

Product Specification for Approval

产品承认书

WE ARE PLEASED IN SUBMITTING OUR SAMPLES WITH SPECIFICATION TO YOU FOR APPROVAL.

很荣幸提供我们的样品规格给您承认。

CUSTOMER
客户 : _____

DESCRIPTION
描述 : _____ 24W 中规Type-A充电器 _____

MODEL NO.
铭普型号 : _____ MCCS-050300 _____

MNC P/N
铭普料号 : _____ MCNS-12020024Q1 _____

REVISION
版本 : _____ A0 _____

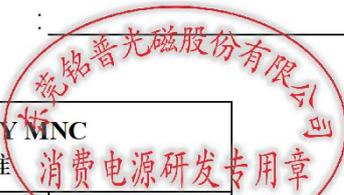
CUSTOMER P/N
客户料号 : _____

ISSUED DATE
发行日期 : _____ 2018/8/2 _____

WEIGHT
重量 : _____

MADE IN
制造产地 : _____ CHINA _____

APPROVED BY MNC 铭普核准			APPROVED BY CUSTOMER 客户核准
PREPARE 拟制	CHECKER 审核	APPROVE 批准	SIGNATURE OR STAMP 签字或盖章
赵华诚	曾传东	万少恒	



1. PLEASE SEND BACK US A COPY OF THE SPECIFICATION WITH YOUR STAMP OR SIGNATURE ONCE THE SAMPLES APPROVED.

承认样品后请回传给我们一份盖章或签字的规格书。

2. IT WILL BE DEEMED THE SAMPLES TO BE APPROVED IF NO FEEDBACK.

如无反馈将默认为样品已被承认。

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1. SUMMARY 产品概述



The product image is for reference purpose,
please subject to our available products.

图片供参考，请以实物为准。

- ◆ Universal AC input/Full range
国际通用全范围交流输入
- ◆ Output protection OCP/OVP/OPP/SCP
具有过流/过压/过载/短路/等保护功能
- ◆ 100% Full load burn-in test
所有产品满负载老化
- ◆ The product should meet the RoHS
产品符合RoHS

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2. INPUT CHARACTERISTICS 输入特性

2.1 Input voltage and frequency 输入电压与频率

	Units 单位	Minimum 最小	Normal 额定值	Maximum 最大
Input voltage 输入电压	Vac	90	100/240	264
Input Frequency 输入频率	Hz	47	60/50	63

2.2 Input current 输入电流

0.5A (Max) at input 100~240Vac.

在AC 输入额定电压100~240V 时最大输入电流为0.5A。

2.3 AC surge current(cold start) AC 浪涌电流(冷启动)

At cold start; 25°C;DC output rated loading;240Vac input conditions, when input power is applied to the power supply, peak inrush current shall be limited to 50A. DC output rated loading.

在25°C时输入电压为240Vac输出额定负载时冷启动, 浪涌电流不大于50A。

2.4 Line/Load Regulation 线性/负载调整率

Output/ 输出	Load condition /负载条件		Load Regulation /负载调整率	Line Regulation /线性调整率	效率
	Min Load	Max Load			
Rate					
+5V	0.0A	3.0A	±5%	±3%	81.84%
+9V	0.0A	2.67A	±5%	±3%	86.80%
+12V	0.0A	2.0A	±5%	±3%	86.80%

2.5 Efficiency 电源效率

Request complies with the DoE VI, power adapter in accordance with the standard requirements of the average efficiency: $\geq 81.39\%$ (115Vac 60HZ/230Vac 50Hz, load 25%/50%/75%/100% of the average efficiency, no-load power consumption: $\leq 0.1W$ (Input 115Vac and 230Vac)).

Remark: The measurement should be after Burn-in 30 minutes. Output voltage measurement PCBA error
要求符合DoE VI标准, 电源适配器按标准要求平均效率: {115Vac 60HZ /230Vac 50
Hz, 负载25%/50%/75%/100%下的平均效率, 空载功耗: $\leq 0.1W$ (输入115Vac与230Vac)}。

备注: 要在老化30分钟后测量, 输出电压测试PCBA板端

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3. DC OUTPUT CHARACTERISTICS 输出特性

3.1 Output voltage and current 输出电压与电流

At room temperature, Output voltage ripple/noise voltage is less than 100mVp-p, Measured within Performed by 20MHz bandwidth in oscilloscope, Applied 0.1uF ceramic capacitor and 10uF electrolytic capacitor across output connector terminals Measured at the end of DC cable.

在常温下,输出端并0.1uF瓷片电容与10uF电解电容,限制示波器带宽20MHz时,测得纹波小于120mVp-p.

Rated output voltage 额定输出电压 (V)	Rated output current 额定输出电流 (A)	Peak current 峰值电流 (A)	Output voltage range 输出电压范围 (V)	Ripple noise 纹波噪声 (mVpp)
+5	3	3.5	+ 4.75 ~ + 5.25	<120
+9	2.67	3.2	+ 8.55 ~ + 9.45	<120
+12	2	2.5	+ 11.4 ~ + 12.6	<120

Parameter 参数	Min current 最小电流	Rate current 额定电流	Max current 最大电流	Test mode 测试模式
CV:3.6-4.7V	2.9	3	3.5	测试板5V档
CV:5-8.7V	2.4	2.67	3.2	测试板9V档
CV:9-11.8V	1.8	2	2.5	测试板12V档

3.2 Dynamic load test 动态负载测试

	Voltage Limits 电压范围		Load Change 负载变化
	Minimum 最小值	Maximum 最大值	
5V	4.5Vdc	5.5Vdc	25% to 75% load and 75% back to 25%
9V	8.1Vdc	9.9Vdc	25% to 75% load and 75% back to 25%
12V	10.8Vdc	13.2Vdc	25% to 75% load and 75% back to 25%

The power adapter output voltage shall not undershoot or overshoot beyond the specified limits shown after applying load changes with a 0.1A/usec slew rate on the output. Frequency of the dynamic load will be 50Hz with a duty cycle of 25~75%.

动态负载变化速率 0.1A/usec,频率为50Hz,负载为25%~75%,输出电压应满足规定范围。

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3.3 Capacitance load test 容性负载测试

The power adapter shall be able to turn on and operate normally with the following capacitance.Capacitance load:2000uF,at input voltage 100~240Vac, CR model.

在额定输入电压100~240Vac范围内, 适配器能在2000uF容性负载(CR模式下)能正常启动。

3.4 Overshoot 输出过冲

During either Turn-On or Turn-Off, the output overshoot voltage shall not exceed upper limit voltage 10%. No voltage of opposite polarity shall be present on the output during turn-on or turn-off.

在电源开关机过程中,输出过冲电压不能超过上限电压的 10%,不能有反极性电压发生。

3.5 Turn on time 启动时间

At AC100V input,Turn on time shall be < 3 S, the delay time is between AC being applied to output being within regulation.

从交流输入到输出达到稳压的启动时间小于3秒@100V输入时。

3.6 Hold-up time 输出保持时间

The power supply shall have a hold-up time greater than 5ms at input 100~240Vac and full load. (Measured from AC-off at a zero crossing)

输出保持时间大于5ms, 测量条件: 100~240Vac。

Parameter 参数	Min 最小值	Norm 额定值	Max 最大值	Unit 单位
100~240Vac	5	/	/	ms

3.7 Rise time and Fall time 输出上升时间和下降时间

Rise time shall be < 20mS, at rated load;Fall time shall be < 20mS, at full load.

在额定负载条件下, 输出上升时间< 20mS; 在满载条件下, 输出下降时间< 20mS。

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4. PROTECTION REQUIREMENTS 保护要求

4.1 Output over current protection 输出过电流保护

Parameter 参数	Min 最小值	Max 最大值	Unit 单位
OCP(5V)	/	3.5	A
OCP(9V)	/	3.2	A
OCP(12V)	/	2.5	A

When charger output is 5V/9V/12V

The output shall hiccup when output current does not over 3.5A/3.2A/2.5A, and shall be self-recover when the fault condition is removed.

当输出电压是5V/9V/12V,输出电流不超过3.5A/3.2A/2.5A时,输出将进入打嗝模式,但是当输出过流去掉时输出将自动恢复。

After performing OCP test, the power adapter shall return to normal operating when the OCP does not exist, there shall be no permanent damage to the power adapter components.

过电流测试后,电源能重新恢复正常正作,不能有损坏发生。

4.2 Output short circuit protection 输出短路保护

The adaptor shall hiccup and the input power shall decrease when the output is shorted,the power supply shall have no damage, and can be self-recovered when the fault condition is removed.

当输出短路时,适配器会进入打嗝状态,并且输入功率会下降,但是不会有任何损坏,当输出短路去掉时,适配器会退出打嗝,恢复正常输出功能。

4.3 Over-voltage protection 过压保护

Parameter 参数	MAX 最大值
5V	6.5V
9V	10.5V
12V	13.5V

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5. EMC AND EFT REQUIREMENTS 电磁兼容与雷击要求

5.1 Radiation emissions test 电磁辐射干扰测试

Test criteria(测试标准): GB9254.
3dB Margin at EUT.

5.2 Conducted emissions test 电磁传导干扰测试

Test criteria(测试标准): GB9254.
3dB Margin at EUT.

5.3 EFT test EFT 测试

EN55024:1998+A1:2001+A2:2003,EN610004-4+A1:200+A2:2002

Power line:1KV

Performance Criteria(性能标准) B

5.4 Surge test 雷击测试

EN55024:1998+A1:2002+A2:2003,EN610004-5:2001

Differential mode standard(差模标准):1.0KV

Common mode standard(共模标准):1.0KV

Performance Criteria(性能标准) A

5.5 ESD test 静电测试

EN 55024:1998+ A1:2002+A2:2203,EN 61000-4-2:2001

Air Discharge(空气放电): ±15kV

Contact Discharge(接触放电): ±8kV

Performance Criteria(性能标准) B

5.6 HI-POT 耐压

Primary-to-Secondary: 3000Vac for 60 seconds, the leakage current 5 mA max.

初级到次级:交流3000V持续60秒, 漏电流最大5mA。

5.7 LEAKAGE CURRENT 漏电流

0.25 mA max. at 264Vac/50Hz input.

输入264Vac/50HZ, 漏电流最大0.25mA。

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5.8 INSULATION RESISTANCE 绝缘阻抗

50MΩ min, at primary to secondary add a 500Vdc test voltage.
500Vdc,初级对次级最小50MΩ。

6. SAFETY REQUIREMENTS 安全要求

The power supply must meet all applicable requirements of the following standards: IEC60950-1, GB4943.

该电源必须满足下列各项安全要求: IEC60950-1, GB4943。

7. ENVIRONMENTAL PERFORMANCES 环境性能

7.1 Operating Ambient Temperature: -5°C至 +40°C

使用环境温度: -5°C至 +40°C

7.2 Operating Ambient Relative Humidity:20% to 80%R.H

使用环境相对湿度: 20%至 80% R.H

7.3 Storage Temperature :-45°C to +75°C

储存温度: -45°C to +75°C

7.4 Altitude: Safe use of belowing the sea level 5000m area.

适用于海拔5000m及以下地区安全使用。

8. RELIABILITY 可靠性

8.1 MEAN TIME BETWEEN FAILURE(MTBF)平均无故障时间

The MTBF should not be less than 50000 hours at the temperature of 25°C.
在25°C环境温度下平均无故障时间不小于50000小时。

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8.2 Drop test 跌落试验

Drop the adapter from a height of (1.0 ± 0.01) m onto a 20mm plank, hitting the adapter for 1 time/surface, no mechanical damages or other failures, no electrical deterioration and other failures comparing to before test condition.

适配器从 (1.0 ± 0.01) m处落下1次/面，落下的方向任意，落在20mm厚的木板上，实验后与实验前状态比较没有机械破损等不良状况，且不出现电器性能损坏。

8.3 Vibration test requirement 振动试验

Non-operating, with packing, Reference to IEC publ. 68-2-6.
在包装好不工作的情况下实验,具体参照 IEC publ. 68-2-6标准。

Test conditions 测试条件		Acceptance Criteria 规格
Frequency 振动频率	10~55Hz	Nominal functional test should be satisfied after the test. 试验后不发生功能损坏的异常情况。
Sweep 振动方式	2hours, For each axis(X,Y,Z) 2小时, 每个坐标轴(X,Y,Z)	
Displacement 振幅	0.35 mm(10~55Hz)	
Periodicity 周期	5	

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9. MECHANICAL CHARACTERISTICS机械性能

9.1 Appearance 外观

Visual inspection the case have no visual abnormality, no obvious nick, burr and other mechanical damage, outer metal have no rust. Use limit sample to check for any failures.

目视检查，无外观异常，表面无明显划痕、毛刺及其它机械损伤，外露金属部分无锈，其它限度根据样品确认。

9.2 Case/Resin materials 外壳材质

Flame resistance applies to UL94V-0.

耐燃性遵循UL94V-0。

9.3 RoHS requirement 环保要求

The power supply must meet RoHS.

该电源符合欧盟环保要求。

9.4 Label 铭牌

Size/尺寸：长（L）x宽（W）= 24.3 x 18.4mm

Textures/材质：Body laser 本体镭射

Deviation/公差：±0.2mm

Unit/单位：mm

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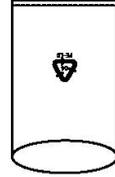
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9.5 Structure and dimension/结构尺寸规格

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9.6 Package 包装方式

1. PE袋:

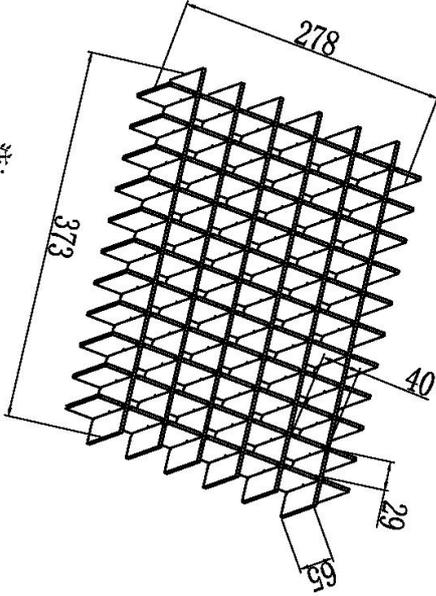


2. 刀卡组件: 用量: 5pcs

材质: A3A (厚度: 3mm)

尺寸 (L*W):

278*65*3 #40mm/373*65*3 #29mm

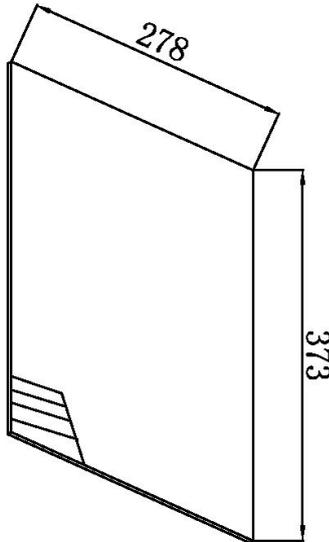


3. 隔板

用量: 6pcs

材质: A3A (厚度: 3mm)

尺寸 (L*W): 373*278

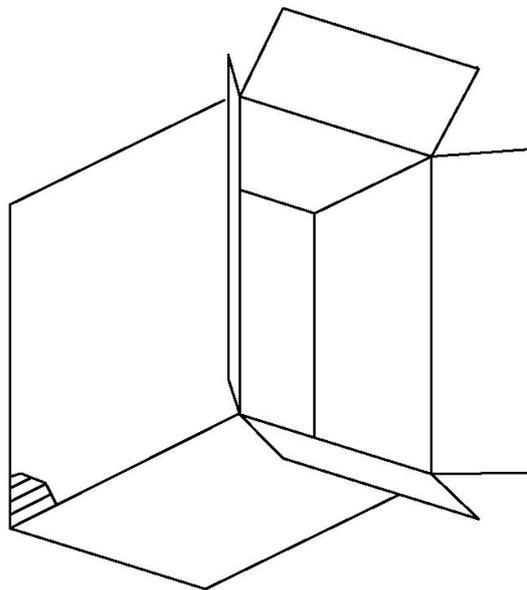


4. 外箱

用量: 1pcs

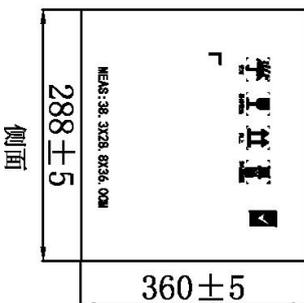
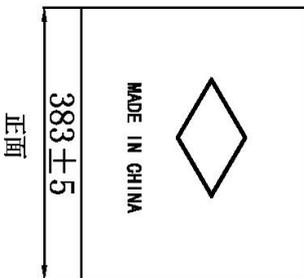
材质: A=A (厚度: 6mm)

外部尺寸 (L*W*H): 383*288*360mm



注:

1. 每箱数量: 250PCS, 1层装50PCS, 分5层装
2. 产品包装: PE袋+刀卡+隔板+纸箱.
3. 产品必须符合欧盟ROHS 2.0指令 (2011/65/EC) 及欧盟REACH法规 (1907/2006/EC) 的标准要求, 均质物质含量标准必须满足络普《MT-Q1-Q2-002 有害物质管理标准》.
4. 标注“△”为重点管控尺寸;
5. 标注“⊙”为变更标示。



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10. USAGE ANNOUNCEMENTS 使用注意事项

10.1 Don't touch the power supply when it's working, for it's with primary high voltage.

产品工作时内部有带高压电，请不要触摸。

10.2 This power supply is only used for IT equipments.

产品仅限于资讯类设备使用。

10.3 The case surface temperature of this power supply will increase when working, don't touch it for long time.

产品工作时表面会有高温，请勿长时接触。

11. SHIPMENT INSPECTION STANDARD/出货检验标准

No. 序号	Inspection content 检验项目	Inspection standard 检验标准	Sample level 抽样水准	Inspection level 检验水准
1	Electronic characteristics 电气性能	MIL-STD-105E GB2828-87	II	Serious/严重: CR=0
2	Dimension 尺寸			Main/主要: QL=0.4
3	Outlook, packing 外观、包装			Minor/次要: QL=1.0

12. PACKING, TRANSPORTATION AND STORAGE 包装、运输、贮存

12.1 Packing/包装

Manufacture's label, quality inspection mark and packing info. Should be on the carton, and the manufacture's name, buyer company name, model NO., quantity, PO NO. should be in the packing list.
 包装箱上有厂家标识、厂家质量部门的合格贴纸、装箱明细贴纸等, 装箱明细贴纸内容有购方公司名称、厂家名称、产品型号、装箱数量、订单号码、物料编号。

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12.2 Transportation/运输

The goods can be shipped by cargo,by sea,by air.Transportation of awnings,sunscreen,loading and unloading of civilization.

产品可以装船运输,海运,空运,运输中应遮蓬、防晒、文明装卸。

12.3 Storage 贮存

The products should be stored in carton in warehouse,the environment should be $-25^{\circ}\text{C}\sim+75^{\circ}\text{C}$,related humidity should be10%~95%. The harmful gas,Flammable products and corrosive chemicals should be avoid in the warehouse,and no strong machine shaking and magnetic field around the warehouse. The cartons should be at least 20cm high from the ground, away from the wall, heat, window or air intake at least 50cm.The storage time is 2 years in above storage environment,and it needs to retest after 2 years storage.

产品未使用时应存放于包装箱内,仓库环境温度为 $-25^{\circ}\text{C}\sim+75^{\circ}\text{C}$,相对湿度10%~95%,仓库内不允许有有害气体、易燃易爆的产品及有腐蚀性的化学物品,并且无强烈的机械振动、冲击和强磁场作用,包装箱应离地至少20cm高,距离墙壁、热源、窗口或空气入口至少50cm,在本规定条件下的贮存期一般为2年,超过2年后应重新进行检验。

13. MAJOR TEST EQUIPMENT 主要测试设备

13.1 交流变频电源/ AC Source	※ AFC-500W
13.2 功率计/ Power Meter	※ YOKOGAWA WT310
13.3 电子负载/ Electronic Load	※ Prodigit 3310C
13.4 数字示波器/ Oscilloscope	※ Tektronix TDS3032C
13.5 数字万用表/ Multimeter	※ Agilent 34450A
13.6 耐压绝缘测试仪/ Hi-Pot Tester	※ EXTECH7440
13.7 温度数据采集器/ Temp Data Acquisition	※ ToprieTP700-16
13.8 恒温恒湿箱/ Temp-Humi Chamber	※CZ-A-1500 $-40-150^{\circ}\text{C}$

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