

**HWS100A/R**

**SPECIFICATIONS**

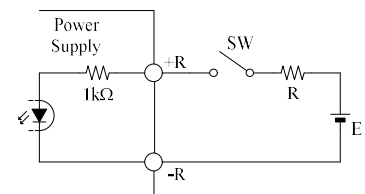
A258-01-01/R-B

| ITEMS |                                | MODEL      | HWS100A<br>-3/R  | HWS100A<br>-5/R | HWS100A<br>-12/R | HWS100A<br>-15/R | HWS100A<br>-24/R | HWS100A<br>-48/R |     |
|-------|--------------------------------|------------|--|-----------------|------------------|------------------|------------------|------------------|-----|
| 1     | Nominal Output Voltage         | V          | 3.3  | 5               | 12               | 15               | 24               | 48               |     |
| 2     | Maximum Output Current         | A          | 20   | 20              | 8.5              | 7                | 4.5              | 2.1              |     |
| 3     | Maximum Output Power           | W          | 66.0   | 100.0           | 102.0            | 105.0            | 108.0            | 100.8            |     |
| 4     | Efficiency (Typ.) (*1)         | 100VAC     | %  | 82              | 84               | 86               | 86               | 87               | 88  |
|       |                                | 200VAC     | %  | 84              | 86               | 88               | 88               | 89               | 90  |
| 5     | Input Voltage Range (*2)       | -          | 85 - 265VAC (47 - 63Hz) or 120 - 370VDC  |                 |                  |                  |                  |                  |     |
| 6     | Input Current (Typ.) (*1)      | A          | 0.9/0.45 1.3/0.65  |                 |                  |                  |                  |                  |     |
| 7     | Inrush Current (Typ.) (*1)(*3) | -          | 14A at 100VAC, 28A at 200VAC, Ta=25°C, Cold Start  |                 |                  |                  |                  |                  |     |
| 8     | PFHC                           | -          | Designed to meet IEC61000-3-2  |                 |                  |                  |                  |                  |     |
| 9     | Power Factor (Typ.) (*1)       | -          | 0.96/0.89  |                 |                  | 0.98/0.93        |                  |                  |     |
| 10    | Output Voltage Range           | V          | 2.97 - 3.96  | 4.0 - 6.0       | 9.6 - 14.4       | 12.0 - 18.0      | 19.2 - 28.8      | 38.4 - 52.8      |     |
| 11    | Maximum Ripple & Noise (*4)    | 0≤Ta≤70°C  | mV   | 120             | 120              | 150              | 150              | 150              | 200 |
|       |                                | -10≤Ta<0°C | mV   | 160             | 160              | 180              | 180              | 180              | 240 |
| 12    | Maximum Line Regulation (*5)   | mV         | 20   | 20              | 48               | 60               | 96               | 192              |     |
| 13    | Maximum Load Regulation (*6)   | mV         | 40   | 40              | 96               | 120              | 150              | 240              |     |
| 14    | Temperature Coefficient        | -          | Less than 0.02% / °C   |                 |                  |                  |                  |                  |     |
| 15    | Over Current Protection (*7)   | A          | 21.0 ≤   | 21.0 ≤          | 8.92 ≤           | 7.35 ≤           | 4.72 ≤           | 2.20 ≤           |     |
| 16    | Over Voltage Protection (*8)   | V          | 4.13 - 4.95  | 6.25 - 7.25     | 15.0 - 17.4      | 18.8 - 21.8      | 30.0 - 34.8      | 55.2 - 64.8      |     |
| 17    | Hold-up Time (Typ.) (*1)       | -          | 20ms   |                 |                  |                  |                  |                  |     |
| 18    | Leakage Current (*9)           | -          | Less than 0.5mA. 0.2mA (Typ) at 100VAC / 0.4mA (Typ) at 230VAC   |                 |                  |                  |                  |                  |     |
| 19    | Remote Sensing                 | -          | Possible   |                 |                  |                  |                  |                  |     |
| 20    | Remote ON/OFF Control (*10)    | -          | Possible   |                 |                  |                  |                  |                  |     |
| 21    | Parallel Operation             | -          | -  |                 |                  |                  |                  |                  |     |
| 22    | Series Operation               | -          | Possible   |                 |                  |                  |                  |                  |     |
| 23    | Operating Temperature (*11)    | -          | -10 to +70°C (-10 to +50°C:100%, +60°C:65%, +70°C:30%)   |                 |                  |                  |                  |                  |     |
| 24    | Operating Humidity             | -          | 30 to 90%RH (No Condensing)  |                 |                  |                  |                  |                  |     |
| 25    | Storage Temperature            | -          | -30 to +85°C   |                 |                  |                  |                  |                  |     |
| 26    | Storage Humidity               | -          | 10 to 95%RH (No Condensing)  |                 |                  |                  |                  |                  |     |
| 27    | Cooling                        | -          | Convection Cooling   |                 |                  |                  |                  |                  |     |
| 28    | Withstand Voltage              | -          | Input - FG : 2kVAC (20mA), Input - Output : 3kVAC (20mA)<br>Output - FG : 500VAC (20mA) for 1min   |                 |                  |                  |                  |                  |     |
| 29    | Isolation Resistance           | -          | More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC   |                 |                  |                  |                  |                  |     |
| 30    | Vibration                      | -          | At no operating, 10 - 55Hz (Sweep for 1min)<br>19.6m/s <sup>2</sup> Constant, X,Y,Z 1hour each.  |                 |                  |                  |                  |                  |     |
| 31    | Shock                          | -          | Less than 196.1m/s <sup>2</sup>  |                 |                  |                  |                  |                  |     |
| 32    | Safety                         | -          | Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020)<br>Designed to meet Den-an Appendix 8 at 100VAC only. |                 |                  |                  |                  |                  |     |
| 33    | Line DIP                       | -          | Designed to meet SEMI-F47 (200VAC Line only)   |                 |                  |                  |                  |                  |     |
| 34    | Conducted Emission (*12)       | -          | Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B  |                 |                  |                  |                  |                  |     |
| 35    | Radiated Emission (*12)        | -          | Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B  |                 |                  |                  |                  |                  |     |
| 36    | Immunity (*12)                 | -          | Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11  |                 |                  |                  |                  |                  |     |
| 37    | Weight (Typ)                   | -          | 420g   |                 |                  |                  |                  |                  |     |
| 38    | Size (W x H x D)               | mm         | 28.5 x 83x 160.5 ( Refer to Outline Drawing )  |                 |                  |                  |                  |                  |     |

\*Read instruction manual carefully, before using the power supply unit.

=NOTES=

- \*1. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum output power.
- \*2. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC(50 - 60Hz).
- \*3. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- \*4. Measure with JEITA RC-9131B probe, Bandwidth of scope :100MHZ.
- \*5. 85 - 265VAC, constant load.
- \*6. No load-Full load, constant input voltage.
- \*7. Constant current limit and Hiccup with automatic recovery.  
Avoid to operate at over load or short circuit condition.
- \*8. OVP circuit will shut down output, manual reset (Re power on).
- \*9. Measured by the each measuring method of UL, CSA, EN and Den-an (at 60Hz), Ta=25°C.
- \*10. As for ON/OFF control mode, see the right figure.
- \*11. Output Derating
  - Derating at standard mounting. Refer to OUTPUT DERATING CURVE (A258-01-02 ).
  - Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.
- \*12. The power supply is considered a component which will be installed into a final equipment.  
The final equipment should be re-evaluated that it meets EMC directives.



The control mode is shown below.

| +R & -R terminal condition | Output condition |
|----------------------------|------------------|
| SW ON (Higher than 4.5V)   | ON               |
| SW OFF (Lower than 0.8V)   | OFF              |

| External voltage level : E | External resistance : R |
|----------------------------|-------------------------|
| 4.5 ~ 12.5VDC              | No required             |
| 12.5 ~ 24.5VDC             | 1.5kΩ                   |