



SUNPOWER TECHNOLOGY CORP.  
16F-1, No.150, Jian 1st Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.).  
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# SPH-150-xx Series

150W, Single Output  
Active P.F.C Function  
High power density



159 x 95 x 38 mm  
6.26 x 3.74 x 1.50 inch  
UL US CB CE

## Features:

- \* Universal AC input with active PFC circuit, P.F.>0.95
- \* High reliability and high efficiency up to 89%
- \* Power ON with LED indicator
- \* Over voltage protection : Shutdown and latch off
- \* Over load & short circuit protection
- \* Over temperature protection
- \* Output voltage  $\pm 10\%$  adjustment
- \* Output voltage remote sense
- \* 100% full load burn-in test
- \* UL, cUL, TUV, CB, CE approved
- \* 5 years warranty

## Specification:

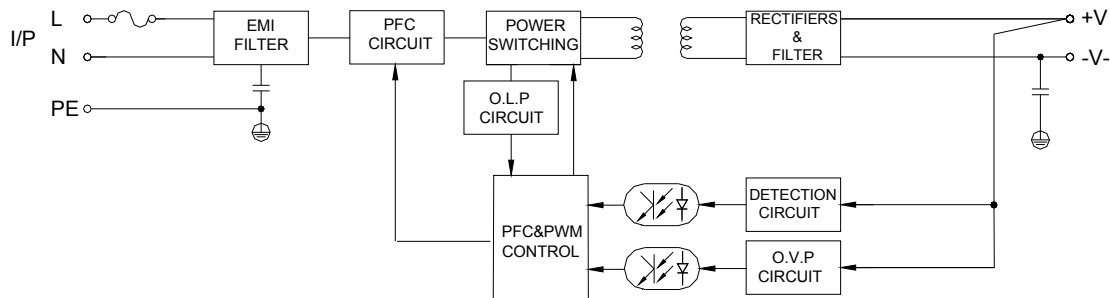
|             |                                                                                                                                                                                            |                                                                                                                                                                |             |             |             |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|
| INPUT       | Voltage                                                                                                                                                                                    | 85V ~ 264VAC universal full range or 120V ~ 375VDC.                                                                                                            |             |             |             |
|             | Frequency                                                                                                                                                                                  | 47 ---- 63 Hz                                                                                                                                                  |             |             |             |
|             | Current                                                                                                                                                                                    | <2.0A @100V AC input, full load condition                                                                                                                      |             |             |             |
|             | Inrush Current                                                                                                                                                                             | <35A@115V , <70A@230V AC input. Cold start at 25℃ ambient                                                                                                      |             |             |             |
|             | Leakage Current                                                                                                                                                                            | <1.0mA@264V AC input                                                                                                                                           |             |             |             |
|             | Power Factor                                                                                                                                                                               | PF > 0.95                                                                                                                                                      |             |             |             |
| OUTPUT      | MODEL No.                                                                                                                                                                                  | SPH-150-05                                                                                                                                                     | SPH-150-12  | SPH-150-24  | SPH-150-48  |
|             | Voltage                                                                                                                                                                                    | 5V                                                                                                                                                             | 12V         | 24V         | 48V         |
|             | Min Load                                                                                                                                                                                   | 0A                                                                                                                                                             | 0A          | 0A          | 0A          |
|             | Max Load                                                                                                                                                                                   | 26A                                                                                                                                                            | 12.5A       | 6.3A        | 3.2A        |
|             | Output Tolerance ②                                                                                                                                                                         | ±2%                                                                                                                                                            | ±1%         | ±1%         | ±1%         |
|             | Ripple Noise MAX. ③                                                                                                                                                                        | 80mV                                                                                                                                                           | 120mV       | 200mV       | 240mV       |
|             | Efficiency (TYP.)                                                                                                                                                                          | 84%                                                                                                                                                            | 87%         | 88%         | 89%         |
|             | Output MAX.                                                                                                                                                                                | 130W                                                                                                                                                           | 150W        | 151W        | 154W        |
| PROTECTION  | Over Voltage                                                                                                                                                                               | 5.8V~7.0V                                                                                                                                                      | 13.8V~16.8V | 27.6V~33.6V | 55.2V~67.2V |
|             |                                                                                                                                                                                            | Shutdown and latch off, recover after re-start up.                                                                                                             |             |             |             |
|             | OverLoad & ShortCircuit                                                                                                                                                                    | When power supply over 105%~ 150% max load or short circuit acted, power supply will go into hiccup mode and recover automatically after the fault is removed. |             |             |             |
|             | Over Temperature                                                                                                                                                                           | Optional, Over 95℃± 5℃ Shutdown, recovers automatically after fault condition has been removed.                                                                |             |             |             |
| ELEC. CHAR  | Rise time                                                                                                                                                                                  | <30mS @230V, full load condition                                                                                                                               |             |             |             |
|             | Hold up time                                                                                                                                                                               | >20mS@230V, full load condition                                                                                                                                |             |             |             |
|             | Setup time                                                                                                                                                                                 | <2S@100 ~ 240V AC                                                                                                                                              |             |             |             |
|             | Remote sensing                                                                                                                                                                             | RS+, RS-                                                                                                                                                       |             |             |             |
| ENVIRONMENT | Temperature ④                                                                                                                                                                              | Operating: -30 ~ +70℃ ; De-rating: Refer to de-rating curve ; Storage: -40 ~ +85℃                                                                              |             |             |             |
|             | Humidity                                                                                                                                                                                   | Operating: 20% ~ 90% RH (non condensing) ; Storage: 10% ~ 95% RH (non condensing)                                                                              |             |             |             |
| SAFETY      | Withstand voltage                                                                                                                                                                          | I/P-O/P:3KVAC, I/P-PE:1.5KVAC, O/P-PE:0.5KVAC, 1minute                                                                                                         |             |             |             |
|             | Isolation resistance                                                                                                                                                                       | I/P-O/P, I/P-PE, O/P-PE > 100MQ/500VDC at 25℃/ 70% RH                                                                                                          |             |             |             |
|             | Safety standard                                                                                                                                                                            | UL 60950-1 2 <sup>nd</sup> ,CSA C22.2 No. 60950-1- 07 2 <sup>nd</sup> ,TUV EN 60950-1:2006+A11+A1+A12, IEC 60950-1:2005+A1, approved.                          |             |             |             |
| EMC         | EMI                                                                                                                                                                                        | EN 55022 CLASS B, FCC CFR 47 PART 15 CLASS B                                                                                                                   |             |             |             |
|             |                                                                                                                                                                                            | Compliance to EN61000-3-2 CLASS D, EN61000-3-3                                                                                                                 |             |             |             |
|             | EMS                                                                                                                                                                                        | EN 55024 : EN 61000-4-2,3,4,5,6,8,11 ; ENV50204 : EN61000-6-2                                                                                                  |             |             |             |
| OTHERS      | Cooling                                                                                                                                                                                    | Natural cooling                                                                                                                                                |             |             |             |
|             | M.T.B.F.                                                                                                                                                                                   | 188.6K hours                                                                                                                                                   |             |             |             |
|             | Dimension                                                                                                                                                                                  | 159 x 95 x 38 mm (L*W*H)                                                                                                                                       |             |             |             |
|             | Packing                                                                                                                                                                                    | N.W.: 0.75Kg / 1pc; 30pcs / 1.20 CUFT / 1 CTN                                                                                                                  |             |             |             |
| NOTE        | ① All measurements which not mentioned are based on 230VAC input, <b>output Max</b> at ambient 25℃ / 70%RH                                                                                 |                                                                                                                                                                |             |             |             |
|             | ② Output tolerance included set up voltage, line regulation and load regulation.                                                                                                           |                                                                                                                                                                |             |             |             |
|             | ③ Ripple & noise are measured at 10~50℃ condition and 20MHz of bandwidth by using a 10" ~15" twisted pair-wire terminated with a 0.1uF & a 47uF parallel capacitor.                        |                                                                                                                                                                |             |             |             |
|             | ④ The operating temperature shall follow the de-rating curve in spec<br>The output load may be requested for decreasing as de-rating curve in spec when low input voltage is under 100VAC. |                                                                                                                                                                |             |             |             |
|             | ⑤ The power supply is considered a component of end-equipment. The end-equipment must be re-confirmed whether comply with EMC directives.                                                  |                                                                                                                                                                |             |             |             |



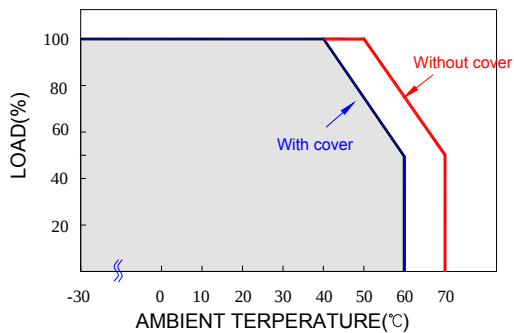
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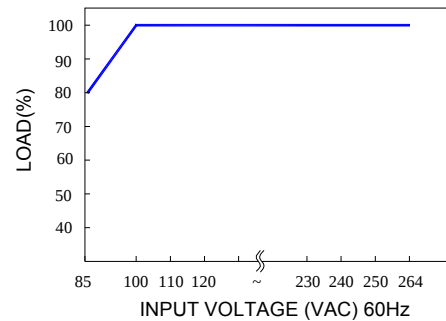
## Block Diagram : PS22



## De-rating Curve :

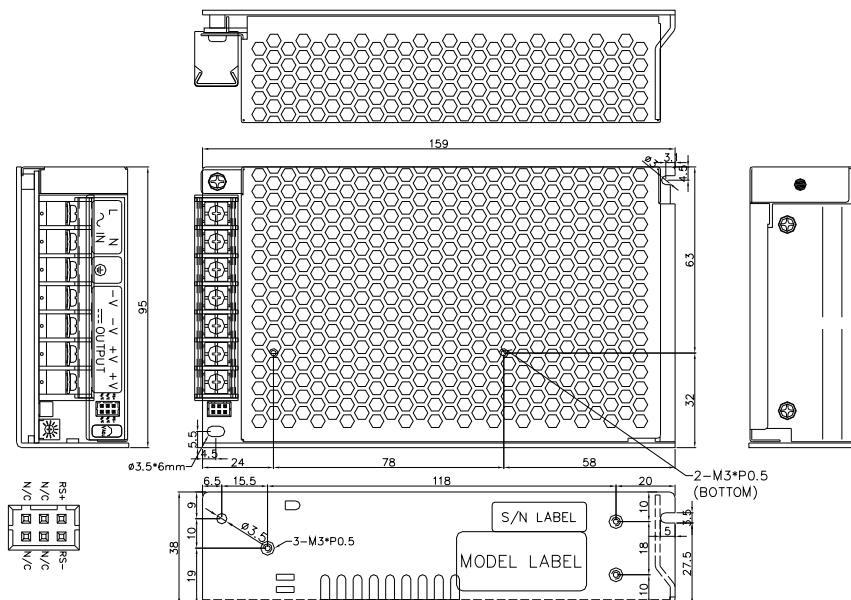


## Output De-rating Vs Input Voltage :



## Dimension:

(Unit: mm)



## NOTES:

### Terminal Pin. No Assignment : CN1

| 7P, PITCH 9.5mm |            |         |              |
|-----------------|------------|---------|--------------|
| Pin No.         | Assignment | Pin No. | Assignment   |
| 1               | AC/L       | 4、5     | DC OUTPUT -V |
| 2               | AC/N       | 6、7     | DC OUTPUT +V |
| 3               | PE         |         |              |

### Signal connector : CN11

| HRS DF11-06DP-2DSA or equivalent |            |         |            |                                       |               |
|----------------------------------|------------|---------|------------|---------------------------------------|---------------|
| Pin No.                          | Assignment | Pin No. | Assignment | Mating Housing                        | Terminal      |
| 1                                | N/C        | 4       | N/C        | HRS<br>DF11-060DS-2C<br>or equivalent | HRS           |
| 2                                | N/C        | 5       | RS+        |                                       | DF11-EP22SCB  |
| 3                                | N/C        | 6       | RS-        |                                       | or equivalent |