LD4B
Laser Diodes for Business

APDTIA4B-2.5G-W

OVERVIEW

Avalanche photodiode with a low-noise transimpedance amplifier with auto gain control coupled to an optical fiber and packaged into a hermetic case.

MAIN FEATURES

- Operation wavelength 1260 – 1640 nm
- Data rate: 2.5 Gbps
- Sensitivity: -35 dBm
- Package types: coaxial with or without bracket
- Low back reflection, return loss RL = 45 dB

ORDERING INFORMATION

APDTIA4B-2.5G-W-X-X-X-X-X-X

Optical matching
R45: back reflection -45 dB (SM1 and SM3 fiber)
R30: back reflection -30 dB (MM5 fiber)
RM: optical matching, +5% larger responsivity

Case type
COAX: compact coaxial (low duty cycle pulse mode only)
COAXB: compact coaxial with a bracket

Pinout code
10: see more details on page 4

Fiber type
SM1: SM, G.657.A1, Corning SMF-28 Ultra, furcation tubing ∅0.9 mm or **BSM1** ∅0.25mm
SM3: SM, G.657.B3, Corning ClearCurve ZBL, furcation tubing ∅0.9 mm or **BSM3** ∅0.25mm
MM5: MM, 50/125, OM3, furcation tubing ∅0.9 mm
Other type on request

Connector type
FU: FC/UPC (SM1, SM3, MM5)
FA: FC/APC (SM1, SM3, MM5)
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
TIA supply voltage	V_{CC}	4.5	V	
APD voltage	V_{APD}	V_{BR}		
Reverse current	I_R	2	mA	
Operating temperature*	T_{op}	-40 - +85	°C	
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	1260		1640	nm	
TIA supply voltage	Vcc	3.0	3.3	3.6	V	
TIA supply current	Icc	15	20	24	mA	No load
Responsivity @ unity gain M = 1	R	0.85	0.95		A/W	R45, R30, λ = 1550nm, P = 1uW
Responsivity @ unity gain M = 1	R	0.90	1.00		A/W	RM, λ = 1550 nm, P = 1uW
Return loss	RL	40	45		dB	R45, SM1, SM3
Return loss	RL	25	30		dB	R30, MM5
Return loss	RL	25	30		dB	RM
Breakdown voltage	V_{BR}	35	46	56	V	I_d = 10 uA
Breakdown voltage temperature coefficient $\Delta V_{BR}/\Delta T$	δ	0.08	0.10	0.12	V/C	T = 25 C
Dark current	I_d		10	50	nA	V_R = 0.9 V_{BR}
Data rate			2.5		Gbps	
Low-frequency cut-off	fc		30		kHz	
Optical sensitivity	P_{min}		-35	-33.5	dBm	BER = 10^{-10}, BR = 2.5 Gbps NRZ, PRBS, ER = 10 dB, λ = 1550 nm
Output voltage	V_{out}		140		mV_{p-p}	
Transimpedance	Zt	5.7	7.7	9.0	kOhm	Differential (50 Ω on each output), f = 100 MHz
Output impedance	Z_{out}		50		Ohm	
Overload	P_{max}	2			dBm	BER = 10^{-10}, BR = 2.5 Gbps NRZ, PRBS, ER = 10 dB, λ = 1550 nm

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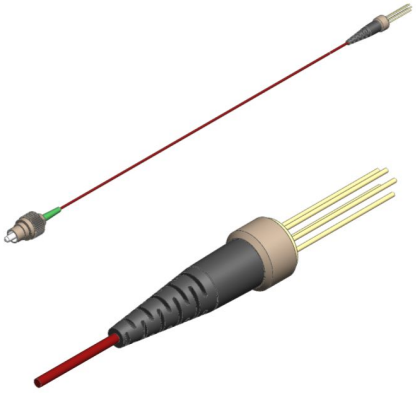
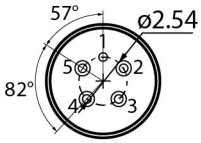


COAX

BACK VIEW

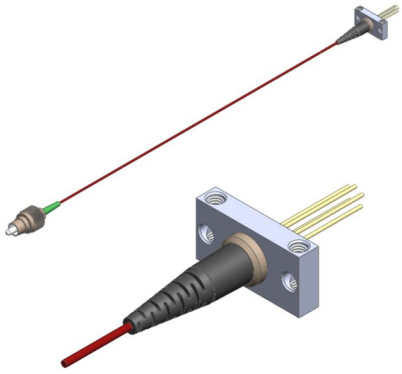


PINOUT
#10

1. Gnd
2. Dout
3. Vcc
4. Vapd
5. Dout

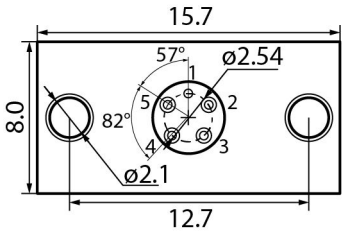
Download more information

Drawing | 3D model | Application Notes



COAXB

BACK VIEW



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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 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 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 hereby states compliance of the parts and materials used in manufacturing to REACH regulation. LD4B does not manufacture or import any substances or preparations as defined under REACH.