

HK250-93FP 性能规格书

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1.0 Input Characteristics: 输入特性**1.1 Input Voltage Range: 输入电压**

120Vac to 240Vac, single phase.

输入电压范围:单相三线 120VAC~240VAC

RANGE 范围	MINIMUM 最低	NORMAL 常规	MAXIMUM 最高	UNITS 单位
Range 电压范围	90	100~120	132	Vrms
Range 电压范围	180	200~240	265	Vrms

1.2 Input Frequency Range: 输入频率范围

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

输入频率范围:50+/-3Hz 或 60+/-3Hz;常规频率范围:50 或 60Hz.

1.3 Input current 输入电流

Input current is 3A Max. 输入电流最大为 3A.

1.4 Inrush current: 浪涌电流

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.

浪涌电流:在 1.1 中所有输入条件下,浪涌应小于关键器件的额定值(包括保险丝、桥整等浪涌限制元件)。

1.5 Power Efficiency : 电源效率

70% min.at full load and normal AC input.

在常规交流输入满载输出情况下应大于等于 70%。

1.6 Standby Consumption 待机功耗**AC input power should not exceed 3W under +5VSb /0.3A and normal input voltage.**

在常规交流输入及+5VSb 输出 0.3A 时, 交流输入功率不能大于 3W。

1.7 Harmonic Current: 谐波电流

(1) The harmonic of the power line and neutral current shall comply the standard IEC61000-3-2 for class D equipment .

电源谐波应符合 IEC6100-3-2 中有关 D 类设备的要求。

(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.

谐波电流的测试应在输入 75W 和输出满载的条件下进行,输入电压应该是 220Vac/50Hz 或 230Vac/60Hz,制程中低电压输入不作测试。

2.0 Output Characteristics: 输出特性**2.1 Static output characteristics: 静态输出特性**

Output Voltage 输出电压	Load 负载			Regulation 调整率	Ripple & Noise 纹波及噪声
	Min 最小	Max 最大	Surge 峰值		Max mV P-P
1. +5V	0.1A	10A		+/- 5%	50mV
2. +12V	0.3A	10A		+/- 5%	120mV
3. +5VSb	0A	2A		+/- 5%	50mV
4. +3.3V	0.1A	13A		+/- 5%	50mV
5. -12V	0A	0.3A		+/- 10%	120mV

At 25°C

- (1) The total combined 3.3V&5V power shall not exceed 50W
+3.3V 与+5V 组合输出不超过 50W。
- (2) The total combined 3.3V/5V/+12V power shall not exceed 140W.
+3.3V 与+5V 和+12V 组合输出不超过 140W。
- (3) The continuous output power shall not exceed 150W.
最大的连续输出不超过 150W。
- (4) Peak current may last up to 17 seconds with not more than one occurrence per minute
峰值电流时间为 17 秒以下。

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

交叉负载情况如下表 :(单位: A)

Range	+12V	+5V	+3.3V	-12V	+5Vsb
1	1	0.3	0.5	0.0	0.0
2	7.2	5.4	7	0.3	2.0
3	4	9	1.5	0.3	1.5
4	10	3	1.5	0.1	0.2
5	1.0	2.5	12	0.2	0.05
6	4	5	6	0.1	0.5
7	0.3	0.1	0.1	0	2

Notes: A 0.1uF 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.

在测试纹波和杂讯的期间，用一个 0.1uF 和一个 10uF 的钽电容并接在输出端上；采用 20MHZ 或以上波段的示波器，使用同轴探头去测量纹波和杂讯。

2.3 Dynamic Load: 动态负载

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 0.1 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:

电源在施加一个电流爬升速率为0.1A/uS,波形为方波、频率可为50Hz~10KHz、占空比可为10%~90%的动态负载在负载输出端时可正常工作并符合表2要求。

TRANSIENT VOLTAGE TOLERANCE

NOM. OUTPUT VOLTAGE (VDC)	CURRENT I _{min}	CURRENT I _{max}	STEP LOAD CHANGE (%)	TRANSIENT TOLERANCE (%)
+5V	0.3A	10A	30	±8
+12V	1A	10A	50	±8
+3.3	0.5A	13A	30	±8

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

2.4 Capacitive Load: 容性负载

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.

电源在负载端同时外接如下表电容时能正常工作,并符合“表2”要求.

Output	Capacitive Load
+12V	6000 μ F
+5V	6000 μ F
+3.3V	6000 μ F
-12V	350 μ F
+5VSb	350 μ F

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

电源采用线缆式输出连接方式.

3.0 Protection 保护功能

3.1 Over Voltage Protection: 过压保护

+5V:6.8V max,+12V: 15.6V max +3.3V 4.5V max.

过压保护: +5V最大6.8,+12V最大15.6V,+3.3V最大4.5V。

3.2 Short Circuit Protection: 短路保护

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

短路保护: 当+5V、+12V、+3.3V、-12V与直流地之间短路时将关断输出并锁定.

3.3 Over Power Protection: 过功率保护

The power supply will be shutdown and latch off when output power is at 180W~240W.

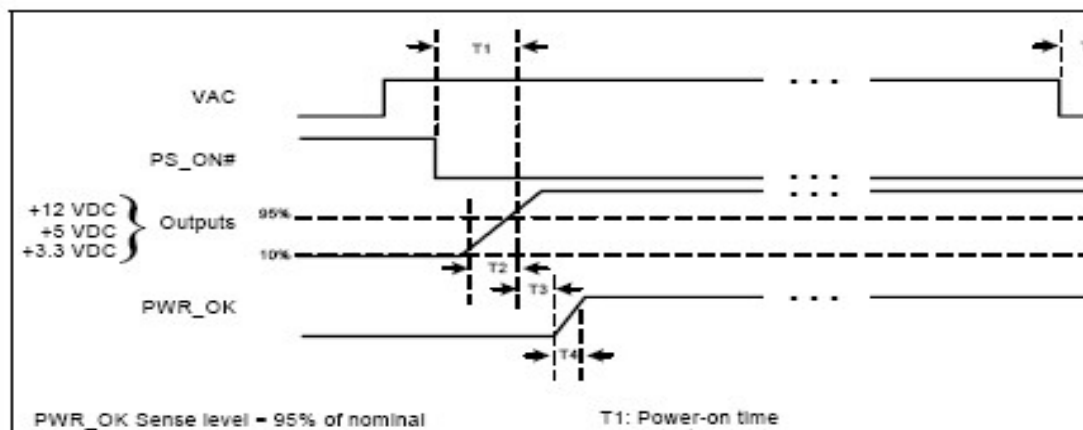
过功率保护: 当电源处于过功率状态时将关断输出并锁定,过功率点为180W~240W。

3.4 Reset after shutdown: 关断后复位

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.

关断后复位: 当电源因为过流过压或短路等故障而处于关断状态并锁定时, 当故障排除30S后使用ON/OFF信号应可复位, 或将交流断电30S可复位。

4.0 Time Sequence 时序要求如下图



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).

电源上电时间T1定义为从PS/ON处于低电平后到各路正电压输出在2.1定义的调整范围后这段时间,电源上电时间应小于500ms.

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 (0.1 ms $\leq T2 \leq 20$ ms).

上升时间T2定义为输出电压从2.1中额定电压的10%升到额定电压的90%的时间,T2应大于等于0.1ms小于等于20ms.

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.

PG延迟时间T3定义为从输出正电压稳定建立到PG信号转变为高电平这段时间,T3应大于等于100ms小于等于500ms.

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.

PG上升时间T4定义为PG电压从10%升到90%的这段时间,T4应小于10ms.

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.

交流掉电PG保持时间T5定义为交流输入断电时到输出正电压从调整范围内开始下降这段时间,PG保持时间T5要求大于等于16ms.

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.

电源提供一个PG信号用作系统逻辑复位,并可显示电源工作是否正常及在掉电时得到一个提前告警.

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

PG电气特性定义如下表:

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 200 μ A
High-State Output Impedance	1k Ω from output to common

PG信号是一个+5伏TTL逻辑兼容电路,当逻辑信号为低电平时可承受4mA灌电流,当逻辑信号为高电平时可拉出电流200 μ A,呈高阻状态时对输出地阻抗为1千欧.

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:

PS_ON是一个与TTL（晶体管-晶体管逻辑电路）兼容的低活跃信号，允许主板远程控制电源。当PS_ON使TTL为低电平，电源应当打开主要直流输出，当PS-ON使TTL为高电平或者开路，直流输出不能提供电流而被挂起，对地电位为零。下表列出了PS_ON信号特征。

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

PS/ON有效低电平为0V~0.8V,拉电流最大为1.6mA,有效高电平为2V~5.25V.

5.0 Auxiliary 5V Output: +5V辅助输出

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.

+5Vsb是一个待机电源输出，只要有交流输入，+5Vsb就保持激活状态。PS_ON不影响+5VSB的输出，其输出电压只受交流输入电压有无的控制。

6.0 Environment: 环境

6.1 Operating ambient: 工作环境

Air Temperature	0 to 50 degrees centigrade
Relative Humidity	5 to 95 percent, non-condensing

空气温度:0摄氏度~50摄氏度,相对湿度:5%~95% 无凝露

6.2 Shipping and Storage: 运输与储存

Air Temperature	-40 to 70 degrees centigrade
Relative Humidity	5 to 100 percent, including condensation

空气温度:-40摄氏度~70摄氏度,相对湿度:5%~100% 包含凝露.

6.3 Altitude: 海拔高度

Operating To 3050 meters(10,000 ft)

可工作在海拔3050米以内.

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

非工作状态可到海拔高度15250米.

6.4 Cooling: 冷却方式

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

电源采用强制冷却方式散热.

7.0 Safety and EMC 安全与电磁兼容

7.1 SAFETY REQUIREMENTS AND Certify 安全要求与认证

The power supply has been certified by CCC of Chine and comply with GB4943-2000 (IEC60950-1). The CCC Safety mark shall appear on the product .

电源符合GB4943-2000要求，并已经通过中国CCC认证,可在产品上标识CCC标识.

7.2 Conducted and Radiated Emissions: 传导和辐射抗扰度

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

传导和辐射抗扰度应符合GB9254 B类要求.

7.3 ESD: 静电放电抗扰度

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

ESD应符合IEC61000-4-2中3类等级要求.

7.4 EFT: 电快速脉冲群抗扰度

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

EFT应符合IEC61000-4-4中3类等级要求.

7.5 Surge Susceptibility: 浪涌抗扰度

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

浪涌抗扰度应符合IEC61000-4-5中3类等级要求.

7.6 Hi-Pot: 耐压测试

Input to GND : Voltage 1500VAC Time 3.0S, Cut off current 10mA MAX

输入端到地: 交流1500V 持续3.0秒,最大漏电流10mA。

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

接地连续性测试: 25A电流测试下 ,其阻抗小于100mΩ。

7.8 Ground Leakage Current: 对地漏电流

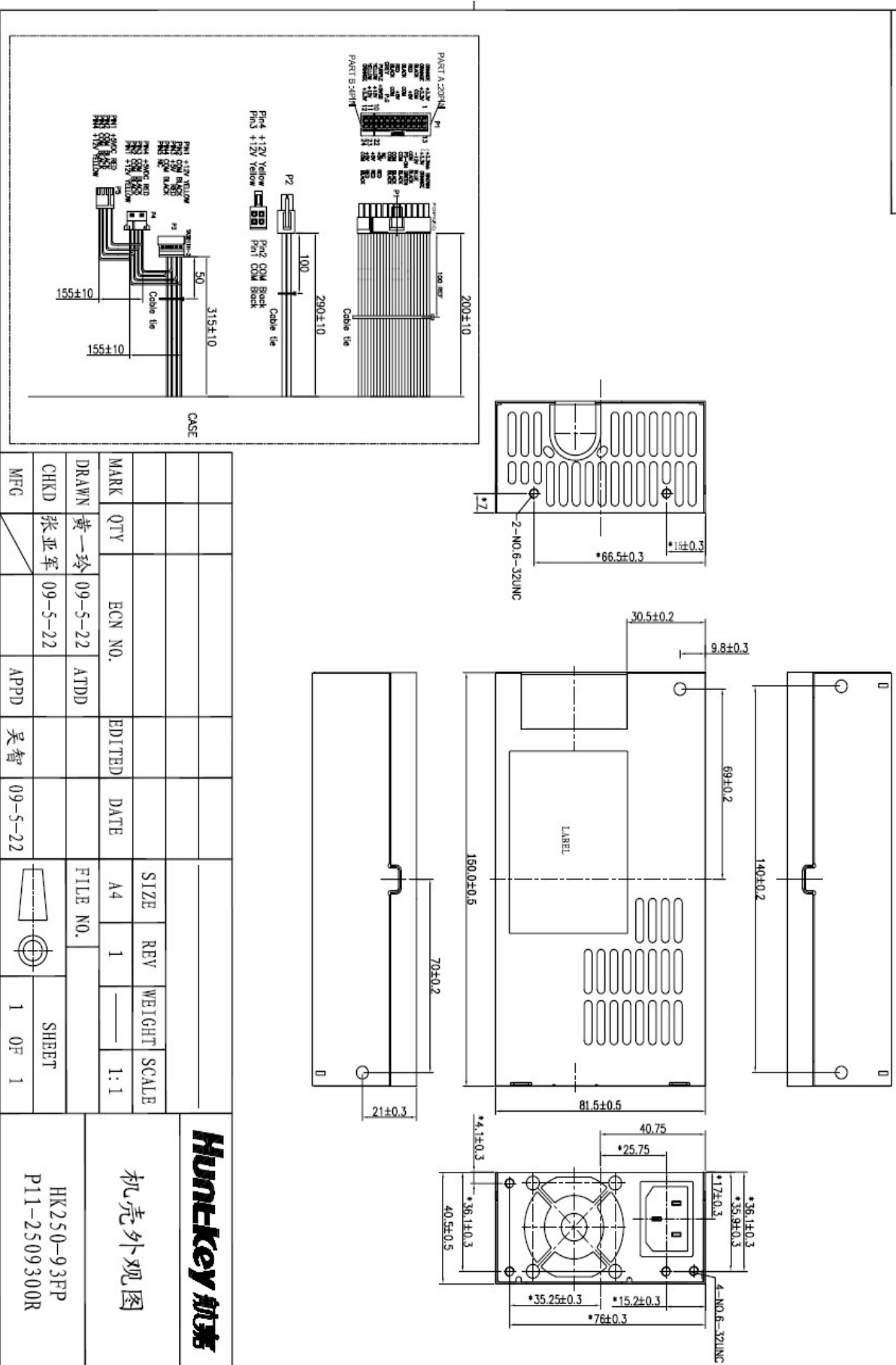
1.75mA MAX. AT 264V 50Hz

最大1.75mA (输入264V 50Hz)

8.0 Mechanical: 机械结构

8.1 Mechanical outline:结构外观图

R0006052-111



MARK	QTY	ECN NO.	EDITED	DATE	SIZE	REV	WEIGHT	SCALE
					A4	1		1:1
DRAWN	黄一玲	09-5-22	ATDD		FILE NO.	SHEET		
CHKD	张亚军	09-5-22				1 OF 1		
MFG			APPD	吴智	09-5-22			

HUNKEY 航嘉

机壳外观图

HK250-93FP
P11-2509300R

8.2 Label drawing: 大标贴图



9.0 ECN List

项目	规格书版本	修改日期	修改描述	修改原因
1	01		原始	

深圳市航嘉企业机构		文件编号: EQS-731-699
		版本: 01
制作	审核	核准
张亚军	李青云	吴智
日期	2009-05-21	