

参考规格书

SPECIFICATION FOR REFERENCE

CUSTOMER/客户: _____

CUSTOMER P.N./客户物料号: _____

MODEL NO./产品型号: MSA-C1500IC5.0-7.5A-US

PRODUCT NO./产品编号: _____

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CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

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盖章后请回传一份承认书给我司.

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1. SCOPE/简述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 7.5W continuous output power.

资料详细描述了一款 **7.5W** 连续输出功率开关电源的电气性,结构性及环境等要求.

The power supply shall meet the **RoHS** requirement.

此款电源符合 **RoHS** 要求.

1.1. Description

- SMPS Adaptor(Wall mount)/插墙式适配器 SMPS Adaptor(Desk-top)/桌面型适配器
 Open Frame/开放式结构 SMPS Unit (metal Case)/带铁壳型
 Others/其他

2. Input Characteristics/输入特性

2.1. Input Voltage & Frequency/输入电压与频率

The range of input voltage is from 90Vac to 264Vac single phase.

输入电压范围: 从 90Vac 到 264Vac, 单相输入.

	Minimum/最小	Nominal/额定值	Maximum/最大
Input Voltage/输入电压	90Vac	100Vac-240Vac	264Vac
Input Frequency/输入频率	47Hz	50Hz /60Hz	63Hz

2.2. Input AC Current/AC 输入电流

0.5Amax. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 输入电流不超过 **0.5A**。

2.3. Inrush Current (cold start)/浪涌电流(冷启动)

50Amax. @ 230Vac input

输入电压 **230Vac** 时, 输入电流不超过 **50A**。

2.4. Averaged Efficiency/平均效率

76.65% min. @ 115Vac, 230Vac input (@25%, 50%, 75% and 100% of max load)

输入电压 **115Vac, 230Vac** 时, **25%、50%、75%和 100%**载时的平均效率不低于 **76.65%**。

2.5. Energy Consumption /空载功耗

No load Consumption $\leq 0.1W$ (115Vac/60Hz, 230Vac/50Hz).

输入电压 **115Vac/60Hz, 230Vac/50Hz** 时,空载功耗均小于 **0.1W**。

3. Output Characteristics/输出特性

3.1. Static Output Characteristics <Vo & R+N>/静态输出特性

Output Rate	Rated Load/额定负载		Output Range 输出电压范围	R+N 纹波与噪声	Remark 备注
	Min. Load	Max. Load			
+5.0V	0.0A	1.5A	4.75V~ 5.25V	120mVp-p	100-240Vac

Ripple & Noise: Measurement is done by 20MHz b width oscilloscope paralleled a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor. (test under the condition of rated input and rated output).

纹波与噪声: 测量时, 示波器选用 **20MHz** 带宽限制, 输出端要并联一颗 **0.1uF** 的陶瓷电容和一颗 **10uF** 的电解电容. (在额定输入及输出的条件下检测)。

3.2.Line/ Load Regulation/线性/负载调整率

Output Rate	Load Condition/负载条件		Line Regulation 线性调整率	Load Regulation 负载调整率	Remark 备注
	Min. Load	Max. Load			
+5.0V	0.0A	1.5A	± 3%	± 5%	

3.3.Turn - on Delay Time/开机延迟时间

3S max. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 开机延迟时间不超过 **3S**。

3.4.Hold-up Time/关机维持时间

10mS min. @ Full load & 115Vac/60Hz input turn off at the worst case.

输入电压 **115Vac/60Hz** 满载时, 关机时间最差情况不小于 **10** 毫秒。

20mS min. @ Full load & 230Vac/50Hz input turn off at the worst case.

输入电压 **230Vac/50Hz** 满载时, 关机时间最差情况不小于 **20** 毫秒。

3.5.Rise Time/上升时间

40mS max. @ Rated load

额定负载时, 上升时间不超过 **40** 毫秒。

3.6.Fall Time/下降时间

40mS max. @ Full load

满载时, 下降时间不超过 **40** 毫秒。

3.7.Output Overshoot / Undershoot/输出过冲/欠冲

10% max. When the power on or off, when it is the full input voltage and full load.

开关机时, 输出过冲/欠冲均不大于 **10%**。

3.8.Output Load Transient Response/输出负载瞬态响应

Output voltage within 4.5-5.5V for load step from 20% to 80%, R/S: 0.5A/uS,

Frequency: 100Hz duration and 8mS at 80%.

输出电压 **4.5-5.5V** 时, 负载从 **20%** 到 **80%**, 斜率 **0.5A/uS**, 频率: 在 **80%** 负载 **100Hz** 持续 **8 mS**。

4. Protection Requirements/保护要求

4.1.Over Current Protection/过流保护

Over Current Point Limited/过流点限制: $3.0A > I > 1.6A(100-240Vac)$

The output shall hiccup when the over currents applied to the output rail, and shall be self-recovery when the fault condition is removed.

过流时, 输出将进入打嗝模式, 过流情况解除后, 产品将会自动恢复正常。

4.2.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.

输出短路时, 输入功率会降低, 且电源不会损坏, 当短路情况解除后, 电源将会自动恢复正常。

5. Environment Requirements/环境要求

5.1. Operating Temperature and Relative Humidity/操作温/湿度要求

0°C to +40°C

10%RH to 90%RH

5.2. Storage Temperature and Relative Humidity/存储温/湿度要求

-20°C to +80°C, 5%RH to 95%RH non-condensing @ Sea level shall be low 5,000m.

海拔 5,000 米以下, 温度 -20°C to +80°C, 湿度 5%RH to 95%RH。

5.3. Vibration/振动

10 to 300Hz sweep at a constant acceleration of 1.0G (Breadth: 3.5mm) for 1Hour for each of the perpendicular axes X, Y, Z.

扫描频率: 10 to 300Hz, 恒定加速度: 1.0G(位移: 3.5mm), X, Y, Z 三垂直坐标轴向各振动 1 小时

5.4. Drop Test/跌落

Height: 1m; the product should be fell off on the hardwood floor with the thickness of 20mm, Apply one time on all surfaces, totally 6 surfaces. The electric performance and safety test after the drop test must be OK.

跌落高度: 1m, 并跌落到厚度为 20mm 的木板上, 每面各 1 次, 共 6 次, 在跌落后电气性能及安全测试 OK.

6. Reliability Requirements/可靠性要求

6.1. Burn-in/老化

The power supply shall be burn-in for 2 Hours under normal input and 80% rated load at 40°C ± 5°C, the electric performance and Hi-Pot test must be OK.

40°C ± 5°C, 电源在正常输入电压和 80% 额定负载条件下老化 2 小时后, 电气性能及高压测试 OK.

6.2. MTBF Qualification/平均间隔故障时间估算

The MTBF of power supply shall be over than 50,000 Hours @ 25°C 100% load.

平均间隔故障时间: 在 25°C, 额定输入与满载条件下, 至少工作 50,000 小时.r

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

EN55032

EN55035

7.2. EMS Standards/EMS 标准

7-2-1 EN 61000-4-2, electrostatic discharge (ESD) requirement/静电抗扰度要求

Discharge characteristic/静电规格	Test level/测试条件	judgment criteria/评定标准
Air discharge/空气放电	+/-8KV	B
Contact discharge/接触放电	+/-4KV	B

7-2-2 EN 61000-4-3, radiated electromagnetic field susceptibility(rs)/辐射骚扰场强

Test level/测试条件	judgment criteria/评定标准
3V/m (r.m.s)	B
80-1000MHz,80%AM(1KHz) sine-wave	

7-2-3 EN 61000-4-4, electric fast transients(burst) immunity requirement/电快速瞬变脉冲群

Coupling/测试端口	Test level/测试条件	judgment criteria/评定标准
AC-input/交流输入	0.5KV	B
AC-input/交流输入	1KV	B

7-2-4 EN 61000-4-5 surge capability requirement/浪涌抗扰度要求

Surge voltage/雷击电压	judgment criteria/评定标准
Common mode/共模 +/-2KV	B
Differential mode/差模 +/-1KV	

7-2-5 EN 61000-4-6, Induced radio frequency fields conducted disturbances immunity requirement/电源端子传导骚扰实验

Test level/测试条件	judgment criteria/评定标准
3V	B
0.15-80 MHz,80%AM(1KHz)	

7-2-6 Assessment criteria /评估标准

Acceptance criteria 可接受标准	Performance 性能
A	Agreed operational behavior within the specified limits 性能不允许变化; 如果性能会发生变化, 则变化的范围在产品规格书规定的范围内.
B	Time limited functional diminishment or malfunction during the tests is permitted. The function is self-reactivated by the unit following completion of the tests. 设备在测试过程中, 性能降低允许在产品规格书要求范围内, 干扰消除后, 设备能恢复正常, 不允许出现复位和任何方式的人工干预.
C	Malfunction is permitted .The function can be reactivated either by reconnection to the mains or by operator intervention. 在测试过程中, 设备允许出现业务中断, 测试完毕后允许自行恢复或者人工干预恢复(包括硬件上干预); 测试中只允许初级防护器件损坏, 并且更换损坏的初级防护器件后, 设备能恢复正常

8. Safety Standards/安规标准

8.1.Dielectric Strength(Hi-pot)/介电耐压强度(高压)

Primary to Secondary: 3000Vac /10mA max. / 60S (when safety testing)

初级对次级: 3000Vac / 10mA max. / 60 秒 (安规试验) .

Primary to Secondary: 3300Vac /5mA max. / 3S (when production)

初级对次级: 3300Vac / 5mA max. /3S(生产作业).

8.2.Leakage Current/漏电流

0.25mA max. at 264Vac / 60Hz.

8.3.Insulation Resistance/绝缘阻抗

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

在初级与次级之间加载测试电压 500V 测试, 绝缘阻抗最小 50MΩ.

8.4.Regulatory Standards/安规标准

Type/安规	Country/国家	Standard/标准	State/状况	Note/备注
UL	USA	UL62368-1	Approved	

