

Eps2u Power Supply Specifications

Model: HK700-12UEPA

Consumer : Huntkey

File NO: 试产

Prepared by: Bengeng Zhang

Checked by: Lixiong Liu

Approved by: Zhi Wu

Issue date: 2014-4-18

ECN List

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1	1	2014-4-18	First	
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Hk700-12UEPA Specification

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1.0 Input Characteristics:

1.1 Input Voltage Range:

90Vac to 265Vac, single phase.

Table1. Input Voltage Range

RANGE	MINIMUM	NORMAL	MAXIMUM	UNITS
Full Range	90	100~240	264	Vrms

1.2 Input Frequency Range:

50+/-3Hz and 60+/-3Hz; Normal Frequency Range: 50-60Hz

1.3 Input current

Input current is 10A Max

1.4 Inrush current:

Power supply inrush current shall be less than the ratings of its critical components (including bulk rectifiers, fuses, and surge limiting device) under all conditions of line voltage of Section 1.1.

1.5 Power Efficiency:

75% min.at full load and normal AC input.

1.6 Harmonic Current

- (1) The harmonic of the power line and neutral current shall comply the standard IEC61000-3-2 for class D equipment .
- (2) Measurement shall be performed at 75W input power and full output load , Input voltage shall be 220Vac/50Hz or 230Vac/60Hz,

2.0 Output Characteristics:

2.1 Static output characteristics:

Table2. Static output characteristics

Output Voltage	Load 负载			Regulation	Ripple & Noise
	Min	Max	Surge		Max mV P-P
1. +5V	0.5A	20A		+/- 5%	50mV
2. +12V	0A	43A		+/- 5%	120mV
3. +5VSb	0.1A	2.0A		+/- 5%	50mV
4. +3.3V	0.8A	20 A		+/- 5%	50mV
5. -12V	0A	0.3A		+/- 10%	120mV

AT 25℃

- (1) The total combined 3.3V/5V power shall not exceed 140W.

(2)The continuous output power shall not exceed 600W

(3)Maximum combined current for the 12V outputs shall be 43A

At60℃

(1) The total combined 3.3V/5V power shall not exceed 110W.

(2)The continuous output power shall not exceed 480W

(3)Maximum combined current for the 12V outputs shall be 35A

2.2 The cross-load regulation in defined in the matrix below (UNIT: A)

Table 3.Cross Regulation

Range	+5V	+12V	-12V	+3.3V	+5Vsb
1	0.5	2	0.0	0.8	2
2	5	16	0.3	1.5	1.5
3	12	43	0.0	8.5	2
4	20	36	0.3	12	0.5
5	12	18	0.3	20	0.0
6	16	10	0.3	14	2
7	5	2	0.0	6.5	0.1

Notes: A 0.1uF ceramic disk capacitor and 10uF tantalum capacitors should be put across output terminals during ripple & noise test. The oscilloscope bandwidth is set at 20 MHz and co-axial probe will be used to measure it.

2.3 Dynamic Load:

The following transient loads are to be applied to the output. The waveform shall be a square wave with the slope of the rise and fall at 0.5 A/μs. The square wave shall have a frequency 50Hz to 10KHz with a duty cycle of 10 to 90%.

The output voltages shall not exceed regulation limits as defined in Table 2 under the following condition:

Table4. Dynamic Load Step Sizes

NOM. OUTPUT VOLTAGE (VDC)	CURRENT I _{min}	CURRENT I _{max}	STEP LOAD CHANGE (%)	TRANSIENT TOLERANCE (%)
+5.0	0.5A	20A	35	±5
+12.0	1.0 A	43A	65	±5
+3.3	0.8 A	20 A	30	±5
-12.00	0.0 A	0.3 A	40	±10
5V Sb	0.1 A	2. A	25	±5

The following transient loads are to be applied to the output. The waveform shall be a square wave with the slope of the rise and fall at 0.1A/μs. The square wave shall have a frequency 50Hz to 10KHz with a duty cycle of 10 to 90%.The output voltages shall not exceed regulation limits as defined in Table 2 under

the following condition:

Table5. Dynamic Load Step Sizes

Output	5V Load	3.3V Load	12V Load	-12V Load	5VSB Load
5Vmin Load	0.5A-7.5A	1.6A	3	0A	0.2A
5Vmax Load	13A-20A	6A	30	0.3A	2A
3.3Vmin Load	1.6A	0.8A-6.8A	3	0A	0.2A
3.3Vmax Load	12A	14A-20A	30A	0.3A	2A
12Vmin Load	1A	0.5A	1A-28.95A	0A	0.2A
12Vmax Load	7.68A	9.09A	15.05A-43A	0.3A	2A
5VSBmin Load	1.5A	1.6A	3A	0A	0.1A-0.6A
5VSBmax Load	12.16A	20A	8.16A	0A	1.5A-2A

NOTE: The output voltage should remain within Voltage limits of the above table.

*Load slew rate: 0.1A/uS.

*The load square wave shall have period of 10mS with a 50 percent duty cycle.

(Adding external capacitor: 5V/6000uF, 12V/6000uF, 3.3V/6000uF, -12V/350uF, 5Vaux=350uF)

2.4 Capacitive Load

The power supply should be able to power up and operate with the regulation limits defined in Table 2, with the following capacitances simultaneously present on the DC outputs.

Table5

Output	Capacitive Load
+12V	11000μF
+5V	12000μF
+3.3V	12000μF
-12V	350μF
+5VSb	350μF

2.5 The power supply shall have the output connector and wire harness configurations.

3.0 Protection

3.1 Over Voltage Protection:

+5V:6.5V max, +12V: 15.6V max +3.3V 4.5V max.

3.2 Short Circuit Protection:

The power supply shall shut down and latch off for shorting +5V,+12V,-12V or +3.3V rails to DC-return and shorting.

3.3 Over Current Protection:

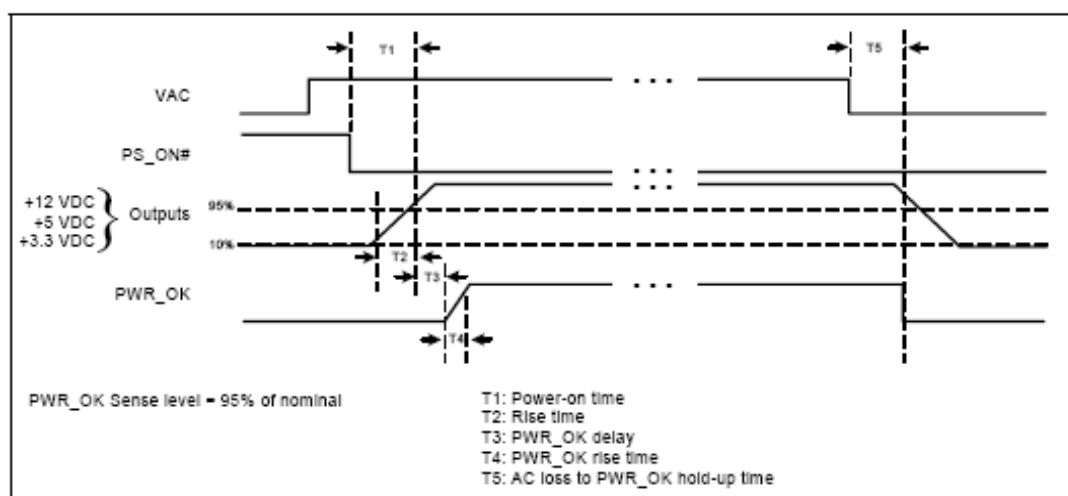
Table 6

Output	+5V	+3.3V	+12V
Over Current Limit	24A-36A	24A-36A	48A~64A

3.4 Reset after shutdown:

When the power supply latches into shutdown condition due to a fault on an output(over current,over voltage or short circuit),the protection latch shall reset within 30S after the fault has been removedand the ON/Off signal has switched state. Also,the latch shall reset within 30S when AC power has been removed.

4.0 Time sequence



4.1 Power-on time T1

The power-on time is defined as the time from when PS_ON# is pulled low to when the +12 VDC, +5 VDC, and +3.3 VDC outputs are within the regulation ranges specified in Section 2.1. The power-on time shall be less than 500 ms ($T1 < 500$ ms).

4.2 Rise time T2

The output voltages shall rise from $\leq 10\%$ of nominal to within the regulation ranges specified in Section 2.1 within 0.1 ms to 50 ms ($0.1 \text{ ms} \leq T2 \leq 50 \text{ ms}$).

4.3 PWR_OK delay T3

The Power Good signal shall have a turn-on delay of at least 100mS but not greater than 500 mS from the time the 3.3V and +5V output has reached their minimum regulation level.

4.4 PWR_OK rise time T4

The Power Good signal shall have a rise time (measured from the 10% point to the 90% point) of less than 10 milliseconds.

4.5 AC loss to PWR_OK hold-up time T5

The Power Good Signal shall remain an up level for at least 16msec after AC power is removed and shall go to a down level before the 3.3V or +5V falls below their regulation limit

4.6 Power OK (POK)

The power supply shall provide a “Power Good” signal to reset system logic, indicate proper operation of the power supply, and give advance warning of impending loss of regulation at turn off.

Table 7

Power OK Signal Characteristics	
Signal Type	+5V TTL Compatible
Logic Level Low	<0.4V while sinking 4mA
Logic Level High	Between 2.4V and 5V output while sourcing 200μA
High-State Output Impedance	1kΩ from output to common

4.7 PS_ON

PS_ON is an active low, +5V tolerant TTL signal that allow the motherboard to remotely control the power supply. An internal pull-up resistor inside the power supply shall provide a TTL high output logic level, once an AC input voltage has been applied to the power supply. The electrical characteristics for the PS_ON signal are shown below:

Table 8

PS-ON Signal Characteristics		
Signal Description	Min	Max
Input Low Voltage	0.0V	0.8V
Input Low Current (Vin=0.4V)	-	-1.6mA
Input High Voltage (Iin=-200μA)	2.0V	
VIH open circuit	-	5.25V

5.0 Auxiliary 5V Output:

The 5V auxiliary output will be active and in regulation whenever an AC input within the specified operating range is applied to the power supply input. The PS_ON pin of P1 will not affect the 5V auxiliary output.

6.0 Environment:

6.1 Operating ambient:

Table19. Operating ambient

Air Temperature	0 to 60 degrees centigrade
Relative Humidity	5 to 95 percent, non-condensing

6.2 Shipping and Storage:

Table10. Shipping and Storage

Air Temperature	-40 to 80 degrees centigrade
Relative Humidity	5 to 100 percent, including condensation

6.3 Altitude:

Operating to 5000 meters

Non-operating to 15250 meters.

6.4 Cooling:

The power supply shall provide forced air cooling for the host system.

7.0 Safety and EMC**7.1 SAFETY REQUIREMENTS AND Certify**

The power supply has been certified by ,CB , TUV,UL. The CB, TUV,UL Safety mark shall appear on the product.

7.2 Conducted and Radiated Emissions:

Conducted and radiated emissions of the power supply shall comply with the requirements of GB9254 Class B.

7.3 ESD:

ESD of the power supply shall comply with the requirements of IEC61000-4-2 Level 3.

7.4 EFT:

EFT of the power supply shall comply with the requirements of IEC61000-4-4 Level 3.

7.5 Surge Susceptibility:

Surge Susceptibility of the power supply shall comply with the requirements of IEC61000-4-5 Level 3.

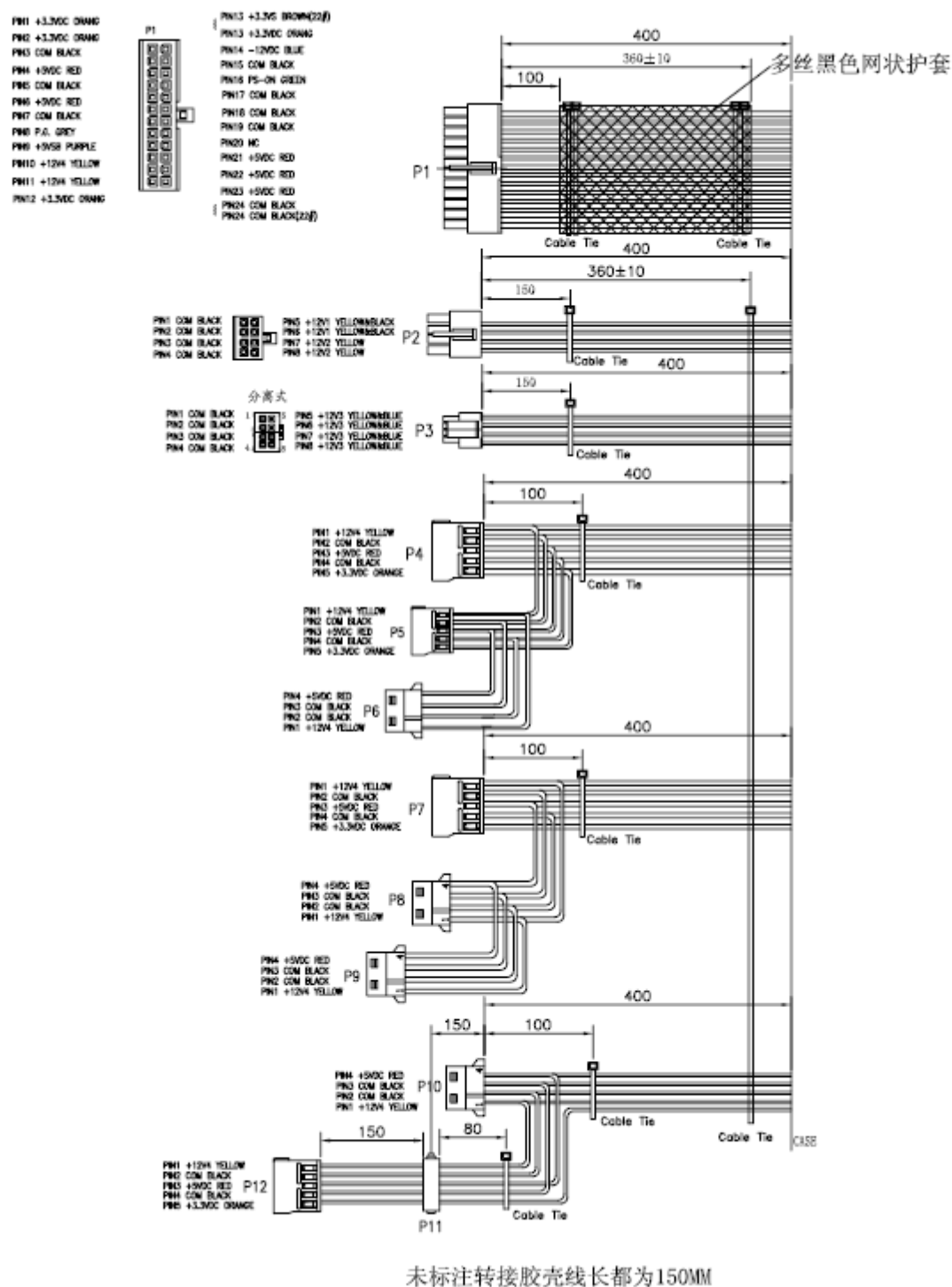
7.6 Hi-Pot:

Input to GND: Voltage 1800VAC Time 3.0S, Cut off current 10mA MAX

7.7 Grounding Continuity Test: 100mΩ MAX at 25.0A .**7.8 Ground Leakage Current:**

0.5mA MAX. AT 264V 50Hz

8.0 Mechanical:**8.1 Label Installation Instruction****8.1 DC wire drawing**



8.3 Label drawing

Huntkey Hong Kong Development Co. Ltd.		File No. : 试产
		Version : 01
Prepare by	Check by	Approved by
Bengeng Zhang	Lixiong Liu	Zhi Wu
Date:	2014-4-18	