

## ARPV-05005-USB (5V, 1A, 5W)



### 1 SCOPE

This is the engineering specification of "Charger & Adapter for Mobile Phone, PDA, GPS & MP3, MP4 Auxiliary Power and so on" series 5 Watt power switching power supply, with wide voltage 100~240VAC input, 0.2A input current, single DC 5V output, model name ARPV-05005-USB (5V, 1A, 5W).

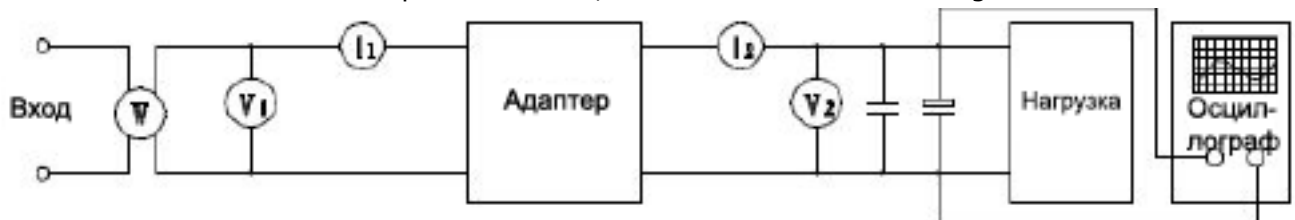
### 2 REFERENCE STANDARD

CCC GB4943-2001 <The security of information technology equipment>  
GB9254-1998 <Limits and methods of information technology equipment - Radio harassment>  
GB17625.1-2003 <EMC Limits for harmonic current emissions>  
YD/T 1591-2006 <Technical requirements and test methods for mobile communications handset charger and Interface>  
CE EN55022 EN60950

### 3 ELECTRICAL SPECIFICATION

Test performance of circuit diagram

If the test is to be made on a specified circuit, be sure to use the following circuit.



### 4 INPUT CHARACTERISTIC

4.1 Rated input voltage

AC100V~240V

4.2 Input voltage range

AC90V~264V

4.3 Incoming frequency

50/60Hz

4.4 Rated frequency range

47 Hz ~ 63 Hz

4.5 Incoming current

Maximum steady state input current is 0.2A (Max) Measured at 90Vac input and maximum load.

4.6 Peak Inrush Current

With cold starting, the peak inrush current should less than 20A.

4.7 Efficiency

68.1% min. measured at 100Vac and 240Vac input voltage, maximum load and include the DC cable loss.

4.8 Stand-by power consumption

at 100Vac and 240Vac input voltage, no- load power  $\leq 0.1W$ .

## 5 OUTPUT CHARACTERISTICS

### 5.1 Rated Output Voltage

5V±0.25V

### 5.2 Output Voltage

No load voltage 4.75V~5.3V

Full load voltage 4.75V~5.25V

### 5.3 Rated Output Current

The output current will be performed: output current at 1000mA±100mA) at CV mode.

### 5.4 Rated Power

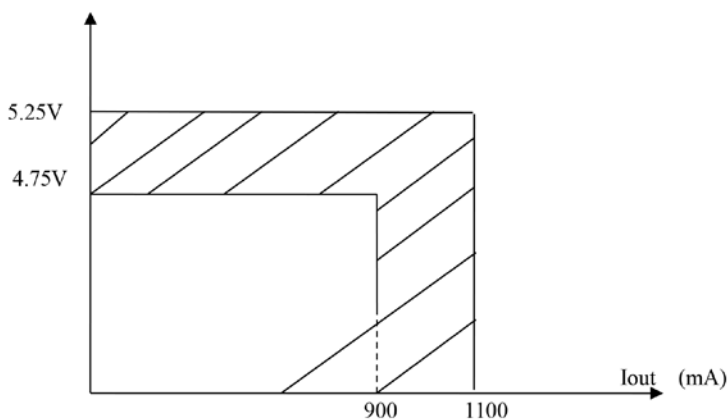
This Charger is capable to support 5 Watts continuously at all specified conditions.

### 5.5 LED Indicate Function

Working: LED light on, if not, power supply is bad

### 5.6 Charger Output Voltage/Current Characteristics

Vout (V) (DC)



Note: the test shall be made under the following conditions, unless otherwise specified: Ambient Temperature 25°C, Relative Humidity 35~85%RH, Air Pressure 86~106kPa

### 5.7 Output Ripple and Noise

Output ripple voltage is less than 200 mV p-p (I=1000mA) Measured methods:

Performed by 20MHz bandwidth in oscilloscope. Applied 0.1uF ceramic capacitor and 10uF electrolytic capacitor across output connector terminals Measured at the end of DC cable.

### 5.8 Turn On Delay Time (Power On Time)

The charger is in regulation within 1second after specified rated input voltage had been applied.

### 5.9 Turn-Off Delay

The voltage reach down to 2V at CC or CV mode less than 1S after turned off.

### 5.10 Overshoot Current

When the charger switches between CV mode, the output overshoot current must be stable in normal range (±10%) within 10mS after charging mode changed.

### 5.11 Protection

A: Over Voltage Protection

NC

B: Over Current Protection

Output current will be limited and less than 1200mA max.

C: Short Circuit Protection

The charger is protected that a short happened between the output terminals and shall not result in a fire hazard, any damage to this Charger and will be normal operation automatically while the short is removed. The maximum short current is 600mA max.

## 6 SAFETY REQUIREMENTS

### 6.1 Electrostatic Discharge

At 150pF: 330Ω, for each point, 10 shots of direct discharge or air discharge. (1 MΩ/SHOT), have no malfunction. Direct discharge: ±4kV, Air discharge: ±8kV

## 6.2 Hi-Pot Test

After AC 3000V 1min between input plug-DC plug. cutoff current 5mA, the charger have no failures like damages, arch, insulation damage etc. (at 25°C)

## 6.3 Insulation Resistance

At 25°C after DC 500V 1min between input plug- DC plug, insulation resistance 7MΩ min

## 6.4 Leakage Current

0.25mA maximum, at nominal AC input voltage and frequency

## 6.5 Temperature Rise

At 25°C with the rated input 100-240Vac charged to the primary an rated load (Iout=1000mA) on the secondary, every parts of the case surface rise 55°C or less.

## 6.6 Continuous Working

With the rated voltage charged to the primary and output current 680mA, after continuously work 96 hours have no damage.

## 6.7 Mean Time Between Failure

The charger shall be designed and produced to have a mean time between failures (MTBF) of 20000 operating hours 90% confidence-level while operating under the following conditions:80% maximum load at 25°C,nominal input voltage.

## 6.8 EMI Standards

YD1591-2006, GB 9254-1998;  
EN55022 , EN55024

# 7 USE ENVIRONMENT

7.1 Operating Temperature -10°C ~ +40°C

7.2 Storage Temperature -40°C ~ +70°C

7.3 Operating Humidity 35%~85%

7.4 Storage Humidity 5%~95%

# 8 MECHANICAL FEATURES

## 8.1 Dimension

60±1(L)\* 41.5±1(W)\*27±1(H) mm

## 8.2 Weight

100g

## 8.3 Input Plug Type

Wall-mount European norm type. 2 Conductors, < Live. Neutral >

## 8.4 USB Plug

Plug: Large 4pin USB

## 8.5 Case/Resin Materials

PC+ABS Flame resistance applies to UL94V-0 black.

# 9 TYPE APPROVAL TEST

## 9.1 Vibration Test Requirement

The power supply shall meet operating, non-operating and package vibration,

Vibration	frequency	acceleration	tow times	cycle
Operating	5-500Hz	0.5G	15min,xyz all 15min	2
Non-operating	5-500Hz	1G	15min,xyz all 15min	2
Package	5-500Hz	1.5G	15min,xyz all 30min	2

## 9.2 Drop Test

Drop the charger from a height of 100cm onto a hardwood floor, hitting the charger for 12 times, no mechanical damages or other failures, no electrical deterioration and other failures comparing to before test condition.

## 9.3 Bending Test

Fix the adapter and its plug, apply a load of 300g to the other end, turn the cable by ±60°carry out this process 3000 times, at the rate of 20 times per minutes. No abnormality in mechanical and electrical characteristic and disconnection within 30% after the test.

#### 9.4 Tensile Strength

Apply a load of 10N to the charger side and the connector side for 1 minute, no mechanical damages or other failures, no electrical deterioration and other failures comparing to before test condition.

#### 9.5 Plug In and Out Test

After plug the connector in(35N max) and out(10-35N) the female-connector for 10 times, then plug in and out for 1500 times, light damage in the mechanic characteristic, but no abnormality in electric characteristic.

#### 9.6 Operating at the Lower temperature

At  $-510\pm 2^{\circ}\text{C}$ , with the rated voltage 100-240Vac charged to the primary and unloaded and full load on the secondary, no abnormality in electric and mechanic characteristic, after 2 hours recovery at the room temperature.

#### 9.7 Operating at the High Temperature

At  $40\pm 2^{\circ}\text{C}$  with the rated voltage 100-240Vac charged to the primary and unloaded and full load on the secondary. No abnormality in electric and mechanic characteristic after 2 hours recovery at the room temperature.

#### 9.8 Storage at the Lower Temperature

At  $-40\pm 2^{\circ}\text{C}$ , test of non-operated, No abnormality in electric and mechanic characteristic after 4 hours recovery at the room temperature.

#### 9.9 Storage at the Higher Temperature

At  $70\pm 2^{\circ}\text{C}$ , test of non-operated, No abnormality in electric and mechanic characteristic after 4 hours recovery at the room temperature.

#### 9.10 Storage at High Temperature and High Humidity

At  $40\pm 2^{\circ}\text{C}$ , 90~95%RH test of non-operated, No abnormality in electric and mechanic characteristic after 4 hours recovery at the room temperature.

## 10 INSTRUCTION FOR SAFETY USAGE

### **IMPORTANT!**

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety, If the provided plug does not into your outlet., consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs. Convenience receptacles and fire point where they exit from the apparatus.
11. Only use attachments accessories specified by the manufactures
12. Unplug this apparatus during Lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged liquid has been spilled or objected have been fallen into the apparatus, the apparatus has been Exposed to rain or moisture, does not operate normally, or has been dropped.
14. Don't open the enclosure avoid electric shock!



# 11 OUTLINE DIMENSIONAL DRAWING

