

APD Series

PCB mount ultra compact, regulated, high voltage DC-DC converter



64 standard products
 Pout : 100 mW
 Vout : 0 to 200V, 300V, 400V or 500V
 Vin : [4.5;5.5]Vdc or [11.5;15.5]Vdc
 Reference : see chart for complete reference



General Description

The highly compact APD-Series is specifically designed to meet the needs of professionals working to develop products for the growing commercial, and research, applications of avalanche photodiodes. These units enable customers in domains including laser range finders, fiber optic telecommunications and particle physics to achieve greater quantum efficiency and reduced total leakage current.

Miniature and lightweight	Tight line / load regulation	Low ripple (<20mV p. to p.)
PCB flat mounting	Output current limit protection	Low noise due to metal shielding
Inhibition mode	Temperature coefficient 50ppm/°C	2.5V reference (optional)

Parameters	Specifications				
Input voltage Vin	APD5: [4.5;5.5]Vdc APD12: [11.5;15.5]Vdc				
Input current	Inhibition mode <5mA, at full output voltage, full load: <table border="1"> <tr> <td><65mA for the 200V model</td> <td><60mA for the 300V model</td> <td><55mA for the 400V model</td> <td><50mA for the 500V model</td> </tr> </table>	<65mA for the 200V model	<60mA for the 300V model	<55mA for the 400V model	<50mA for the 500V model
<65mA for the 200V model	<60mA for the 300V model	<55mA for the 400V model	<50mA for the 500V model		
HV output Vout (pin 7 or lead - optional)	Programmable nominal voltage, Refer to the Selection Guide for voltage ranges				
Polarity	Fixed positive or negative				
HV setting (pins 3)	Via external voltage source 0/2.5V Accuracy : ±0.1 % at full scale				
Max. output current Iout	Refer to the Selection Guide				
Load voltage regulation	±0,01 % of full output voltage for no load to full load				
Line voltage regulation	±0,01 % of full output voltage over specified input voltage range				
Residual ripple	Less than 20mV peak-to-peak at full output voltage and current Less than 5mV peak-to-peak at 200V and 200µA				
Temperature coefficient	<50ppm/°C				
Output HV monitoring (pin 2)	0/2.5V signal Accuracy: ±0.2 % Output impedance: 1k				

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Parameters	Specifications
Output reference voltage (pin 4 - optional)	2.5V \pm 0.5 %, TC :50ppm/ $^{\circ}$ C, max. output current: 1mA
HV power ON/OFF (pin 5)	ON: 0 volt, connected to ground OFF: not connected Open collector compatible
Operating temperature	-10 $^{\circ}$ C to +50 $^{\circ}$ C
Storage temperature	-40 $^{\circ}$ C to +70 $^{\circ}$ C
Safeguards	Output current internally limited Soft start feature: the start is guaranteed without overshoot

Package Configuration	
Case material	Tin steel plate Thickness 0.5 mm
Case dimensions LxHxW	25.5 x 11.0 x 20.5 mm
Pins	0.63 x 0.63mm square pins, length: > 2 mm spacing: 2.54 mm
Weight	13g
Lead (optional)	Coaxial cable (RG178) Diameter = 2 mm Length = 500 mm
Insulation	Fully potted in an epoxy resin

Pin Connections	
Line input	1. Vin 2. GND
HV setting	3. Control input 0/2.5V 4. Control reference voltage 2.5V (optional)
Inhibition input	5. ON/OFF
HV monitoring	6. Vout monitoring 0/2.5V
HV output	7. Vout

Main applications:

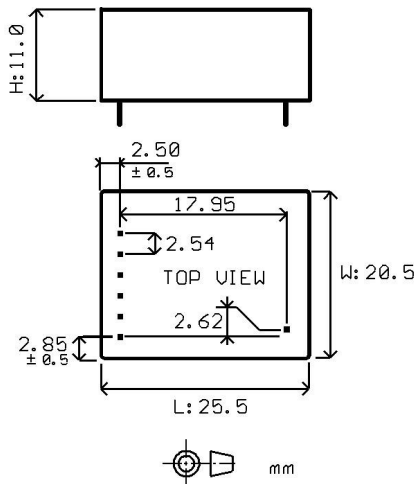
Fiber-optic telecom detectors
Avalanche photodiodes
Particle physics detectors
Laser range finder detectors
Thin-film bias
Silicon photomultipliers (SiPM)
Multi-pixel photon counter (MPCC)



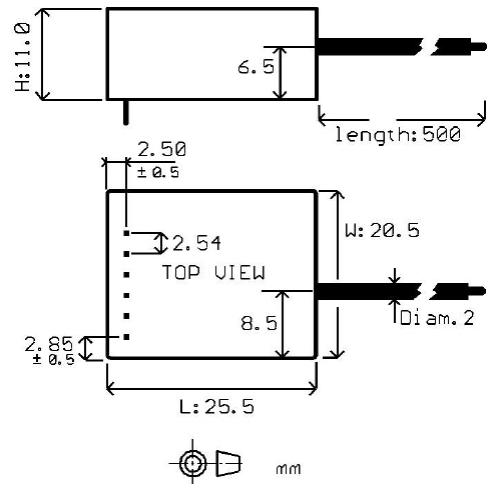
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Mechanical Dimensions

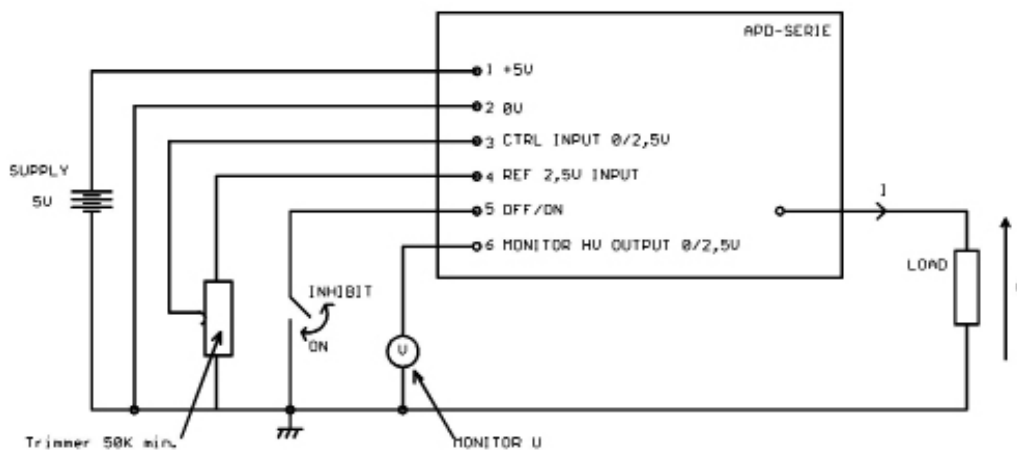


Seven pins: square 0.63 x 0.63 mm
 APD5 x 0.50.1-C x






Six pins: square 0.63 x 0.63 mm
 APD5 x 0.50.1-Cx-L

Functional Diagram for the model with the 2.5V voltage reference



Marking

 www.sdshv.com
APD5P0.5-0.1-C2.5-L
 ⬤ +12/15V... +500V 0.1W
 ⬤ 0V SN:51183300
 ⬤ CTRL INPUT 0/2,5V 
 ⬤ REF2,5V OUTPUT
 ⬤ OFF/DN  ⬤ HV
 ⬤ MONITOR HV OUTPUT 0/2,5V
 made in france

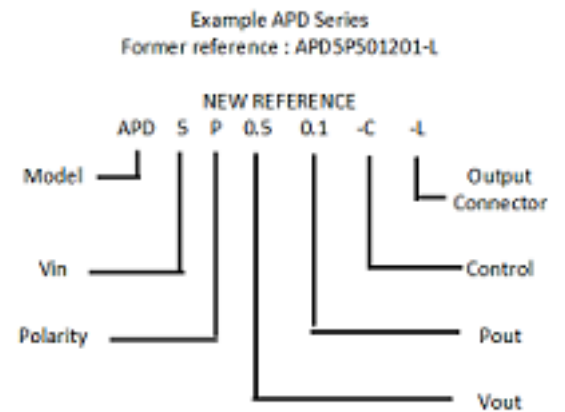


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Ordering information

Model	Name of the series	APD
Vin	4.5Vdc to 5.5Vdc	5 for [4.5;5.5]Vdc
	11.5Vdc to 15.5Vdc	12 for [11.5;15.5]Vdc
Polarity	Positive output voltage	P
	Negative output voltage	N
Vout	Output voltage	See Ordering Code
Pout	Output in Watt	See Ordering Code
Option	+2.5V control reference voltage	C2.5
	No reference voltage (the pin 4 is still present)	C0
Output connector	Output voltage through pin	
	Output voltage through lead	L



Ordering example

The ordering code of a positive +500V@100mW psu under 5Vdc with the optional 2.5 V reference voltage and with the lead for the HV output is:
APD5P0.5-0.1-C2.5-L

Ordering voltage and power code

- The power supplies have a 6-element order code:
 - The first 3 letters refer to the series
 - The first 2 digits indicate the value of the input voltage
 - the following letter indicates the polarity
 - the following number indicates the output voltage in kV
 - the last digit indicates the power in Watt
 - the next digit refers to the control voltage
 - the last digit refers to the output connector

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Vout	Iout / Pout	Vin	Polarity	+2.5 réf.	former reference	NEW REFERENCE
500V	200µA /100mW	5V	+	yes	APD5P501201-*	APD5P0.5-0.1-C2.5-*
				no	APD5P501201-*	APD5P0.5-0.1-C0-*
			-	yes	APD5N501201-*	APD5N0.5-0.1-C2.5-*
				no	APD5N501201-*	APD5N0.5-0.1-C0-*
		12V-15V	+	yes	APD12P501201-*	APD12P0.5-0.1-C2.5-*
				no	APD12P501201-*	APD12P0.5-0.1-C0-*
			-	yes	APD12N501201-*	APD12N0.5-0.1-C2.5-*
				no	APD12N501201-*	APD12N0.5-0.1-C0-*
400V	250µA /100mW	5V	+	yes	APD5P401125-*	APD5P0.4-0.1-C2.5-*
				no	APD5P401125-*	APD5P0.4-0.1-C0-*
			-	yes	APD5N401125-*	APD5N0.4-0.1-C2.5-*
				no	APD5N401125-*	APD5N0.4-0.1-C0-*
		12V-15V	+	yes	APD12P401125-*	APD12P0.4-0.1-C2.5-*
				no	APD12P401125-*	APD12P0.4-0.1-C0-*
			-	yes	APD12N401125-*	APD12N0.4-0.1-C2.5-*
				no	APD12N401125-*	APD12N0.4-0.1-C0-*
300V	330µA /100mW	5V	+	yes	APD5P301331-*	APD5P0.3-0.1-C2.5-*
				no	APD5P301331-*	APD5P0.3-0.1-C0-*
			-	yes	APD5N301331-*	APD5N0.3-0.1-C2.5-*
				no	APD5N301331-*	APD5N0.3-0.1-C0-*
		12V-15V	+	yes	APD12P301331-*	APD12P0.3-0.1-C2.5-*
				no	APD12P301331-*	APD12P0.3-0.1-C0-*
			-	yes	APD12N301331-*	APD12N0.3-0.1-C2.5-*
				no	APD12N301331-*	APD12N0.3-0.1-C0-*
200V	500µA /100mW	5V	+	yes	APD5P301331-*	APD5P0.2-0.1-C2.5-*
				no	APD5P201501-*	APD5P0.2-01-C0-*
			-	yes	APD5N201501*	APD5N0.2-0.1C2.5-*
				no	APD5N201501-*	APD5N0.2-0.1-C0-*
		12V-15V	+	yes	APD12P201501-*	APD12P0.2-0.1-C2.5-*
				no	APD12P201501-*	APD12P0.2-0.1-C0-*
			-	yes	APD12N201501-*	APD12N0.2-0.1-C2.5*
				no	APD12N201501-*	APD12N0.2-0.1-C0*

*specify at the end of the ordering code «L» for a lead for the HV output

Other output voltages and output currents are available upon request.

Do not hesitate to ask us about any parameter you would like to see changed for your application.



This High Voltage power supply satisfies the requirements of EC Directives Safety.

Non contractual document.

All specifications are subject to change without notice.

RV09/2019

