

Eps2u Power Supply Specifications

Model: HK600A

Consumer : Huntkey

File NO: EQS-731-4949

Prepared by:

Checked by:

Approved by:

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ECN List

Item	Spec. REV	Revise date	Revise description	Reason
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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.

It shall be tested at Cold start conditions .

1.5 Power Efficiency:

80% min. at full load and normal AC input.

LOAD	+12V	+5V	+3.3V	-12V	+5Vsb
100%	38.5	15	15	0.3	2
50%	19.25	7.5	7.5	0.15	1
20%	7.7	3	3	0.06	0.4

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	49A		+/- 5%	120mV
3. +5Vsb	0.1A	3.0A		+/- 5%	50mV
4. +3.3V	0.8A	24 A		+/- 5%	50mV
5. -12V	0A	0.3A		+/- 10%	120mV

AT 25°C

- (1) The total combined 3.3V/5V power shall not exceed 130W.
- (2) The continuous output power shall not exceed 600W
- (3) Maximum combined current for the 12V outputs shall be 49A

At50°C

- (1) The current of 3.3V shall not exceed 20A; The current of 5V shall not exceed 18A;
The current of 5VSB shall not exceed 2.4A
- (2) The total combined 3.3V/5V power shall not exceed 110W.
- (3) The continuous output power shall not exceed 480W
- (4) Maximum combined current for the 12V outputs shall be 35A

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

Range	+5V	+12V	-12V	+3.3V	+5Vsb
1	0.5	2.0	0.0	0.8	0.1
2	2.0	8.0	0.06	2.0	0.5
3	5.0	15.0	0.15	5.0	0.5
4	15.0	25.0	0.3	3.0	1.0
5	3.0	38.0	0.2	3.0	0.5
6	7.0	5.0	0.1	15.0	1.5
7	15.0	15.0	0.24	15.0	2.0
8	13.0	35.5	0.3	13.0	0.0
9(full load)	13.0	35.5	0.3	13.0	2.0

Table 3. Cross Regulation

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:

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	10A-15A	6A	30	0.3A	2A
3.3Vmin Load	1.6A	0.8A-6.8A	3	0A	0.2A
3.3Vmax Load	12A	10A-15A	22A	0.3A	2A
12Vmin Load	2A	0.5A	1A-28.95A	0A	0.2A
12Vmax Load	7.68A	7A	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
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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.

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: 16V max +3.3V :4.3V 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:

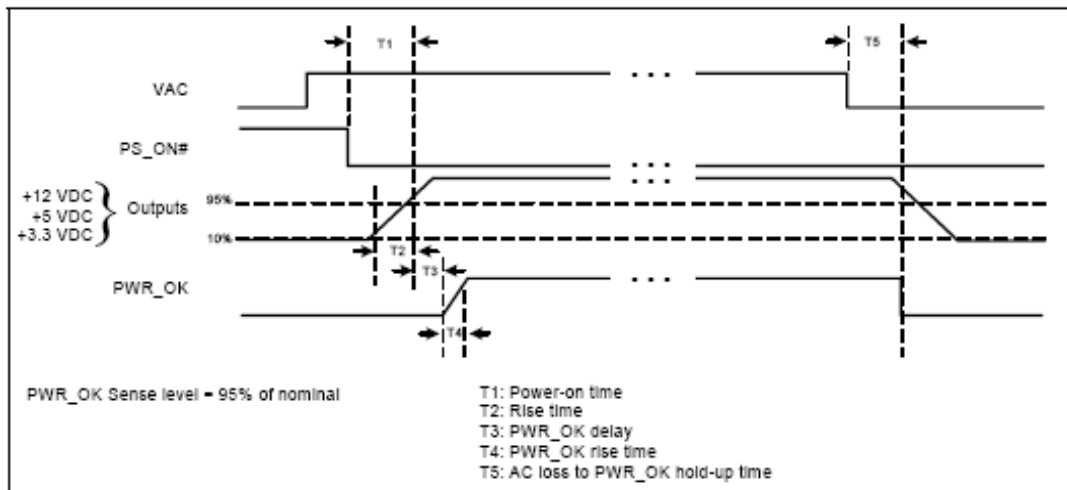
Table 6

Output	+5V	+3.3V	+12V
Over Current Limit	22A-36A	26A-36A	52A~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 ($0.1 \text{ ms} \leq T2 \leq 50$ 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 200 μ A
High-State Output Impedance	1k Ω 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 40 degrees centigrade; 40 度, 满 600W; 50 度, 80%负载 480W
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 (16400 ft)

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

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:

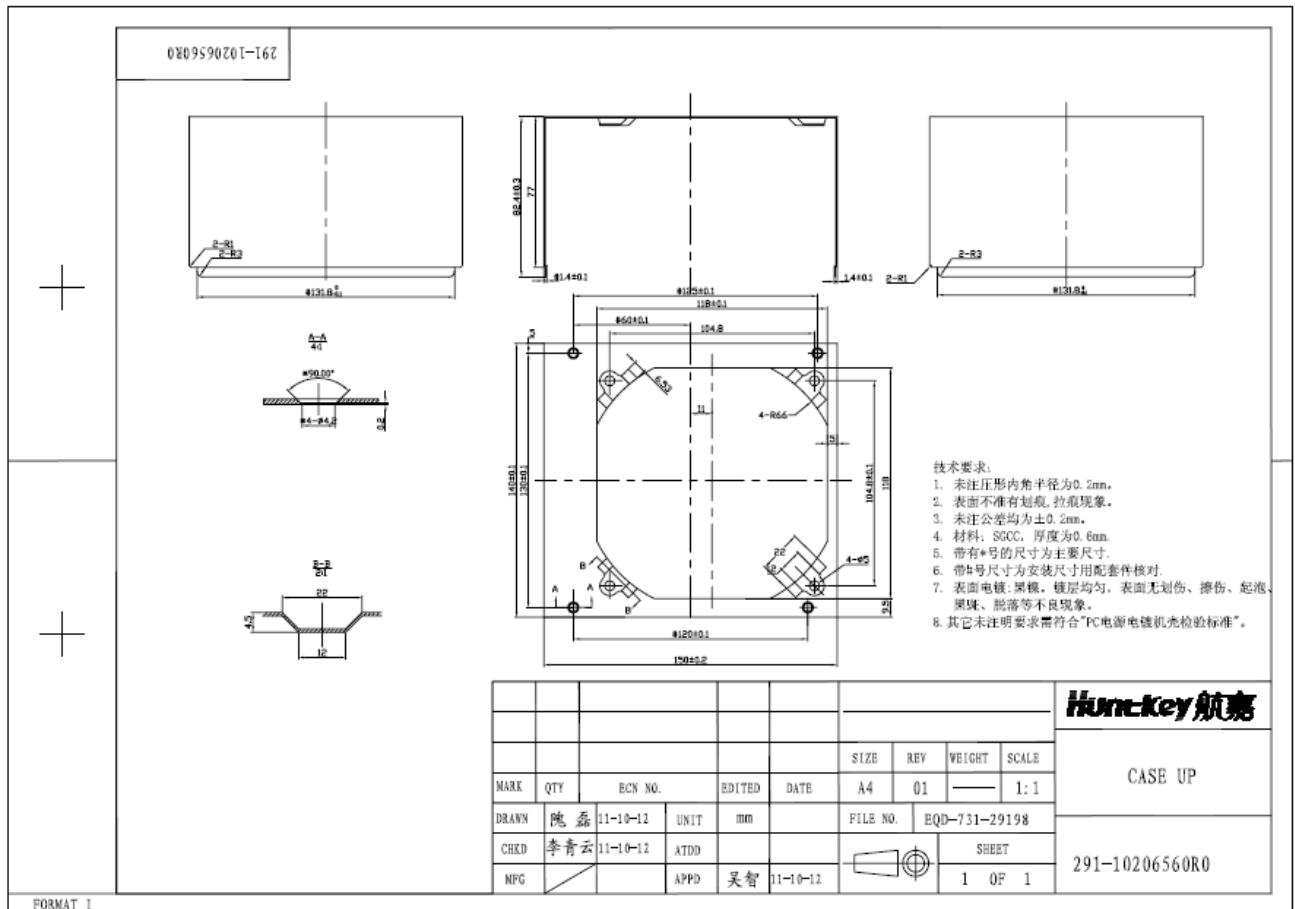
Input to GND: Voltage 1800VAC Time 3.0S, Cut off current 10mA MAX

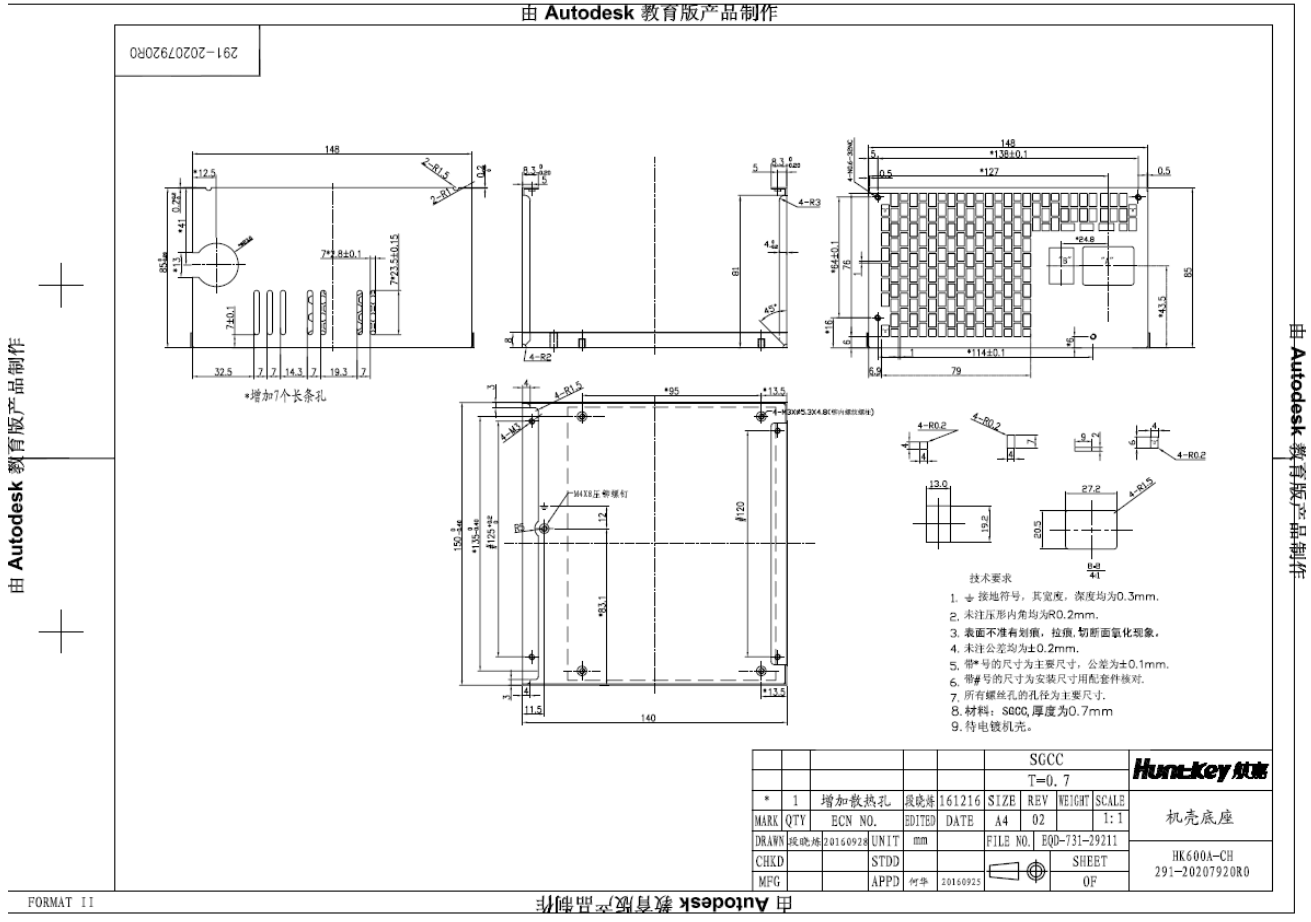
7.7 Grounding Continuity Test: 100mΩ MAX at 25.0A .

7.8 Ground Leakage Current:

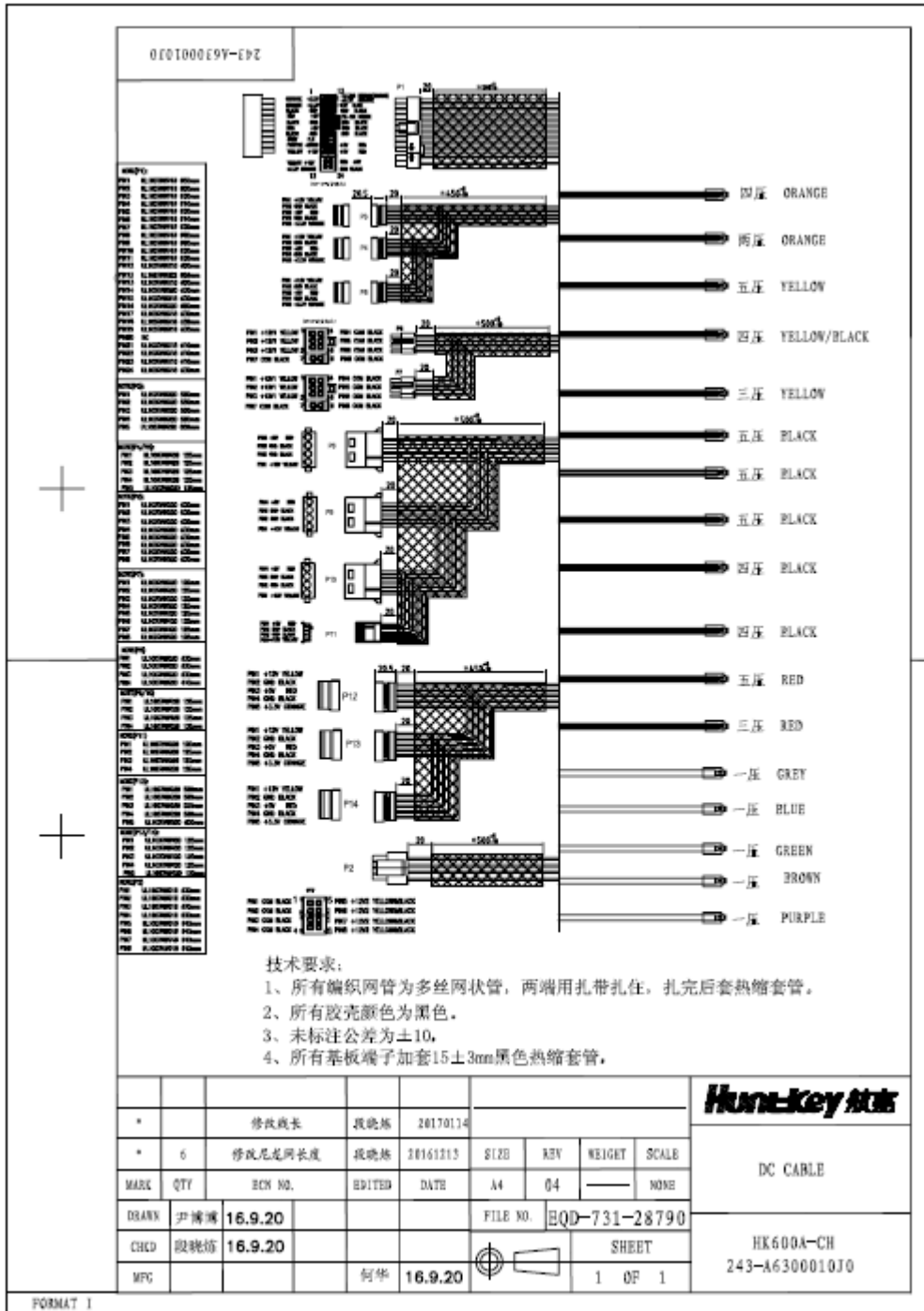
0.5mA MAX. AT 264V 50Hz

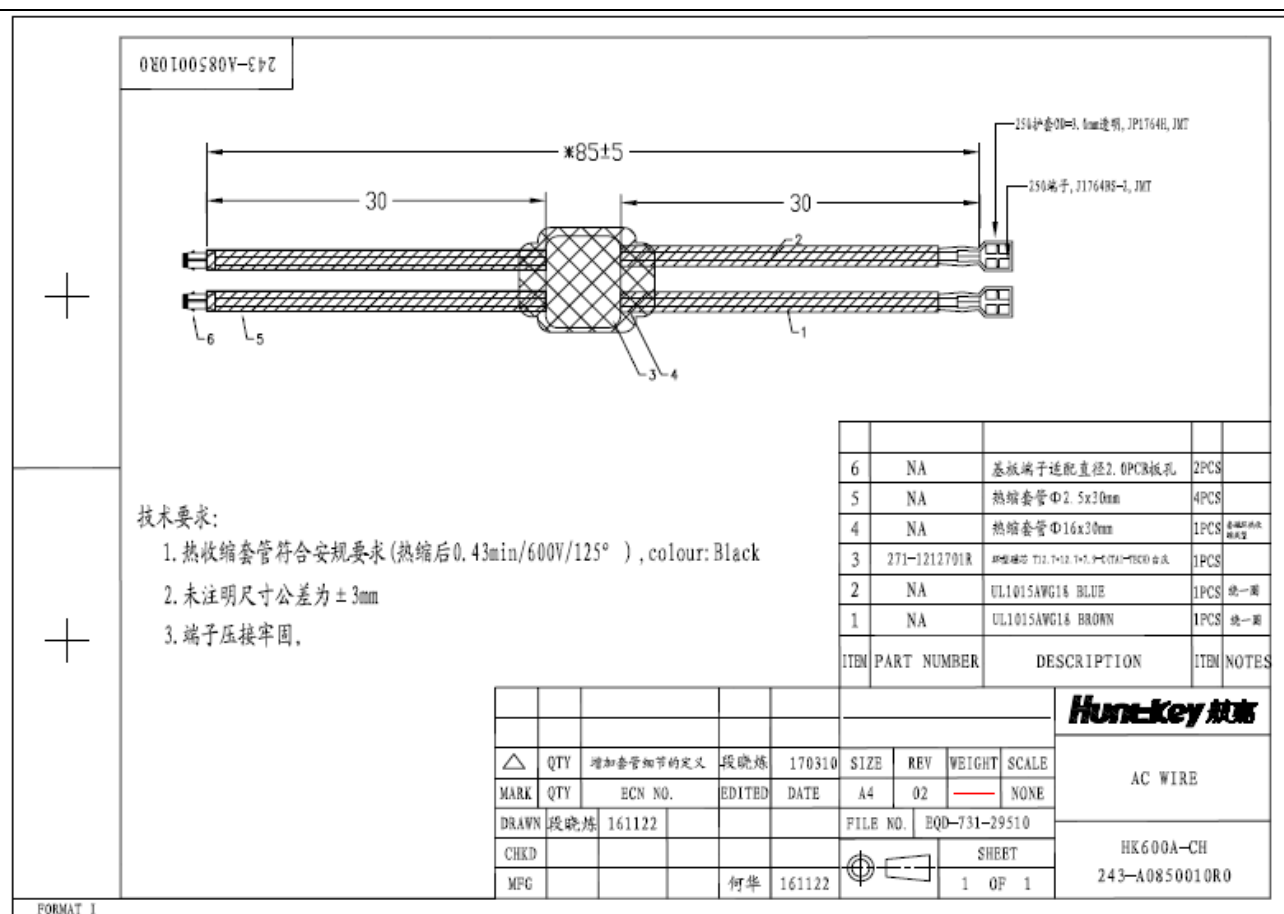
8.0 Mechanical:





8.1 DC/AC wire drawing





8.2 Label drawing

Huntkey 航嘉 PC power specification

变更日期	标记	处数	变更描述

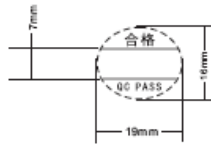
110 mm

61.0 mm

技术要求:

1. 材质: 80g铜版纸表面过亚膜
2. 字体大小和图纸一致, 字迹清晰;
3. 印刷表面干净, 平整, 要求无色点, 划痕等外观缺陷, 表面覆膜要求无翘起, 起泡现象;
4. 单面背胶, 粘性好, 无凝结或缺胶, 粘贴后表面平整, 无翘起或经过高温老化后无翘起现象;
5. 印刷字体或图案边沿无明显起牙和漏底现象, 字体和图案无明显偏移, 错位现象;
6. 印刷颜色和图纸或签样要求无明显差别, 且清晰可辨, 可参照具体色卡对照;
7. 尺寸规格如图纸, 公差为 ± 0.3 mm, 要求切边挺直, 无毛刺;

Huntkey 航嘉		MATERIEL NAME	大标贴	MATERIAL	80g 铜版纸
SHEET	OF	MATERIEL No.	350-86000 04080	FILE NAME	HK600A-CH
UNIT	mm	SCALE	DATE	2017 0224	REV
					01
DRAWN	DESIGNED	CHECKED	APPROVED	FILE No.	
段晓炼	喻楠辰	杨锦辉	何华	E00-731-30410	



注：虚线为刀模位

Chiyuan Industrial Co., Ltd.		物料名称	条码贴纸	材料	普通不干胶	
规格	19*16	工艺	物料编号	351-1090035R	文件名	公用
UNIT	mm	SCALE	SHEET: 0F	DATE: 2008. 11. 26	REV: 1	
DRAWN	DESIGNED	CHECKED	APPROVED	FILE NO.		
陶磊	陶磊	吴智	叶贵荣	EQD-731-7530		

Huntkey 航嘉 PC power specification



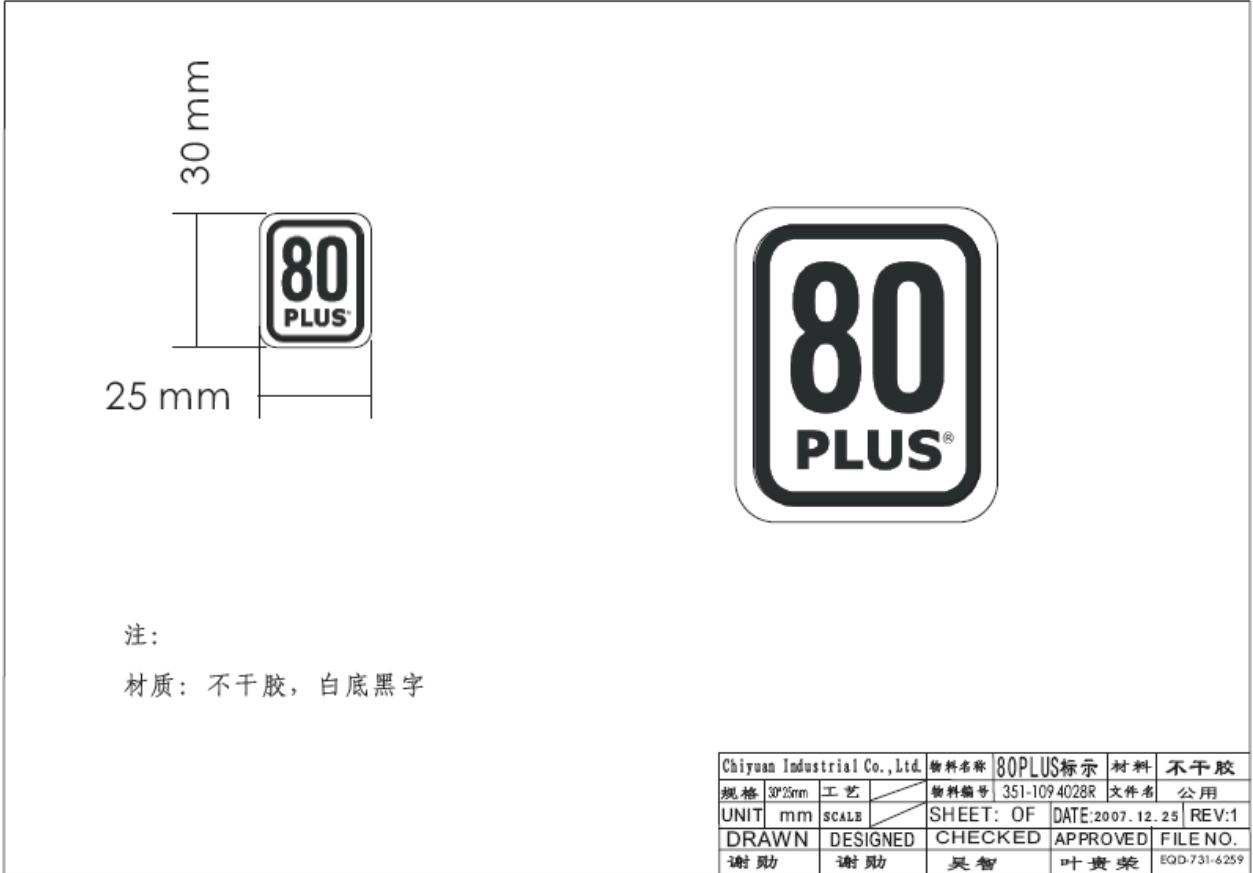
注:

材料: 0.5厚镜片铝, 正面须贴保护膜和

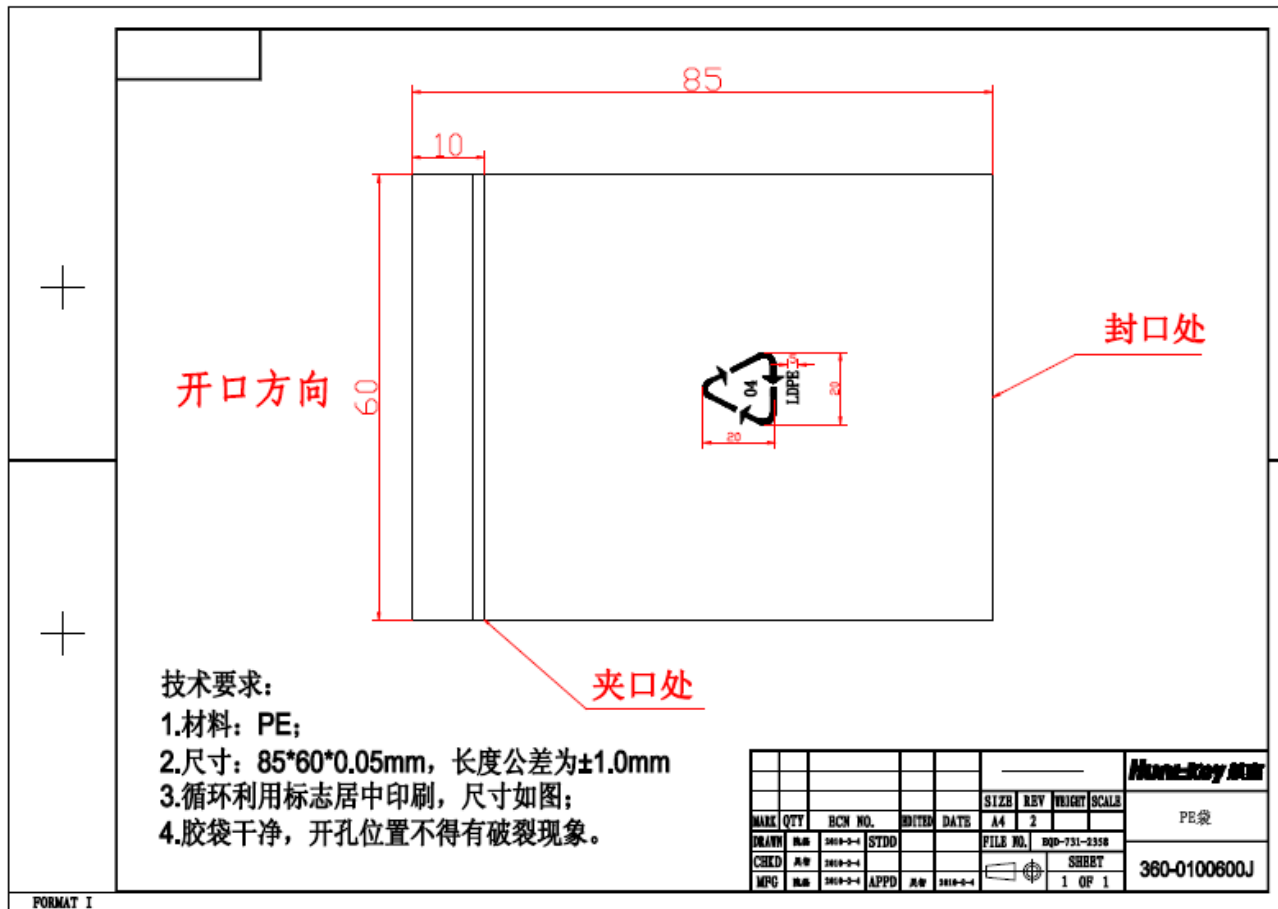
背面须贴3#9448双面胶。

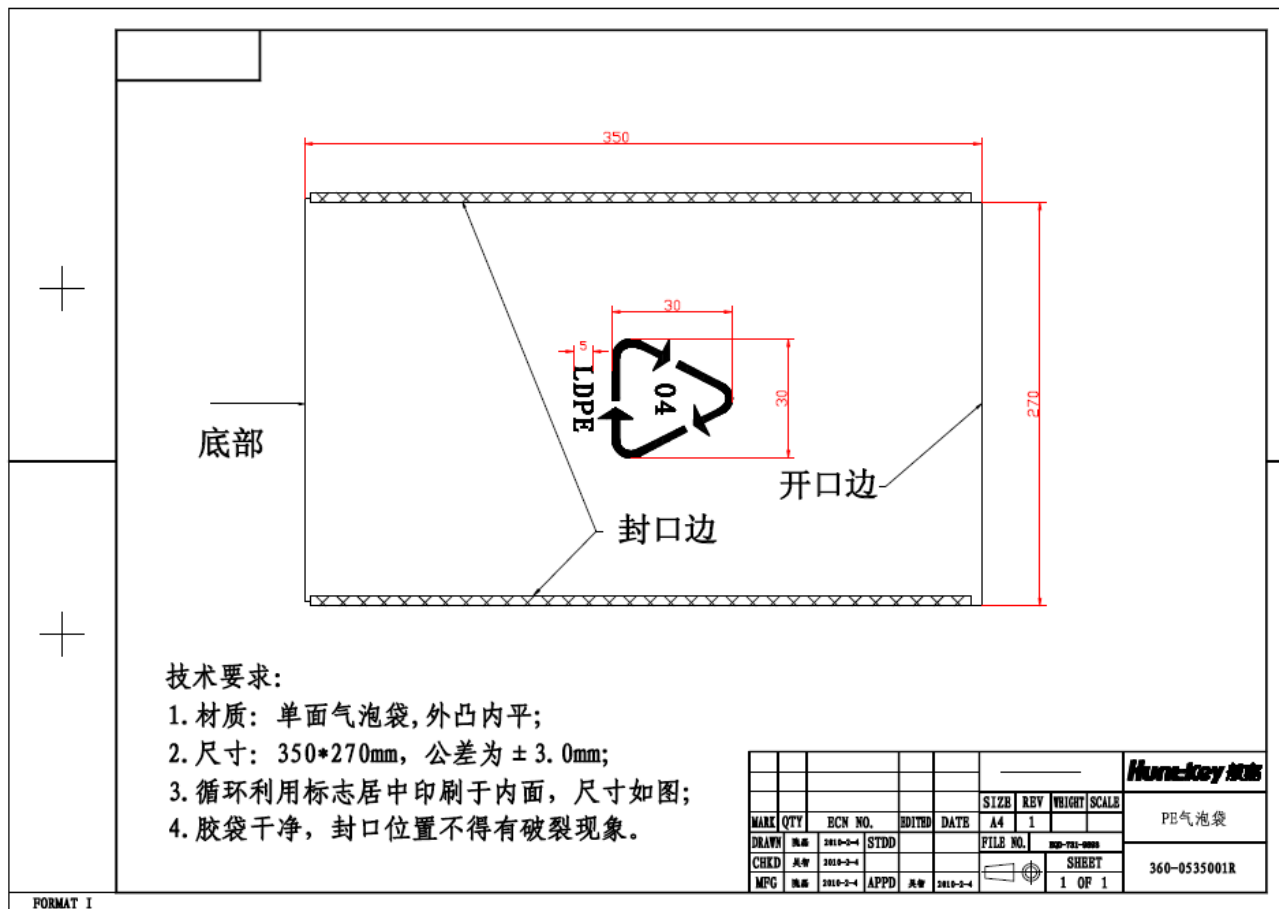
表面处理: 腐蚀, 阳极, 凸字批花, 背胶冲型
来料需10PCS一版。

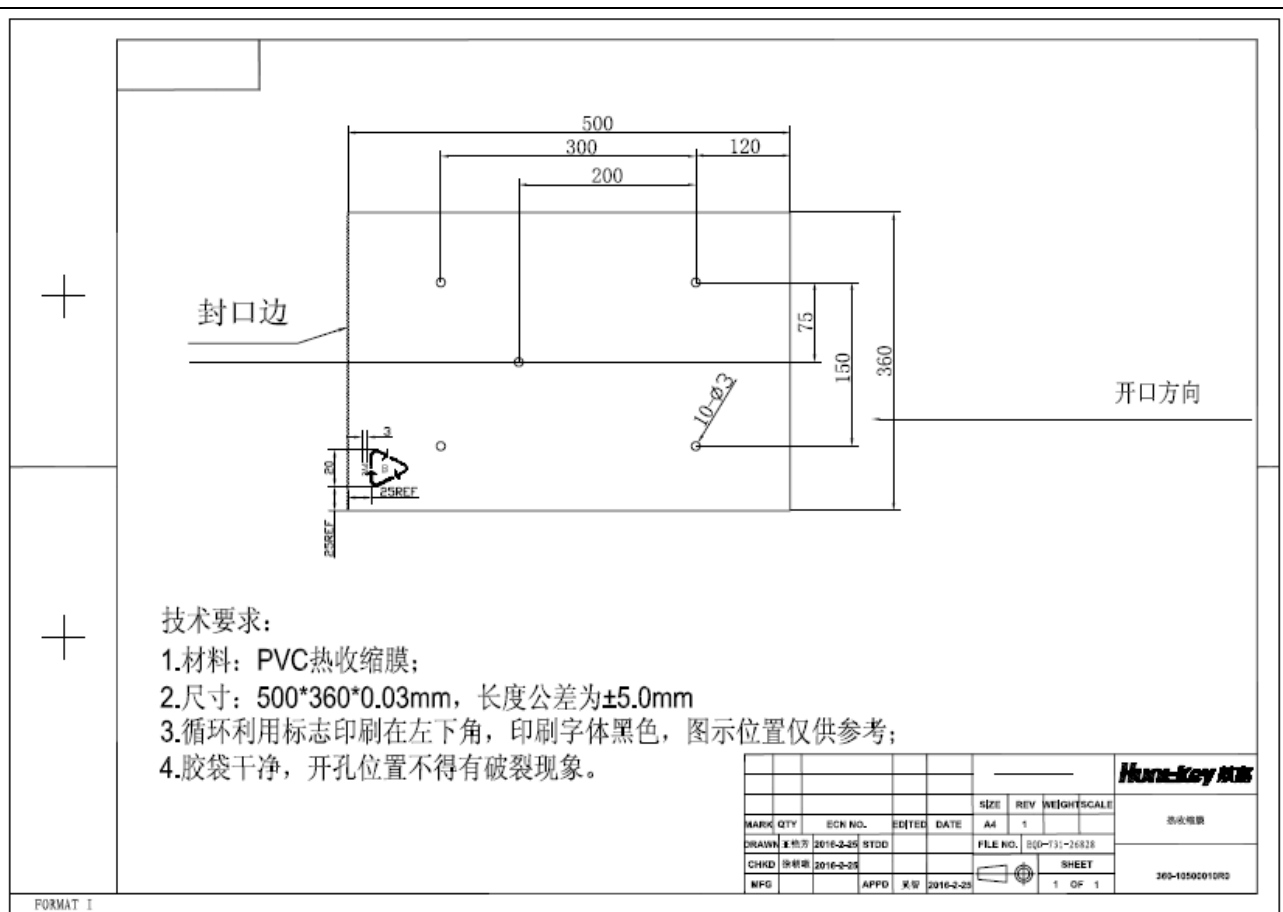
Chiyuan Industrial Co., Ltd.		物料名称	电源铭牌	材料	
规格	26.8MM	工艺	物料编号	351-1094.016R	文件者
UNIT	mm	SCALE	SHEET: 01	DATE: 2007.02.26	REV: 02
DRAWN	DESIGNED	CHECKED	APPROVED	FILE NO.	
谢助	谢助	吴智	叶贵荣	E CD-731-5304	



8.3 Package Drawing







Huntkey 航嘉 PC power specification

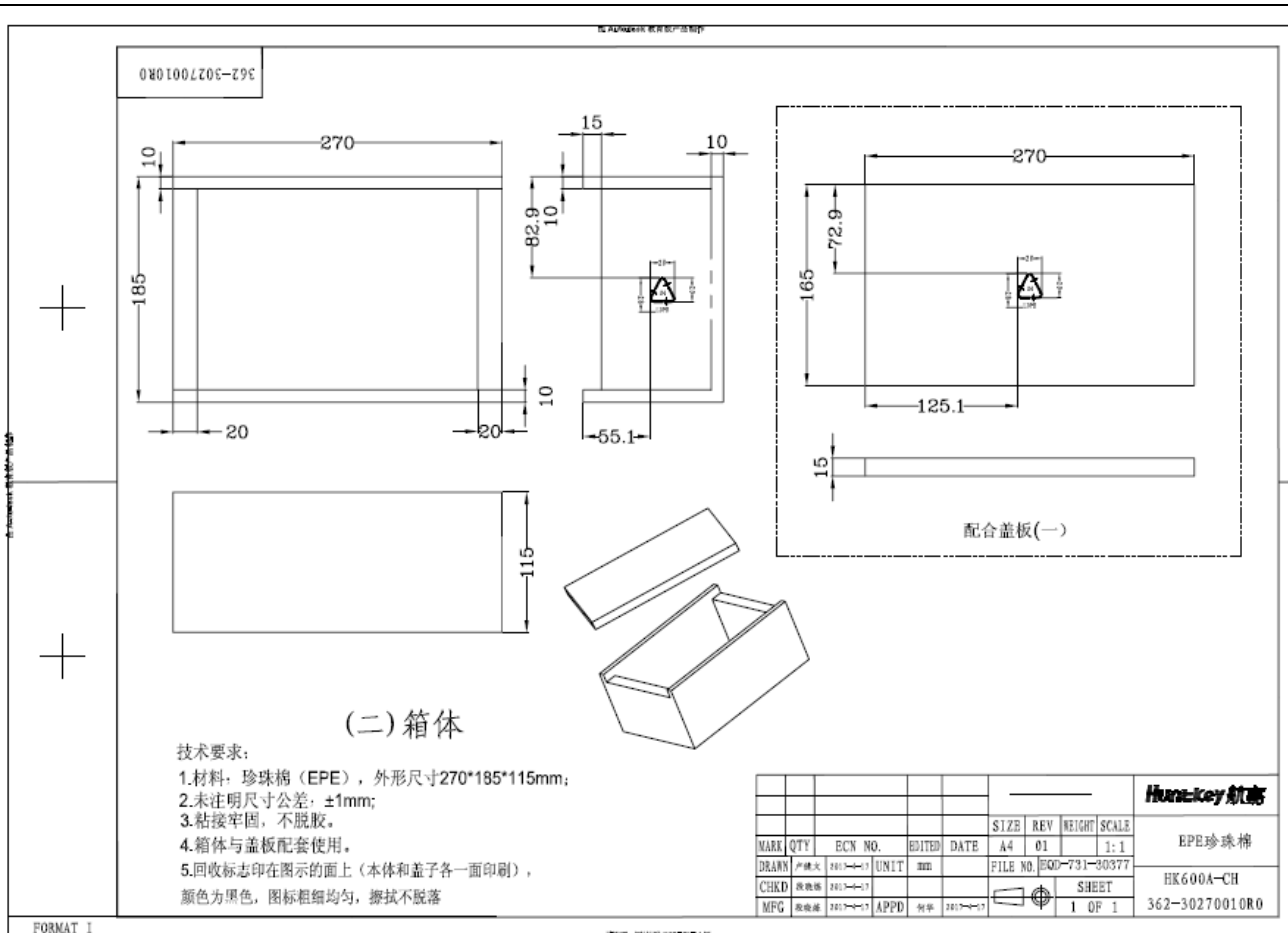
变更日期	标记	处数	变更描述

彩盒外尺寸：280L*200W*125H (mm)，
具体刀模线以打样试装后确认的为准

技术要求：

1. 材质：400g 粉灰裱卡+E坑
2. 所用纸板无开裂、裂纹、无霉斑、虫蛀等现象，纸板要求含水量小于11%；
3. 物料/产品的环保要求，参见《WEM-302禁止和限制使用的环境物质要求》
及客户要求
4. 彩盒成型后不得有可见翘曲，纸板结合间隙小于2mm，封口间隙小于5mm；
5. 印刷内容应与签样相符合，颜色和字体与图纸一致，表面无明显异色点；

Huntkey 航嘉		MATERIEL NAME	彩盒	MATERIAL	400g粉灰裱卡	
SHEET	OF	MATERIEL No.	363-10-20004-000	FILE NAME	HK600A-CH	
UNIT	mm	SCALE	DATE	20170411	REV	01
DRAWN	DESIGNED	CHECKED	APPROVED	FILE No.		
段晓炼	段晓炼		何华	EQD-731-30314		



包装顺序示意图

电源

↓

小彩盒

↓

外包装箱

技术要求:

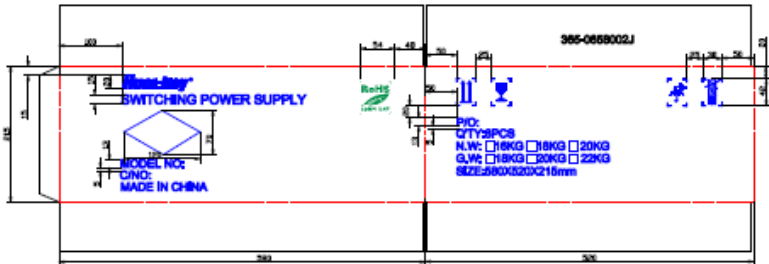
- 1.材质:五层瓦楞纸(A=A),5.0mm,加强芯
- 2.外包装箱标示尺寸为外径尺寸,公差+5/-0mm.
- 3.内装小彩盒尺寸:280*125*200mm,数量:8pcs
- 4.纸箱的抗压强度>0.35Kg/cm²

技术要求:

- 1.外箱板厚:4 厚度:5mm
- 2.公差:±0.5mm
- 3.图中中外框所示尺寸为外径尺寸
- 4.外包装箱带箭头:封箭头(见S OF 2)
- 5.内装小彩盒尺寸:280*125*200mm,数量:8PCS
- 6.纸箱的抗压强度>0.35Kg/cm²

						HuntKey 航嘉		
MARK	QTY	BCN NO.	EDITED	DATE	SIZE	REV	TRIGHT	SCALE
DRAWN	张	2007-0-0	STDD		A4	4		
CHECK	共	2007-0-0			FILE NO.	EQD-731-5275		
MFG	张	2007-0-0	APPD	共	2007-0-0			SHEET
							1 OF 2	外包装箱
								365-0658002J

FORMAT 1



Technical drawing of a power supply label showing dimensions and specifications. The label includes the text: Huntkey SWITCHING POWER SUPPLY, MODEL NO., CNO, MADE IN CHINA, RoHS, and 365-0658002J. It also lists QTY: 2PCS, N.W. options (16KG, 18KG, 20KG), G.W. options (18KG, 20KG, 22KG), and SIZE: 580X220X216mm.

说明:

- 1.印刷用唛头: 旧唛头, 对称印刷。
- 2.丝印文字字体: Arial, 字宽比为1, 字高如图。
- 3.丝印颜色: 除ROHS为绿色为, 其他所有丝印内容的颜色为蓝色。
- 4.未标尺寸公差为 ± 2 mm。
- 5.正唛的下面三行和侧唛的后五行字高13, 行间距分别为5mm

				Huntkey 航嘉				
MARK	QTY	BCN NO.	ENTYD	DATE	SIZE	REV	WEIGHT	SCALE
MARK	航嘉	2007-0-0	STUD		A4	4		1:1
FILE NO.	BQD-731-5275							外包装唛头
CHKD	航嘉	2007-0-0					SBBT	365-0658002J
MFG	航嘉	2007-0-0	APPD	航嘉	2007-0-0		2 OF 2	

FORMAT I

Huntkey Hong Kong Development Co. Ltd.		File No. :
		Version :
Prepare by	Check by	Approved by
Date: REV:01	Model: HK600A-CH 2017-5-16	P/N: P18-0600ACH01R Page 23 of 23