



## 210W Single Output Switching Power Supply

## S-210 series



## ■ Features :

- AC input range selectable by switch
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 100% full load burn-in test
- Fixed switching frequency at 90KHz
- Low cost
- High reliability
- 2 years warranty

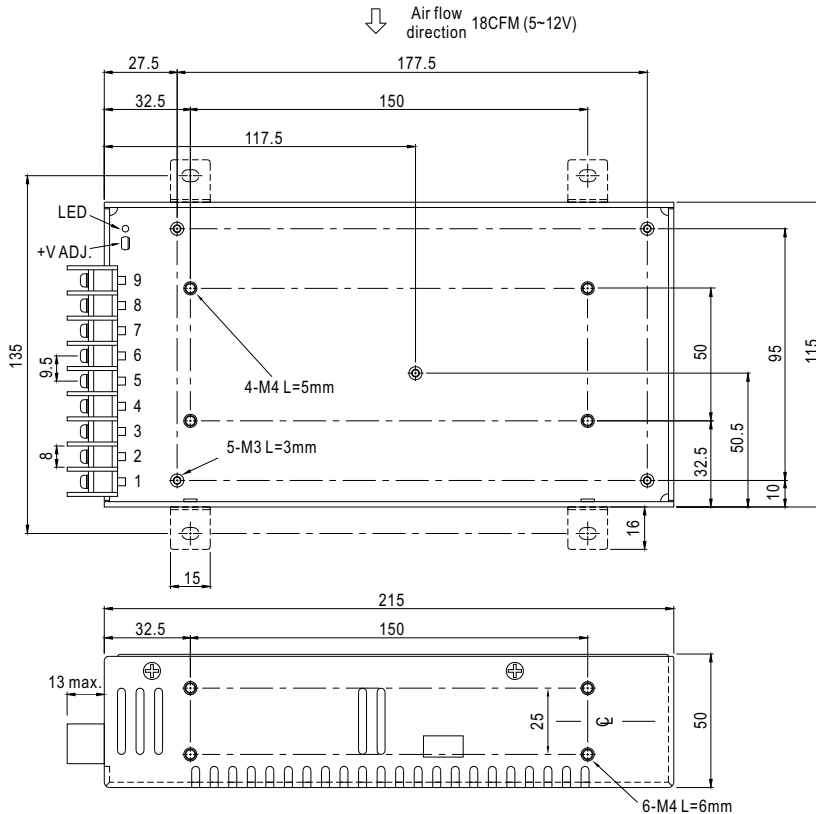


## SPECIFICATION

| MODEL               |                                                                                                                                                                                                                                                                                                                                                  | S-210-5                                                                                                                 | S-210-7.5   | S-210-12     | S-210-13.5   | S-210-15   | S-210-24     | S-210-27       | S-210-48     |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------|--------------|--------------|------------|--------------|----------------|--------------|
| OUTPUT              | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                       | 5V                                                                                                                      | 7.5V        | 12V          | 13.5V        | 15V        | 24V          | 27V            | 48V          |
|                     | RATED CURRENT                                                                                                                                                                                                                                                                                                                                    | 40A                                                                                                                     | 27A         | 17A          | 15A          | 14A        | 8.8A         | 7.8A           | 4.4A         |
|                     | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                    | 0 ~ 40A                                                                                                                 | 0 ~ 27A     | 0 ~ 17A      | 0 ~ 15A      | 0 ~ 14A    | 0 ~ 8.8A     | 0 ~ 7.8A       | 0 ~ 4.4A     |
|                     | RATED POWER                                                                                                                                                                                                                                                                                                                                      | 200W                                                                                                                    | 202.5W      | 204W         | 202.5W       | 210W       | 211.2W       | 210.6W         | 211.2W       |
|                     | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                     | 80mVp-p                                                                                                                 | 100mVp-p    | 120mVp-p     | 120mVp-p     | 120mVp-p   | 200mVp-p     | 200mVp-p       | 200mVp-p     |
|                     | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                               | 4.5 ~ 5.7V                                                                                                              | 6 ~ 9V      | 10 ~ 13.2V   | 12 ~ 15V     | 13.5 ~ 18V | 20 ~ 26.4V   | 26 ~ 29V       | 45.6 ~ 52.8V |
|                     | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                         | 2.0%                                                                                                                    | 2.0%        | 1.0%         | 1.0%         | 1.0%       | 1.0%         | 1.0%           | 1.0%         |
|                     | LINE REGULATION                                                                                                                                                                                                                                                                                                                                  | 0.5%                                                                                                                    | 0.5%        | 0.5%         | 0.5%         | 0.5%       | 0.5%         | 0.5%           | 0.5%         |
|                     | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                  | 1.0%                                                                                                                    | 1.0%        | 0.5%         | 0.5%         | 0.5%       | 0.5%         | 0.5%           | 0.5%         |
|                     | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                 | 1000ms, 20ms/230VAC      1000ms, 20ms/115VAC at full load                                                               |             |              |              |            |              |                |              |
| HOLD UP TIME (Typ.) | 20ms/230VAC      20ms/115VAC at full load                                                                                                                                                                                                                                                                                                        |                                                                                                                         |             |              |              |            |              |                |              |
| INPUT               | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                    | 88 ~ 132VAC / 176~264VAC by switch      248 ~ 370VDC                                                                    |             |              |              |            |              |                |              |
|                     | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                  | 47 ~ 63Hz                                                                                                               |             |              |              |            |              |                |              |
|                     | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                | 79%                                                                                                                     | 82%         | 83%          | 84%          | 85%        | 87%          | 87%            | 87%          |
|                     | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                | 4.2A/115VAC      2.5A/230VAC                                                                                            |             |              |              |            |              |                |              |
|                     | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                            | 35A/115VAC      50A/230VAC                                                                                              |             |              |              |            |              |                |              |
|                     | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                  | <3.5mA / 240VAC                                                                                                         |             |              |              |            |              |                |              |
| PROTECTION          | OVERLOAD                                                                                                                                                                                                                                                                                                                                         | 105 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |             |              |              |            |              |                |              |
|                     | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                     | 5.75 ~ 6.75V                                                                                                            | 9.4 ~ 10.9V | 13.8 ~ 16.2V | 15.5 ~ 18.2V | 18 ~ 21V   | 27.6 ~ 32.4V | 31.05 ~ 36.45V | 55.2 ~ 64.8V |
|                     |                                                                                                                                                                                                                                                                                                                                                  | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                  |             |              |              |            |              |                |              |
|                     | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                 | RTH1 ≥ 85℃<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed                    |             |              |              |            |              |                |              |
| ENVIRONMENT         | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                    | -20 ~ +50℃ (Refer to output load derating curve)                                                                        |             |              |              |            |              |                |              |
|                     | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                 | 20 ~ 90% RH non-condensing                                                                                              |             |              |              |            |              |                |              |
|                     | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                          | -40 ~ +85℃, 10 ~ 95% RH                                                                                                 |             |              |              |            |              |                |              |
|                     | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                | 0.03%/℃ (0 ~ 50℃)                                                                                                       |             |              |              |            |              |                |              |
|                     | VIBRATION                                                                                                                                                                                                                                                                                                                                        | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                 |             |              |              |            |              |                |              |
| SAFETY & EMC        | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                 | UL60950-1 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                                                                                |             |              |              |            |              |                |              |
| OTHERS              | MTBF                                                                                                                                                                                                                                                                                                                                             | 244.7K hrs min.    MIL-HDBK-217F (25℃)                                                                                  |             |              |              |            |              |                |              |
|                     | DIMENSION                                                                                                                                                                                                                                                                                                                                        | 215*115*50mm (L*W*H)                                                                                                    |             |              |              |            |              |                |              |
|                     | PACKING                                                                                                                                                                                                                                                                                                                                          | 0.95Kg; 12pcs/12.4Kg/0.92CUFT                                                                                           |             |              |              |            |              |                |              |
| NOTE                | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation. |                                                                                                                         |             |              |              |            |              |                |              |

Case No. 912E Unit:mm

## Mechanical Specification

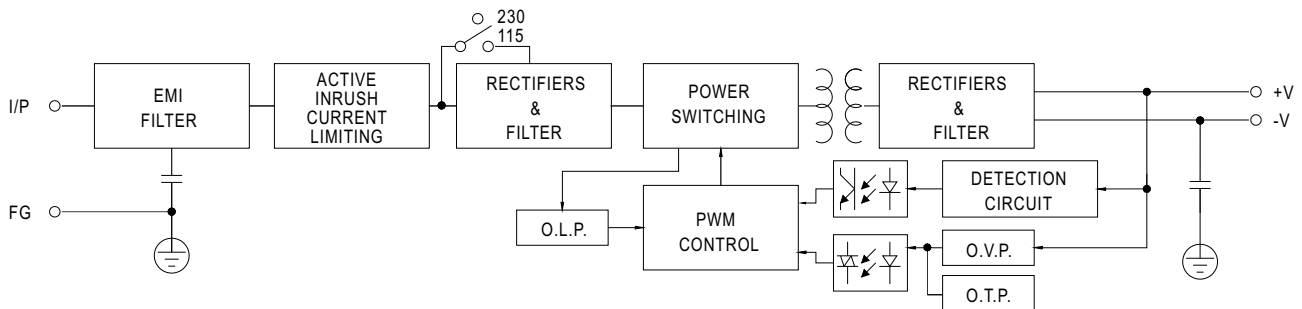


## Terminal Pin No. Assignment :

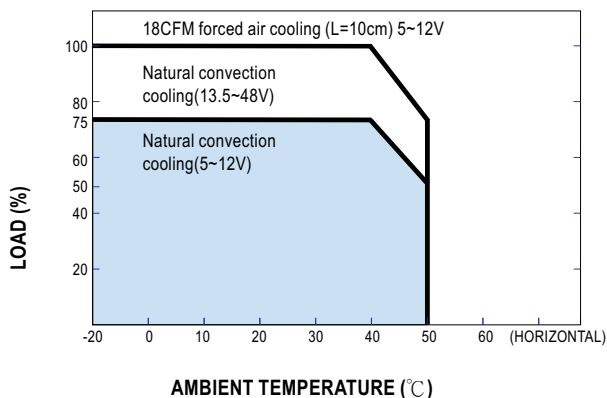
| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4~6     | DC OUTPUT -V |
| 2       | AC/N       | 7~9     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

## Block Diagram

fosc : 90KHz



## Derating Curve



## Static Characteristics

