

TFX PC Power Specifications

Model: HK340-71FP

Consumer : Huntkey

File NO: 试 产

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Issue date: 2010-03-29

ECN list

Revision	Issue Date	Section	Revision Description	Originator
01	2010-03-29		ADD	Liqingzhuang

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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
High Range	90	100~240	265	Vrms

1.2 Input Frequency Range:

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

1.3 Input current

Input current is 5A 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:

The efficiency shall be a minimum of 70%.measurements are performed at 115Vac and 230Vac.

Loading Conditions	+12V	+5.08V	+3.3V	-12V	+5.08Vsb
Load 1	13.2A	9.7A	5.6A	0.4A	2A

1.6 Power factor

The power supply must use APFC, and PF≥0.90@full load, at AC input 115Vac~230Vac/50Hz~60Hz

1.7 Standby Consumption

AC input power should not exceed 1W under +5.08Vsb /0.1A ,at AC input 230V/50Hz

- 1.7.1 The power supply shall not draw more than 1.0 watt input when output is 0.5 watts or less during Standby Mode.

Test Condition: Input - 230Vac/50Hz

Output - PS_Off and +5.08Vaux / 0.5W

- 1.7.2 The power supply shall not draw more than 0.5 watt input when output is 0.25 watts or less during Standby Mode.

Test Condition: Input - 230Vac/50Hz

Output - PS_Off and +5.08Vaux / 0.25W

1.8 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, Don't test in process under low range.

2.0 Output Characteristics:

2.1 Static output characteristics:

Table2. Static output characteristics

Output Voltage	Load			Regulation	Ripple & Noise
	Min	Max	Surge(10mS)		Max mV P-P
+5.08V	0.2A	14A	16A	+/- 3.3%	50mV
+12V	0.6A	17A	19A	+/- 5%	120mV
+5.08Vsb	0.005A	2.5A	3A	+/- 3.3%	50mV
+3.3V	0.1A	8A	12A	+/- 5%	50mV
-12V	0A	0.5A		+/- 10%	120mV

At 25°C&55°C

- (1) The total combined 3.3V&5.08V power shall not exceed 86W.
- (2) The total combined 3.3V/5.08V/+12V power shall not exceed 240W.
- (3)The continuous output power shall not exceed 240W.
- (4) Peak current may last up to 17S with not more than one occurrence per minute

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

Table 3.Cross Regulation

Load	Output Power		Individual Load Currents					Remark	
	Total	Main	5.08V	12V	-12V	3.3V	5.08Vsb		
L1	8.56	8.53	0.2	0.6	0	0.1	0.005	Min	
L2	48.03	46.03	2	2.6	0.1	1.1	0.4	20% load	
L3	120.14	115.34	4.9	6.6	0.2	2.8	0.96	50% load	
L4	240.18	230.18	9.7	13.2	0.4	5.6	2	100% load	
L5	240.50	228.00	12	11.3	0.5	8	2.5	3.3V max	
L6	239.94	227.44	14	11.3	0.5	4.8	2.5	5.08V max	
L7	240.40	237.90	4.8	17	0	3	0.5	12V max	
L8	19.00	16.00	0.2	0.2	0.5	2	0.6		
L9	14.05	11.05	0.2	0.2	0.5	0.5	0.6		
L10	48.90	43.90	5	0.1	0.1	5	1		
L11	240.53	240.50	6.4	17	0.1	1	0.005		
L12	34.63	34.60	0.2	0.6	0	8	0.005		
L13	0.03	0.00						0.005	Remote off
L14	12.50	0.00						2.5	

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 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:

TRANSIENT VOLTAGE TOLERANCE

Table4. Dynamic Load Step Sizes

NOM. OUTPUT VOLTAGE (VDC)	Slew Rate	Duration/ Period	Maximum Amplitude	OUTPUT peak TO peak Voltage
+5.08V	1A/μs	0.75mS/1mS	4A	300mV
+12V1	1A/μs	0.75mS/1mS	7.5A	400mV
+3.3V	1A/μs	0.75mS/1mS	6A	200mV

(Adding external capacitor: 5.08V/10000uF, 12V/10000uF, 3.3V/10000uF, -12V/350uF, 5.08Vaux=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 Loads

Output	Capacitive Load
+12V	10000μF
+5.08V	10000μF
+3.3V	10000μF
-12V	350μF
+5.08VSb	350μF

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

3.0 Protection

3.1 Over Voltage Protection:

+5.08V:6.5V max, +12V: 15.6V max, +3.3V: 4.3V max, +5Vsb :6.5V max

3.2 Short Circuit Protection:

The main output shall shut down and latch off for shorting +5.08V, +12V, -12V or +3.3V rails to DC-return and shorting except 5.08V auto-recover;

3.3 Over Current Protection:

Increase the output current at the +5.08V rail gradually to 20A-45A, the main output should shutdown and latch off

Increase the output current at the +3.3V rail gradually to 22A-45A, the main output should shutdown and latch off

Increase the output current at the +12V rail gradually to 19A-20.5A, the main output should shutdown and latch off

3.4 Over Power Protection:

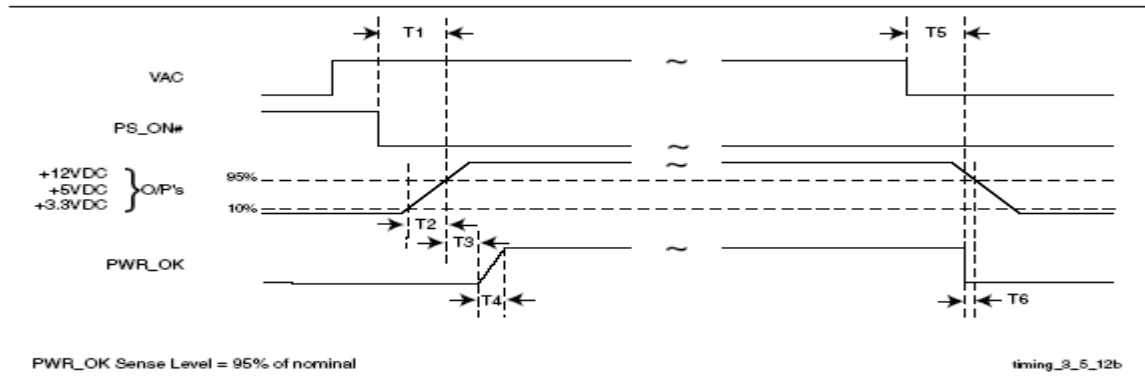
The main output will be shutdown and latch off when output power is at 270W~360W.

3.5 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 removed and the ON/Off signal has switched state. Also, the latch shall reset within 30S when AC power has been removed.

4.0 Time Sequence (Test at 115V or 230V)



Power Supply Timing

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.

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 20 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 +5.08V 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 +5.08V falls below their regulation limit

4.6. Power Fail Delay Time T6

The Power_Down warning signal at least 1msec shall have a power Good Signal change Low Voltage to the 3.3V or +5.08V falls below their regulation limit.

4.7 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.

The electrical characteristics for the Power OK output driver are shown below:

Table6. Power OK Signal Characteristics

Power OK Signal Characteristics	
Signal Type	+5V TTL Compatible
Logic Level Low	<0.4V while sinking 4mA
Logic Level High	Between 2.4V and 5.08V output while sourcing 200µA
High-State Output Impedance	1kΩ from output to common

4.7 PS_ON

PS_ON is an active low, +5.08V 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:

Table7. PS-ON Signal Characteristics

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 5.08V Output:

The 5.08V 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 5.08V auxiliary output.

6.0 Environment:

6.1 Operating ambient:

Table8. Operating ambient

Air Temperature	0 to 55 degrees centigrade
Relative Humidity	5 to 85 percent, non-condensing

6.2 Shipping and Storage:

Table9. Shipping and Storage

Air Temperature	-40 to 55 degrees centigrade
Relative Humidity	5 to 95 percent, including condensation

6.3 Altitude:

Operating to 3050 meters(10,000 ft)

Non-operating to 15250 meters (50,000 ft).

6.4 Cooling:

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

6.5 Fan speed control

The power supply shall contain thermal sensing circuitry capable of varying fan speed.

7.0 Safety

7.1 Hi-Pot:

Input to GND: Voltage 2250Vdc Time 3.0S, Cut off current 10mA MAX

7.2 Grounding Continuity Test:

100mΩ MAX at 25.0A .

7.3 Ground Leakage Current:

0.5mA MAX. at 240V 50Hz

0.275mA Max. at 120Vac 60Hz

7.4 Insulation Resistor

100Mohm Min at 500V

8.0 Mechanical:

8.1 Mechanical outline:



P15-3407100R-HK34
0-71FP-机壳结构图

8.2 Label drawing



Label.pdf

Huntkey Hong Kong Development Co. Ltd.		File No. : 试 产
		Version : 02
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Date:2010-03-29		