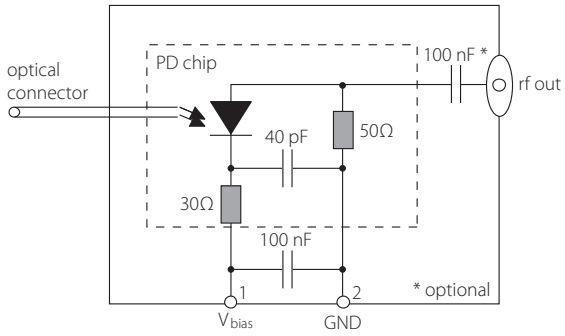
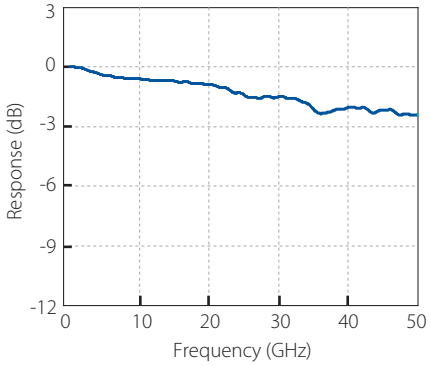
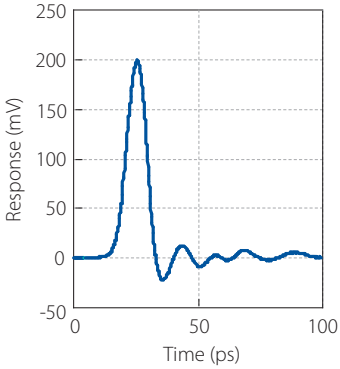
BLOCK DIAGRAM AND TYPICAL PERFORMANCE







OPERATING CONDITIONS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating Case Temperature	T_{case}		0		+75	°C
Relative Humidity	RH	non condensing	5		85	%
Wavelength Range	λ_2	[1]	1480		1620	nm
Average Optical Input Power Range	P_{opt}				10	dBm
Photodiode Reverse Voltage	V_{PD}		2.0	2.8	3.3	V

OPTICAL AND ELECTRICAL SPECIFICATIONS [1]

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Photodiode DC Responsivity @ 1550 nm	R	optimum polarization	0.5	0.65		A/W
Polarization Dependent Loss						
XPDV2120R @ 1550 nm	PDL			0.3	0.5	dB
XPDV2150R @ 1550 nm				0.1	0.2	dB
Optical Return Loss	ORL		27			dB
3dB cut-off Frequency						
XPDV21x0R	f_{3dB}	[2]	45	50		GHz
XPDV21x0RA			33	40		GHz
Photodiode Dark Current	I_{dark}	T_{case} = 25°C		5	200	nA
Pulse Width						
XPDV21x0R		[3]		9	10	ps
XPDV21x0RA					11	ps

Notes:

1) λ = 1550 nm, V_{bias} = 2.8 V, T = 25°C
2) Measured using Agilent 50 GHz Lightwave component analyzer
3) Measured using Tektronix oscilloscope with 50 GHz sampling head

Finisar®
1389 Moffett Park Drive
Sunnyvale, CA 94089
Phone: +1 408-548-1000
Sales: +1 408-541-5690
Email: sales@finisar.com
www.finisar.com

Visit our website