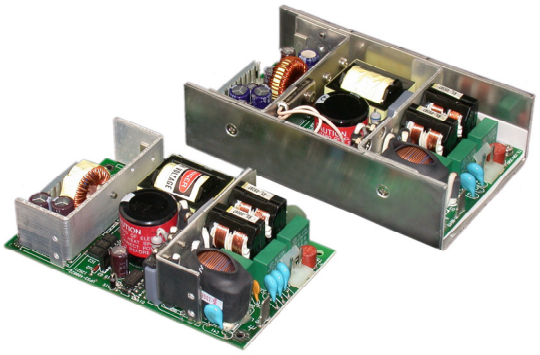
Total Power International, Inc.

UNIVERSAL INPUT HARMONIC CORRECTION AC-DC OPEN FRAME SINGLE & MULTI-OUTPUT 50-100 WATTS INTERNAL SWITCHING POWER SUPPLIES TPVP93 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. ±1-2.0%.
Aux. VO2: typ. ±3-5.0%. (P.R.)
VO2: typ. ±2-3.0%. (P.R.)
Aux. VO3: typ. ±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
TPVP93-S033250	12.0A	**3.3V**	25.0A
TPVP93-S050200	10.0A	**5.0V**	20.0A
TPVP93-S120085	4.2A	**12.0V**	8.5A
TPVP93-S150068	3.4A	**15.0V**	6.8A
TPVP93-S240043	2.1A	**24.0V**	4.3A
TPVP93-S280038	1.8A	**28.0V**	3.8A
TPVP93-S360030	1.5A	**36.0V**	3.0A
TPVP93-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
TPVP93-D050I	6.0A	**+5.0V**	10.0A	2.0A	**+12.0V**	4.0A
TPVP93-D050K	6.0A	**+5.0V**	10.0A	1.6A	**+15.0V**	3.2A
TPVP93-D050M	6.0A	**+5.0V**	10.0A	1.0A	**+24.0V**	2.0A
TPVP93-D033I	8.0A	**+3.3V**	12.0A	2.0A	**+12.0V**	4.0A
TPVP93-D033K	8.0A	**+3.3V**	12.0A	1.6A	**+15.0V**	3.2A
TPVP93-D033M	8.0A	**+3.3V**	12.0A	1.0A	**+24.0V**	2.0A

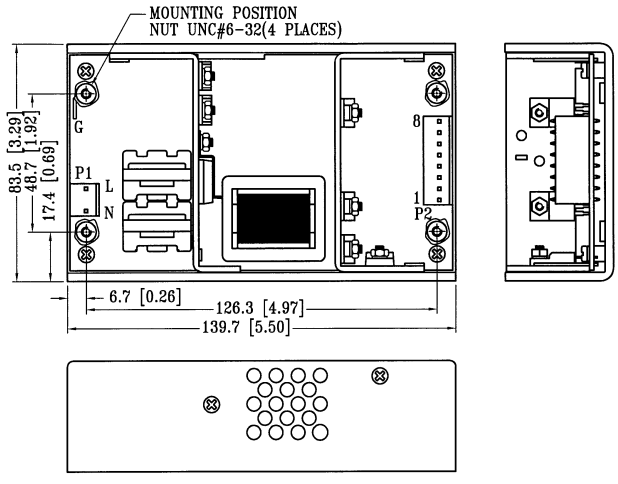
TRIPLE OUTPUT *(PCB VERSION)*

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
TPVP93-T050II	4.0A	**+5.0V**	10.0A	1.5A	**+12.0V**	3.0A	1.0A	**-12.0V**	1.5A
TPVP93-T050IE	4.0A	**+5.0V**	10.0A	1.5A	**+12.0V**	3.0A	1.0A	**-5.0V**	1.5A
TPVP93-T050MI	4.0A	**+5.0V**	10.0A	0.8A	**+24.0V**	1.5A	1.0A	**-12.0V**	1.5A
TPVP93-T050KK	4.0A	**+5.0V**	10.0A	1.2A	**+15.0V**	2.4A	0.8A	**-15.0V**	1.2A
TPVP93-T033II	5.0A	**+3.3V**	12.0A	1.5A	**+12.0V**	3.0A	1.0A	**-12.0V**	1.5A
TPVP93-T033KK	5.0A	**+3.3V**	12.0A	1.2A	**+15.0V**	2.0A	0.8A	**-15.0V**	1.2A

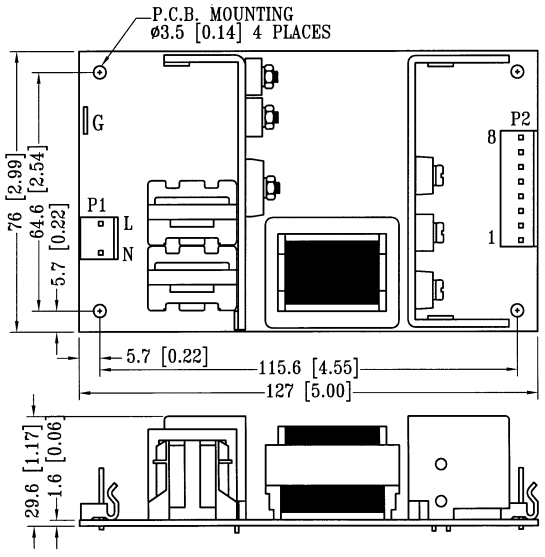
Symbol: "★" OVP built-in "@" Adjustable "#" Remote sensing "●" Post Regulator "■" couple common choke
"⊙" Installed with OR-ing diodes.

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

	AC INPUT			DUAL OUTPUT		
ASSIGNMENT	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

	AC INPUT			DUAL OUTPUT			TRIPLE OUTPUT			
ASSIGNMENT	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