ULTRAVOLT 30A – 40A SERIES

30 KV TO 40 KV HIGH VOLTAGE BIASING SUPPLIES

The 30A – 40A series of regulated, high voltage DC-DC converters are an extension of the A Series, directly addressing the needs of the miniature PCB or chassis-mount ≥30 kV application. Designed and built utilizing state-of-the-art power conversion topology, these units feature surface-mount technology and encapsulation techniques providing high reliability and low cost.

PRODUCT HIGHLIGHTS

- 0 to 30 kV, 35 kV or 40 kV output
- 4, 15 or 30 watts of output power
- Maximum Iout capability down to 0 Volts
- Wide input voltage range
- Indefinite output short-circuit protection
- Output current and voltage monitors
- Fixed-frequency, low-stored-energy design
- UL/cUL Recognized Component; CE Mark (LVD and RoHS)

TYPICAL APPLICATIONS

- Electrostatic discharge testers
- Plasma, electrostatic, x-ray, and wire testers

ELECTRICAL SPECIFICATIONS

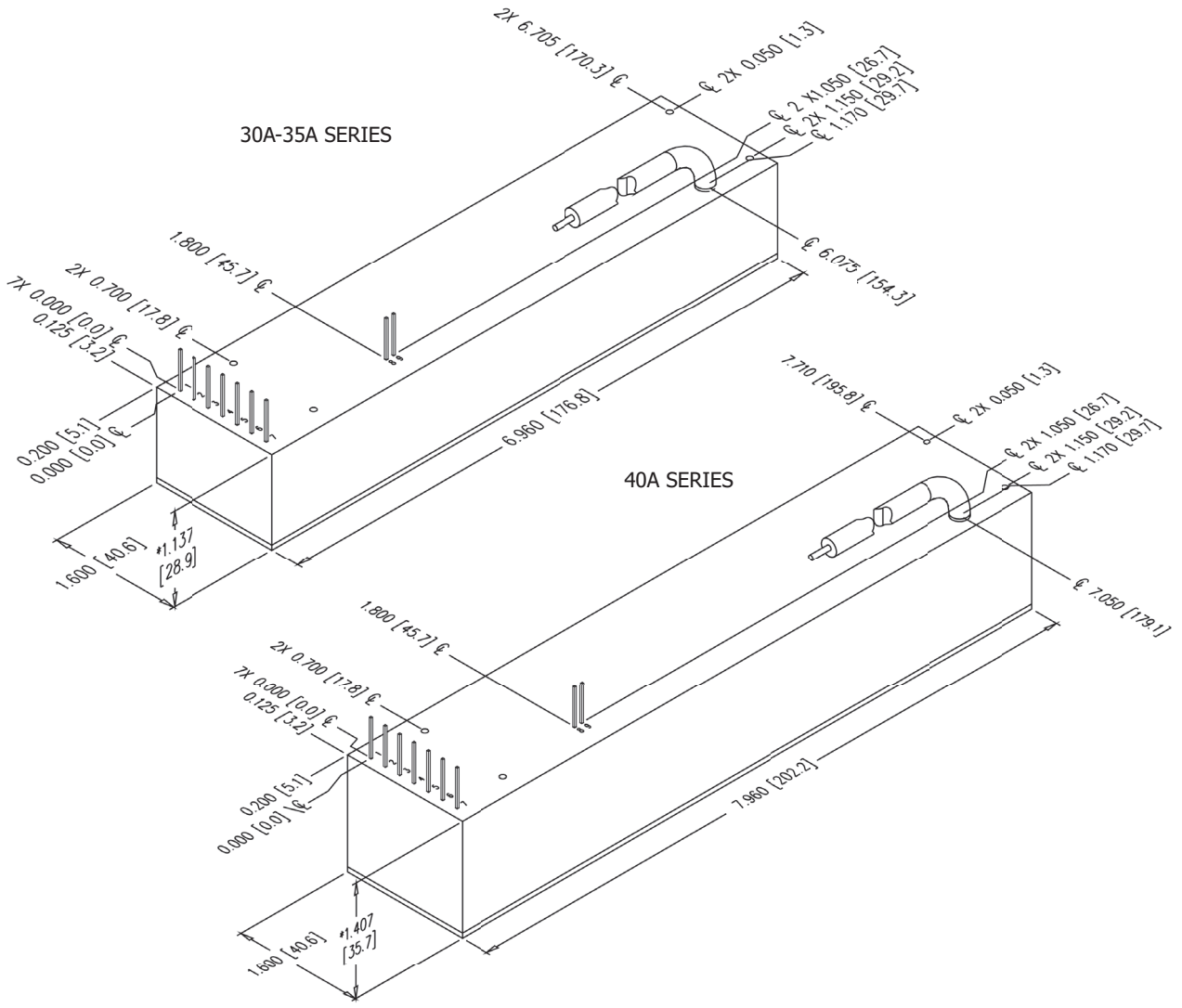
Parameter	Conditions	Models									Units
Input		**12 V**					**24 V**				
Voltage Range	Full Power	+11 to 16					+23 to 30				VDC
Voltage Range	Derated Power Range	+9 to 32					+9 to 32				VDC
Current	Standby / Disable	<30					<30				mA
Current	No Load, Max Eout	30A < 0.25, 35A < 0.35, 40A < 0.38					30A < 0.30, 35A < 0.20, 40A < 0.38				A
Current	Max Load, Max Eout	~800					~1800				mA
AC Ripple Current	Nominal Input, Full Load	<80					<80				mA p-p
Output		**30A**			**35A**			**40A**			
Voltage Range	Nominal Input	0 to 30,000			0 to 35,000			0 to 40,000			VDC
Nominal Input Voltage / Model		12	24	24	12	24	24	12	24	24	VDC
Power	Nominal Input, Max Eout	4	15	30	4	15	30	4	15	30	Watts
Current	Iout Entire Output Voltage Range	0.13	0.50	1.0	0.11	0.42	0.86	0.10	0.37	0.75	mA
Current Scale Factor	Full Load	0.140	0.173	0.181	0.158	0.179	0.184	0.077	0.089	0.092	mA/V
Voltage Monitor Scaling		1000:1 ±2% into 10 MΩ									-
Ripple	Full Load, Max Eout, 300 pF bypass Cap.	0.025	0.039	0.058	0.025	0.040	0.075	0.030	0.060	0.064	%V p-p
Ripple with -F-M Option	Full Load, Max Eout, 300 pF bypass Cap.	0.021	0.028	0.048	0.016	0.034	0.040	0.007	0.025	0.053	%V p-p
Dynamic Load Regulation	½ to Full Load, Max Eout per 0.1 mA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	V pk
Line Regulation	Nom. Input, Max Eout, Full Power	<0.01 %									VDC
Static Load Regulation	No Load to Full Load, Max Eout	<0.01%									VDC
Stability	30 Min. warmup, per 8 hr/ per day	<0.01% / <0.02%									VDC

ELECTRICAL SPECIFICATIONS (CONTINUED)

Parameter	Conditions	Models	Units
Programming and Controls		**All Types**	
Input Impedance	Nominal Input	+Output Models 1.1 MΩ to GND, -Output Models 1.1 M Ω to +5 Vref	MΩ
Adjust Resistance	Typical Potentiometer Values	10 to 100 K (Pot across Vref. and Signal GND, Wiper to Adjust)	Ω
Adjust Logic	0 to +5 for +Out, +5 to 0 for - Out	+4.64 VDC for +Output or +0.36 for -Output = Nominal Eout	-
Output Voltage & Impedance	T=+25°C	+ 5.00 VDC ±2%, Zout = 464 Ω ±1%	-
Enable/Disable		0 to +0.5 Disable, +2.4 to 32 Enable (Default = Enable)	VDC

Environmental		Standard	-25PPM Option	
Operating	Full Load, Max Eout, Case Temp.	-40 to +65	+10 to +45	°C
Coefficient	Over the Specified Temperature	±50	±25	PPM/°C
Thermal Shock	Mil-Std 810, Method 503-4, Proc. II	-40 to +65		°C
Storage	Non-Operating, Case Temp.	-55 to +105		°C
Humidity	All Conditions, Standard Package	0 to 95% non-condensing		-
Altitude	Standard Package, All Conditions	Sea Level through Vacuum (Vacuum may require -P2 option, contact factory for details.)		-
Shock	Mil-Std-810, Method 516.5, Proc. IV	20 (Standard), 40 (-C Option)		Gs
Vibration	Mil-Std-810, Method 514.5, Fig.514.5C-3	10 (Standard), 20 (-C Option)		Gs

MECHANICAL SPECIFICATIONS



Volumes and Weights			w/-C Option	
	cm³	in³	cm³	in³
Volume				
30A / 35A	207.46	12.66	327.80	20.00
40A	293.66	17.92	442.53	27.00
	g	oz	g	oz
Weight				
30A / 35A	425.24	15.00	623.69	22.00
40A	595.34	21.00	850.49	30.00

-M equipped units are an additional 0.76 mm (0.030") for each dimension.

Contact AE for drawings of models equipped with -E or -H options.

Construction	
Case	Epoxy-filled DAP box certified to ASTM-D-5948 with -C Option:
	Aluminum Alloy 5052-H32, Finish: MIL-A-8625 Type II (Anodizing)

Tolerance	
Overall	Overall ±0 .050" (1.27 mm)
Pin to Pin	±0.015" (0.38 mm)
Mounting Hole Locations	±0.025" (0.64 mm)

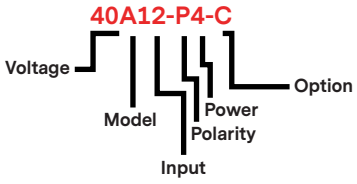
INTERFACE

Connections	
Pin	**Function**
1	Input-Power Ground Return
2	Positive Power Input
3	Iout Monitor
4	Enable/Disable
5	Signal Ground Return
6	Remote Adjust Input
7	+5 VDC Reference Output
8	HV Ground Return
9	Eout Monitor

All grounds joined internally. Power supply mounting points isolated from internal grounds by > 100 kΩ, .0 1uF / 50 V (Max) on all models except -M (15 W and above), -M-E, -M-C, and -M-H configurations which are 0 Ω.

ORDERING INFORMATION

Type	0 to 30,000 VDC Output	30A
	0 to 35,000 VDC Output	35A
	0 to 40,000 VDC Output	40A
Input	12 VDC Nominal (4 W only)	12
	24 VDC Nominal (15 W and 30 W only)	24
Polarity	Positive Output	-P
	Negative Output	-N
Power	Watts Output (12 V Only)	4
	Watts Output (24 V Only)	15
	Watts Output (24 V Only)	30
Case	Plastic Case - Diallyl Phthalate	(Standard)
	'Eared' Heatsink Plate (Plastic Case)	-E
	RF-Tight Aluminum Enclosure	-C
Heatsink	0.400" High (sized to fit case)	-H
Shield	Six-sided Mu-Metal Shield	-M
Ripple Stripper®	Integral Output Filter (See -F Option Data Sheet) and Mu-Metal	-F
Lead Options	Shielded Flying Lead	-AS
	Protected Flying Lead	-AP
	Terminated Flying Lead (Contact Customer Service)	-ATxx
Temp. Coefficient	25 PPM Temperature Coefficient	-25PPM



ABOUT ADVANCED ENERGY

Since 1981, Advanced Energy (AE) — and its UltraVolt® family of products — 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.

Advanced Energy

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