

ULTRAVOLT XS SERIES

EXTRA-SMALL HIGH VOLTAGE BIASING SUPPLIES

The UltraVolt® XS series of extra-small high voltage power supplies is the smallest regulated DC-to-DC high voltage power supply for applications that require a bias voltage ranging from 0 to 100 V. Measuring only 1.3 cc (0.08 in³), these modules are ideal for use in size-critical applications.



PRODUCT HIGHLIGHTS

- Extra-small size: 1.3 cc
- Lightweight: 5 g
- PCB flat mounting: 11 mm height
- Output from 0 to 100 V
- 100 mW output power
- Low ripple (< 50 mV peak to peak)
- Tight line/load regulation < ±0.01%
- Low temperature coefficient < ±50 ppm per °C
- Programmable HV output ±2.0% F.S.
- Output current limit protection
- 5 or 9 VDC input
- Metal case for low radiated noise

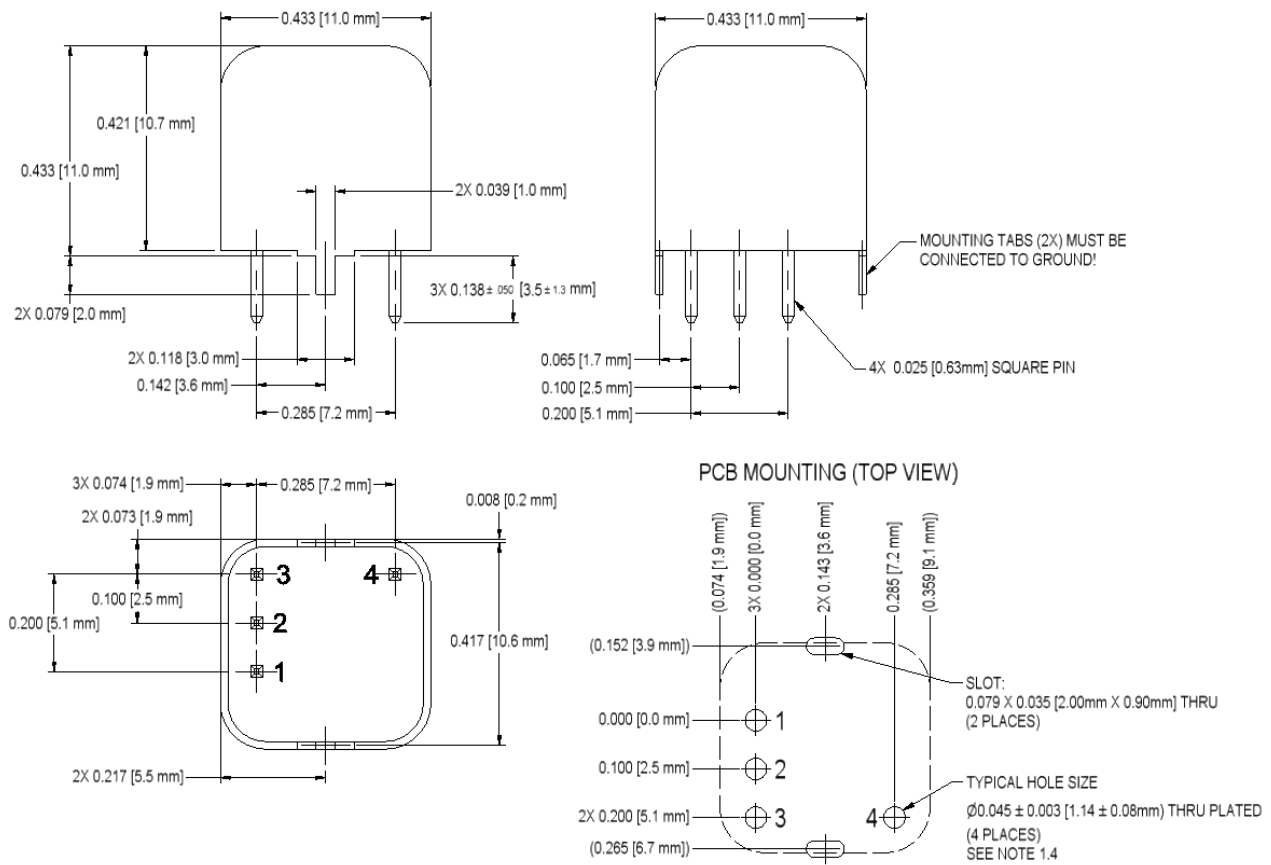
TYPICAL APPLICATIONS

- Small, lightweight, portable devices
- Thin-film bias
- Avalanche photo diodes (APD)
- Silicon photomultipliers (SiPM)
- Multi-pixel photon counters (MPPC)
- Ultrasonic transducers
- Small PZT drivers
- ATE leakage testing
- Bias supplies

ELECTRICAL SPECIFICATIONS

| Parameter | Specifications | Units |
|---------------------------------------|--|-------------------------|
| Input Voltage V_{in} (Pins 1 and 2) | 5 VDC ± 0.5 (recommended) max: 12 VDC (reverse: -0.2 V) | VDC |
| Input Current | For 0 V output voltage: < 1.6 | mA |
| | For 100 V, no load: < 3 | |
| | At full output voltage, full load: < 50 | |
| HV Output V_{out} (Pin 4) | 0 to 100 programmable | VDC |
| Output Power | 0 to 100 | mW |
| Polarity | Fixed positive or negative | - |
| HV Setting (Pin 3) | Via external voltage source 0/2.5 V | - |
| | Accuracy: $\pm 2\%$ at full scale | |
| Max Output Current I_{out} | 1 nominal | mA |
| Load Voltage Regulation | $\pm 0.01\%$ of full output voltage for no load to full load | - |
| Line Voltage Regulation | $\pm 0.01\%$ of full output voltage over specified input voltage range | - |
| Residual Ripple | < 50 mV pk to pk — ripple can be reduced to < 10 mV by adding an external 100 nF small CMS capacitor | - |
| Temperature Coefficient | < 50 | PPM/ $^{\circ}\text{C}$ |
| Output HV Monitoring | N/A | - |
| Output Reference Voltage | N/A | - |
| HV Power ON/OFF | N/A | - |
| Operating Temperature | -10 to +65, full load, max E_{out} , case temp. | $^{\circ}\text{C}$ |
| Storage Temperature | -10 to +70 | $^{\circ}\text{C}$ |
| Safeguards | Output current internally limited | - |
| | Soft start feature: low overshoot | |
| Shielding | Ground return is to metal enclosure | - |

MECHANICAL SPECIFICATIONS



Drawing views: third angle projections.

| Construction | |
|---------------------|---|
| Casing | Steel, tin-plated, thickness 0.5 mm (0.02") |
| Insulation | Fully potted in RTV |
| Pins | |
| Gold-plated | 0.63 mm (0.025") square |
| Length | > 2 mm (0.079") |
| Spacing | 2.54 mm (0.1") |
| Volumes and Weights | |
| Volume | 1.331 cc (0.081 in ³) |
| Weight | 5 g (0.176 oz) |

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INTERFACE

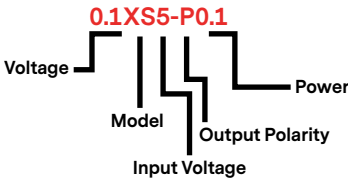
| Connections | |
|-------------|----------------------|
| Pin | Function |
| 1 | Positive Power Input |
| 2 | Ground Return |
| 3 | Remote Adjust Input |
| 4 | HV Output |

Mounting tabs must be connected to ground.

ORDERING INFORMATION

| | | |
|----------|---------------------|------------|
| Type | 0 to 100 VDC Output | 0.1XS |
| Input | 5 VDC Nominal | 5 |
| Power | W Output | 0.1 |
| Case | Steel, Tin-plated | (Standard) |
| Polarity | Positive Output | -P |
| | Negative Output | -N |

Popular accessories ordered with this product include the PCB-CONN-XS.
The XS series is not available in all territories. Please contact Advanced Energy for details concerning sales in your area.





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ABOUT ADVANCED ENERGY

Since 1981, UltraVolt® — now part of the Advanced Energy (AE) family — has perfected how power performs for its customers. For both end users and OEMs, AE's comprehensive portfolio of standard and custom high voltage components precisely match system specifications to deliver unparalleled energy, quality, and performance. Through close customer collaboration, design expertise, application insight, and world-class support, AE creates successful partnerships and enables customers to push the boundaries of innovation and stay ahead of evolving market needs.

PRECISION | POWER | PERFORMANCE



CAUTION:
High Voltage

Read and understand all documentation before you install, operate, or maintain Advanced Energy high voltage power supplies. Follow all safety instructions and precautions to protect against property damage and serious or possibly fatal bodily injury. Never defeat safety interlocks or grounds.

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