



## 240W Single Output with PFC Function

# SP-240 series

Authorized Distributor: Total Power International, Inc.

Toll Free: 877-646-0900(US)

PH# 978-453-7272

www.total-power.com



### ■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC Fan
- Built-in fan ON / OFF control
- Fixed switching frequency at 90KHz
- 3 years warranty

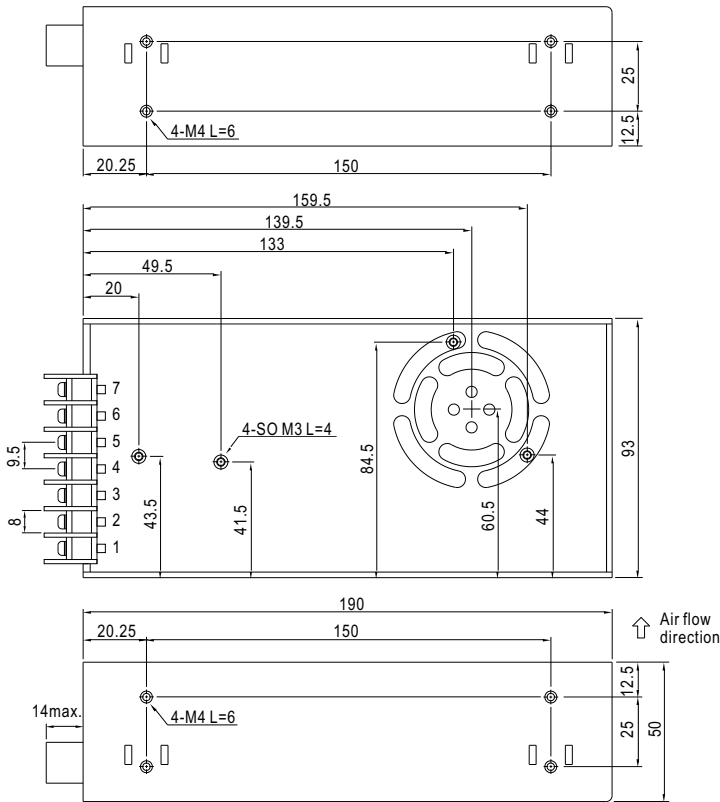


### SPECIFICATION

| MODEL                 | SP-240-5   | SP-240-7.5  | SP-240-12   | SP-240-15    | SP-240-24  | SP-240-30  | SP-240-48  |              |
|-----------------------|--|---|-------------|--------------|------------|------------|------------|--------------|
| OUTPUT                | DC VOLTAGE   | 5V  | 7.5V        | 12V          | 15V        | 24V        | 30V        | 48V          |
|                       | RATED CURRENT  | 45A   | 32A         | 20A          | 16A        | 10A        | 8A         | 5A           |
|                       | CURRENT RANGE  | 0 ~ 45A   | 0 ~ 32A     | 0 ~ 20A      | 0 ~ 16A    | 0 ~ 10A    | 0 ~ 8A     | 0 ~ 5A       |
|                       | RATED POWER  | 225W  | 240W        | 240W         | 240W       | 240W       | 240W       | 240W         |
|                       | RIPPLE & NOISE (max.) Note.2   | 150mVp-p  | 150mVp-p    | 150mVp-p     | 150mVp-p   | 150mVp-p   | 150mVp-p   | 150mVp-p     |
|                       | VOLTAGE ADJ. RANGE   | 4 ~ 6V  | 6 ~ 9V      | 10 ~ 14V     | 12 ~ 18V   | 20 ~ 28V   | 27 ~ 33V   | 41 ~ 56V     |
|                       | VOLTAGE TOLERANCE Note.3   | ±2.0%   | ±2.0%       | ±1.0%        | ±1.0%      | ±1.0%      | ±1.0%      | ±1.0%        |
|                       | LINE REGULATION  | ±0.5%   | ±0.5%       | ±0.3%        | ±0.3%      | ±0.2%      | ±0.2%      | ±0.2%        |
|                       | LOAD REGULATION  | ±1.0%   | ±1.0%       | ±0.5%        | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%        |
|                       | SETUP, RISE TIME   | 800ms, 50ms/230VAC    1500ms, 50ms/115VAC at full load  |             |              |            |            |            |              |
| HOLD UP TIME (Typ.)   | 20ms/230VAC    20ms/115VAC at full load  |   |             |              |            |            |            |              |
| INPUT                 | VOLTAGE RANGE Note.5   | 88 ~ 264VAC    124 ~ 370VDC   |             |              |            |            |            |              |
|                       | FREQUENCY RANGE  | 47 ~ 63Hz   |             |              |            |            |            |              |
|                       | POWER FACTOR (Typ.)  | PF>0.95/230VAC    PF>0.98/115VAC at full load   |             |              |            |            |            |              |
|                       | EFFICIENCY (Typ.)  | 79%   | 83%         | 86%          | 86%        | 88%        | 88%        | 89%          |
|                       | AC CURRENT (Typ.)  | 3.6A/115VAC    1.8A/230VAC  |             |              |            |            |            |              |
|                       | INRUSH CURRENT (Typ.)  | 25A/115VAC    40A/230VAC  |             |              |            |            |            |              |
|                       | LEAKAGE CURRENT  | <2mA / 240VAC   |             |              |            |            |            |              |
| PROTECTION            | OVERLOAD   | 105 ~ 135% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed   |             |              |            |            |            |              |
|                       | OVER VOLTAGE   | 6.3 ~ 7.5V  | 9.4 ~ 10.9V | 14.7 ~ 17.5V | 19 ~ 22.5V | 29.5 ~ 35V | 34.7 ~ 41V | 57.6 ~ 67.2V |
|                       | OVER TEMPERATURE   | 90°C ±5°C (5V,7.5V), 85°C ±5°C (12V,15V,24V,30V,48V) (TSW1 : detect on heatsink of power transistor)<br>Protection type : Shut down o/p voltage, recovers automatically after temperature goes down |             |              |            |            |            |              |
| FUNCTION              | FAN CONTROL  | RTH2 ≥ 40°C FAN ON, ≤ 35°C FAN OFF  |             |              |            |            |            |              |
| ENVIRONMENT           | WORKING TEMP.  | -20 ~ +70°C (Refer to output load derating curve)   |             |              |            |            |            |              |
|                       | WORKING HUMIDITY   | 20 ~ 90% RH non-condensing  |             |              |            |            |            |              |
|                       | STORAGE TEMP., HUMIDITY  | -40 ~ +85°C, 10 ~ 95% RH  |             |              |            |            |            |              |
|                       | TEMP. COEFFICIENT  | ±0.03%/°C (0 ~ 50°C)  |             |              |            |            |            |              |
|                       | VIBRATION  | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes  |             |              |            |            |            |              |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS   | UL60950-1, TUV EN60950-1 approved   |             |              |            |            |            |              |
|                       | WITHSTAND VOLTAGE  | I/P-O/P:3KVAC    I/P-FG:1.5KVAC    O/P-FG:0.5KVAC   |             |              |            |            |            |              |
|                       | ISOLATION RESISTANCE   | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH  |             |              |            |            |            |              |
|                       | EMI CONDUCTION & RADIATION   | Compliance to EN55022 (CISPR22) Class B   |             |              |            |            |            |              |
|                       | HARMONIC CURRENT   | Compliance to EN61000-3-2,-3  |             |              |            |            |            |              |
|                       | EMS IMMUNITY   | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A   |             |              |            |            |            |              |
| OTHERS                | MTBF   | 284K hrs min.    MIL-HDBK-217F (25°C)   |             |              |            |            |            |              |
|                       | DIMENSION  | 190*93*50mm (L*W*H)   |             |              |            |            |            |              |
|                       | PACKING  | 0.8Kg; 18pcs/15.4Kg/1.04CUFT  |             |              |            |            |            |              |
| NOTE                  | <ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</li> <li>5. Derating may be needed under low input voltages. Please check the derating curve for more details.</li> </ol> |   |             |              |            |            |            |              |

**Mechanical Specification**

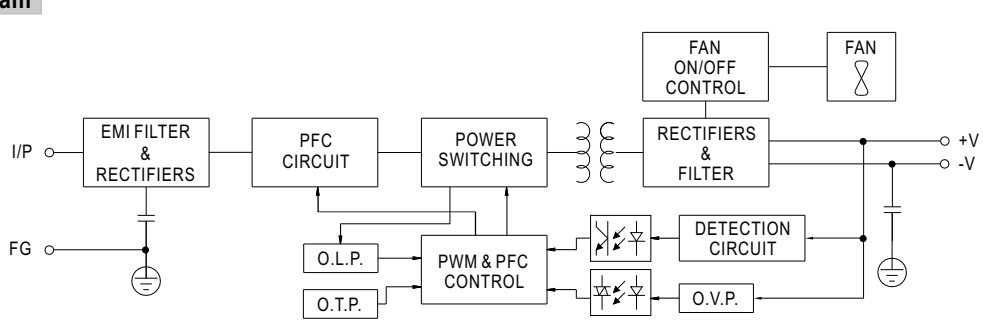
Case No.987A Unit:mm



Terminal Pin No. Assignment

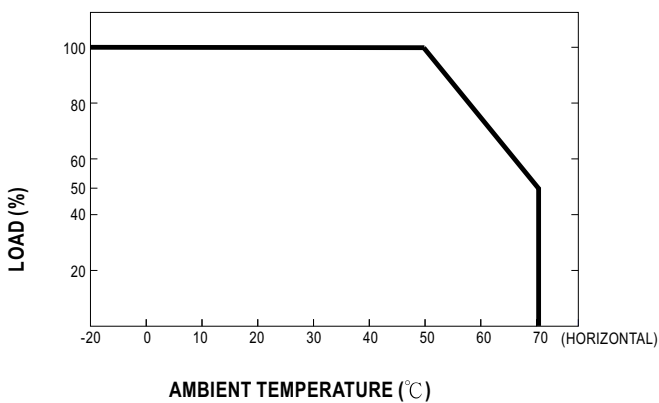
| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4,5     | DC OUTPUT -V |
| 2       | AC/N       | 6,7     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

**Block Diagram**



fosc : 90KHz

**Derating Curve**



**Static Characteristics**

