



UMR-C Series

125 – 6,000 Volts, 20 – 30 Watt
Capacitor Charging HV Power Supply

FEATURES

- 20 or 30 Watts of Output Power
- Regulated Output Voltage from V_{OUT} Max to True 0
- Wide Input Voltage Range
- Low Ripple
- 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)



The UMR-C Series are standard DC / DC high voltage capacitor charging power supplies designed to give industry leading performance and value. They offer all of the standard features expected from this type of supply including external current and voltage monitoring with regulated output, in a form factor designed to be a drop-in replacement for existing designs.

SPECIFICATIONS

Conditions		Value		Units
Input		20 W	30 W	
Voltage	Nominal	+24	+24	VDC
Voltage Range	Full Power	+23 to 30	+23 to 30	VDC
Voltage Range	Derated Power Range	+10 to 32	+10 to 32	VDC
Current	Standby / Disable	< 20	< 20	mA
Current	No Load, Max Vout	< 80	< 80	mA
Current	Max Load, Max Vout	< 1000	< 1500	mA
AC Ripple Current	Nominal Input, Full Load	< 100	< 100	mA PP
Output				
Static Load Regulation	No Load to Full Load, Max Vout	< 0.01		% VDC
Line Regulation	Nom. Input, Max Vout, Full Power	< 0.08		% VDC
Stability	30 min. warmup, per 8 hr / per day	< 0.01 / < 0.02		% VDC
Programming & Controls				
Input Impedance	Nominal Input	Positive Output Models 1.5 MΩ to SIGGND		MΩ
		Negative Output Models 1.1 MΩ to VREF		MΩ
Adjust Reference	Typical Potentiometer Value	10K to 100K (Pot Across VREF & SIGGND, Wiper to Adjust)		Ω
Adjust Logic	Positive Models	+0 VDC to +4.64 VDC = 0 to 100% HVOUT		
	Negative Models	+5 VDC to +0.36 VDC = 0 to 100% HVOUT		
Reference Voltage	T = +25°C	+5.00 VDC ±0.5%		
Enable/Disable	Default HV Enabled	0 to +0.5 Disable, +2.4 to 32 Enable		VDC
Environmental				
Operating Temp.	Case Temp., Full Load, Max Vout	-40 to +65		°C
Temp. Coefficient	Over the Specified Temperature	±50 (±25 Optional*)		PPM/°C
Thermal Shock	Mil-Std 810, Method 503-4, Proc. II	-40 to +65		°C
Storage Temperature	Non-Operating, Case Temp.	-55 to +105		°C
Operational Humidity	All Conditions, Standard Package	0 to 95% non-condensing		-
Altitude	All Conditions, Standard Package	Sea Level through Vacuum		-
Shock	Mil-Std. 810, Method 516.5, Proc. IV	20		G
Vibration	Mil-Std. 810, Method 514.5, Fig. 514.5C-3	10		G

Note: Typically, convection cooled. Units operating at full power might require additional cooling to maintain case temperature below 65°C. Damage to the power supply may occur if not appropriately cooled during use.

MODELS*

Model Number	Output V	Output Current	High Freq. ¹ Ripple	Output Capacitance	I _{MON} Scaling ²	V _{MON} Scaling ³
20 W Models						
UMR-C-125*-20	0 to 125V	160mA	< 1%	0.1μF	1900 mA/V	10:1 ±2%
UMR-C-250*-20	0 to 250V	80mA	< 1%	0.05μF	1000 mA/V	10:1 ±2%
UMR-C-500*-20	0 to 500V	40mA	< 1%	0.033μF	506 mA/V	10:1 ±2%
UMR-C-1000*-20	0 to 1000V	20mA	< 1%	0.033μF	244 mA/V	100:1 ±2%
UMR-C-2000*-20	0 to 2000V	10mA	< 1%	0.0010μF	130 mA/V	100:1 ±2%
UMR-C-4000*-20	0 to 4000V	5mA	< 1%	0.0034μF	67 mA/V	100:1 ±2%
UMR-C-6000*-20	0 to 6000V	3.3mA	< 1%	0.0026μF	49 mA/V	100:1 ±2%
30 W Models						
UMR-C-125*-30	0 to 125V	240mA	< 1%	0.1μF	2900 mA/V	10:1 ±2%
UMR-C-250*-30	0 to 250V	120mA	< 1%	0.05μF	1400 mA/V	10:1 ±2%
UMR-C-500*-30	0 to 500V	60mA	< 1%	0.033μF	740 mA/V	10:1 ±2%
UMR-C-1000*-30	0 to 1000V	30mA	< 1%	0.033μF	400 mA/V	100:1 ±2%
UMR-C-2000*-30	0 to 2000V	15mA	< 1%	0.0010μF	212 mA/V	100:1 ±2%
UMR-C-4000*-30	0 to 4000V	7.5mA	< 1%	0.0034μF	86 mA/V	100:1 ±2%
UMR-C-6000*-30	0 to 6000V	5mA	< 1%	0.0026μF	57 mA/V	100:1 ±2%

* Refer to below table for hardware option details.

• Substitute P or N for positive or negative output.

¹ % Vp-p 1 Hz to 1 MHz

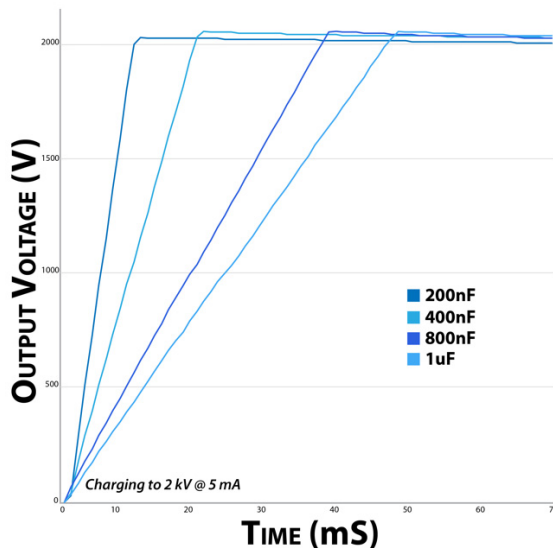
² Full Scale Signal

³ Into 10 Megaohm Meter

HARDWARE OPTIONS

Append to Part #	Option	Incompatible With
-T	±25 PPM/°C Temp. Coefficient (Operating Temp. +10 to +45 °C)	
-W	Flying Lead HVOUT	
-M	Mu-Metal Shielding Over Case	
-E	Eared Mounting Plate	-H
-C	RF Tight Aluminum Case	-E, -H
-H	Heatsink	-E, -C

RISE TIME / CAPACITOR CHARGING



Maximum Safe Repetitive Discharge Rate:

$$\frac{C \cdot V_0^2}{2} F < 1 \text{ Watt}$$

Typical Rise Time:

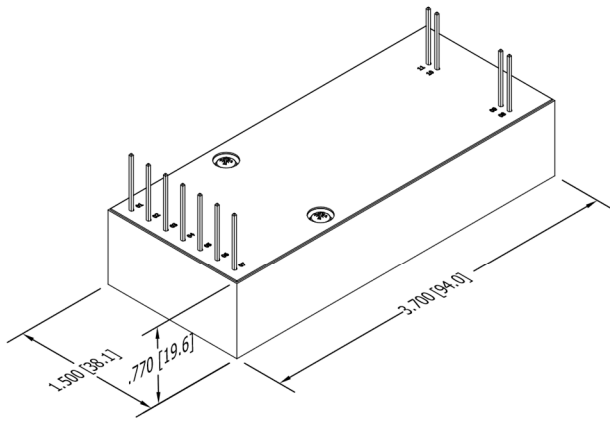
$$t_R = \frac{C + C_{ext}}{I_O} V_0$$

Minimum Rise Time is 10 mS

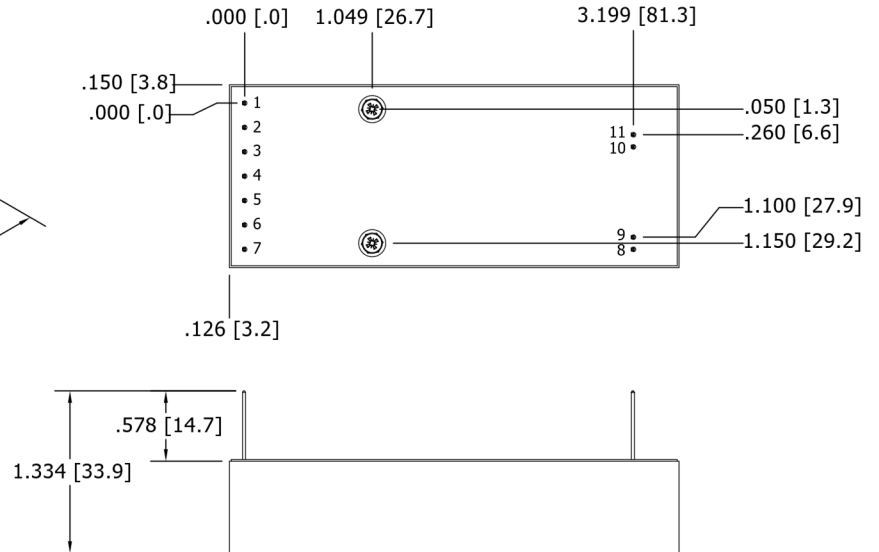
Abbreviations:

C Output Capacitance of Power Supply
C_{ext} Capacitance of External Capacitor
V_O Power Supply Output Voltage
F Power Supply Discharge Frequency
I_O Nominal Output Current
t_R Rise Time

MECHANICAL, DIMENSIONS & PIN DEFINITIONS



Dimensions are in Inches [mm]



Mechanical Specifications		
Volume	4.3 in ³	70.5 cm ³
Weight	5.0 oz	142 g
Case	DAP case certified to ASTM-D-5948	
Pins	(Pins 1 – 7) 0.200" Spacing (Pins 8 – 9, 10 – 11) 0.100" Spacing	

Tolerances	
Overall	0.050" [±1.27 mm]
Pin to Pin	0.015" [±0.38 mm]
Mounting	0.025" [±0.64 mm]

Pin Assignments		
1	-VIN	Input Power Ground Return
2	+VIN	Positive Power Input
3	IOUT	Output Current Monitor
4	ENABLE	Enable / Disable
5	SIGGND	Signal Ground Return
6	RMTADJ	Remote Adjust Input
7	VREF	+5 VDC Reference Output
8	HVRTN	High Voltage Ground Return
9	VMON	Output Voltage Monitor
10, 11	HVOUT	High Voltage Output

CERTIFICATIONS

