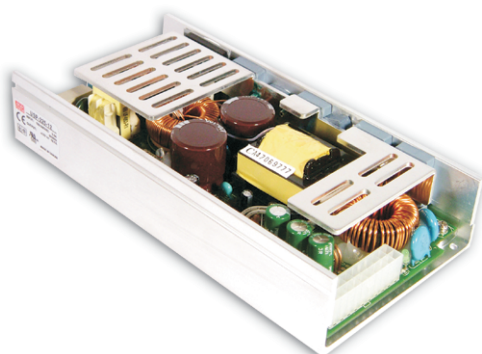




## 225W Single Output with PFC Function

## USP-225 series



### ■ Features :

- Universal AC input / Full range
- Built in active PFC circuit compliance to EN61000-3-2
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Free air convection for 150W and forced air convection for 225W
- High power density 4.7w/in<sup>3</sup>
- Active AC surge current limiting
- U-bracket low profile:38mm
- 3 years warranty

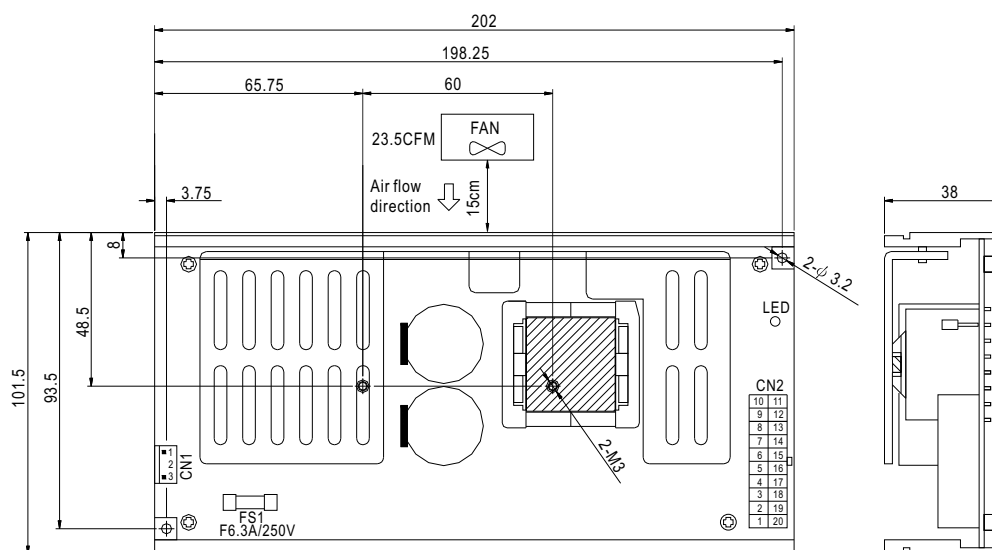


### SPECIFICATION

| MODEL                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | USP-225-3.3                                              | USP-225-5                                                                                                                             | USP-225-12   | USP-225-15   | USP-225-24   | USP-225-48   |              |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|
| OUTPUT                                  | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.3V                                                     | 5V                                                                                                                                    | 12V          | 15V          | 24V          | 48V          |              |
|                                         | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 40A                                                      | 40A                                                                                                                                   | 18.7A        | 15A          | 9.4A         | 4.7A         |              |
|                                         | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0 ~ 40A                                                  | 0 ~ 40A                                                                                                                               | 0 ~ 18.7A    | 0 ~ 15A      | 0 ~ 9.4A     | 0 ~ 4.7A     |              |
|                                         | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 132W                                                     | 200W                                                                                                                                  | 224.4W       | 225W         | 225.6W       | 225.6W       |              |
|                                         | RIPPLE & NOISE (max.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 100mVp-p                                                 | 100mVp-p                                                                                                                              | 100mVp-p     | 100mVp-p     | 150mVp-p     | 250mVp-p     |              |
|                                         | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2.97 ~ 3.6V                                              | 4.5 ~ 5.5V                                                                                                                            | 10.8 ~ 13.2V | 13.5 ~ 16.5V | 21.6 ~ 26.4V | 43.2 ~ 52.8V |              |
|                                         | VOLTAGE TOLERANCE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ±2.0%                                                    | ±2.0%                                                                                                                                 | ±2.0%        | ±2.0%        | ±2.0%        | ±2.0%        |              |
|                                         | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ±0.5%                                                    | ±0.5%                                                                                                                                 | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        |              |
|                                         | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ±1.0%                                                    | ±1.0%                                                                                                                                 | ±1.0%        | ±1.0%        | ±1.0%        | ±1.0%        |              |
|                                         | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 500ms, 30ms/230VAC      1200ms, 30ms/115VAC at full load |                                                                                                                                       |              |              |              |              |              |
| HOLD UP TIME (Typ.)                     | 22ms/230VAC      22ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |                                                                                                                                       |              |              |              |              |              |
| INPUT                                   | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          | 90 ~ 264VAC      127 ~ 370VDC                                                                                                         |              |              |              |              |              |
|                                         | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                          | 47 ~ 63Hz                                                                                                                             |              |              |              |              |              |
|                                         | POWER FACTOR (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          | PF>0.93/230VAC      PF>0.97/115VAC at full load                                                                                       |              |              |              |              |              |
|                                         | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                          | 72%                                                                                                                                   | 77%          | 83%          | 84%          | 85%          | 86%          |
|                                         | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 115VAC                                                   | 2.2A                                                                                                                                  | 3.3A         |              |              |              |              |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 230VAC                                                   | 1.1A                                                                                                                                  | 1.6A         |              |              |              |              |
|                                         | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                          | 15A/115VAC      30A/230VAC                                                                                                            |              |              |              |              |              |
| LEAKAGE CURRENT                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <3.5mA / 240VAC                                          |                                                                                                                                       |              |              |              |              |              |
| PROTECTION                              | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          | 105 ~ 150% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed |              |              |              |              |              |
|                                         | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          | 3.6 ~ 4.4V                                                                                                                            | 5.5 ~ 7.4V   | 13.2 ~ 16.3V | 16.5 ~ 20.2V | 26.4 ~ 32.4V | 52.8 ~ 64.8V |
|                                         | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          | 95℃ ±5℃ (RTH2 : detect on heatsink of power transistor)                                                                               |              |              |              |              |              |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                          | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down                                           |              |              |              |              |              |
| ENVIRONMENT                             | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          | -20 ~ +65℃ (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, 60min. each along X, Y, Z axes                                                                          |              |              |              |              |              |
| SAFETY & EMC<br><small>(Note 4)</small> | 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                                                                                              |              |              |              |              |              |
|                                         | 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, light industry level, criteria A                                                    |              |              |              |              |              |
| OTHERS                                  | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          | 220K hrs min.    MIL-HDBK-217F (25℃ )                                                                                                 |              |              |              |              |              |
|                                         | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          | 202*101.5*38mm (L*W*H)                                                                                                                |              |              |              |              |              |
|                                         | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          | 0.85Kg; 16pcs/14.6Kg/0.76CUFT                                                                                                         |              |              |              |              |              |
| 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.<br>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. |                                                          |                                                                                                                                       |              |              |              |              |              |

## ■ Mechanical Specification

Case No. 928    Unit:mm



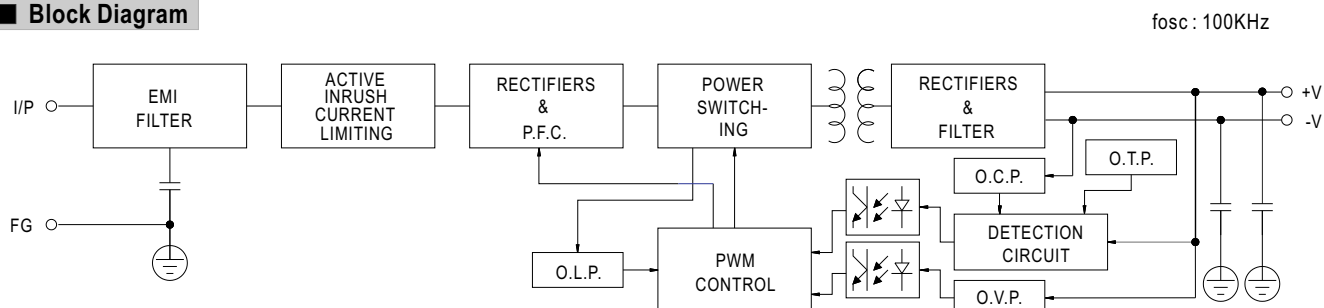
AC Input Connector (CN1) : JST B3P-VH or equivalent

| Pin No. | Assignment | Mating Housing           | Terminal                          |
|---------|------------|--------------------------|-----------------------------------|
| 1       | AC/N       | JST VHR<br>or equivalent | JST SVH-21T-P1.1<br>or equivalent |
| 2       | No Pin     |                          |                                   |
| 3       | AC/L       |                          |                                   |

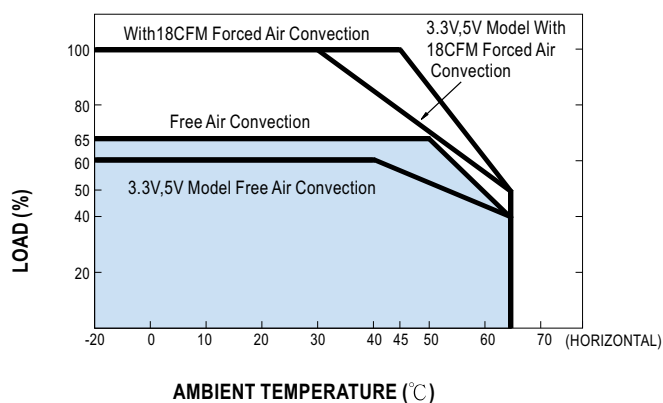
DC Output Connector (CN2) : MOLEX 39-29-9206 or equivalent

| Pin No. | Assignment | Mating Housing              | Terminal                    |
|---------|------------|-----------------------------|-----------------------------|
| 1~5     | +V         | MOLEX 5557<br>or equivalent | MOLEX 5556<br>or equivalent |
| 6~15    | -V         |                             |                             |
| 16~20   | +V         |                             |                             |

### ■ Block Diagram



### Derating Curve



### ■ Static Characteristics (5V)

