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Coupling Light to Your Success

APDI-29-1.5G-W

OVERVIEW

APDI-29-1.5G-W is the InGaAs avalanche photodiode coupled to an optical fiber and packaged into a hermetic case

MAIN FEATURES

- Bandwidth: 1.5 GHz
- Spectral range: 1000 - 1650 nm
- Typical responsivity: 1.0 A/W at 1310 nm and M = 1
- Package types: coaxial with or without bracket, 14 pins DIL
- Low back reflection, return loss RL > 40 dB
- Low dark current typ. <1 nA

APPLICATIONS

- Optical fiber communication systems
- OTDR

ORDERING INFORMATION

APDI-29-1.5G-W-X-X-5-X-X-X

Optical matching
R40: back reflection -40 dB (SM1 and SM3 fiber)
R30: back reflection -30 dB (MM5 and MM6 fiber)

Case type
U: compact coaxial
B: compact coaxial with double-sided bracket
T: 14 pins DIL with thermal stabilization (TEC and thermistor)
E: 14 pins DIL with thermal stabilization (TEC and thermistor)

Fiber type
SMT: SM, Corning Titania-Clad, furcation tubing ∅0.9 mm, ultrasmall bending radius 2.5 mm
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, OM2, furcation tubing ∅0.9 mm
Other type: on request

Connector type
FA: FC/APC (SM1,SM3, SMT)
SA: SC/APC (SM1)
N: no connector
Other type: on request
FU: FC/UPC (SM1, SM3, SMT, MM5, MM6)
SU: SC/UPC (SM1)

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
Reverse current	I_R	2	mA	
Forward current	I_F	10	mA	
Operating temperature	T_{op}	-40 ÷ +85	°C	Package U, B
Operating temperature	T_{op}	-40 ÷ +50	°C	Package T, E
Storage temperature	T_{stg}	-40 ÷ +85	°C	
Soldering temperature	T_{sold}	260	°C	Max. 5 seconds

ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

Parameter			Min	Typ	Max	Unit	Conditions
Operating wavelength			1000		1650	nm	
Responsivity @0.95V_{BR}	R40	R		12		A/W	λ = 1310 nm, SM1, SM3, V_R= 0.95V_{BR}
	R30			8			λ = 1310 nm, MM5, V_R = 0.95V_{BR}
Dynamic gain*		dM	5.5	7	9		λ = 1310 nm
Return loss	R40	RL	35	40		dB	SM1, SM3
	R30		25	30			MM5
Breakdown voltage		V_{BR}	40	55	70		I_d = 100 μA
Breakdown voltage temperature coefficient $\Delta V_{BR}/\Delta T$		δ		0.09		V/°C	T = 25 °C
Dark current		I_d		0.3	3	nA	V_R = 0.9 V_{BR}
Total capacitance		C_t		0.4	0.6	pF	f = 1 MHz
Bandwidth		BW	1.5			GHz	M = 10

*Dynamic gain dM = 5×lg (M2/M1), where M1 is gain at V = 30 V, M2 is gain at voltage where noise increases by 15 %

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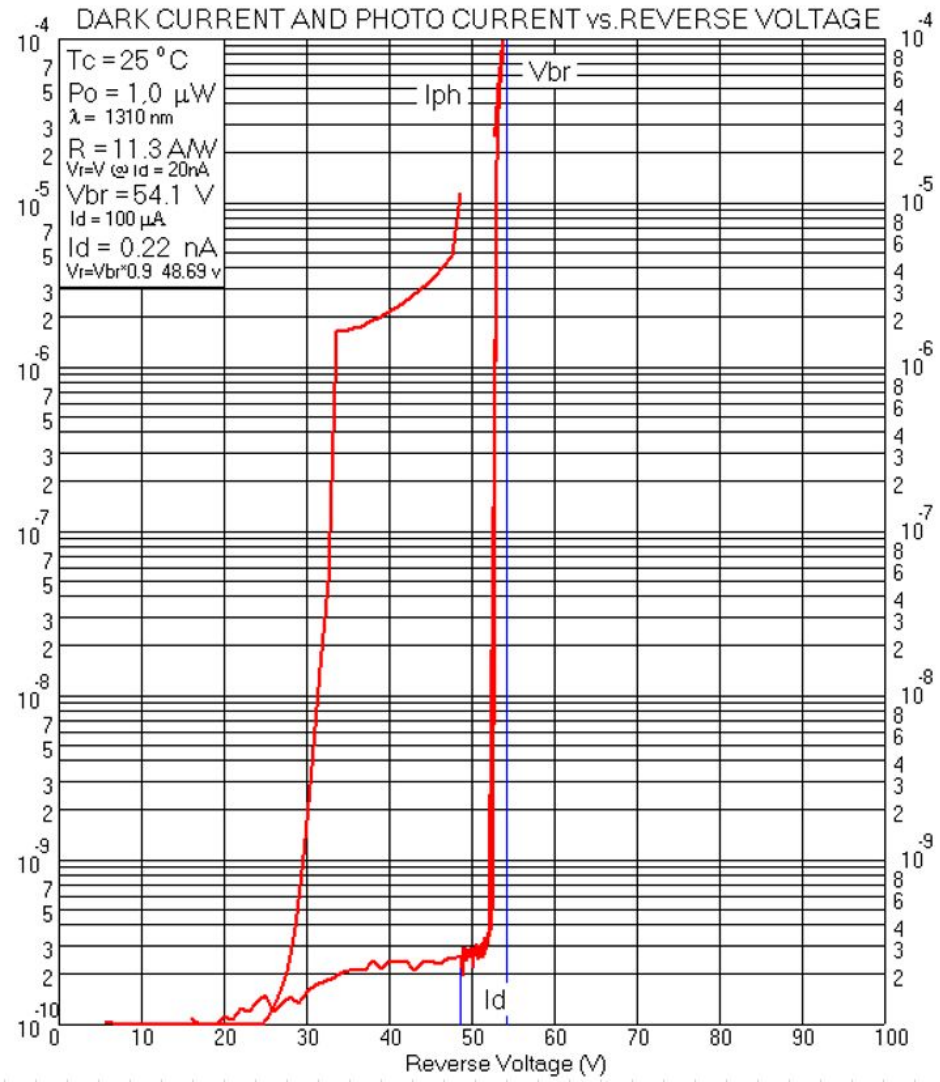
CHARACTERISTICS (T = 25 °C)



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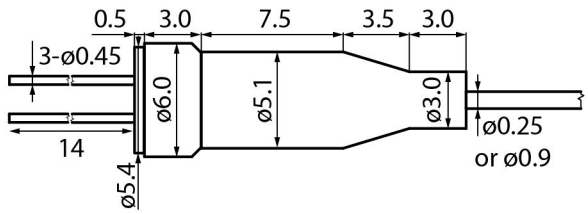
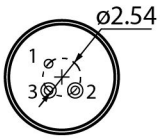
PACKAGE TYPE AND ELECTRICAL PINOUT

PACKAGE U

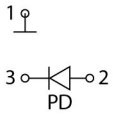
SIDE VIEW



BACK VIEW



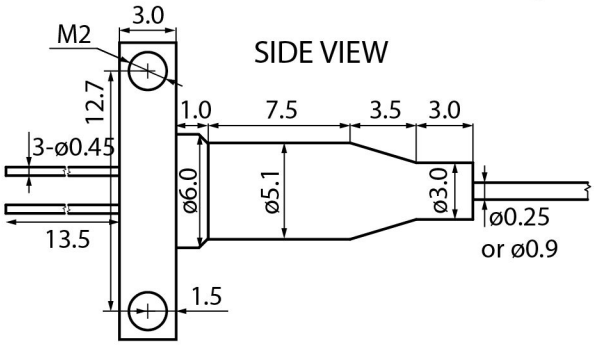
PINOUT
#5



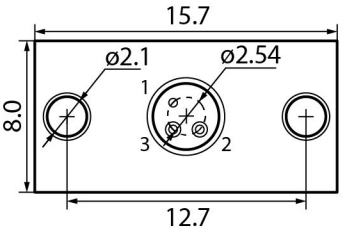
Connector FC/UPC, FC/APC, no connector, or by request

Fiber length 500+/-50, 1000+/-100, or by request

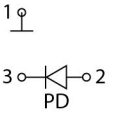
PACKAGE B



BACK VIEW



PINOUT
#5

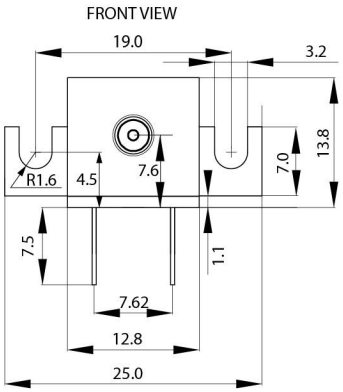


Connector FC/UPC, FC/APC, no connector, or by request

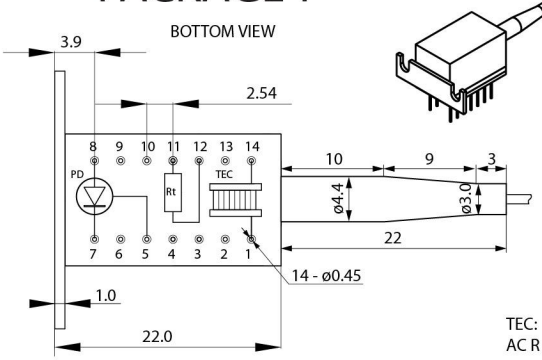
Fiber length 500+/-50, 1000+/-100, or by request

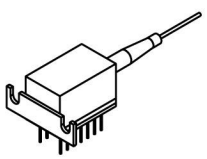
PACKAGE T

FRONT VIEW



BOTTOM VIEW





PINOUT #5, #7

1.TEC Anode
2.-
3.-
4.-
5.PD Case
6.-
7.PD Cathode
8.PD Anode
9.-
10.-
11.Thermistor
12.Thermistor
13.-
14.TEC Cathode

TEC: I_{max}=0.7A, U_{max}=3.9 V, Q_{max}=1.4 W,
AC R = 4.7 Ohm, ΔT_{max} = 72 K

Thermistor:
Rt=10*EXP(3600*{1/T[K]-1/298}) kOhm

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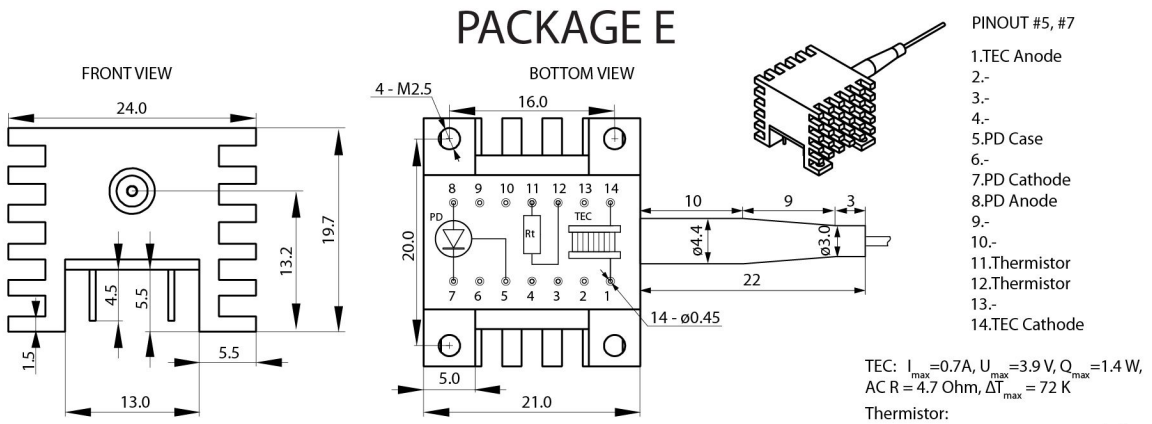
PACKAGE TYPE AND ELECTRICAL PINOUT



PINOUT #5, #7

1.TEC Anode
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12.Thermistor
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14.TEC Cathode

TEC: I_{max}=0.7A, U_{max}=3.9 V, Q_{max}=1.4 W, AC R = 4.7 Ohm, ΔT_{max} = 72 K

Thermistor:
Rt=10*EXP(3600*{1/T[K]-1/298}) kOhm

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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 maximal 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

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