



DATASHEET OF POWER SUPPLY

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1. SCOPE/范围

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 36W continuous output power.

资料详细描述了一款 36W(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

☐ Desktop power adapter

2. INPUT CHARACTERISTICS/输入特征

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

0.8 A max. @ 100-240Vac input & Full load/满载

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

50A max. @ 264Vac input

2.4. Efficiency(Normal)/效率(额定输入)

75% min. @ Normal input & Full load/额定输入&满载

2.5. Energy Consumption/空载功耗

在额定输入 100-240V 时,空载功耗 $\leq 0.5W$

3. OUTPUT CHARATERISTICS/输出特征

3.1. Static Output Characteristics<Vo & R +N>/静电输出特征

Output	Rated Load/额定负载		Output Range	R+N	Remark
Rail	Min. Load	Max. Load	输出电压范围	纹波与噪声	备 注
+12V	0.0A	3A	11.4-12.6V	120mVp-p	

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

纹波与噪声: 量测时示波器选用 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	Load Condition/负载条件		Line Regulation	Load Regulation	Remark
Rail	Min. Load	Max. Load	线性调整率	负载调整率	备 注
+12V	0.0A	3A	$\pm 1\%$	$\pm 5\%$	

3.3. Turn-on Delay Time/开机延迟时间

3S max. @100Vac to 240Vac input turn & Full load/满载



3.4. Hold-up Time/关机维持时间

10mS min. @ Full load & 115Vac/60Hz input turn off at worst case/在最差情况下关机

20mS min. @ Full load & 230Vac/50Hz input turn off at worst case/在最差情况下关机

3.5. Rise Time/上升时间

20 mS min. @ Rated load/额定负载

3.6. Fall Time/下降时间

20 mS min. @ Full load/满载

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

当电源开/关机时,输入全电压时,全负载时

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

Output voltage within 11.4-12.6V for load step from 20% to 80% , R/S: 0.5A/Us, frequency: 100Hz duration and 8ms at 80%.

输出电压在 11.4-12.6V 之间,负载变化:从 20%到 80%,斜率:0.5A/uS, 频率: 100Hz, 80%负载持续时间为 8ms.

4. PROTECTION REQUIREMENTS/保护要求

4.1. Over Current Protection/过流保护

OCP Point Limited:6-7.5 A/保护点限制: 6-7.5 A

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

当过电流时,输出将进入打嗝模式,当过流情况解除后,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 is short, the power supply shall not be damaged, 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伤,当短路情况解除后,产品将会自动恢复正常

4.3. Over Voltage Protection/过压保护

The power supply shall be self-protect when the output voltage is over rated. So the power supply shall not be damaged

当输出过压时,产品会自我保护而不致被损伤

5. ENVIRONMENT REQUIREMENTS/环境要求

5.1. Operation 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 10,000feet/低于 10,000 英尺

5.3. Vibration/振动

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

扫描频率: 10 to 300Hz, 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 In/跌落

Height: 0.75m, the product should be fell off on the hardwood with the thickness of 30mm, and the hardwood should be put on the base of the cement or on the ground without flexibility. Apply one times on each surface.

跌落高度:0.75 米, 并跌落到厚度为 30mm 的硬木上,且硬木应放在水泥基座或等同的无弹性地面上,每面各 1 次

6. RELIABILITY REQUIREMENTS/可靠性要求

6.1. Burn-in/煲机

The power supply shall be burn-in for 2 hours under normal input and 80%rated load at $30^{\circ}\text{C} \pm 10^{\circ}\text{C}$
产品至少要在 $30^{\circ}\text{C} \pm 10^{\circ}\text{C}$ 的环境及 80%额定负载条件下煲机 2 小时

6.2. MTBF Qualification/平均间隔故障时间估算

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

7. EMI/EMS STANDARDS/ EMI/EMS 标准

7.1. EMI Standards/EMI 标准

EN 55022:1998, +A1:2000 +A2:2003, Class B

EN 55024: 1998+A1:2001 +A2:2003

CISPR 22:2003, Class B

AS/NZS CISPR 22: 2004, Class B

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	Test criteria/测试标准
Air discharge/空气放电	+/-8KV	B
Contact discharge/接触放电	+/-6KV	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	Test criteria/测试标准
3V/m (r.m.s)	A
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	Test criteria/测试标准
AC-input/交流输入	0.5KV	A
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	Test Criteria/测试标准
Common mode/共模 +/-2KV	A
Differential mode/差模 +/-1KV	



D+LED-FA12V3A

7-2-5 EN 61000-4-6, Induced radio frequency fields conducted disturbances immunity requirement/电源端子实验

Test level/测试条件	Test Criteria/测试标准
3V	A
0.15-80MHz, 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 manual intervention 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

标准

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

Primary to Secondary: 3000Vac / 10mA Max / 60second (3300Vac/3 second for Mass Production)
初级对次级: 3000Vac / 10mA Max / 3S (生产时高压 3300V/AC 测试时间: 3 秒)

8.2. Leakage Current/漏电流

0.25mA max. at 264Vac / 50Hz

8.3. Insulation Resistance/绝缘阻抗

100MΩ min. at primary to secondary add 500Vdc test voltage
在初级与次级间加 500Vdc 进行测试, 绝缘阻抗 100MΩ

8.4. Regulatory Standards/安规标准

Type/安规	Country/国家	Certification NO./证书号	State/状况
UL	USA/美国	E336005	PASS
GS	Germany/德国	1399667	PASS
CE	EU/欧洲	E0909917	PASS
KC	Korea/韩国	HU1560-10001A	PASS
SAA C-tick	Australia/澳大利亚	A/13470EA	PASS
PSE	Japan/日本	JD50185847	PASS



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正负公差: ± 0.5

外壳材质: ☒ PC+ABS 耐温: 95°C

☐ PC 耐温: 125°C

技术要求:

单位: mm

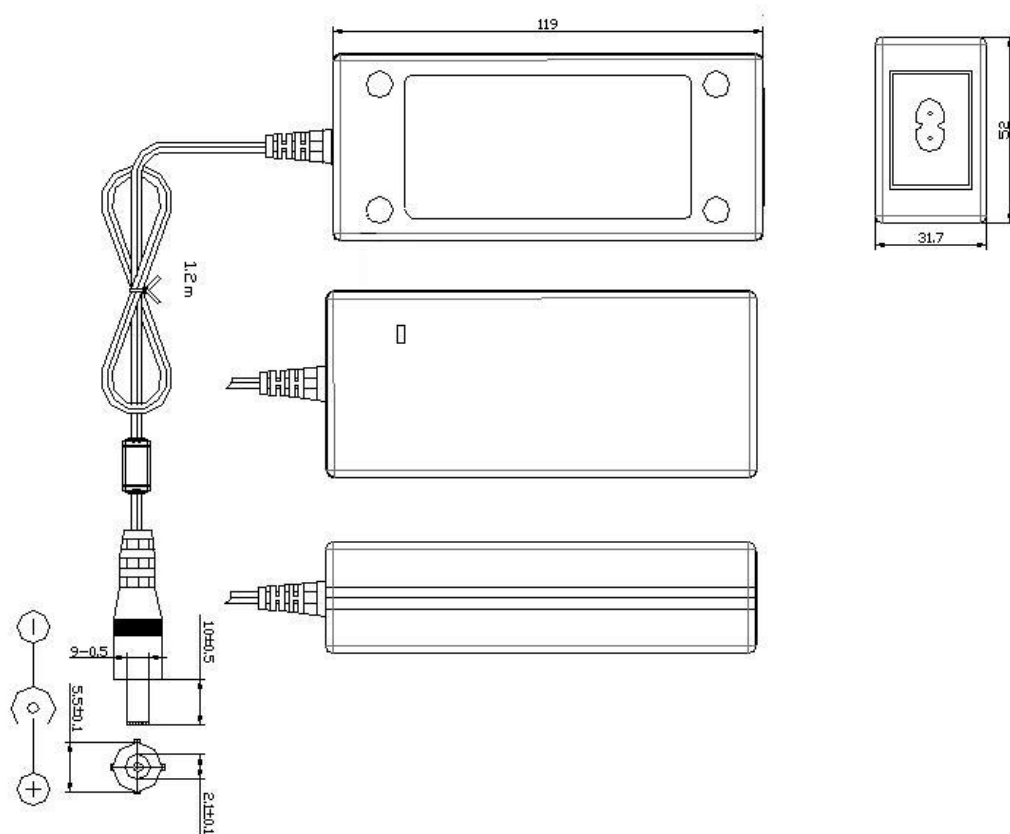
正负公差: ± 0.5

一. 耐温要求: 热变形温度 80°C , 试验 3-6Hours, 无变形开裂等不良;

二. 线材规格: USE 2468 20AWG

三. 环保要求: ROHS standard;

9. Mechanical drawing/结构图







No. 序号	Test item 测试项目	Test condition 测试条件	Standard spec 标准规格	Test data 测试数据					Unit 单位	Judge 判定
				1	2	3	4	5		
1	Output Voltage 输出电压	Vin100Vac 60Hz Io=0 输入 100Vac 空载	±5%						V	Pass
2	Output Voltage 输出电压	Vin100Vac 60Hz Io=Rated Current 输入 100Vac 60Hz 额定电 流	±5%						V	Pass
3	Efficiency(Full load) 效率满载	Vin 115Vac 60Hz 输入 115Vac 60Hz	65%						%	Pass
4	Ripple & Noise mVp-p 纹波&杂讯	Vin100Vac 60Hz Full load 输入 100Vac 60Hz 满载	120mVp-p						mVp-p	Pass
5	Line Regulation 线性调整率	Vin=100V~240V Io=Rated Current 额定电流	±3%							Pass
6	Standby Power 待机功耗	Vin 115Vac 60Hz Io=0 输入 115Vac 60Hz	0.3W max						W	Pass
7	Short 短路	Vin100Vac 60Hz 输入 100Vac 空载	No odor smoke fire plastic deformation and excessive heat happen. 无冒烟,起火,外壳变形及过热现象	OK	OK					Pass
8	Output Voltage 输出电压	Vin240Vac 50Hz Io=0 输入 240Vac 空载	±5%						V	Pass
9	Output Voltage 输出电压	Vin240Vac 50Hz Io=Rated Current 输入 240Vac 60Hz 额定电 流	±5%						V	Pass
10	Efficiency(Full Load) 效率满载	Vin230Vac 50Hz 输入 230Vac 50Hz	65%						%	Pass
11	Ripple & Noise mVp-p 纹波&杂讯	Vin240Vac 50Hz Full load 输入 240Vac 50Hz 额定电 流	120mVp-p						mVp-p	Pass
12	Line Regulation 线性调整率	Vin=100V~240V Io=Rated Current 输入 100V~240V	±3%							Pass
13	Standby Power 待机功耗	Vin230Vac 50Hz Io=0 输入 230V 50Hz	0.3W max							Pass
14	Short 短路	Vin240Vac 50Hz 输入 240Vac 50Hz	No odor smoke fire plastic deformation and excessive heat happen. 无冒烟,起火,外壳变形及过热现象	OK	OK					Pass
15	Hi-ot test 高压测试	高压/DIELECTRIC STRENGTH Hi-Pot: 初级对次级/Primary to secondary:4242Vdc/5mA/60S for type test		OK	OK					Pass
16	Burn in 老化	Input:220Vac/50Hz Full Load 4hrs 输入 220Vac/50Hz 满载 4 小时		OK	OK					Pass
17	Drop test 跌落	Heigh:1m Three*faces(each plane) 高 1 米,3 个面,每面 1 次.		OK	OK					Pass
REMARK 备注										