

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 : 12V1.5A US Charger

MODEL NO.
铭普型号 : MCUS-12015018Q1

MNC P/N
铭普料号 : MCUS-120150190000

REVISION
版本 : A0

CUSTOMER P/N
客户料号 : _____

ISSUED DATE
发行日期 : 2019/8/30

WEIGHT
重量 : _____

MADE IN
制造产地 : CHINA

APPROVED BY MNC 铭普核准		
PREPARE 拟制	CHECKE 审核	APPROVE 批准
吕强	彭先觉	万少恒

APPROVED BY CUSTOMER 客户核准
SIGNATURE OR STAMP 签字或盖章

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。

Dongguan Mentech Optical & Magnetic Co., Ltd.

东莞铭普光磁股份有限公司

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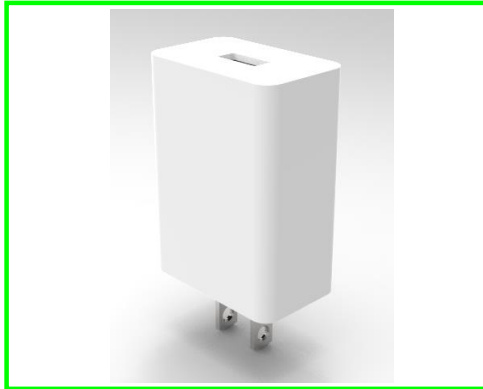
CHANGE RECORDS			
变更记录			
P/N 料号	REV. 版本	Description of Change 变更内容	Date 日期
MCUS-120150190000	A0	FIRST ISSUE 初版发行	2019/8/30

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1. SUMMARY 产品概述



1.1 Description 类型

- Adapter-Wall Mount 插墙式适配器 LED Driver LED 电源
 Adapter-Desk-Top 桌面式适配器 Charger 充电器
 Open Frame 裸板 Others 其他

1.2 The product should meet the RoHS and REACH 产品符合RoHS和REACH

1.3 Class of equipment 安全等级

Class I Class II Class III Not Classified
 【The product image is for reference purpose please subject to our available products.】

【图片供参考，请以实物为准。】

2. INPUT CHARACTERISTICS 输入特性

Item 项目	Units 单位	Minimum 最小	Normal 额定值	Maximum 最大	Remark 备注
Input voltage 输入电压	Vac	90	100-240	264	-
Input Frequency 输入频率	Hz	47	50-60	63	-
Input Current 输入电流	A	-	-	0.5	at 100Vac/60Hz~240Vac/50Hz
Inrush Current 浪涌电流	A	-	-	-	No damage,cold start,at 240Vac input & 25℃

3. OUTPUT CHARACTERISTICS 输出特性

3.1 Output voltage and current 输出电压与电流

Rated output voltage 额定输出电压(V)	Rated output current 额定输出电流(A)	Output voltage range 输出电压范围(V)	Ripple & Noise 纹波噪声(mVpp)
+5	3	+4.75~+5.25	<150
+9	2	+8.55~+9.45	
+12	1.5	+11.4~+12.6	

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 10uF aluminum electrolytic capacitor. (test condition: 25℃, rated input and rated output)
 纹波噪声: 量测时示波器选用20MHz带宽限制, 输出端并联0.1uF陶瓷电容与10uF铝电解电容。
 (测试条件: 环境温度25℃, 额定输入和额定输出)

3.2 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
	Rate	Min Load		
+12V	0.0A	1.5A	±5%	±5%
+9V	0.0A	2A	±5%	±5%
+5V	0.0A	3A	±5%	±5%

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3.3 Dynamic response 动态响应

The Dynamic output voltage range is rated output voltage $\pm 10\%$, The load of 25% to 75% and change at a rate of about 0.1A/usec and frequency of the dynamic load is 50Hz.

在动态负载变化速率 0.1A/usec, 频率为50Hz, 负载为25%~75%时, 输出动态电压范围为额定输出电压的 $\pm 10\%$ 。

3.4 Output overshoot 输出过冲

Overshoot voltage less than output voltage 10% at 100-240Vac rated input.

在额定输入100-240Vac条件下, 输出过冲电压小于输出电压的 10% 。

3.5 Turn on delay time 开机延迟时间

3 S max. @ 115Vac input & rated load.

开机延迟时间小于 3 S@115Vac&额定负载。

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

At rated load, Rise time shall be ≤ 100 mS; Fall time shall be ≤ 100 mS.

在额定负载下, 输出上升时间 ≤ 100 mS; 输出下降时间 ≤ 100 mS;

3.7 Hold up time 输出保持时间

5 mS min @ 230Vac/50Hz input & rated load.

在输入230Vac/50Hz & 额定负载时输出保持时间最少 5 mS。

3.8 Efficiency 电源效率

Item项目	Efficiency能效	DOE				Remark备注
		V	VI			
Output voltage输出电压(V)	-	-	12	9	5	Burn-in 30 minutes & 115Vac/60Hz, 230Vac/50Hz
Output current输出电流(A)	-	-	1.5	2	3	
Output power输出功率(W)	-	-	18	18	15	
Efficiency电源效率(%)	-	-	85.00	85.00	81.39	
10% Load Efficiency 10% 负载电源效率(%)	-	-	-	-	-	
No-load power consumption空载功耗(W)	-	-	0.1	0.1	0.1	

Note: the calculation formula is as follow

注: 计算公式如下

		DOE		CoC V5	
		V	VI	Tier 1	Tier 2
1W<Po $\cong 49$ W	>6V full load	$\cong 0.0626 * \ln(Po) + 0.622$	$\cong 0.071 * \ln(Po) - 0.0014 * Po + 0.67$	$\cong 0.0626 * \ln(Po) + 0.646$	$\cong 0.071 * \ln(Po) - 0.00115 * Po + 0.67$
	>6V 10% load	-	-	$\cong 0.0626 * \ln(Po) + 0.546$	$\cong 0.071 * \ln(Po) - 0.00115 * Po + 0.570$
	≤ 6 V full load	$\cong 0.075 * \ln(Po) + 0.561$	$\cong 0.0834 * \ln(Po) - 0.0014 * Po + 0.609$	$\cong 0.0755 * \ln(Po) + 0.586$	$\cong 0.0834 * \ln(Po) - 0.00115 * Po + 0.609$
	10% load	-	-	$\cong 0.072 * \ln(Po) + 0.500$	$\cong 0.0834 * \ln(Po) - 0.00127 * Po + 0.518$

3.9 Over Current Protection 过流保护

Rated output voltage 额定输出电压(V)	Rated output current 额定输出电流(A)	Over Current Protection 过流保护 (A)
+5	3	3.3~5.4
+9	2	2.2~3.6
+12	1.5	1.65~2.7

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3.10 Over Voltage Protection 过压保护

The power has the OVP function at the rated input voltage and could self-recovering when the fault condition is removed.

在额定输出电压下适配器有过压保护功能，当故障状态移除时能自我恢复。

3.11 Short Circuit Protection 短路保护

The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed.

当输出短路时,产品输入功率降低且不会损坏,当短路情况解除后,产品将会自动恢复正常。

4. ELECTRO MAGNETIC COMPATIBILITY 电磁兼容

4.1 Radiated Emission 电磁辐射干扰

Test criteria(测试标准): EN55032/FCC Part 15, class B/ GB9254.

4.2 Conducted Emission 电磁传导干扰

Test criteria(测试标准): EN55032/FCC Part 15, class B/ GB9254.

4.3 Electrostatic Discharge(ESD) 静电抗扰

EN 55024:2010; IEC 61000-4-2:2008

Air Discharge(空气放电): ±8 KV

Contact Discharge(接触放电): ±4 KV

Performance Criteria(性能标准) B

4.4 Radio-Frequency Electromagnetic Field Amplitude Modulated(RS) 辐射抗扰

EN 55024:2010; IEC 61000-4-3:2006+A1+A2

80MHz to 2700MHz ;10V/m ;80% and 1.0kHz Modulation(level 3)

Performance Criteria(性能标准) A

4.5 Electrical Fast Transient/Burst (EFT) 电快速瞬变脉冲群

EN 55024:2010; IEC 61000-4-4:2004

Power line: ±1 KV

Performance Criteria(性能标准) B

4.6 Lightning Surge Attachment 雷击抗扰

EN 55024:2010; IEC 61000-4-5:2005

Differential mode standard(差模标准): ±1.0 KV

Common mode standard(共模标准): ±1.0 KV

Performance Criteria(性能标准) B

4.7 Radio-Frequency Continuous Conducted(CS) 传导抗扰

EN 55024:2010; EN61000-4-6:2008

0.15-80 MHz, 3V/m, 80% AM,1KHz

Performance Criteria(性能标准) A

4.8 Voltage Dips and Interruptions 电压跌落变化

EN 55024:2010; IEC 61000-4-11:2004

Voltage Dips, 30% reduction- 10ms, Performance Criterion(性能标准) B,

60% Reduction – 100ms, Performance Criterion(性能标准) C,

Voltage Interruptions>95% Reduction- 5000ms, Performance Criterion(性能标准) C.

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5. SAFETY STANDARD 安规标准

5.1 Safety 安规

Item 安规	Country 国家	Standard 标准	Certified Status 状况
CCC	China 中国	GB4943	-
CE	Europe 欧洲	EN62368-1	-
UL/cUL	America/Canada 美国/加拿大	UL60950-1	-
GS	Germany 德国	EN60950-1	-
PSE	Japan 日本	J60950	-
KCC	Korean 韩国	K60950	-
CB	Global 全球	IEC60950-1	-
TUV Mark	United Kingdom 英国	BS EN60950-1	-
SAA	Australia 澳大利亚	AS/NZS60950-1	-
-	-	-	-
-	-	-	-

5.2 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5 mA。

5.3 LEAKAGE CURRENT 漏电流

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

输入264Vac/50HZ, 漏电流最大0.25 mA。

5.4 INSULATION RESISTANCE 绝缘阻抗

50 MΩ min, at primary to secondary add a 500Vdc test voltage.

500Vdc,初级对次级最小 50 MΩ。

6. ENVIRONMENTAL PERFORMANCES 环境性能

6.1 Operating Ambient Temperature: 0°C to + 40 °C

使用环境温度: 0°C至 + 40 °C

6.2 Operating Ambient Relative Humidity:5% to 90%R.H

使用环境相对湿度: 5%至 90% R.H

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

储存温度: -45°C 至 +75°C

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

适用于海拔 5000 米及以下地区安全使用。

7. RELIABILITY 可靠性

7.1 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.(BELLCORE TR-332)

在25°C环境温度下平均无故障时间不小于 50000 小时。(BELLCORE TR-332)

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7.2 Drop test 跌落试验

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

适配器从 (1.0 ± 0.01) m处任意方向落下1次/面，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. MECHANICAL 机械性能

8.1 Connector type 接口类型

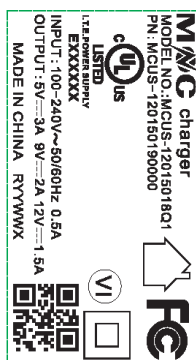
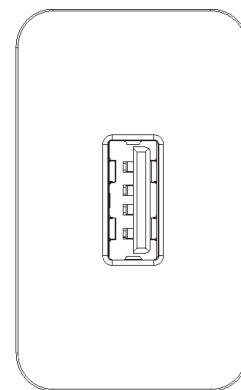
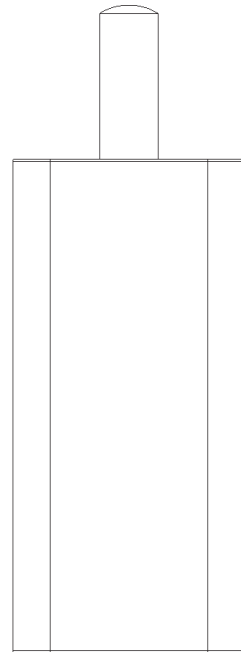
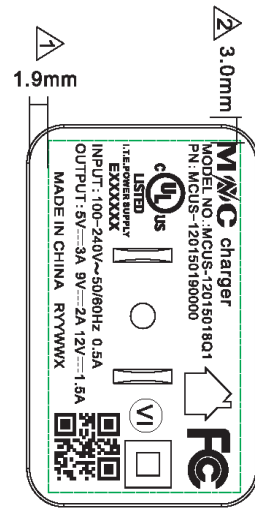
AC Input pin 输入插脚: US 2PIN

DC Output wire 输出线材: / ;

Plug 插头: /

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9. LABEL 铭牌



公司LOGO及名称(Company):

M/MC charger

规格型号(Model No.):

MCUS-12015018Q1

内部料号(Part No.):

PN: MCUS-120150190000

制造厂商(Manufacturer):

MADE IN CHINA

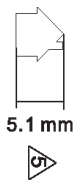
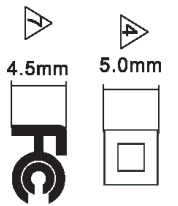
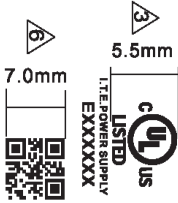
RYYWWX
R: 产品符合RoHS要求
YY: 产品生产年份
WW: 产品生产周数
X: 代表产线线别 A代表第一条线白
近 a代表第二条线发班; b代表第二
条线白班; b代表第二条线发班; 依次
类推 (1-24线对应A(a)-X(x), 49-72
-48线对应A1(a1)-X1(x1), 49-72
线对应A2(a2)-X2(x2) 依次循环);
Z代表NP1线白班; z代表NP1线发班;
样品用标识

RYYWWX
R: Product meets RoHS
YY: Year of Production
WW: Week of Production
X: The line of production

二维码内容: XXXXXXXX000001
XXXXXXXX: (8位) 表示实际工单号
(实际按计划提供为准)
00001: (5位) 流水码

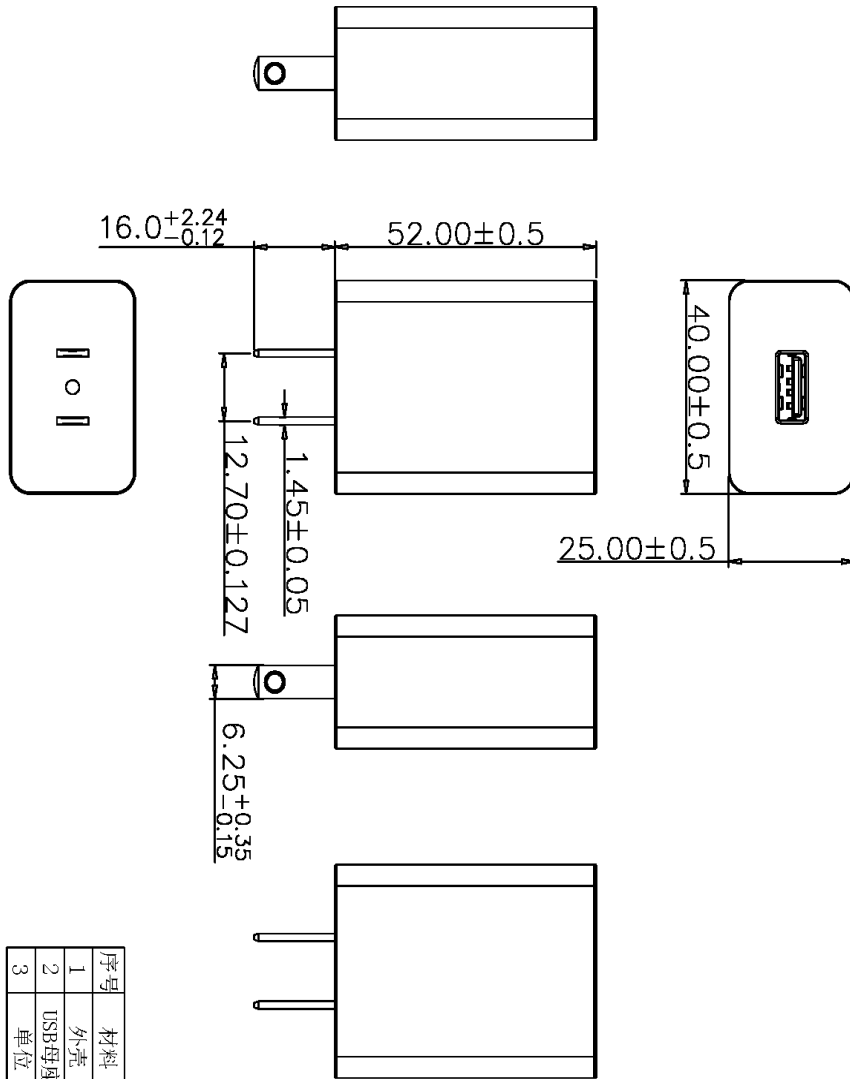
QR Code Content: XXXXXXXX000001
XXXXXXXX: (8-bits) WK sheet No.
(Provide by planning agency)
00001: (5-bits) Pipeline No.

安规尺寸(Safety symbol size):



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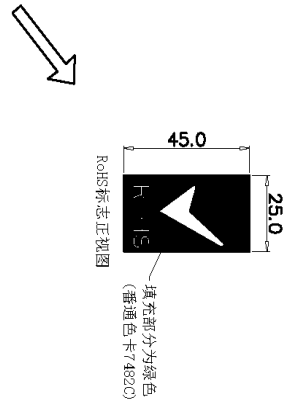
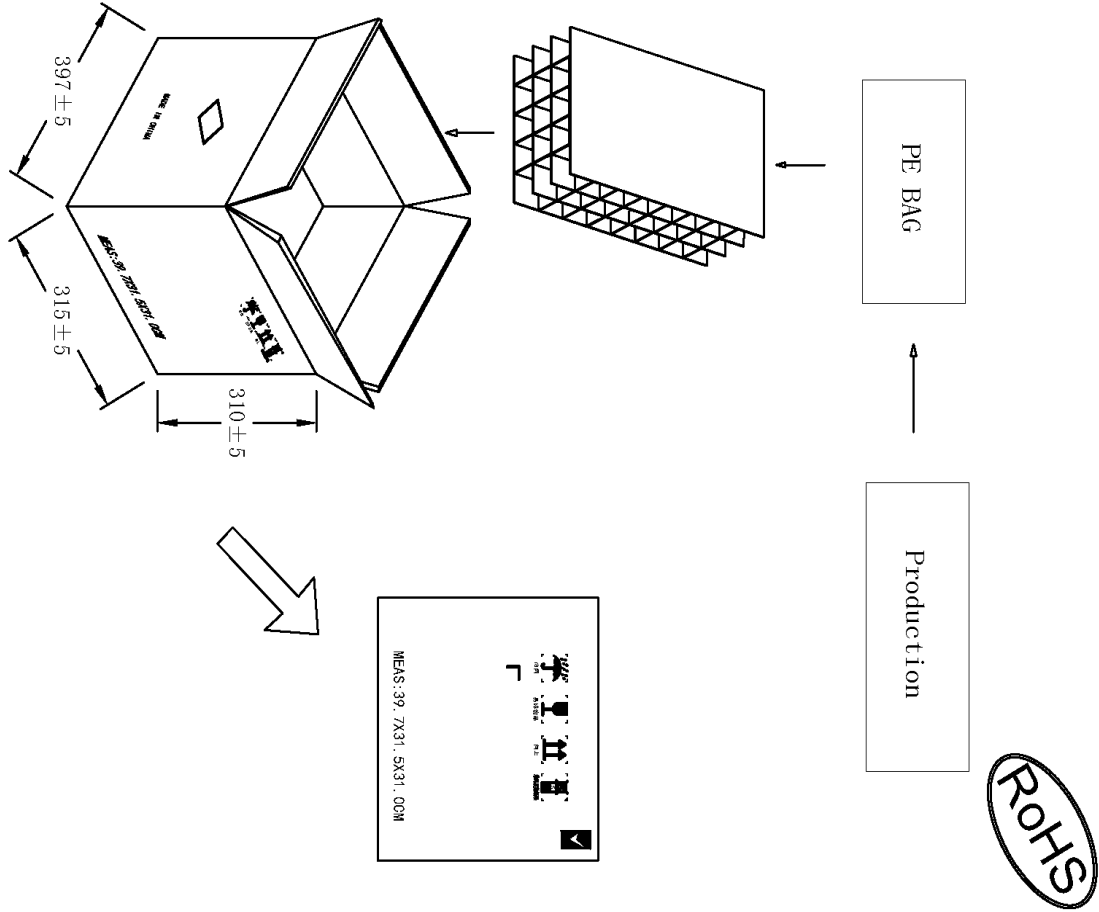
10. STRUCTURE AND DIMENSION 结构尺寸规格



序号	材料	材料规格
1	外壳	材质PC UL94-V0 颜色白色, 插脚铜镀镍
2	USB母座	外壳铜镀镍, 白色胶芯
3	单位	MM

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11. PACKAGE 包装方式



- notes:
1. each box 150PCS, 3 level in total
 2. put a flat card on each level
 3. product packaging: PE bag+knife cards

- 注:
1. 每箱150PCS, 共3层.
 2. 每隔层放一张平卡.
 3. 产品包装: PE袋+刀卡.

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