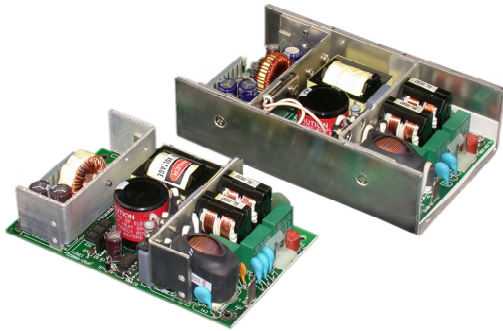


# HiTRON

## UNIVERSAL INPUT HARMONIC CORRECTION AC-DC OPEN FRAME SINGLE & MULTI-OUTPUT 50-100 WATTS INTERNAL SWITCHING POWER SUPPLIES HVP93 SERIES



### FEATURES:

- ACCOMMODATE UNIVERSAL AC SOURCES
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 CLASS B
- CE MARKING COMPLIANCE

### SPECIFICATION

#### INPUT SPECIFICATION

**Input Voltage:** Typ. 90-264Vac with PFC.  
**Input Connector:** Molex V-M connector.  
**Input Frequency:** 47-63Hz.  
**Inrush Current:** Typ. 23A @230Vac.  
**Input Current:** Typ. 1.5A@115Vac, 0.8A@230Vac.  
**Dielectric Withstand:** Meet IEC 60950-1.  
**EMI:** Meet CISPR PUB. 22 Class B.  
**Hold-up Time:** Typ. 43mS @ 115Vac & 230Vac.  
**Over Temp. Protection (OTP):** Optional for U-Bracket format.  
**Power Factor Correction:** Meet Harmonic Correction per IEC 61000-3-2.PF typ.0.98-0.99.  
**Earth Leakage:** Less than 0.63mA.

#### OUTPUT SPECIFICATION

**Output Voltage:** See Ratings Chart.  
**Output Current:** See Ratings Chart.  
**Output Connector:** Molex V-M connector.  
**Output Wattage:** Typ. 50 Watts. Convection.  
Max. 93 Watts under forced air flow.  
**Line Regulation:** Typ. 0.1-0.5%.  
**Load Regulation:** Main VO1: typ.  $\pm 1-2.0\%$ .  
Aux. VO2: typ.  $\pm 3-5.0\%$ . (P.R.)  
VO2: typ.  $\pm 2-3.0\%$ . (P.R.)  
Aux. VO3: typ.  $\pm 2-3.0\%$ . (P.R.)  
**Noise & Ripple:** Typ. 1% peak to peak.  
**OVP:** Installed in main VO1 only.  
**Adjustability:** Available at main VO1.  
**OR-ing Diodes:** Installed in VO1 & VO2.  
**Overload Protection (OLP):**  
Fully protected against output overload and short circuit.  
OLP set at about 125-150% rating output wattage.  
Consult the factory for OLP setting.

#### GENERAL SPECIFICATION

**Efficiency:** Typ. 75%.  
**Switching Frequency:** Fixed freq. at 65K Hz.  
**Circuit Topology:** PWM Fixed-frequency Forward Circuit.  
**Transient Response:** Output voltage returns in less than 0.5mS following a 25% load change.  
**Safety Standard:** UL 60950-1/EN 60950-1 Class I.  
**Power Density:** 2.5-5.0 Watts / Cubic Inch PCB format.  
1.7- 3.37 Watts / Cubic Inch U-Bracket format.  
**Operating Temperature:** 0 to +50°C at full load and 30 cfm forced airflow for full load.  
**Storage Temperature:** -20 to +85°C.  
**Temperature Coefficient:** Typ. 0.04% /°C.  
**Cooling:** At least 20 cfm forced cooling air is required for 90 watts and up load  
**Construction:** PCB or U-bracket open frame format.

Note: Due to requests in market and advances in technology, specifications subject to change without notification.



In application

# OUTPUT VOLTAGE / CURRENT RATINGS CHART

## SINGLE OUTPUT

MODEL NO.	MAIN VO1 ★@⊙		
	Convection Cooling	Volt.	30cfm air cooling
HVP93-S033250	12.0A	3.3V	25.0A
HVP93-S050200	10.0A	5.0V	20.0A
HVP93-S120085	4.2A	12.0V	8.5A
HVP93-S150068	3.4A	15.0V	6.8A
HVP93-S240043	2.1A	24.0V	4.3A
HVP93-S280038	1.8A	28.0V	3.8A
HVP93-S360030	1.5A	36.0V	3.0A
HVP93-S480022	1.2A	48.0V	2.2A

## DUAL OUTPUT

MODEL NO.	MAIN VO1 ★@⊙			AUX. VO2 ⊙■ or ●		
	Convection Cooling	Volt.	30cfm air cooling	Convection Cooling	Volt.	30cfm air cooling
HVP93-D050I	6.0A	+5.0V	10.0A	2.0A	+12.0V	4.0A
HVP93-D050K	6.0A	+5.0V	10.0A	1.6A	+15.0V	3.2A
HVP93-D050M	6.0A	+5.0V	10.0A	1.0A	+24.0V	2.0A
HVP93-D033I	8.0A	+3.3V	12.0A	2.0A	+12.0V	4.0A
HVP93-D033K	8.0A	+3.3V	12.0A	1.6A	+15.0V	3.2A
HVP93-D033M	8.0A	+3.3V	12.0A	1.0A	+24.0V	2.0A

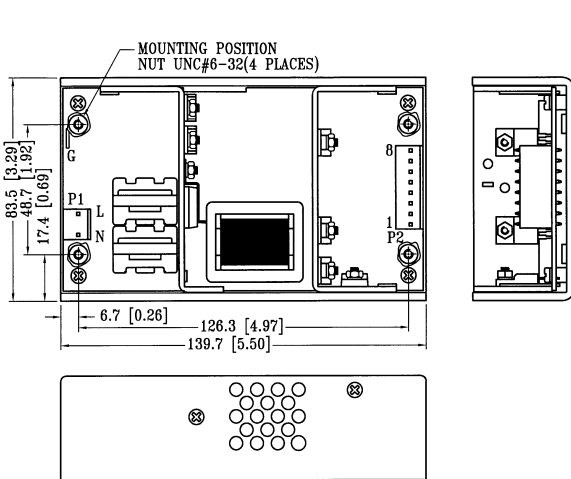
## TRIPLE OUTPUT (PCB VERSION)

MODEL NO.	MAIN VO1★@⊙			AUX. VO2 ⊙● or ■			AUX. VO3 ●		
	Convection Cooling	Volt.	30cfm air cooling	Convection Cooling	Volt.	30cfm air cooling	Convection Cooling	Volt.	30cfm air cooling
HVP93-T050II	4.0A	+5.0V	10.0A	1.5A	+12.0V	3.0A	1.0A	-12.0V	1.5A
HVP93-T050IE	4.0A	+5.0V	10.0A	1.5A	+12.0V	3.0A	1.0A	-5.0V	1.5A
HVP93-T050MI	4.0A	+5.0V	10.0A	0.8A	+24.0V	1.5A	1.0A	-12.0V	1.5A
HVP93-T050KK	4.0A	+5.0V	10.0A	1.2A	+15.0V	2.4A	0.8A	-15.0V	1.2A
HVP93-T033II	5.0A	+3.3V	12.0A	1.5A	+12.0V	3.0A	1.0A	-12.0V	1.5A
HVP93-T033KK	5.0A	+3.3V	12.0A	1.2A	+15.0V	2.0A	0.8A	-15.0V	1.2A

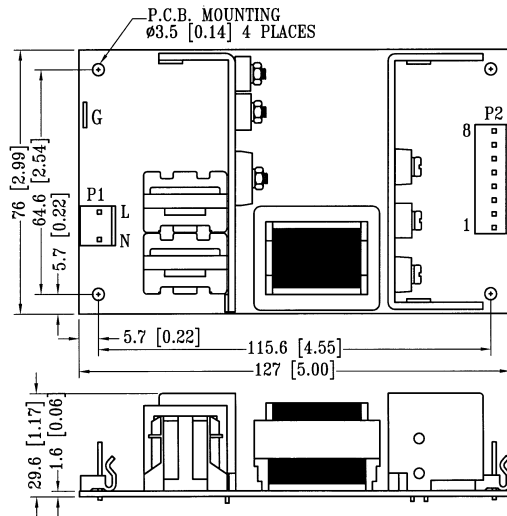
Symbol: "★" OVP built-in "@ " Adjustable "#" Remote sensing "●" Post Regulator "■" couple common choke  
 "⊙" Installed with OR-ing diodes.

## MECHANICAL DIMENSIONS: MM [INCHES]

**WEIGHT:** PCB 358.0g(12.6 Oz.)  
 U-Bracket 541.0g(19.0 Oz.)



**U-Bracket FORMAT**



**PCB FORMAT**

## INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			DUAL OUTPUT		
	AC-L	AC-N	AC-G	VO1	VO2	DC COM
CNTR & PIN	L	N	GND	P2-7,8	P2-1	P2-2,3, 4,5,6

Mating connector: Molex 5195 or 5239 series

## INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			DUAL OUTPUT			TRIPLE OUTPUT			
	AC-L	AC-N	AC-G	VO1	VO2	DC COM	VO1	VO2	VO3	DC COM
CNTR & PIN	P1-L	P1-N	G	P2-1,2	P2-6,7	P2-3, 4,5	P2-2,3	P2-7	P2-1	P2-4, 5,6

Mating connector: Molex 5195 or 5239 series