

规格书

Electrical Specification

Description/产品名称: ADAPTER

Model No./产品型号: LS-QW20P

Specification/产品规格: DC5V3A&9V2.22A&12V1.67A

&15V1.33A&20V1A

Revision/版本: A0



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E. C. LIST/变更履历表

Rev. 版本	Description of Change/变更内容描述		Changed Date/日期	ECN No.
	Before/变更前	After/变更后		
A0	Original Release（初次发行）	---	2020-10-09	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a POWER, the power supply provide DC5V3A&9V2.22A&12V1.67A&15V1.67A&20V1A 20W(continuous output power).output. The power supply in accordance with the PD3.0& QC3.0 standard.

资料详细描述了一款 DC5V3A&9V2.22A&12V1.67A&15V1.33A &20V1A 20W (连续输出功率), 输出电源的电气, 结构及环境等要求。该电源符合 PD3.0&QC3.0 标准。

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(With Case)/带铝壳型
- ☐ 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 100Vac to 240Vac single phase.

输入电压范围: 从 **100Vac** 到 **240Vac**, 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	60Hz/50Hz	63Hz

2.2. Input AC Current/AC 输入电流

0.45Amax. @ 100-240Vac input & Full load/满载

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

50Amax. @ 240Vac input

2.4.Power Factor/功率因素

0.5min@ Nominal input 110Vac& Full load/额定输入 110V&满载

0.5min@ Nominal input 230Vac& Full load/额定输入 230V&满载日

3. Output Characteristics/输出特性**3.1 Output specification table/输出规格表**

NO. 序号	Item/项 目	Specification/规 格	Remark/备 注
1	output port/输出端口	DC5V3A&9V2.22A&12V1.67A &15V1.33A&20V1A 20W	
2	outline dimension/ 外形尺寸	52*48.5*31mm	
3	Weight/重量	73g	

3.2 NO load Power Consumption/空载功耗 $\leq 0.075W$ **3.3 The output load characteristics/输出负载特性**

Measured methods: Perform by 20M bandwidth in oscilloscope; Applied 0.1uF high ceramic and 10Uf tantalum capacitor output connector terminals; Measure the ripple voltage at then end of DC cable with 0.5mm² length 0.3m.

测量方法：用示波器 20M 带宽，并联 0.1uF 陶瓷与 10uF 钽电容器，用 0.5mm² 长 0.3m 的电缆线端进行测量。

Input Voltage/输入电压： AC100-240V

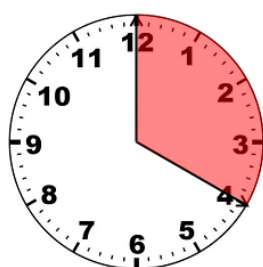
Output port/ 输 出 端 口	No load Output Voltage/ 空 载 输 出 电 压	Rated Output Current/ 额 定 输 出 电 流	Rated load Output Voltage/ 额 定 负 载 电 压	Ripple and Noise Range/ 纹 波 与 噪 音	Current limit protection value/限流保护 值	For the brand/ 适 用 品 牌 Quick Charge 3.0 (QC3.0)
USB	5V	3A	4.75-5.3V	$\leq 200mV$	3.1-3.7A	
USB	9V	2.22A	8.4-9.7V	$\leq 200mV$	2.4-3.0A	
USB	12V	1.67A	11.4-12.7V	$\leq 200mV$	1.8-2.4A	
USB	15V	1.33A	14.3-15.7V	$\leq 200mV$	1.4-2.0A	

USB	20V	1A	19.3-20.7V	$\leq 200\text{mV}$	1.05-1.4A	
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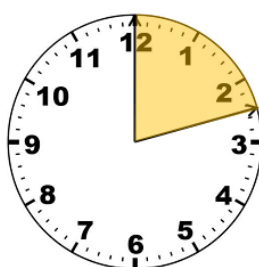
Note: only one port output ripple and noise $\leq 200\text{mV}$ 备注：只有一个端口输出时，纹波与噪音 $\leq 200\text{mV}$.

3.4 Charging time contrast figure/充电时间对比图

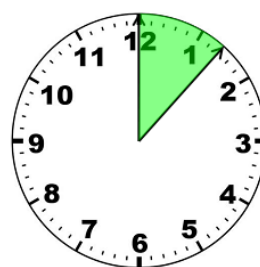
Full Charge (0%~90%) Comparison 3300mAH Smartphone Battery



Conventional
Charging



Quick Charge 1.0



Quick Charge 2.0

3.5 Turn-on Delay Time/开机延迟时间

5.0S max. @ 100Vac to 240Vac input & Full load/满载

3.6 Hold-up Time/关机维持时间

6mS min. @ Full load & 115Vac/60Hz input turn off at worst case/在最差情况关机

10mS min. @ Full load & 230Vac/50Hz input turn off at worst case/在最差情况关机

3.7 Rise Time/上升时间

50mS max. @ Rated load/额定负载

3.8 Fall Time/下降时间

50mS max. @ Full load/满载

3.9 Output Overshoot/Undershoot/输出电压过冲/欠冲

10%max. When the power on or off/当电源开/关机最大过冲 10%.

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

Output voltage at 5V for load step from 20% to 80%,R/S:0.5ms, frequency: 100Hz

输出电压在 5V 时, 负载变化:从 20%到 80%, 斜率:0.5mS, 频率:100Hz

4. Protection Requirements/保护要求

4.1 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伤, 当短路情况解除后, 产品将会自动恢复正常。

4.2 Over Voltage Protection/过压保护

When the output voltage is over25V ,the product is protected such as hiccup or when it is at the highest point of output voltage, the product would not be hurt when the fault is excluded or is start-working again ,the power supply is working normally。

当输出电压超过 25V 时, 产品进入保护状态, 如打嗝或钳在某输出最高电压状态, 产品不受损伤, 当故障排除或重新起机时, 电源工作正常。

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

20%RH to 80%RH

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

-20°C to +70°C

10%RH to 90%RH non-condensing @ Sea level shall be low 10,000 feet/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 1Hour for each of

The Perpendicular axes X,Y,Z.

扫描频率:10 to300Hz,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

6. Reliability Requirements/可靠性要求

6.1 Burn-in/煲机

The power supply shall undergo a minimum of 4 Hours burn-in test at $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ under full load condition 产品至少要在 $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 的环境下及满载条件下煲机 4 小时

6.2 MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 50,000hours 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

EN55032 (CISPR22) Class B
FCC Part 15 (CFR 47) Class B
VCCI Class B CNS
IEC61000-3.2:2009
GB 9254-2008 信息技术设备的无线电骚扰限值和测量方法

7.2 EMS Standards/EMS 标准

Test Item	Test Specification	IEC Standards
ESD	Contact $\pm 8\text{KV}$	61000-4-2
ESD	Air $\pm 15\text{KV}$	61000-4-2
RS	FR: 26MHz-1.0GHz Field Strength: 3V/M	61000-4-3
EFT	$\pm 2\text{KV}$ on AC power line	61000-4-4
SURGE	$\pm 1\text{KV}$ (DM) & $\pm 2\text{KV}$ (CM)	61000-4-5
CS	3V/M	61000-4-6

DIPS

0% 250CY,40% 5CY,70%5CY

61000-4-11

8. Safety Standards/安规标准

8.1 Primary to Secondary: 3000Vac 5mA_{Max} / 60second(3 second for production)

初次对次级:3000Vac / 5mA_{Max} 60 秒(生产时高压测试时间:3 秒)

8.2 Primary to Earth: 1500Vac 5mA_{Max} / 60second(3 second for production)

初次对地: 1500Vac / 5mA_{Max} 60 秒(生产时高压测试时间:3 秒)

8.3 Secondary to Earth: 1500Vac 5mA_{Max} / 60second(3 second for production)

次级对地: 1500Vac / 5mA_{Max} 60 秒(生产时高压测试时间:3 秒)

8.4 Leakage Current/泄漏电流

0.75mA_{max}. at240Vac/50Hz

8.5 Insulation Resistance/绝缘阻抗

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

在初级与次级间加 500Vdc 进行绝缘测试, 最小绝缘阻抗 50M Ω .

8.6 Regulatory Standards/安规标准

EN60950-1: 2006

UL60950-1: 2007

IEC60950-1: 2005

GB4943.1-2011 信息技术设备安全

9. Mach. Outline Drawing/外观示意图**Exchangeable AC Plugs****10. Product figure frame picture/产品轮廓框架图 (Unit: mm)****11. I/O Marking Drawing/铭牌示意图****12. BOX/小白盒****13. Package Drawing/包装示意图**