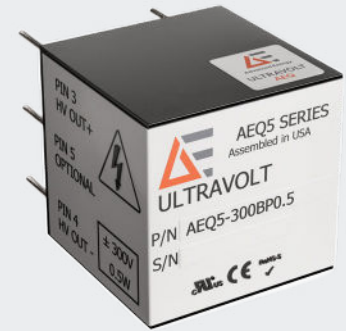


ULTRAVOLT AEQ SERIES

ULTRA-MINIATURE HIGH VOLTAGE POWER CONVERTERS



The UltraVolt® AEQ series of ultra-miniature UL approved isolated single or dual output DC to DC converters supply up to 600 VDC at 0.5 Watts of output power from an input voltage of +5 VDC. The small size of the units and ease of control make the AEQ series optimal for hand-held devices, portable equipment, and other small high-voltage projects.

PRODUCT HIGHLIGHTS

- Ultra-miniature size (0.5" cube)
- Adjustable 0 to ±300V (dual polarity units with CT), 0 to 600 V (floating/reversible units)
- 5 VDC input
- Output fully adjustable over 0 VDC to maximum rating
- ±1500 VDC input to output isolation
- Output short-circuit protection
- 0.5 W maximum output power
- Low ripple (<1% peak to peak)
- Temperature coefficient of 500ppm/°C
- Ease of installation with PCB mount
- Reliable modular design, > 1,000,000 hours MTBF per MIL-HDBK-217F
- UL/cUL recognized, CE mark (LVD and RoHS), EN-62368

TYPICAL APPLICATIONS

- Mass spectrometry
- Gas chromatography
- Spectrometers
- PZT drivers
- Flat-panel displays
- Fiber-optic telecom detectors
- Particle physics detectors
- Laser range finder detectors
- Silicon (SiD) detectors
- Ionization chamber detectors
- Avalanche photo diodes (APD)
- Photo multiplier tubes (PMT)
- Photodiodes (PD)
- Multi-pixel photon counters (MPPC)
- Channel electron multipliers
- Silicon photomultipliers (SiPM)
- Microchannel plates (MCP)
- Biasing supplies

ELECTRICAL SPECIFICATIONS

Parameters	Specifications	Units
Input Voltage	+5 VDC ($\pm 5\%$ recommended)	VDC
Input Current Disabled	<3	mA
Input Current at No Load	<150 (Module in safe operating region)	mA
Input Current at Full Load	<250	mA
HV Output Range (Vout)	0 to 600	VDC
HV Turn On/Off	Turn on: Control Pin >0.1 V (+50%); Turn off: Control Pin <0.1 V (-20%)	VDC
Output Power	0.5	W
Polarity	Fixed positive or negative	-
HV Setting	Via external source 0 to 5 ($\pm 1\%$ recommended)	VDC
Max Output Current (Iout)	See Model Table	mA
Load Voltage Regulation	30	%
Output Voltage Ripple	≤ 1	%
Output Voltage Tolerance	5 (At maximum Vout, full load)	%
Temperature Coefficient	200 PPM @ 25°C, 500 PPM when swept from -25 to 70°C	PPM/°C
Regulation	Unregulated, output is proportional to Vcontrol pin	-
Short Circuit Protection	2	minutes
Mean Time Between Failure	>3 (Per Bellcore TR332)	Mhrs

Note 1 - All specifications are after a 30-minute warm-up at full load at 25°C unless otherwise noted.

Note 2 - Maximum output load is available at the maximum rated output voltage, the load derates linearly as control pin voltage is decreased.

Note 3 - The AEQ output voltage is load dependent, under light load conditions it may be necessary to adjust the control pin, so the maximum rated output voltage is not exceeded.

Note 4 - Good thermal management techniques must be used to maintain the maximum case temperature when operating the AEQ at maximum load.

Note 5 - For further information please see "AEQ Application Note".

ENVIRONMENTAL SPECIFICATIONS

Parameters	Specifications
Operation Case Temperature	-25 to +70 °C, case temperature
Storage Temperature	-55 to +105 °C
Humidity	5 to 95%, non-condensing
Cooling	Conduction/Convection (Case temperature must be maintained within specified limits)
Operating Altitude	≤ 2000 meters

GENERAL SPECIFICATIONS

Parameters	Specifications
Input to Output Isolation	± 1500 VDC, input pins to output pins
Construction	Solid vacuum encapsulation
RoHS	RoHS 2 and 3 Directive (2011/65/EU)
IP Protection class	IPX0
Weight	4.0 \pm 0.5 g
Warranty	1 year

SAFETY APPROVALS

Safety Agency	Safety Standard
UL cULus	IEC/UL/CSA/EN-62368
CE	CE Directive, RoHS and LVD

MODEL TABLE

Item#	Model Number	Description	Input	Output	Output Power (W)
1	AEQ5-100FL0.5	Floating / Reversible	5.0 V (<250 mA)	100 V (5.00 mA)	0.5
2	AEQ5-200FL0.5	Floating / Reversible	5.0 V (<250 mA)	200 V (2.5 mA)	0.5
3	AEQ5-300FL0.5	Floating / Reversible	5.0 V (<250 mA)	300 V (1.67 mA)	0.5
4	AEQ5-400FL0.5	Floating / Reversible	5.0 V (<250 mA)	400 V (1.25 mA)	0.5
5	AEQ5-500FL0.5	Floating / Reversible	5.0 V (<250 mA)	500 V (1.00 mA)	0.5
6	AEQ5-600FL0.5	Floating / Reversible	5.0 V (<250 mA)	600 V (0.833 mA)	0.5
7	AEQ5-50BP0.5	Dual polarity with CT	5.0 V (<250 mA)	±50 V (5.00 mA)	0.5
8	AEQ5-100BP0.5	Dual polarity with CT	5.0 V (<250 mA)	±100 V (2.5 mA)	0.5
9	AEQ5-150BP0.5	Dual polarity with CT	5.0 V (<250 mA)	±150 V (1.67 mA)	0.5
10	AEQ5-200BP0.5	Dual polarity with CT	5.0 V (<250 mA)	±200 V (1.25 mA)	0.5
11	AEQ5-250BP0.5	Dual polarity with CT	5.0 V (<250 mA)	±250 V (1.00 mA)	0.5
12	AEQ5-300BP0.5	Dual polarity with CT	5.0 V (<250 mA)	±300 V (0.833 mA)	0.5

MECHANICAL SPECIFICATIONS

PIN ASSIGNMENT

PIN 1	Input (-)
PIN 2	Input (+)
PIN 3	Output (+)
PIN 4	Output (-)
PIN 5	Center Tap
PIN 6	Control Pin

