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## Product Specification

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### 35 GHz SMD Photodetector

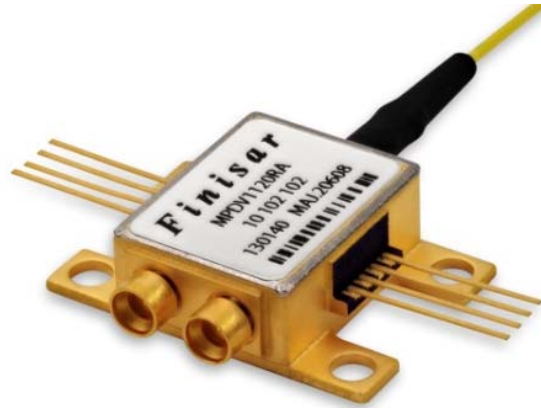
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### MPDV1120RA

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#### PRODUCT FEATURES

- XLMD MSA footprint compliant package
- Waveguide-integrated pin-photodiode
- Typical 35 GHz bandwidth
- Single ended AC coupled output



#### APPLICATIONS

- 43 Gb/s communication systems
- Transponder and line card designs

The single output photodetector module MPDV1120RA contains a waveguide-integrated pin-photodiode (PD), designed to exhibit optimized high frequency performance in both, amplitude and phase. A linear response up to an optical input power of 10 dBm enables to drive subsequent decision circuits of communication systems directly. The pin-photodiode with on-chip integrated bias network in conjunction with a blocking capacitor for AC coupling is the best choice for 44 Gb/s applications.

#### ORDERING INFORMATION

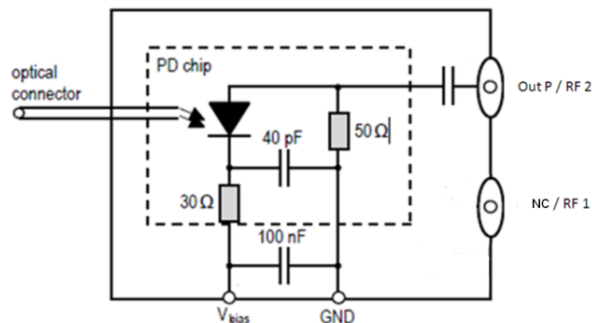
<b>MPDV1120RA-GM-LP</b>
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- |     |                                      |
|-----|--------------------------------------|
| RA: | = single ended, AC coupled output    |
| GM: | = GPPO® compatible, male             |
| LP: | = LC/PC optical connector (standard) |

## I. Pin Description

# Pin	Symbol	Description
1	$V_{bias}$	photodiode supply
2,7	GND	ground
3,4	RFU	reserved for future use – please do not connect, internally connected to ground
5,6,8	NC	reserved for future use – not connected
RF1	NC	not connected
RF2	Out P	positive RF output

## II. Block Diagram



## III. Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo Diode Reverse Voltage	$V_{PD}$		-0.3		4	V
Average Optical Input Power	$P_{opt}$	NRZ			16	dBm
ESD, Output Pins	$V_{ESD}$	C= 100 pF, R= 1.5 kΩ, HBM	-250		250	V
Fiber Bend Radius			10			mm



### 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.

### Environmental Conditions

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Case Temperature	$T_{Case}$		0	25	75	°C
Relative Humidity	RH	non condensing	5		85	%
Storage Temperature	$T_{sto}$		-40		85	°C

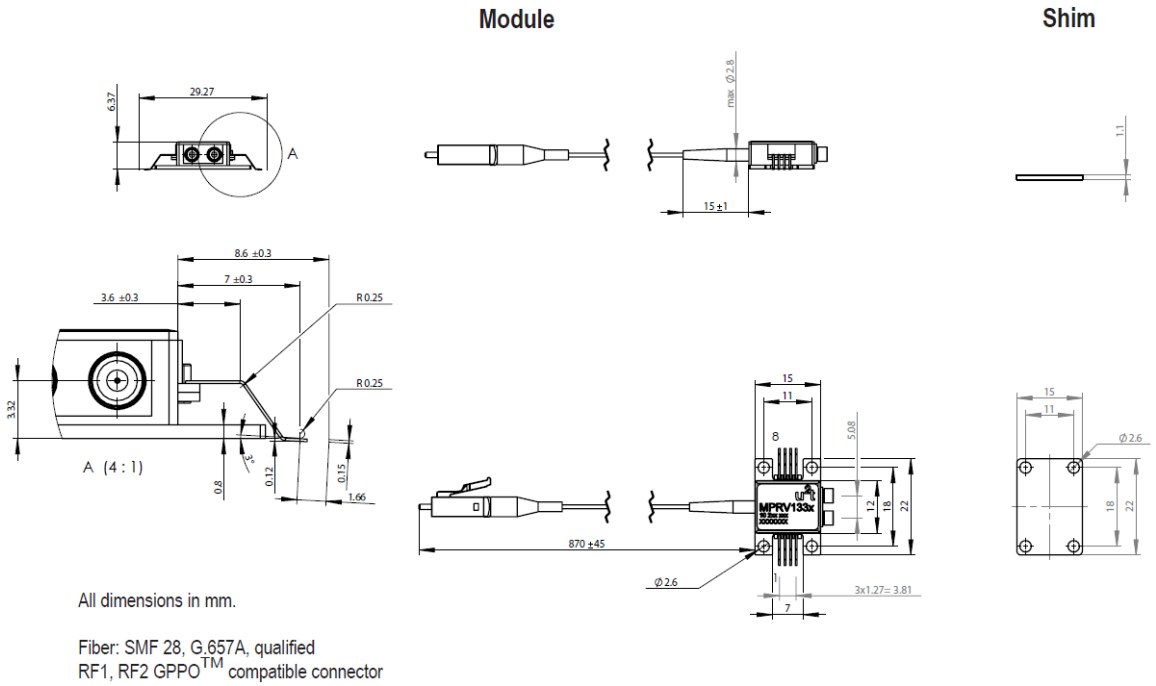
### IV. Operating Conditions

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Average Optical Input Power	$P_{OPT}$	40 Gb/s, NRZ			10	dBm
Wavelength Range	$\lambda$		1525	1550	1570	nm
Photodiode Bias Voltage	$V_{PD}$		3.1	3.3	3.5	V

### V. Electro-Optical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Fiber length				1230	1280	
Photodiode Dark Current	$I_{dark}$			10	1000	nA
Photodiode DC Responsivity	R	optimum polarization	0.5	0.6		A/W
DC Responsivity Change Over Temperature	$\Delta R$	100 GHz optical frequency range			0.7	dBo
Polarization Dependent Loss	PDL			0.3	0.9	dB
Optical Return Loss	ORL		27	30		dB
3dB Cut-off Frequency	$f_{3dB}$	$P_{opt} = -3$ dBm	31			GHz
4dB Cut-off Frequency	$f_{4dB}$	$P_{opt} = -3$ dBm	46			GHz
Output Reflection Coefficient	$S_{22}$	0.5 - 10 GHz		-10		dB
		10 - 35 GHz		-5		
Notes:						
1. Typical optical and electrical specifications refer to typical operation conditions						

**VI. Mechanical Specifications**



**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.

**For More Information**

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