

ELECTRICAL SPECIFICATIONS

Parameter	Conditions	Models								Units
Input		All Types								
Voltage Range	Full Power	+23 to 30								VDC
Voltage Range	Derated Power Range	+9 to 32								VDC
Current	Standby/Disable	< 30								mA
Current	No Load, Max Eout	< 90								mA
Current	Max Load, Max Eout	20 W: 950, 30 W: 1425								mA
AC Ripple Current	Nominal Input, Full Load	< 80								mA pk to pk
Output		1/8C		1/4C		1/2C				
Voltage Range	Nominal Input	0 to 125		0 to 250		0 to 500		VDC		
Power	Nominal Input, Max Eout	20	30	20	30	20	30	W		
Current	Iout, Entire Output Voltage Range	160	240	80	120	40	60	mA		
Current Scale Factor	Full Load	2540	4210	1096	2000	1142	1667	mA/V		
Voltage Monitor Scaling		100:1 ±2% into 10 MΩ								
Ripple	Full Load, Max Eout, Cload ≥ 0.5 uF	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	V pk to pk		
Overshoot	C Load, 0 Eout to Full Eout	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	V pk		
Rise Time	Max Iout, Various C Loads and Eout	Figure A								-
Storage Capacitance	Internal	0.50	0.50	0.15	0.15	0.16	0.16	uF		
Line Regulation	Nominal 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 h, Per Day	< 0.01%/< 0.02%								VDC
Output		1C		2C		4C		6C		
Voltage Range	Nominal Input	0 to 1000		0 to 2000		0 to 4000		0 to 6000		VDC
Power	Nominal Input, Max Eout	20	30	20	30	20	30	20	30	W
Current	Iout, Entire Output Voltage Range	20	30	10	15	5	7.5	3.3	5	mA
Current Scale Factor	Full Load	307	476	159	259	94	112	51	86	mA/V
Voltage Monitor Scaling		100:1 ±2% into 10 MΩ								
Ripple	Full Load, Max Eout, Cload ≥ 0.5 uF	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	V pk to pk
Overshoot	C Load, 0 Eout to Full Eout	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 4.0	< 6.0	< 6.0	V pk
Rise Time	Max Iout, Various C Loads and Eout	Figure A								-
Storage Capacitance	Internal	0.033	0.018	0.0019	0.009	0.010	0.010	0.0064	0.0064	uF
Line Regulation	Nominal 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 h, Per Day	< 0.01%/< 0.02%								VDC

C = uF
V = Volts
I = mA
T = mS

$$T = \frac{C \times V}{I}$$

C = uF
V = kV
I = mA
F = Hz

$$I = C \times V \times F$$

C = uF
V = kV
I = mA
F = Hz

$$F = \frac{I}{C \times V}$$

C = uF
E² = kV
J = Ws

$$J = \frac{C \times E^2}{2}$$

Figure A - Rise time formulas

Note: Capacitance must include HVPS internal capacitance.

ELECTRICAL SPECIFICATIONS (CONTINUED)

Programming And Controls		All Types	Units
Input Impedance	Nominal Input	+Output models 1.1 MΩ to ground, -output models 1.1 MΩ to +5 vRef.	MΩ
Adjust Resistance	Typical Potentiometer Values	10 to 100 K (potentiometer across vRef. and signal ground, 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 and 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	-25 PPM Option	Units
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	All Conditions, Standard Package	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

Physical Specifications	
Construction	Epoxy-filled DAP box certified to ASTM-D-5948 with -C option, aluminum box, chem film per MIL-A-8625 Type II (anodizing)
Volume	70.5 cc (4.30 in ³), with -C option: 131.1 cc (8.00 in ³)
Weight	142 g (5.0 oz), with -C Option: 284 g (10.0 oz)
Tolerance	Overall 1.27 mm (±0.050"), pin to pin 0.38 mm (±0.015"), mounting hole location 0.64 (±0.025") (plastic case)
	Overall 0.64 mm (±0.025"), pin to pin 0.38 mm (±0.015"), hole to hole location 0.64 mm (±0.025") (metal case)

20 and 30 W versions are an additional 157 mm (0.062") in height.
 -M equipped units are an additional 0.76 mm (0.030") for each dimension.
 Contact Advanced Energy for drawings of models equipped with -E or -H options.



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
10 and 11	HV Output

All grounds joined internally. Power supply mounting points isolated from internal grounds by $> 100 \text{ k}\Omega$, $0.01 \text{ }\mu\text{F}/50 \text{ V}$ (max) on all models except -M, -M-C, -M-E, and -M-H configurations which are $0 \text{ }\Omega$.

ULTRAVOLT C SERIES

ORDERING INFORMATION

Type	0 to 125 VDC Main Output	1/8C
	0 to 250 VDC Main Output	1/4C
	0 to 500 VDC Main Output	1/2C
	0 to 1,000 VDC Main Output	1C
	0 to 2000 VDC Main Output	2C
	0 to 4000 VDC Main Output	4C
	0 to 6000 VDC Main Output	6C
Input	24 VDC Nominal (20 and 30 W)	24
Polarity	Positive Output	-P
	Negative Output	-N
Power	W Output	20
	W Output	30
Case	Plastic Case - Diallyl Phthalate	(Standard)
	'Eared' Heatsink Plate (Plastic Case)	-E
	RF-Tight Aluminum Case	-C
Heatsink	0.400" High (Sized-to-Fit Case)	-H
Shield	Six-sided Mu-Metal Shield	-M
Temp. Coefficient	25 PPM Temperature Coefficient	-25 PPM



Popular accessories ordered with this product include CONN-KIT and BR-1 mounting bracket kit.



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