

APD4B-30-3.5G-A

OVERVIEW

Avalanche photodiode coupled to an optical fiber and packaged into a hermetic case.

MAIN FEATURES

- Spectral range: 900 - 1650 nm
- Package types: coaxial with or without bracket
- Low back reflection (R30 technology) or focusing from multimode fiber (LS technology)
- Low dark current typ. 3 nA at 0.9 V_{br}
- Can be operated at gain > 120
- Low temperature coefficient of breakdown voltage 0.02 V/C
- Fast overload recovery at high gain

ORDERING INFORMATION

APD4B-30-3.5G-A-X-X-X-X-X-X

Optical matching

R30: back reflection -30 dB (SM1, SM3, SMP13)

LS: MMF optical beam focusing (MM5)

Case type

COAX: compact coaxial (low duty cycle pulse mode only)

COAXB: compact coaxial with a bracket

Pinout code

6: see more details on page 5

Fiber type

SM1: SM, G.657.A1, [Corning SMF-28 Ultra](#), furcation tubing Ø0.9 mm or **BSM1** Ø0.25mm

SM3: SM, G.657.B3, [Corning ClearCurve ZBL](#), furcation tubing Ø0.9 mm or **BSM3** Ø0.25mm

SMP13: PM, [Corning PM1300](#), PANDA type, furcation tubing Ø0.9 mm

Other type on request

Connector type

FU: FC/UPC (SM1, SM3)

FA: FC/APC (SM1, SM3, SMP13)

SU: SC/UPC (SM1)

SA: SC/APC (SM1)

N: no connector (scissors cut)

Other type: on request

Fiber length

0.5: 500+/-50 mm

1.0: 1000+/-100 mm

Other length on request

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ABSOLUTE MAXIMUM RATINGS

Parameter		Value	Unit	Conditions
APD reverse current	I _R	0.1	mA	
APD forward current	I _F	1	mA	
APD reverse voltage	V _R	68	V	
CW optical power	P _{CW}	1	mW	λ=1550nm
Operating temperature*	T _{op}	-40 - +85	°C	Coaxial package
Storage temperature	T _{stg}	-40 - +85	°C	
Soldering temperature	T _{sold}	260	°C	Max. 5 seconds

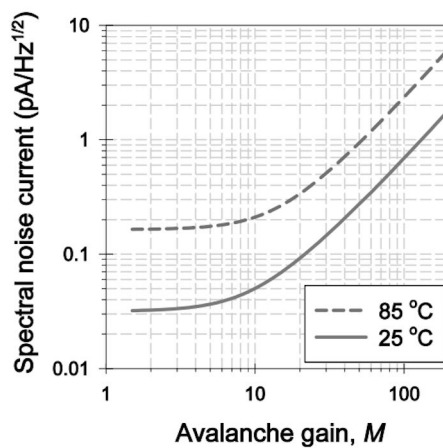
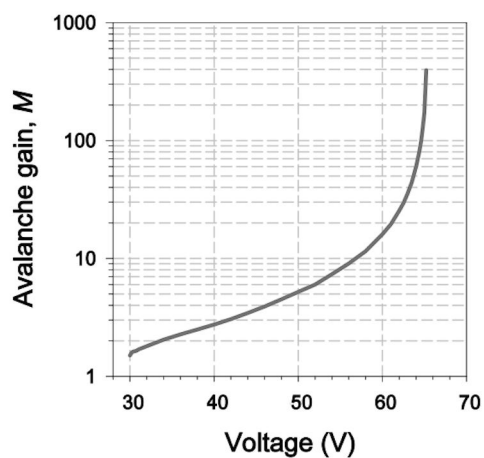
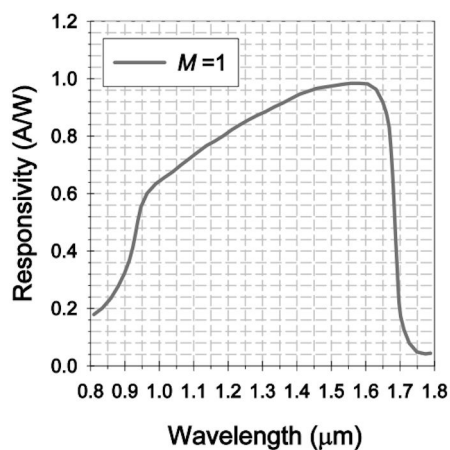
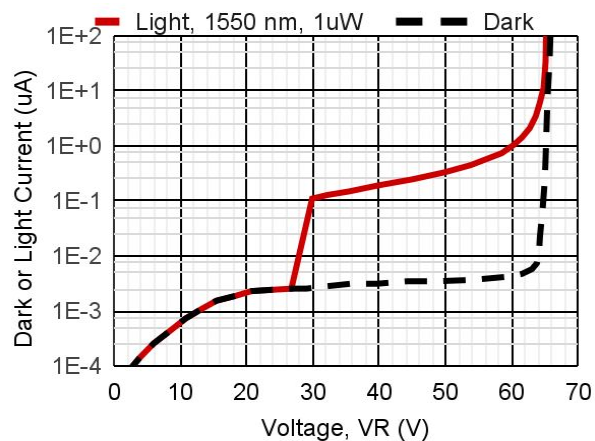
*Operating temperature is defined by the case temperature. It is necessary to ensure sufficient heat dissipation so that the module's maximum operating temperature is not exceeded. Operation at elevated temperatures reduces the lifetime of the module.

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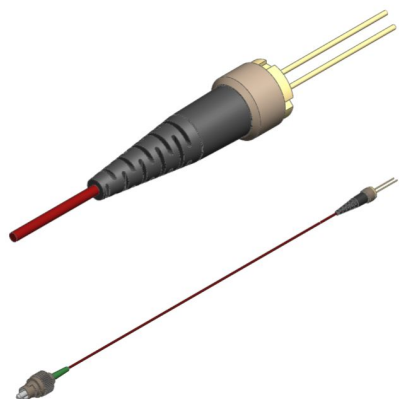
ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

Parameter		MIN	TYP	MAX	Unit	Conditions
Operating wavelength	λ	900		1650	nm	
R30 technology	Responsivity @0.95VBR	R	30	38	A/W	$\lambda=1550\text{nm}$
	Return loss	RL	25	34	dB	
	Polarization dependent loss	PDL		2	%	
LS technology	Responsivity @0.95VBR	R	30	38	A/W	$\lambda=1550\text{nm}$
	Return loss	RL	10	15	dB	
Breakdown voltage	VBR	60	64	70	V	$I_d = 100 \mu\text{A}$
Breakdown voltage temperature coefficient $\Delta V_{BR}/\Delta T$	δ		0.02		V/C	
Dark current	I_d		0.5	7	nA	$V_R = 0.9 V_{BR}$
Total capacitance	C_t	0.10	0.15	0.40	pF	M = 10
Bandwidth	BW		3.5		GHz	M = 10
Excess noise factor	F		1.08			M = 10
Excess noise factor	F		1.86			M = 40
Spectral noise current	i_{noise}		0.05		pA/ $\sqrt{\text{Hz}}$	M = 10
Spectral noise current	i_{noise}		0.24		pA/ $\sqrt{\text{Hz}}$	M = 40
Noise equivalent power	NEP		5.2		fW/ $\sqrt{\text{Hz}}$	M = 10
Noise equivalent power	NEP		5.6		fW/ $\sqrt{\text{Hz}}$	M = 40

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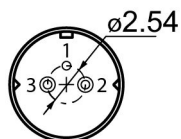


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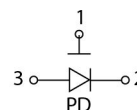
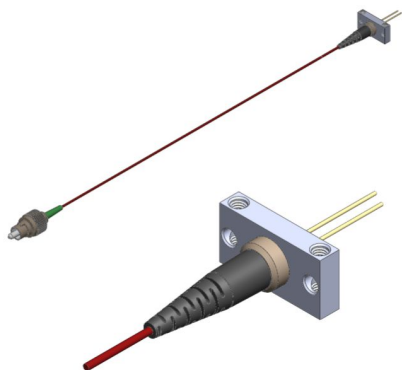
COAX

BACK VIEW



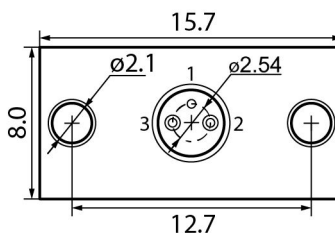
PINOUT

#6

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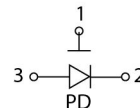
COAXB

BACK VIEW



PINOUT

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Characteristics, data, materials and structures specified in this datasheet are subject to change without notice. Please refer to the latest specification before use of the products.

Safety and handling cautions

1. Avoid smashing and burning of the module. Avoid storing and using the module in conditions where water, organic solvents or aggressive acids or bases may contact the module or where there is a possibility of exposure to corrosive gases, explosive gases, dust, salinity or other harsh conditions. The module should be disposed as special industrial waste.
2. Exceeding absolute maximum ratings even for a short time can cause permanent damage of the module.
3. The module is sensitive to and can be broken by ESD (static electricity).

Conflict Minerals Policy Statement

LD4B, UAB achieves business objectives and customer needs with social responsibility. We do not support or contribute to the violence and human rights violations associated with the mining of conflict minerals coming from Conflict Regions according to US "Dodd-Frank Act". When possible, our suppliers' conflict mineral statements are reviewed. We do not directly purchase Conflict Minerals from any source and do not knowingly procure any parts and products containing Conflict Minerals from Conflict Regions.

RoHS Compliance Statement

Restriction of Hazardous Substances (RoHS) directive (Directive 2011/65/EC amended with Directive (EU) 2015/863) is the directive aimed at reducing the harmful environmental impact of waste electrical equipment by restricting the use of known dangerous substances. Based on information received from our supply sources, LD4B, UAB hereby states that the banned substances listed in the RoHS directive are not found in the parts and materials used above the threshold level listed other than exceptions approved by the European Commission.

REACH Compliance Statement

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) is a European Union regulation 1907/2006/EC that addresses the production and use of chemical substances, and their potential impacts on human health and the environment. Based on information received from our supply sources, LD4B, UAB hereby states compliance of the parts and materials used in manufacturing to REACH regulation. LD4B, UAB does not manufacture or import any substances or preparations as defined under REACH.