Contents

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1.0 Scope

This Specification applies to 5.0V-2A car charger

2.0 Reference Standard

CCC(GB4943-2001/GB9254-1998/GB17625.1-2003)

2.1 GB2423.1-89 Electrical Engineering Electric Product basic environmental test procedures experiment A: Low Temp experiment methods.

2.2. GB2423.2-89 Electrical Engineering Electric Product basic environmental test procedures experiment B: High Temp experimental methods.

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2.3. GB2423.8-81 Electrical Engineering Electric Product basic environmental test procedures experiment test Ed: Free drop test method

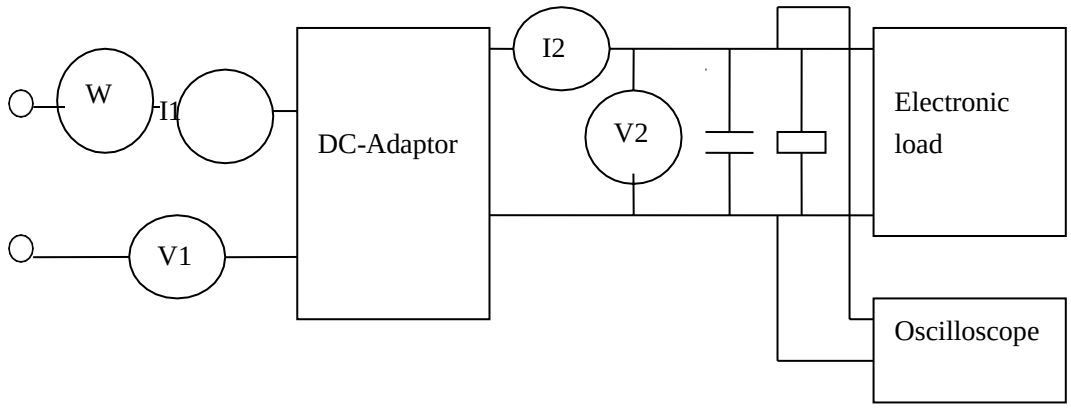
2.4. GB/T2423.9-93 Electrical Engineering Electric Product basic environmental test procedures experiment test Cb: devices with a constant warm experimental methods.

2.5. GB/T2423.10-1995 new electrical and electronic products environmental test procedures test Fc: vibration test method

3.0 Electrical Characteristics

In absence of any other special provision, test the electric circuit according to below digram.

W: input power / I1 input current / V1 input voltage / I2 represents the output current V2 represents the output voltage.



4.0 Input Characteristics

4.1 Rated Input Voltage

Rated Input DC: 11V~28V

4.2 DC Input Current

Max. 12V Input Current: 1300mA

Max. 24V Input Current: 700mA

4.3 Efficiency

Under the input voltage of 11V-28VDC and the maximum output load, the average conversion efficiency of power supply is more than 85%

4.4 Down Voltage Protection

B+, B-If ACC is electrified, the machine will activate and start automatically, with 5V outputs..

12V系统参数				
序号	系统参数：	最小值	典型值	最大值
1	低电压保护	11.75V	11.9V	12.05V
2	启动	ACC触发启动		
3	低电压检测时间		360秒	420秒
4	超低脉冲电压保护值	9V	10V	11V
5	超低脉冲电压检测时间		60秒	75秒
7	启动电压检测时间	1秒	2秒	3秒
10	输出电压	4.8V	5V	5.5V
11	最大输出电流		2000MA	2500MA
24V系统参数				
序号	系统参数：	最小值	典型值	最大值
1	低电压保护	23.75V	23.9V	24.05V
2	启动	ACC触发启动		
3	低电压检测时间		360秒	420秒
4	超低脉冲电压保护值	20V	21V	22V
5	超低脉冲电压检测时间		60秒	75秒
7	启动电压检测时间	1秒	2秒	3秒
8	输出电压	4.8V	5V	5.5V
11	最大输出电流		2000MA	2500MA

5.0 Rated output DC voltage range: 5.0V, in connecting to power supplies, No - load voltage about 5.6V,for a moment it reduce to 5V.

5.1 Output Voltage

No load output voltage: 4.8-5.5V

Full load output voltage: 4.8~5.5V

ACC output voltage: 4.0~5.0V

5.2 Rated output current

The rated output current under CC working mode is 2A

5.3 Rated Power

Rated output power is 10W

5.4 LED Indicator

ON LED

5.5 Charger output voltage / Current characteristics

According to the actual testing output

5.6 Output Ripple, Noise

The output capacitor 0.1uF and 10uF, 20MHz oscilloscope bandwidth limit when measured ripple of less than 150mV pp

5.7 Protection

5.7.1 Over Current Protection

Machine built-in overcurrent protection, when the output overcurrent is greater than 2.5A, will enter the overcurrent protection state, when there is no 5V voltage output.

5.7.2 Short-circuit Protection

Output short circuit does not damage the product, short circuit recovery can be recovered when the normal output.

5.7.3 Over Voltage Protection

The output realizes the over voltage protection by the main chip 31 ±2V.

5.8 Output Voltage Auto. Self Compensation Protection

This car charger designed with self compensation protection concerning the long conduction wires causing minor voltage loss then the output may not meet the spec. parameter. Thus, when the input current rises to 2A, the output voltage will raise to 5.6V max from 4.65V so as to meet the spec. parameter. If there is voltage rise when primarily loaded, it is normal.

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6.0 Reliability

6. 1 Statics

In the contact discharge ± 4kV and ± 8kV air discharge mode, respectively discharge around 10 times correct action

6. 2 Temperature Rise

When ambient temperature 25 ℃ at the input voltage of 11V-28Vdc, USB output load2A with constant 24 Hours working, the case surface temperature below 50 ℃

6. 3 Constant Working Time

When rated input voltage and output current is2A, no damage occurred to the charger after 48 hours continuous working.

6.4 MTBF

Under ambient temp.25 ℃ with normal input, the max output load of the charger is 80%, 90% of its MTBF of 5000 hours

6.5 EMI Standard

Designed to meet CE

7.0 Environment Requirement

7.1 Working Temp.

-20℃ to +60℃

7.2 Storage Temp.

-20℃ to +70℃

7.3 Working Humidity

35～ 85% RH.

7.4 Storage Humidity

5 ～ 95% RH.

8.0 Mechanics

8.1 Dimension

59.5（L）*25.4(W)*17.6(H) mm max.

8.2 Weight

According to the actual weight of the product

8.3 Input Plug

Peeling tin:0.5m 20#AWG B+: yellow, ACC: red, GND: black

8.4 Output Cable and Connector type

PLUG: 22# **AWG** 3.5M MINI left Plug

PVC cable with hardness 75P 22AWG, Conductor: 0.16*17 Copper black OD: 3.8mm

8.5 Vibration Test

In case of the packaged product without any operation, testing standard refer to IEC PUBL68-2-6

Test Conditions		Specification
Vibration frequency	10～55Hz	Abnormal function of damage does not occur
Vibration mode	Each member 2 hours (X, Y, Z)	

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Acceleration	0.6G 1.5G (5～50Hz Max)	
Amplitude	0.35 mm(5～50Hz)	

8.6 Flexural strength test

Pull a heavy load: 200g, bending strength: ± 60C°,times: 2000 times, frequency: 40 beats / min, after the test performance is normal, break rate of 30% or less

8.7 Tensile strength

In applied to the connector end compared with the state before the experiment 7N 1 minute, no mechanical damage, etc., and does not damage the electrical properties occur.

8.8 Drop Test

Products drops from 120cm at six times by arbitrary direction, fell on rigid floor before the experiment after experiment compared with the state without mechanical damage and other adverse conditions, and does not appear damaged electrical properties

8.9 Plug experiment

Insertion force car charger and car plug by 10times, applied the insert strength 30N, pull out strength between 10~50N for 1500times. Appearance allows light degree of damage, but good conduction properties.

8.10 Metal Parts Salt Spray test

Testing requirement: Please industrial salt concentration 5%, the set testing equipment temp35~40℃, put the unpacked car charger input the equipment and spray for 12 hours. Then placed for 12hours after take out from testing facility, finds no rust on the metal parts by visual check.

9.0 Mechanics

Visual inspection, no abnormal appearance, the surface no scratches, burrs and other mechanical damage, exposed metal parts rust. Other limits confirmed according to the sample.

9.1 Case Material

Eco-friendly plastic ABS, Flammability UL94V-0 or above

10.0 Environmental Characteristics

10.1 Low Temperature Working Experiment

Ambient temperature -5 ℃, the input voltage applied to the 11-28V DC, the output of 5V electric charge 2A work 8 hours without exception

10.2 High Temperature Working Experiment

Ambient temperature of 60 ℃ Celsius, the input voltage applied to the 11-28V DC, the output 5V charging 2A work 8 hours without exception

10.3 Low Temperature Placement

The test was carried out at -20 ±2 ℃ in non working condition. After the test, the test was carried out at room temperature for 4 hours.

10.4 High Temperature Placement

The test was carried out at 70 ±2 ℃ without action. After the test, the test was carried out at room temperature for 4 hours.

10.5 Powered high temperature and high humidity place

At 60 ℃, 90 ~ 95%RH, under the state, after the test is often placed 4 hours after the test is no exception

10.6 Powered low temperature and low humidity place

At -5℃, 10% ~ 40%RH, under the state, after the test is often placed 4 hours after the test is no exception

11.0 List of key components

11.1 Safety Key Components List

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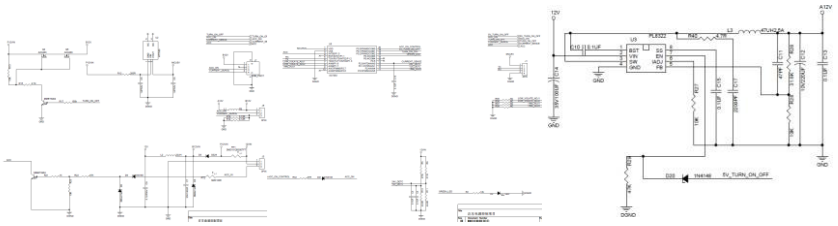
No.	Ministry of EMC Name	Specification	Q'TY	Bit No.	Remark
1	Fuse	2A/30V	1		
2	PCB	T=1.2mm FR-4	1		
3	TOP CASE	ABS UL94V-0	1		
4	BOTTOM CASE	ABS UL94V-0	1		

11.2 List of key parts

No.	Name	Specification	The amount		
1	IC1	PL8322	1	U1	
2	IC2	MCU	1	U3	
3	Inductance	33uH	1	L1	

12.0 Circuit Diagram



13.0 PCB PCB Pictures

14.0 Appearance and User Instruction

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16.0 Packaging specifications

16.1 Package list

No.	Name	Specification	The amount	REMARKS
1	PE bag		1	
2	carton		1	
3	clapboard		1	
4	Fluted coupling shee			
5	Transparent sealing glue			

16.2 Package Drawing