

# 深圳市豪诺天电子有限公司

SHENZHEN HUANANTONG ELECTRONIC TECHNOLOGY CO., LTD

## 承 认 书

### SPECIFICATION FOR APPROVAL

客户名称 (CUSTOMER): \_\_\_\_\_

客户编号 (CUSTOMER P/N): \_\_\_\_\_

产品名称 (DESC): 充电器

产品型号 (DESC): HNT-M520RZ

版 本 (REV NO): A/0

编制	审核	批准	承认	审核	批准
PREPARED BY	CHECKED BY	APPROVAL BY	SIGNATURE	CHECKED BY	APPROVAL BY
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## 1. 描述 ( Description )

本规格书适用于该机型产品的质量检验, 对其规格、测试方法进行了规范, 是各项性能的监测依据。此产品仅限室内干燥环境使用, 非专业人士请勿拆卸, 更换保险时只能使用相同规格。

This specification applies to the aircraft product quality inspection, the specification, standard test method, is the performance monitoring basis. Use this product only dry indoor environment non-professionals do not disassembly, replacement of insurance can only use the same specification.

## 2. 电气规格 ( Electrical Specification )

### 2.1 输入 (INPUT)

输入电压 Input voltage	额定电压 Rated voltage	适用频率 Input frequency	额定频率 Rated input frequency	输入电流 Input current	浪涌电流 Inrush current (cold start)
90 - 264 Vac	100 - 240 Vac	47 - 63 Hz	50 Hz / 60 Hz	0.3 A max. at full load	

### 2.2 输出 (OUTPUT)

#### 2.2.1 额定输出 (Rated Output )

额定电压 Output Voltage (Vdc)	输出电压范围 Output Voltage Limit (Vdc)	最大输出电流 Output Current (mA)	纹波&噪声 Output Ripple & Noise (mV)	备注 Remark	支持快充协议 Support fast charge protocol
5	4.75 - 5.3	2000 ± 100	≤ 150		无 (D+、D-短路无分压) No (D+、D- short circuit no partial voltage)

注 (Notes) : 在测试纹波时示波器带宽调至20MHz, 示波器的测试端并联一粒10uF的电解电容和一粒0.1uF的瓷片电容。(Ripple Voltage is measured with oscilloscope with bandwidth 20MHz . A 10uF E-cap and 0.1uF ceramic-cap shall be connected to the connector in parallel.)

#### 2.2.2 输出超调 (DC Output Overshoot At Turn On & Turn Off)

输出电压 Output Voltage (V)	输出超调电压比例 Proportion of the output voltage overshoot	
	开通 Turn on	关断 Turn off
5V	5%	5%

注 (Note) : 在全部电流范围内进行测试 (All of dc output current from Min. to Max..)

#### 2.2.3 负载特性 , 调整率 (Combined Load/Line Regulation)

电压 Voltage	最小负载 Min. Load	额定负载 Rated. Load	线性调整 Line Regulation	负载调整 Load Regulation
5Vdc	0.01A	2A	±5%	±5%

#### 2.2.4 指示灯功能 (Indicator light)

无 (NO)

#### 2.2.5 启动延迟时间 (Turn on delay time) :

当输入 115Vac 和输出最大负载时,最大启动时间为 3S.

3Second Max. at 115Vac input and output Max. load.

#### 2.2.6 上升时间 (Rise time) :

当输入 115Vac 和输出最大负载时最大时间为 40mS.

40mS Max. at 115Vac input and output Max load.

#### 2.2.7 保持时间 (Hold up time) :

当输入 115Vac 和输出最大负载时,最小保持时间为 5mS.

5mS Min. at 115Vac input and output Max. Load.

#### 2.2.8 效率 (Efficiency) :

当 230Vac 输入时,输出在 25%, 50%, 75%及满载情况下,平均效率需达到 78% (开机 30 分钟后测试板端) .

Average efficiency reach 78% minimum at 25%, 50%, 75%&100% of full-loading and 230Vac input (Test board end 30 minutes after boot).

空载输入功率 $\leq 0.1W$ .

No-load input power $\leq 0.1W$

### 3. 保护功能 (Protection)

#### 3.1 短路电路保护 (Short circuit protection) :

该电源供给器在短路解除时能正常工作恢复.

The power supply will be auto recovered after short circuit faults remove.

#### 3.2 过流保护 (Over current Protection) :

过流故障排除后,电源将自动恢复正常工作.

The power supply will be auto recovered after over current faults remove.

### 5. 可靠性要求 (Reliability Requirements)

#### 4.1. 老化 (Burn-in)

产品至少要在 40°C $\pm$ 5°C 的环境及 80%额定负载条件下煲机 2-4 小时

The power supply shall be burn-in for 2-4 Hours under normal input and 80% rated load at 40°C $\pm$ 5°C

#### 4.2. 平均间隔故障时间估算 (MTBF Qualification)

平均间隔故障时间: 至少 50,000 小时,25°C 环境及额定输入与满载条件下

The MTBF shall be at least 50,000hours at 25°C, Full load and nominal input condition

#### 4.3. 输入AC插头插拔测试 (Input AC plug pull test)

验证接通电网电源瞬间对产品冲击的影响，反复插拔50次，频率为1次/10秒。测试后此产品输出正常，无任何损坏。

The effect of transient impact to product validation on the grid power supply, plug 50 times Repeatedly, the frequency of 1 times / 10 seconds. The product output to normal after the Test

#### 4.4. 输出 USB 或 DC 插头插拔测试 (Output USB or DC plug plug plug test)

连接插头与USB母座或DC插座之间进行插拔，反复插入/拔出1000次，频率为150次/小时，拔插结束后机械结构应无损坏；测试后，不能有接触不良显现。

Plug and unplug between the plug and USB master or DC socket, repeatedly insert/pull out 1000 times, the frequency is 150 times/hour, after the plug and plug should be no damage to the mechanical structure;After the test, no contact defects shall appear.

### 5. 环境要求 (Environment Requirement)

#### 5.1 工作温度 (Operating Temperature) :

0°C-40°C, 满载, 正常工作

0°C to 40°C, Full load, Normal operation.

#### 5.2 储藏温度 (Storage Temperature) :

-40°C to 85°C 【带外壳 (With package)】

#### 5.3 工作湿度 (Relative Humidity) :

5% (0°C) ~95% (40°C) , 72 小时, 满载, 正常工作.

5% (0°C) ~95% (40°C) RH, 72Hrs, Full load, Normal operating.

#### 5.4 振动 (Vibration) :

##### 5.4.1. 测试标准: 国际电工电子委员会

Operating: IEC 721-3-3 3M3

5~9Hz, A=1.5mm

9~200Hz, 加速度 Acceleration 5m / S2

#### 5.4.2. 运输 (Transportation) :

IEC 721-3-2 2M2

5-9Hz, A=3.5mm

9~200Hz, 加速度 Acceleration=5m / S2

200~500Hz, 加速度 Acceleration=15m / S2

#### 5.4.3. 轴向振动 (Axes, 10 cycles per axis) :

在测试过程中不能出现永久性的损坏.

No permanent damage may occur during testing.

在电源开启和关闭后, 样机能够恢复到最初条件.

The product can restore to its original situation after power off / on.

#### 5.5 跌落试验 (Dropping Packed) :

一个角, 三个棱, 六个面.

1 corner, 3 edges, and 6 surfaces

高度 76cm

Height:76cm.

### 6. 安全及 EMI 要求 ( Safety and EMI Requirement) :

#### 6.1 安全:符合标准 (Safety: accord with) :

certificate	国家/Country	standards	
<input type="checkbox"/> UL/CUL	美国/USA	UL60065	
<input type="checkbox"/> UL/CUL	美国/USA	UL60950	
<input type="checkbox"/> TUV/GS	欧洲/Europe	EN60065	
<input type="checkbox"/> TUV/GS	欧洲/Europe	EN60950	
<input checked="" type="checkbox"/> FCC	美国/USA	EN55032/EN55024/EN61000	
<input type="checkbox"/> CE	欧洲/Europe	EN60065	
<input checked="" type="checkbox"/> CE	欧洲/Europe	EN60950-1	
<input type="checkbox"/> MEPS	澳洲/Australia	AS/NZS 4665	
<input type="checkbox"/> SAA	澳洲/Australia	AS/NZS 60065	
<input type="checkbox"/> SAA	澳洲/Australia	AS/NZS 60950	
<input type="checkbox"/> CCC	中国/China	GB8898	
<input type="checkbox"/> CCC	中国/China	GB4943.1-2011	
<input type="checkbox"/> PSE	日本/Japan	J60950 (H22)	
<input type="checkbox"/> CB	欧洲/Europe	IEC60065	
<input type="checkbox"/> CB	欧洲/Europe	IEC60950	
<input type="checkbox"/> C-TICK	澳洲/Australia	AS/NZS CISPR13:2004	
<input type="checkbox"/> EK/KC	韩国/Korea	K60065	
<input type="checkbox"/> EK/KC	韩国/Korea	K60950	

## 6.2 EMI 标准 (EMI STANDARD) :

测试符合以下标准: EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013

EN 55032:2015 EN 55024:2010+A1: 2015 EN 61000-3-2: 2014 EN 61000-3-3: 2013

The test meets the following criteria: EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013

EN 55032:2015 EN 55024:2010+A1: 2015 EN 61000-3-2: 2014 EN 61000-3-3: 2013

## 6.3 绝缘强度 (Dielectric Strength Testing) :

绝缘强度满足下表的要求, 100% 在线产品执行此项测试, 并每一项目至少保持 5 S 时间, 无任何故障。  
Hi-pot test shall be met the table 5 requirements, an item listing this test as a 100% production test must be performed and be maintained at that level for a minimum of 5 seconds without failure.

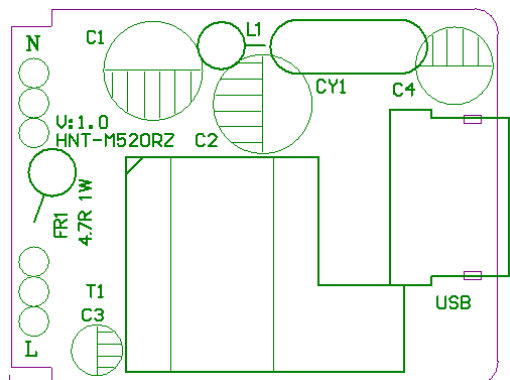
项目 (ITEM)		测试规格 (SPECIFICATION)	结果 (REMARK)
耐压	输入 -- 输出 <i>Primary to Secondary</i>	AC3000 V/5mA/5s	无飞狐 No arcing 无击穿 No broken
	输入 -- 地 <i>Primary to P.G</i>		
	输出 -- 地 <i>Secondary to P.G</i>		
绝缘阻抗	输入 -- 输出 <i>Primary to Secondary</i>	DC500V /10MΩ	>10MΩ

## 7. 测试设备清单 (Test Equipment List)

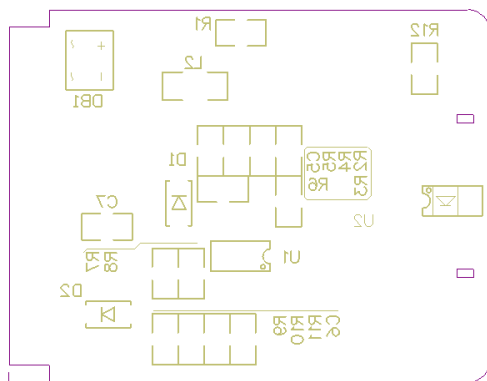
项目	设备名称	制造	型号
1	变频电源 (AC power source)	磊齐	LQB-81005
2	示波器 (Oscilloscope)	UNI-T	UTD2102CEX
3	电子负载仪 (Electronic load)	美尔诺	M9710
4	万用表 (Multimeter)	胜利	VC890C
5	功率计 (Dynamometer)	纳普	PM9806
6	温度表 (Thermograph)	金艾联	JK-16C
7	插头引线弯折试验机 (Plug lead bend test machine)	联欣	LX-817
8	盐雾试验机 (Salt spraying tester)	联欣	LX-8827B
9	震动台 (Vibration table)	精技实验	FZD-25
10	跌落测试台 (Drop test bed)	自制	
11	数显卡尺 (Digimatic caliper)	苏测	0-150mm

## 8. PCB 丝印图(PCB printed map)

8.1: 顶层丝印 (Top Overlay)

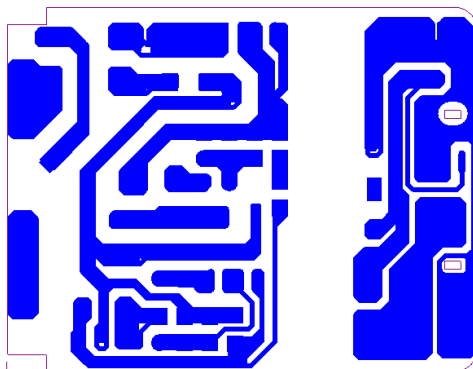


8.2: 底层丝印 (Bottom Overlay)



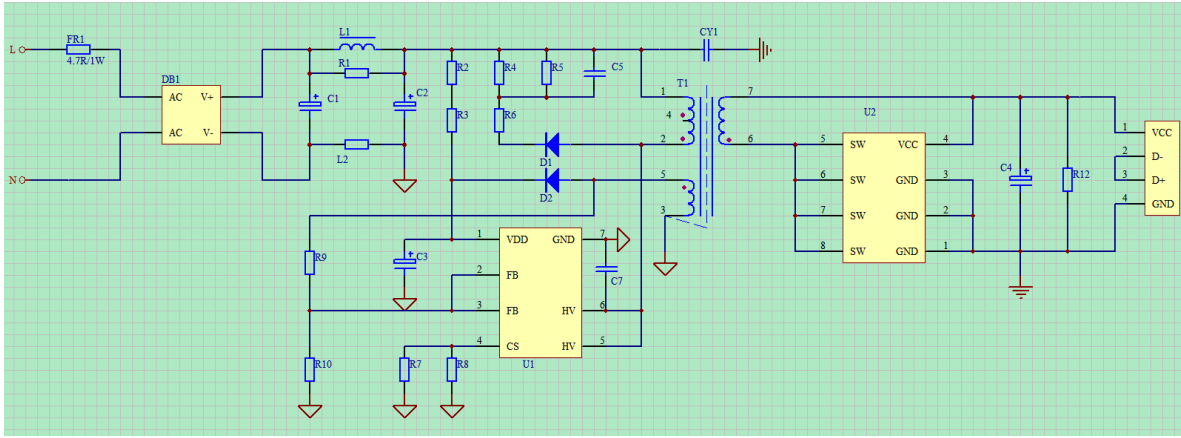
8.3: 顶层走线 (Top Layer)

8.4: 底层走线 (Bottom Layer)





## 7. 原理图 (Schematic)



## 8. 结构参数 (MECHANICAL REQUIREMENT)

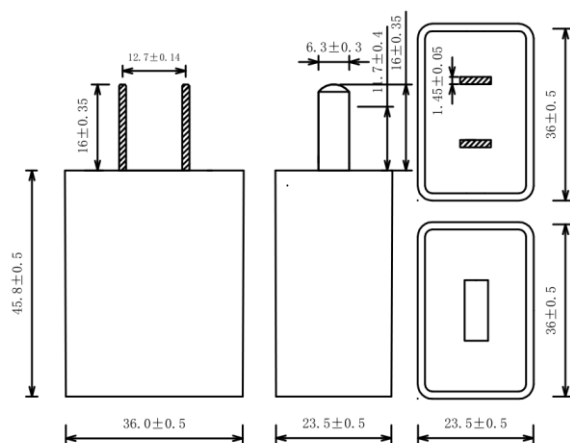
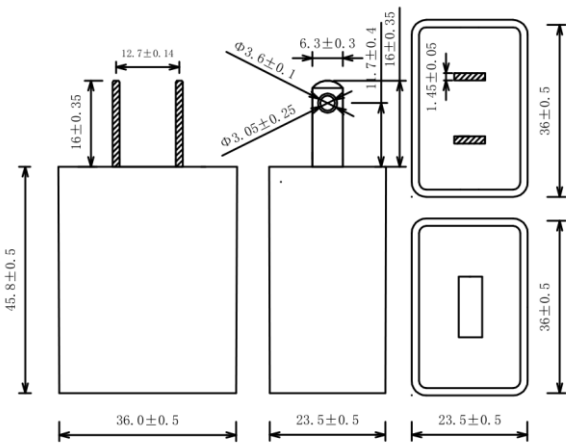
### 10.1 外壳 (Enclosure) :

外壳尺寸: 详细尺寸见下图

The power supply size: The detailed size is shown in the figure below

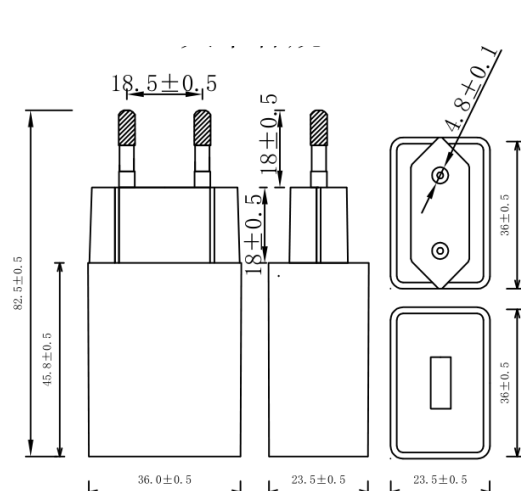
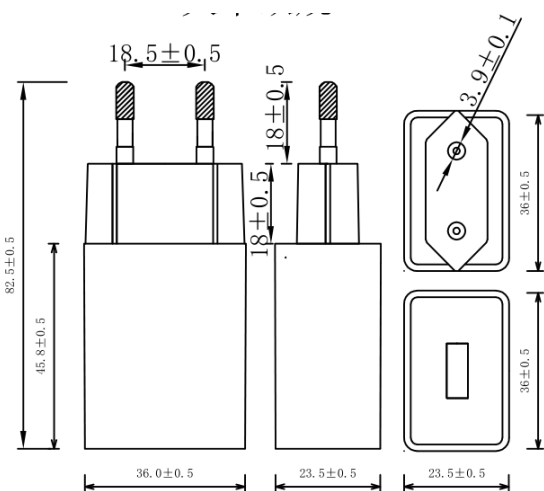
美规尺寸:  $62 * 36 * 23.5\text{mm} \pm 0.5\text{mm} (H*L*W)$

中规尺寸:  $62 * 36 * 23.5\text{mm} \pm 0.5\text{mm} (H*L*W)$



欧规尺寸:  $82 * 36 * 23.5\text{mm} \pm 0.5\text{mm} (H*L*W)$

韩规尺寸:  $82 * 36 * 23.5\text{mm} \pm 0.5\text{mm} (H*L*W)$



## 10.2 输入插脚规格 (Input Plug) :

插脚: 美规、中规、欧规、韩规、澳规等多种插脚供选择

Pins: American rules, China rules, European rules, Korean rules, Australian rules and many other pins to choose from.

## 10.3 输出极性和连接器脚位定义 (Polarity and Pin Connection)

标准 USB 接口

Standard USB interface

## 10.4 重量 (Weight)

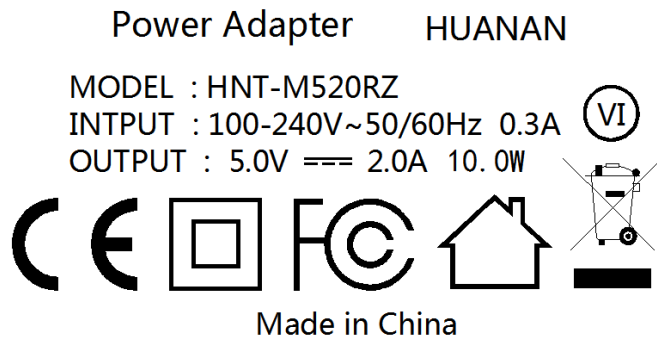
电源的重量大约为 30-40 g.

The weight of the power supply shall be about 30-40 g.

## 11. 铭牌图 (Label Drawing)

### 1、铭牌样式:

Nameplate style



### 2、工艺: 镭雕

Technology: Radium carving

### 3、尺寸:

Size:

### 4、厚度: NC

Thickness: NC

### 5、耐温: $\geq 80^{\circ}\text{C}$ .

Temperature resistance:  $\geq 80^{\circ}\text{C}$ .

### 6、生产日期根据每批下订单类推变动.

Production date according to each batch order on change