TFX PC Power Specifications

Model: HK340-71PP

File No.:试产

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ECN List

Item	Spec. REV	Revise date	Revise description	Reason
1	00			original
2	01			修改 OPP 上限
3				
4				
5				
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HK340-71PP Specification

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 4A /8A at 240Vac/100Vac.

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:

82% min. 20% Load， 85% min. 50% Load， 82% min at full load at 115VAC/230Vac input.

1.6 Standby Consumption

The power supply must not draw more than 0。5 watt, input, when +5.08Vsb output is 0.25 watt at input 230V/50Hz. (ps-on high state)

The power supply must not draw more than 1.0 watt, input, when +5.08Vsb output is 0.5 watt at input 230V/50Hz. (ps-on high state)

The power supply must not draw more than 3.0 watts, input, when +5.08Vsb output is 1.5 watts at input 230V/50Hz. (ps-on high state)

1.7 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		Max mV P-P
+5.08V	0.2A	14A	16A	+/- 5%	50mV
+12V	0.2A	17A	19A	+/- 5%	120mV
+5.08VSb	0.005A	2.5A	3A	+/- 5%	50mV
+3.3V	0.1A	8A	12A	+/- 5%	50mV
-12V	0A	0.5A	N/A	+/- 10%	120mV

At 25℃ and 50℃

(1) The total combined 3.3V&5V power shall not exceed 86W.

(2) The total combined 3.3V/5V/+12V power shall not exceed 240W.

(3)The continuous output power shall not exceed 240W.

(4) Peak current may last up to 10mS with not more than one occurrence per minute

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	0.2	0.2	0.0	0.1	0.005	Min load
2	2.0	2.6	0.1	1.1	0.4	20% Load
3	4.9	6.6	0.2	2.8	0.96	50% Load
4	9.7	13.2	0.4	5.6	2.0	100% Load
5	12	11.3	0.5	8.0	2.5	3.3V MAX
6	14	11.3	0.5	4.8	2.5	+5V MAX
7	4.8	17	0	3.0	0.5	+12V MAX
8	0.5	1.0	0.3	2	0.5	
9	0.2	0.6	0	8	0.005	

When the output are at +5V/0.1A,+12V/0.2A,-12V/0A,+3.3V/5A,+5Vsb/0.005A, The power supply should be able to successfully power-up.

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 0.1A/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)	CURRENT I_{min}	CURRENT I_{max}	STEP LOAD CHANGE	TRANSIENT TOLERANCE (%)
+5.08	0.2A	14 A	MAX step 4.0A	±5
+12.0	0.2A	16 A	MAX step 7.5A	±5
+3.3	0.1 A	8 A	MAX step 6.0A	±5

- (Capacitive load is applied to each output, and is defined in section 2.4 “Capacitive Load”.)

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
+5V	10000μF
+3.3V	6000μF

-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: 4.3V max.

3.2 Short Circuit Protection:

Outputs	GND	+5V	-12V	+3.3V	+12V	+5Vstb
+5Vstb	2		1	1	3	
+12V	1	1	1	1		
+3.3V	1	1	1			
-12V	1	1				
+5V	1					

3.3 Over Current Protection:

The power supply must provide over current protection such that when a 10 ampere/second current ramp is applied to any outputs, the power supply must cause no damage and shutdown before any outputs exceeding the allowed maximum “SELV” limit of 240VA.

If three terminal regulators are used in the design, the power supply does not have to shutdown but must not sustain any damage or create a hazardous condition if the short circuit is present for an extended length of time.

No DC output must exceed 45A, after a period of one minute, when loaded to the impedance of maximum current draw before fold-back.

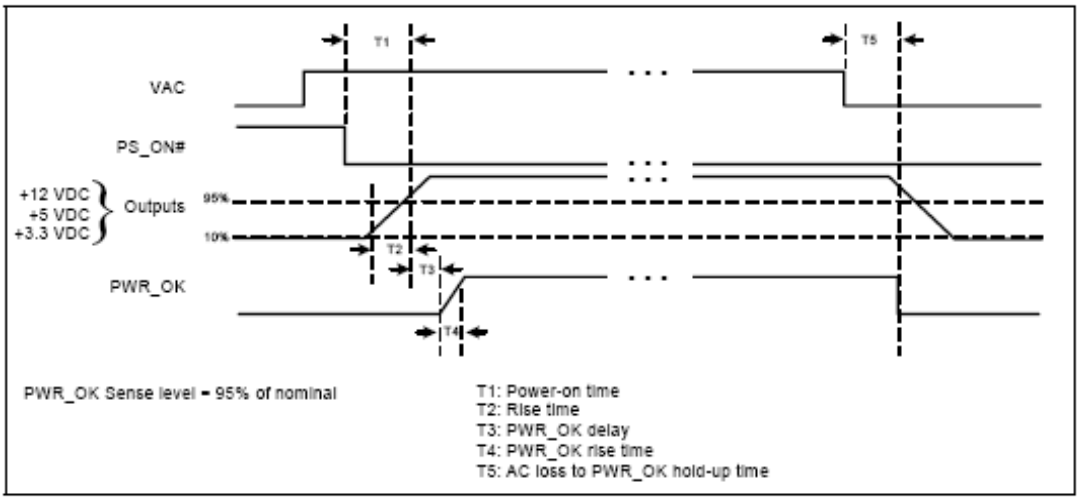
3.4 Over Power Protection:

The main output will be shutdown and latch off when output power is at 288W~390W.

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



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 ≤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 +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.

When the output are at +5V/10A,+12V/10A,-12V/0.15A,+3.3V/8A,+5Vsb/0.5A, the PG hold-up time will greater than 16ms.This test will be performed at the AC 110V 60Hz.

4.6. Power Fail Delay Time T6

The Power _Down warning signal at least 1.0msec shall have a power Good Signal change Low Voltage to the 3.3V or +5V 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 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:

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 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:

Table8. Operating ambient

Air Temperature	5 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 and EMC

7.1 SAFETY REQUIREMENTS AND Certify

The power supply has been certified by CCC , CB, BSMI, TUV,UL. The CCC , CB, BSMI, 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 & EN55022 Class B.

7.3 ESD:

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

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 2500VDC Time 3.0S, Cut off current 100uA MAX

7.7 Grounding Continuity Test: 100mΩ MAX at 25.0A .

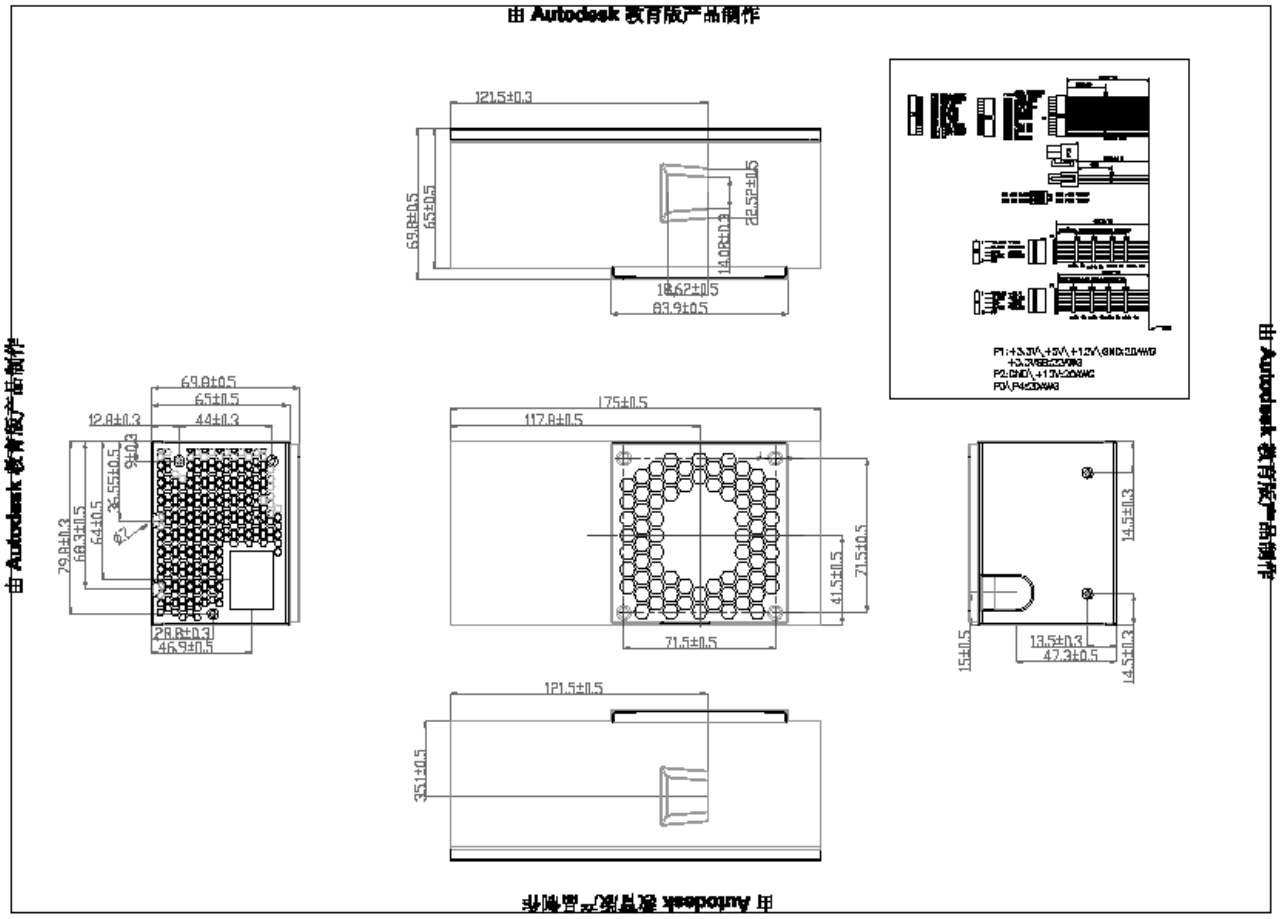
7.8 Ground Leakage Current:

0.5MA MAX. at 240V 50Hz

0.275MA MAX. at 120V 60H

8.0 Mechanical:

8.1 Mechanical outline:



8.2 DC wire drawing

8.3 Label drawing

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