Micro APD Series

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

4 standard products
◊ Reference: µ5x101102-x or µ12x101102-x
(see chart for complete reference)
◊ Vin: 5Vdc
◊ Vout : 0 to 100V
◊ Pout : 100mW

General Description

◊ The smallest regulated DC-DC power supply for APDs and MPPCs that need a bias voltage ranging from 0 to 100V.

Miniature and lightweight	Tight line / load regulation	Low ripple (<50Vp. to p.)
Lightweight	Output current limit protection	Low noise due to metal shielding
PCB flat mounting	Temperature coefficient 50ppm/°C	

Parameters	Specifications
Input voltage Vin (pins 1 & 2)	5Vdc ±0.5Vdc (recommended); reverse: -0.2V • Version A: 12Vdc maximum • Version B: 6Vdc maximum
Input current	For 0V output voltage: <1.6mA For 100V, no load: < 3mA At full output voltage, full load: <50mA
HV output Vout (pin 7 or lead - optional)	0 to 100V programmable
Polarity	Fixed positive or negative
HV setting (pins 3)	Via external voltage source 0/2.5V • Version A: ±1 % accuracy at full scale • Version B: ±0.% accuracy at full scale
Max. output current Iout	1mA nominal
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	• Version A: <50mV peak-to-peak – ripple can be reduced to less than 10mV by adding an external 100nF/100V X7R 0805 SMD ceramic capacitor • Version B: <25mV peak-to-peak – ripple can be reduced to less than 5mVp-p by adding an external 100nF/100V X7R 0805 SMD ceramic capacitor, or to less than 2mVp-p by adding an external 100nF/200V polyester capacitor
Temperature coefficient	• Version A: <50ppm/°C • Version B: <15ppm/°C

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Parameters	Specifications
Output HV monitoring	Not available on this product
Output reference voltage	Not available on this product
HV power ON/OFF	Not available on this product
Operating temperature	-10°C to + 50°C
Storage temperature	-10°C to + 70°C
Safeguards	• Output current internally limited • Soft start feature : the start is guaranteed without overshoot
Shielding	The case has to be grounded to the customer's circuit board

Main Applications

- Avalanche Photo Diodes (APD)
- Silicon Photomultipliers (SiPM)

Package Configuration

Case material	Tin steel plate Thickness 0.5 mm
Case dimensions LxHxW	11 x 11 x 11 mm
Pins	0.63 x 0.63 mm square pins, length: > 2 mm
Weight	5 g
Insulation	Fully potted in an epoxy resin

Pin Connections

Line input	1. Vin 2. GND
HV setting	3. Control input 0/2.5V
HV output	4. Vout

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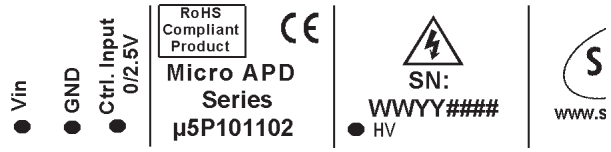
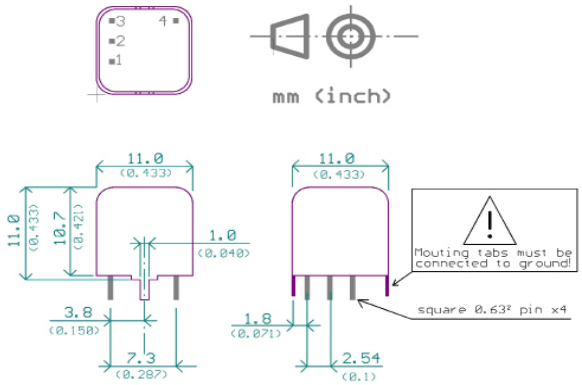
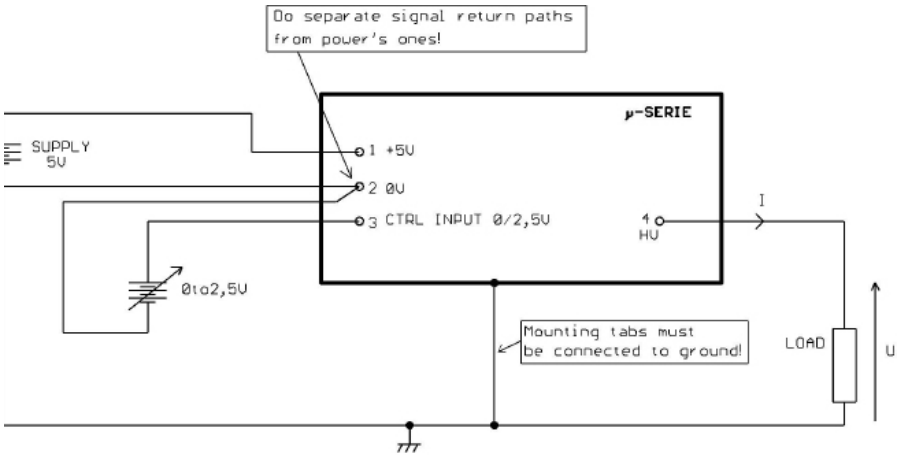
Marking



Mechanical Dimensions



Functional diagram



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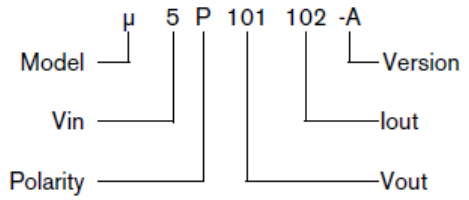
Ordering information		
Model	Name of the series	µ APD
Vin	4.5Vdc to 5.5Vdc	5
Polarity	Positive output voltage	P
	Negative output voltage	N
Vout	Output voltage	See Ordering Code
Iout	Output current	See Ordering Code

Example



+100V@100mW psu under 5Vdc in version A

Output voltage and current code:

- The power supply units have a 6-digit ordering code;
- The first 3 digits concern the output voltage in V
  - The first 2 digits indicate the output voltage value
  - The last digit indicates the multiplier
- The last 3 digits concern the output current in µA
  - The first 2 digits indicate the nominal output current value
  - The last digit indicates the multiplier

Ordering Example:

- The ordering code of a +100V@100mW psu in version Vin 5 V A is: µ5P101102-A

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

Rev.C 06/16

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