



## 65W Single Output Switching Power Supply

## EPS-65 series



### ■ Features :

- Universal AC input / Full range
- Optional L-Bracket and cover
- High efficiency up to 90%
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- 2" X 4" compact size
- LED indicator for power on
- No load power consumption<0.3W
- 3 years warranty

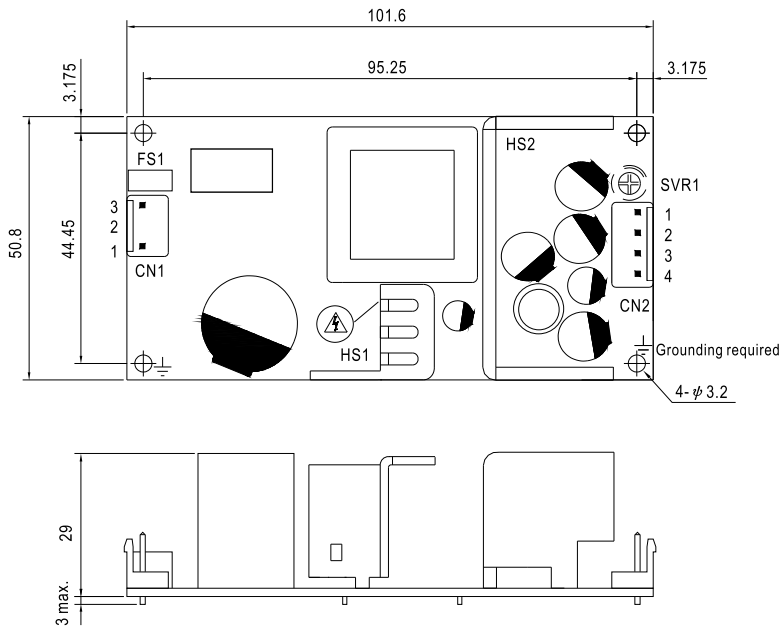


EPS-65-3.3 ☐-C    ☐ =Blank, -C ; Blank=PCB only, -C=Enclosed type

### SPECIFICATION

| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EPS-65-3.3                                                                                                              | EPS-65-5    | EPS-65-7.5   | EPS-65-12    | EPS-65-15      | EPS-65-24    | EPS-65-36    | EPS-65-48    |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------|--------------|--------------|----------------|--------------|--------------|--------------|
| OUTPUT                   | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3.3V                                                                                                                    | 5V          | 7.5V         | 12V          | 15V            | 24V          | 36V          | 48V          |
|                          | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 11A                                                                                                                     | 11A         | 8A           | 5.42A        | 4.34A          | 2.71A        | 1.81A        | 1.36A        |
|                          | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0 ~ 12A                                                                                                                 | 0 ~ 12A     | 0 ~ 8.8A     | 0 ~ 6A       | 0 ~ 4.8A       | 0 ~ 3A       | 0 ~ 2A       | 0 ~ 1.5A     |
|                          | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 36.3W                                                                                                                   | 55W         | 60W          | 65.04W       | 65.1W          | 65.04W       | 65.16W       | 65.28W       |
|                          | PEAK LOAD(10sec.)    Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 39.6W                                                                                                                   | 60W         | 66W          | 72W          | 72W            | 72W          | 72W          | 72W          |
|                          | RIPPLE & NOISE (max.)    Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 80mVp-p                                                                                                                 | 80mVp-p     | 100mVp-p     | 120mVp-p     | 150mVp-p       | 240mVp-p     | 280mVp-p     | 300mVp-p     |
|                          | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.1 ~ 3.6V                                                                                                              | 4.75 ~ 5.5V | 7.13 ~ 8.25V | 10.8 ~ 13.5V | 13.5 ~ 16.5V   | 21.6 ~ 27V   | 32.4 ~ 39.6V | 43.2 ~ 52.8V |
|                          | VOLTAGE TOLERANCE    Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±3.0%                                                                                                                   | ±2.0%       | ±2.0%        | ±2.0%        | ±2.0%          | ±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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ±2.0%                                                                                                                   | ±1.0%       | ±1.0%        | ±1.0%        | ±1.0%          | ±1.0%        | ±1.0%        | ±1.0%        |
|                          | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1000ms, 50ms/230VAC      2000ms, 50ms/115VAC at full load                                                               |             |              |              |                |              |              |              |
| HOLD UP TIME (Typ.)      | 50ms/230VAC      12ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                         |             |              |              |                |              |              |              |
| INPUT                    | VOLTAGE RANGE    Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 90 ~ 264VAC      127 ~ 370VDC                                                                                           |             |              |              |                |              |              |              |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 47 ~ 63Hz                                                                                                               |             |              |              |                |              |              |              |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 80%                                                                                                                     | 82%         | 84%          | 86%          | 87%            | 88%          | 89%          | 90%          |
|                          | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1.8A/115VAC      1 A/230VAC                                                                                             |             |              |              |                |              |              |              |
|                          | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | COLD START 60A/230VAC                                                                                                   |             |              |              |                |              |              |              |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <2mA/240VAC                                                                                                             |             |              |              |                |              |              |              |
| PROTECTION               | OVER LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 115 ~ 160% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |             |              |              |                |              |              |              |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.7 ~ 4.45V                                                                                                             | 5.6 ~ 6.75V | 8.63 ~ 10.1V | 13.8 ~ 16.2V | 17.25 ~ 20.25V | 27.6 ~ 32.4V | 39.7 ~ 46.8V | 53.3 ~ 64.8V |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Protection type : Shut down o/p voltage, re-power on to recover                                                         |             |              |              |                |              |              |              |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -30 ~ +70℃    (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<br>(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℃/ 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, heavy industry level, criteria A                             |             |              |              |                |              |              |              |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 563Khrs min.      MIL-HDBK-217F (25℃)                                                                                   |             |              |              |                |              |              |              |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PCB:101.6*50.8*29mm (L*W*H) ; with optional CASE:103.4*62*37mm (L*W*H)                                                  |             |              |              |                |              |              |              |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PCB: 0.15Kg; 96pcs/ 15.4 Kg/0.89CUFT ; with optional CASE: 0.3Kg; 45pcs/ 14.5Kg/0.67CUFT                                |             |              |              |                |              |              |              |
| 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.<br>5. Derating may be needed under low input voltage. Please check the static characteristics for more details.<br>6. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power. |                                                                                                                         |             |              |              |                |              |              |              |

## Mechanical Specification



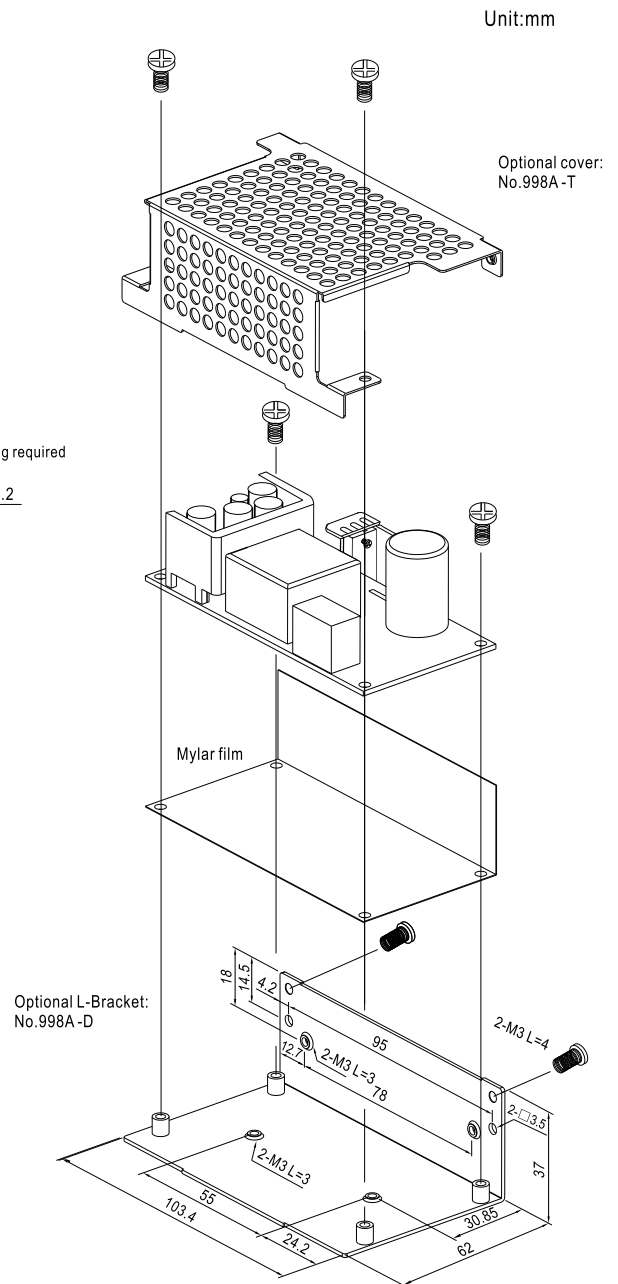
- 1.HS1,HS2 can not be shorted.
- 2.HS1 must have safety isolation distance with system case.

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

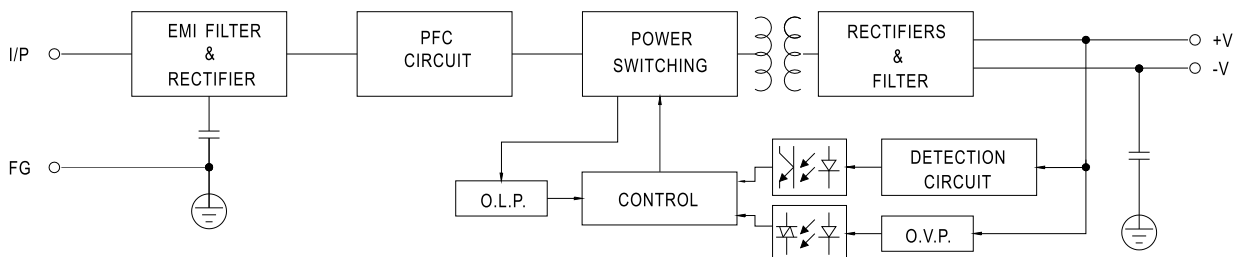
| Pin No. | Assignment | Mating Housing        | Terminal                       |
|---------|------------|-----------------------|--------------------------------|
| 1       | AC/N       | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2       | No Pin     |                       |      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

DC Output Connector (CN2) : JST B4P-VH or equivalent

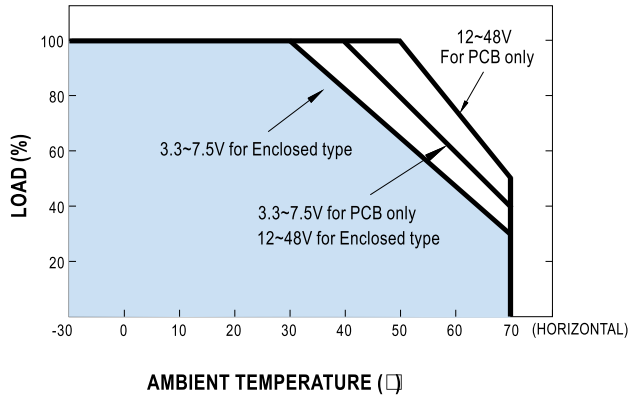
| Pin No. | Assignment | Mating Housing        | Terminal                       |
|---------|------------|-----------------------|--------------------------------|
| 1,2     | +V         | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 3,4     | -V         |                       |                                |



## Block Diagram



## Output Derating



## Static Characteristics

