

	MODEL NO.	C1902U	SHEET NO	AP20216236887
	DESCRIPTION	Switching Adaptor	ISSUED DATE:	2021/04/20

APPROVAL SIGNATURE
DATE:

Customer :

Model No : C1902U

Part No : 9A-0C1902U-001

Type : USB Power Delivery

Safety Conforming : UL

Input Voltage	100-240VAC 50/60 Hz	Output Type	Type-C 1port
Output Voltage	5V 3A / 9V 2.22A / 12V 1.67A		
Input Plug	USA Plug	Packaging	PE 井格

### 亞達特科技股份有限公司

2F.-5, No.315, Sec. 3, Minsheng Rd., Banqiao Dist., New Taipei City 220, Taiwan

TEL: 02-22587990 FAX:02-22586990

<http://www.adtweb.com.tw>

---

**\*\* Table Of Content/目录 \*\***

1. SCOPE.....	3
Description.....	3
2. Input Characteristics/输入特性 .....	3
Input Voltage & Frequency/输入电压与频率 .....	3
Input AC Current/AC 输入电流.....	3
Inrush Current (cold start)/浪涌电流(冷启动).....	3
Average Efficiency 平均效率 5V3A.....	3
Energy Consumption /空载功耗 .....	3
3. Output Characteristics/输出特性.....	3
Static Output Characteristics <Vo & R+N>/静态输出特性 .....	3
4. Protection Requirements/保护要求.....	5
Over Power Protection/过功率保护 .....	5
Short Circuit Protection/短路保护 .....	5
5. Environment Requirements/环境要求 .....	5
Operating Temperature and Relative Humidity/操作温/湿度要求 .....	5
Storage Temperature and Relative Humidity/存储温/湿度要求 .....	5
Vibration/振动 .....	5
Drop in/跌落 .....	5
6. Reliability Requirements/可靠性要求 .....	5
Burn-in/煲机.....	5
7. EMI/EMS Standards/EMI/EMS 标准 .....	6
EMI Standards/EMI 标准 .....	6
EMS Standards/EMS 标准 .....	6
7-2-6 Assessment criteria /评估标准.....	7
8. Safety Standards/安规标准 .....	7
Dielectric Strength(Hi-pot)/介电耐压强度(高压) .....	7
Primary to Secondary: 3000Vac / 10mAMax / 60 second .....	7
Primary to Secondary: 3300Vac / 5mAMax /3S .....	7
Leakage Current/漏电流.....	7
Insulation Resistance/绝缘阻抗 .....	7
Regulatory Standards/安规标准.....	7
9. Match. Outline Drawing/外观示意图 .....	8
10. I/O Marking Drawing/铭牌示意图 .....	9
11. Package Drawing/包装示意图 .....	10
12. Sample Test Report/样品测试报告.....	11

# 1. SCOPE

The electrical, structural and environmental requirements of a 20W (output power) fast charger are described in detail.

资料详细描述了一款 **20W**（输出功率）快速充电器的电气性、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
- Open Frame/开放式结构
- Others/其他
- SMPS Adaptor(Desk-top)/桌面型适配器
- USB 充电器/ USB CHARGER

# 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	60Hz/50Hz		

## 2.2. Input AC Current/AC 输入电流

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

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

60Amax. @ 264Vac input

## 2.4. Average Efficiency 平均效率 **5V3A, 9V2.22A,12V1.67A** 分别为:

81.39%min, 85.47% min, 85.48% min。

## 2.5. Energy Consumption /空载功耗

在额定输入 100-240V 时,空载功耗  $\leq$  0.1W

# 3. Output Characteristics/输出特性

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

项目/ project	单位/ Company	最小值/ minimum value	标称值/ Nominal value	最大值/ Maximum	测试条件 Test conditions
输出电流 (PD) / Output current (PD)	mA	/	3000	4000	5V 输出模式/5V output mode
		/	2220	3000	9V 输出模式/9V output mode
		/	1670	2300	12V 输出模式/12V output mode
输出功率 / output power	W	/	20	/	
输出效率 / Output efficiency	%	81.39	/	/	5V 输出模式, 230VAC, 115VAC /5V output mode, 230VAC, 115VAC
		85.47	/	/	9V 输出模式, 230VAC, 115VAC/9V output mode, 230VAC, 115VAC
		85.48	/	/	12V 输出模式, 230VAC, 115VAC /12V output mode, 230VAC, 115VAC
空载功耗 / No load power consumption	W	/	/	0.1	230VAC/输出 5V 空载 /230VAC / output 5V no load
输出纹波 / Output ripple	mV	/	/	200 (5V)	分别输入 AC 90/60Hz&264V/50Hz, 测试全电流负载条件下充电器的输出电压纹波, 示波器限制带宽为 20MHz, 输出增加 47uF 电解与 0.1uF 瓷片电容/ Input AC 90 / 60Hz & 264v / 50 Hz respectively to test the output voltage ripple of charger under full current load condition. The limited bandwidth of oscilloscope is 20MHz, and the output is
				300 (9V/12V)	

					increased by 47uF electrolysis and 0.1uF ceramic chip capacitor
负载调整率 / Load adjustment rate	%	-5	/	+5	在额定输入电压, 其他输出为最大输出电流的情况下 负载变动: 最小→最大→最小/ Under the condition of rated input voltage and maximum output current, load variation: minimum → maximum → minimum
线性调整率 / Linear adjustment rate	%	-2	/	+2	在输入电压范围内, 最大输出电流的情况下/ In the input voltage range, the maximum output current
动态响应过冲 / Dynamic response overshoot	V	±7% Vout	/	/	25%~50%、50%~75%负载变化, 电流变化率为 0.2A/us, 周期 T1=T2=10ms, 50%占空比。/The current change rate is 0.2a/us, cycle T1 = T2 = 10ms, 50% duty cycle.
输出保持时间 / Output hold time	ms	10	/	/	115VAC/额定负载/115VAC / rated load
开机延时 / Startup delay	s	/	/	3	115VAC/额定负载/115VAC / rated load
开关机过冲 Switch on / off overshoot	%	/	/	+10	全输入电压范围, 额定负载/ Full input voltage range, rated load
输出上升时间 / Output rise time	ms	/	/	50	115VAC/230VAC 输入电压, 额定负载/115VAC / 230VAC input voltage, rated load
输出下降时间 / Output drop time	ms	/	/	100	115VAC/230VAC 输入电压, 额定负载/115VAC / 230VAC input voltage, rated load
共模噪音测试 / Common mode noise test	V	/	/	2	符合 EN62684 标准/ Meet en62684 standard
短路保护 / Short circuit protection	/	/	/	/	此产品能够在连续的输出短路工作下无损坏。短路可能是在电源启动之前或电源启动之后。当短路去掉以后, 充电器能够自动恢复到正常工作状态。当输出短路时, 充电器将会进入短路保护模式, 短路时电路进入 Cycle by cycle 模式。/ This product can work without damage under continuous output short circuit. The short circuit may be before or after power on. When the short circuit is removed, the charger can automatically return to normal working state. When the output is short circuited, the charger will enter the short circuit protection mode, and the circuit will enter the cycle by cycle mode
过流保护 / Over current protection	A	/	/	4.0	当输出负载电流达到或超过了电流保护点时, 充电器将启动过电流保护。/ When the output load current reaches or exceeds the current protection point, the charger will start the over-current protection.
过压保护 / Over voltage protection	/	/	/	/	输出电压钳制由内部保护电路。/ Output voltage clamped by internal protection circuit.
倒灌电流 / reverse current	mA	/	/	5	在输出端正、负极间缓慢施加 0-4.75VDC 的电压, 通过设备的稳定电流不允许超过 5Ma/The voltage of 0-4.75vdc is slowly applied between the positive and negative electrodes of the output terminal, and the stable current passing through the equipment is not allowed to exceed 5mA

Remarks:备注:

This product is PD with PD characteristics, and its voltage and current are 5v3a / 9v2.22a / 12v1.67a

This product has QC characteristics and is compatible with qc3.0 and qc2.0

此产品为 PD, 具有 PD 特性, 其电压电流为 5V3A /9V2.22A /12V1.67A

此产品同时具有 QC 特性, 兼容 QC3.0, QC2.0

---

## 4. Protection Requirements/保护要求

### 4.1. Over Power Protection/过功率保护

Over power protection is 20W 过功率保护为 20W

### 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

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

## 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 2,000 meter/低于 2,000 米.

### 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

### 5.4. 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

### Drop in/跌落

Height: 1m; the product should be fell off on the hardwood with the thickness of 20mm, and the hardwood should be put on the base of the cement or on the ground without flexibility. Apply one times on all surface. Apply one times on all corner.

跌落高度:1 米, 并跌落到厚度为 20mm 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, 每角各 1 次。

## 6. Reliability Requirements/可靠性要求

### 6.1. Burn-in/煲机

The power supply shall be burn-in for 4 Hours under normal input and 80% rated load at 40°C

产品至少要在 40°C 的环境及 80%额定负载条件下煲机 4 小时

## 7. EMI/EMS Standards/EMI/EMS 标准

### 7.1. EMI Standards/EMI 标准

FCC Part15 CLASS B

### 7.2. EMS Standards/EMS 标准

#### 7-2-1,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	+/-4KV	B

#### 7-2-2,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,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 N/A	A
Differential mode/差模 1KV	

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

Test level/测试条件	Test criteria/测试标准
3V	A
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 / 60 second

初级对次级: **3000Vac / 10mA Max / 60 秒**

Primary to Secondary: 3300Vac / 5mA Max / 3S

初级对次级: **3300Vac / 5mA Max / 3S**

### 8.2. Leakage Current/漏电流

0.25mA max. at 264Vac / 50Hz

### 8.3. Insulation Resistance/绝缘阻抗

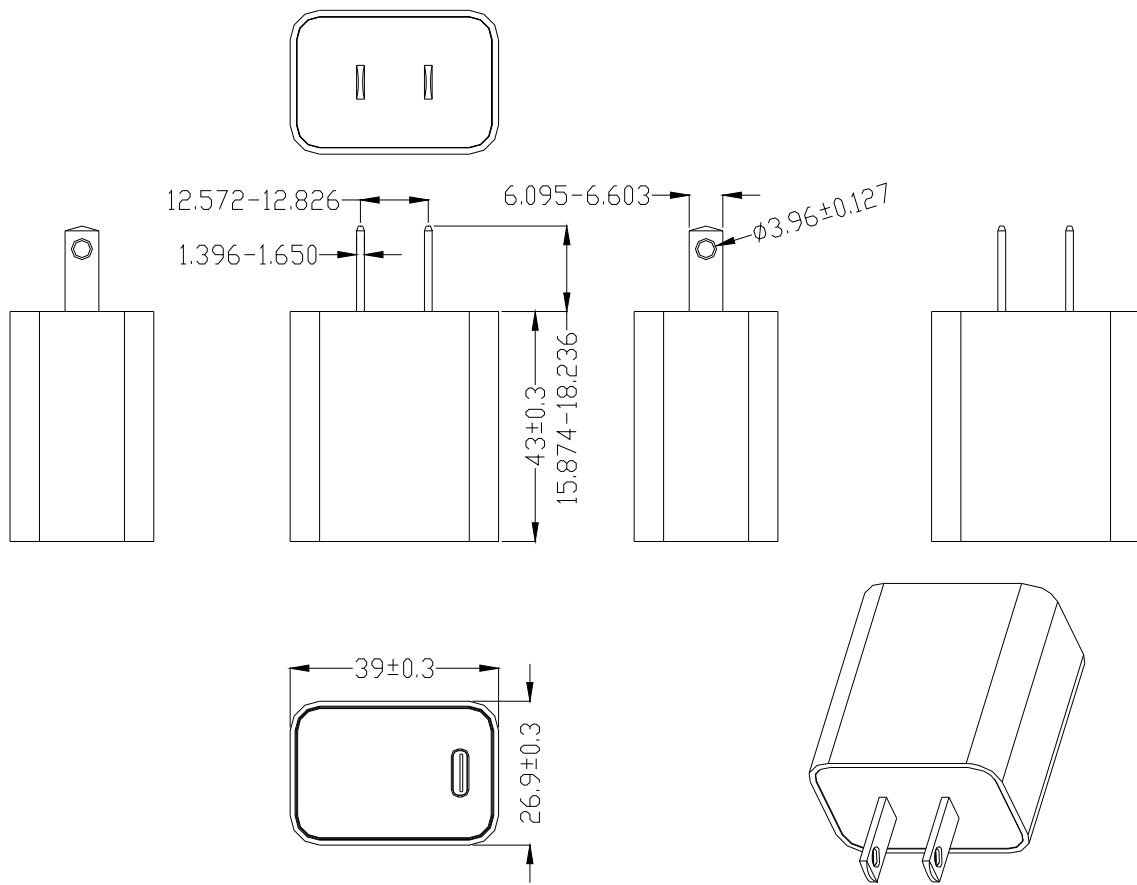
50MΩ min. at primary to secondary add 500Vdc test voltage

在初级与次级间加 **500Vdc** 进行测试

### 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	已认证	

## 9. Match. Outline Drawing/外观示意图



外壳颜色为黑色

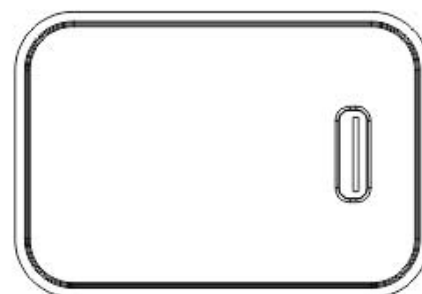
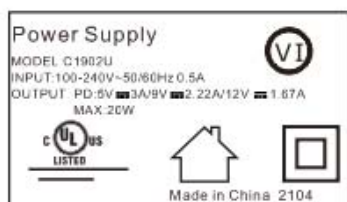
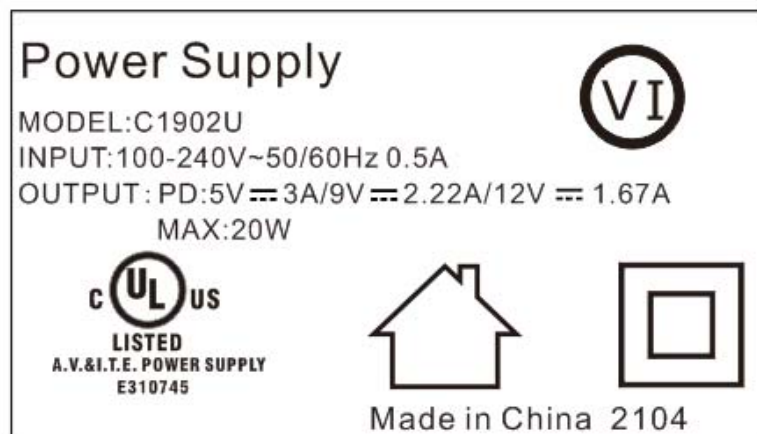
外壳材质：■PC 耐温：120℃

备注：PC 材质符合球压测试要求



## 10.I/O Marking Drawing/铭牌示意图

镭雕

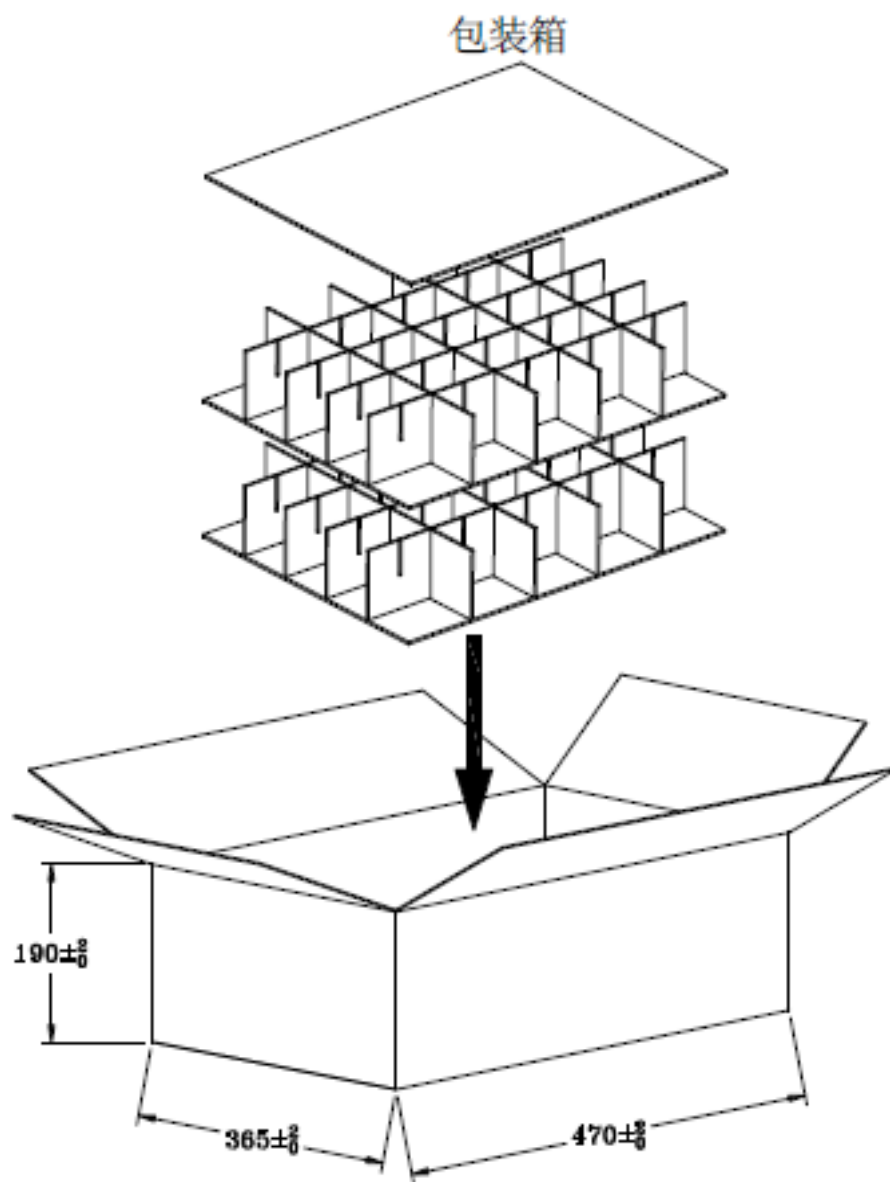


美规

# 插脚朝左

备注：2104 即 2021 年 4 月，日期随订单生产日期变更

## 11.Package Drawing/包装示意图



1、装箱数量：100PCS/1箱

2、标注尺寸为外度尺寸(470\*365\*190mm)