	深圳市星维科技有限公司 SHENZHEN STARWELL TECHNOLOGY CO., LTD.		REVISION 版本	A0
			DATE 日期	2023.11.07
SAMPLE NO: 样品编号	WT-16453	MODEL 规格型号	WTA36-2401500-U	

APPROVAL SHEET

承 认 书

客户名称 (CUSTOMER) : _____

客户料号(PART NO): _____

客户品名(DESCRIPTION) : _____

客户规格(SPECIFICATIONS): Input:100 ~240V AC 50/60Hz Output:24.0V DC1.5A

产品编码(PART NUMBER): _____

产品颜色(SAMPLE COLOR): Black White

MANUFACTURER (制造商)			
EDIT 制订	CHECK 审核	APPROVAL 批准	CHOP&SIGNATURES 签章
曹燕纯	谭登明	谭登明	

CUSTOMER APPROVAL (客户承认)


◆ Company Add:F BLD 50th Nanhuan Road Shiwei community Matian street Guangming district Shenzhen City China 518105

◆

地址: 广东省深圳市光明区马田公明街道石围社区南环大道 50 号 F 栋


◆ Tel: 86-755-29634321

Fax: 86-755-29634321

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REVISION CHANGE DESCRIPTION (版本变更描述)

REV(版本)	UPDATE(变更)	DETAIL(详述)	DATE(日期)

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1.Scope (适用范围)

This specification applies to adapters of 36W. This product has the feature such as high efficiency and high reliability, and it also has the protection function such as short-circuit protection, over voltage protection and over current protection.

本规格适用于 36W 的适配器。本产品具有效率高，可靠性强等特点，具有短路保护，过流保护，过压保护等保护功能。

2.Quote Criterion (引用标准)

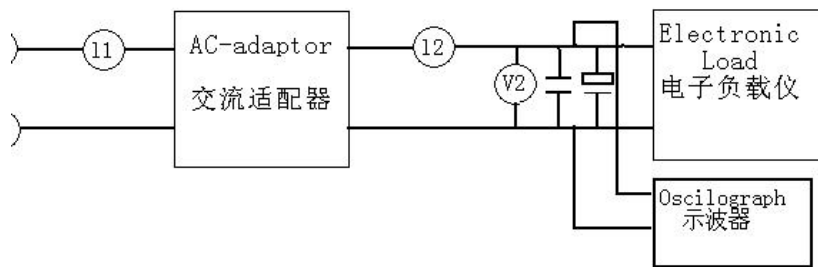
(R2019)[CSA C22.2#62368-1:2014 Ed.2]信息技术设备.安全.一般要求

3.Electrical Characteristic (电气特性)

3.1 Test Circuit (测试电路)

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

无特殊规定的情况下依照下面的电路进行测试。



3.2 Rated Input Voltage (输入电压)

Lists the AC input operating voltage range. The power shall work normally and meet all electrical requirements throughout this range.

在下述电压范围内，电源应正常工作并符合所有电气性能要求。

最小值 minimum	额定值 Rated value	最大值 maximum value
90VAC	100/240VAC	264VAC

3.3 Input Frequency(输入频率)

Lists the AC input operating voltage range. The power shall work normally and meet all electrical requirements throughout this range.

在下述电压范围内，电源应正常工作并符合所有电气性能要求。

最小值 minimum	额定值 Rated value	最大值 maximum value
47Hz	50/60Hz	63Hz

3.4 Steady AC Current (AC 输入电流)

Maximum steady state input current is 1600mA (Max) Measured at90Vac input and maximum load.

90V 满载时输入电流 1600mA (Max)。

3.5 Peak Inrush Current (峰值输入电流)

With cold starting, the peak inrush current should less than 120A.


电源启动时最大峰值输入电流小于 120A。

3.6 Efficiency (效率)

The average efficiency shall not be less than 87.403%.(Expressions:[Po<49;≥0.87403])

平均效率不低于 87.403%.(Expressions:[Po<49;≥0.87403])。

-According to DoE-VI. 根据 DoE-VI.

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-Both 115Vac(60Hz) and 230Vac(50Hz) input voltage condition.

115Vac(60Hz)和 230Vac(50Hz)输入电压条件。

-Average(25%+50%+75%+100%)/4.

平均(25%+50%+75%+100%)/4。

-The DC power supply shall be operated at 100% of nameplate current output for at least 30 minutes immediately prior to conducting.

在启动前，直流电源应在铭牌输出电流的 100%负载下运行至少 30 分钟。

3.7 DC Output Voltage regulation limits (输出电压调整限值)

The DC output voltages will remain within the regulation ranges shown in Table when measured at the load end of the output connectors.

在输出端子量测的电压需符合下表标示的调整范围。

参数 Parameter		空载调整 No load Regulation	负载调整 Load Regulation	线性调整 Line Regulation	Ripple noise/ 纹波噪声 (mVp-p)
满载 Full load	空载 No load				
24V/1.5A	24V/0A	22.80V-25.20V	22.80V-25.20V	22.80V-25.20V	<240

3.8 Power Loss(Minimum Load Power Consumption)(待机功耗)

Condition		Result(Spec)
Input Voltage	115V AC /230VAC	0.1W MAX(Input Power)
Output Voltage	+24V/NO LOAD	AT 230Vac/50Hz 115Vac/60Hz

3.9 Output Requirements(输出要求)

3.9.1 Maximum Output Power:36Watts.

3.9.2 Output Voltage and Current

Output Voltage	Minimum Voltage	Maximum Voltage	Output Current	Input Voltage
+24.00VDC	22.80VDC	25.20VDC	0.00A-1.50A	100Vac-240Vac

3.10 Output Voltage Ripple and Noise (输出电压纹波、噪音)

Output Voltage	Switching Ripple And Noise
24.00VDC	0.24Vp-p(240mV)

When the output of the oscilloscope is connected in parallel with 10uF and 47uF capacitors and the oscilloscope bandwidth is limited by 20MHz, the voltage ripple is measured as shown in the table above.

输出端并联 10uF 与 47uF 电容，限制示波器带宽 20MHz 时，测得电压纹波值如上表格。

3.11 Start Delay Time(启动延时)

Under rated input voltage, the adapter should be able to start normally with a delay time of less than 3 seconds.

在额定输入电压下适配器应该能正常启动延时时间小于 3 秒。

3.12 Hold-up Time(输出保持时间)

The power supply shall have a hold-up time greater than 5mS at input 115V and full load.

Parameter	Min	Nom	Max	Unit
115Vrms, 60Hz	5	/	/	ms

(Measured from AC-off at a zero crossing)

输出保持时间大于 5mS, 测量条件: 115Vac 60Hz, 交流电压过零点。

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3.13 Rise time(上升时间)

DC output rise time from 10% to 90% of output voltage shall be less than 100mS @100Vac to 240Vac input and output Max.Load.

直流输出从 10%~90%电压上升时间小于 100mS @100Vac~240Vac 输入输出最大负载。

3.14 Overshoot(过冲)

The output overshoot at tum-on shall not exceed +10%(V) of output voltage at no load and full load connected.

开机时的输出电压过冲在空载和满载连接时不超过输出电压的+10%(V)。

3.15 Over Current Protection (过流保护)

OCP Point Limited: 105%~200% of Max. Load. The output shall hiccup when the over current applied to the output, and shall be self-recovery when the fault condition is removed

过电流点为最大负载的 1.05~2.0 倍，输出将进入打嗝模式，当过电流情况解除后，产品将会自动恢复正常。

3.16 Short Circuit Protection (短路保护)

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 1500mA Max.(Lout= 0V)

输出短路后不损坏该制品，输出短路电流小于 1500mA 或跳变。(Lout= 0V)

4.Reliability Items (信赖性项目)

4.1 Hi-Pot Test (高压测试)

In the 25° C environment, apply AC 3000V between the AC input plug and the DC plug for 1 minute, the current is less than 10mA, and the adapter is not damaged, arc discharge, insulation damage and other abnormalities.

在 25° C 环境下，AC 输入插头与 DC 插头之间加 AC 3000V 1 分钟，电流小于 10mA，适配器无损伤、电弧放电、绝缘破坏等异常。

4.2 Insulation Resistance (绝缘电阻)

At 25°C after DC 500V 1min between input plug-DC plug,insulation resistance 10MΩ min.

在 25° C 环境下，AC 输入插头与 DC 插头之间输入 DC500V1 分钟后绝缘阻抗在 10MΩ 以上。

4.3 Leakage Current (泄漏电流)

250uA maximum, at nominal AC input voltage and frequency.

额定交流输入时泄漏电流不得超过 250uA。

4.4 Temperature Rise (温升)


Applying 100-240 Vac voltage at the input end at 25°C and under full load at the output, all parts of the shell surface are below 65°C..

在 25°C 下输入端施加 100~240Vac 电压，输出满负荷下，外壳表面所有地方 65°C 以下。

4.5 Continuous Working (连续工作时间)

Under the condition of input rated voltage and output current 1500mA, Work continuously for 48 hours without damaging the adapter.

在输入额定电压和输出满负荷 的条件下，连续工作 48 小时，不损坏适配器。

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4.6 Mean Time Between Failure (MTBF) (平均无故障时间)

The MTBF should not be less than 50000 hours at the temperature of 25°C.
 在 25°C 环境温度下平均无故障时间不小于 50000 小时。

4.7 Lightning test (雷击测试)

EN 55035:2017

Differential mode standard: 1kV

Common mode standard: 2kV

Performance Criteria B

4.8 ESD test (静电测试)

EN 55035:2017

Air Discharge(空气放电): ±8kV

Contact Discharge(接触放电): ±4kV

Performance Criteria B

4.9 EMI STANDARD (EMI 标准)

FCC Part 15 Subpart B,2019;ANSI C63.4:2014;(R2019)[CSA C22.2#62368-1:2014 Ed.2]

5.Mechanical Requirement (机械要求)

5.1 Input Plug Type (输入插头类型)

US AC 2PIN pin (美规 AC 2PIN 插脚) .

5.2 Drop Test (跌落试验)

Drop the charger from a height of 100cm onto a hardwood floor, hitting the charger for 2 times, no mechanical damages or other failures, no electrical deterioration and other failures comparing to before test condition.

制品从 100cm 处落下一面 2 次，共六面，落在硬木板上 方向任意，实验后与实验前状态比较没有机械破损等不良状况，且不出现电器性能损坏。

6.Environmental Requirement (环境要求)


6.1 Operating Temperature (工作温度) : 0°C TO 40°C

6.2 Storage Temperature (储藏温度) : -20°C TO +70°C .

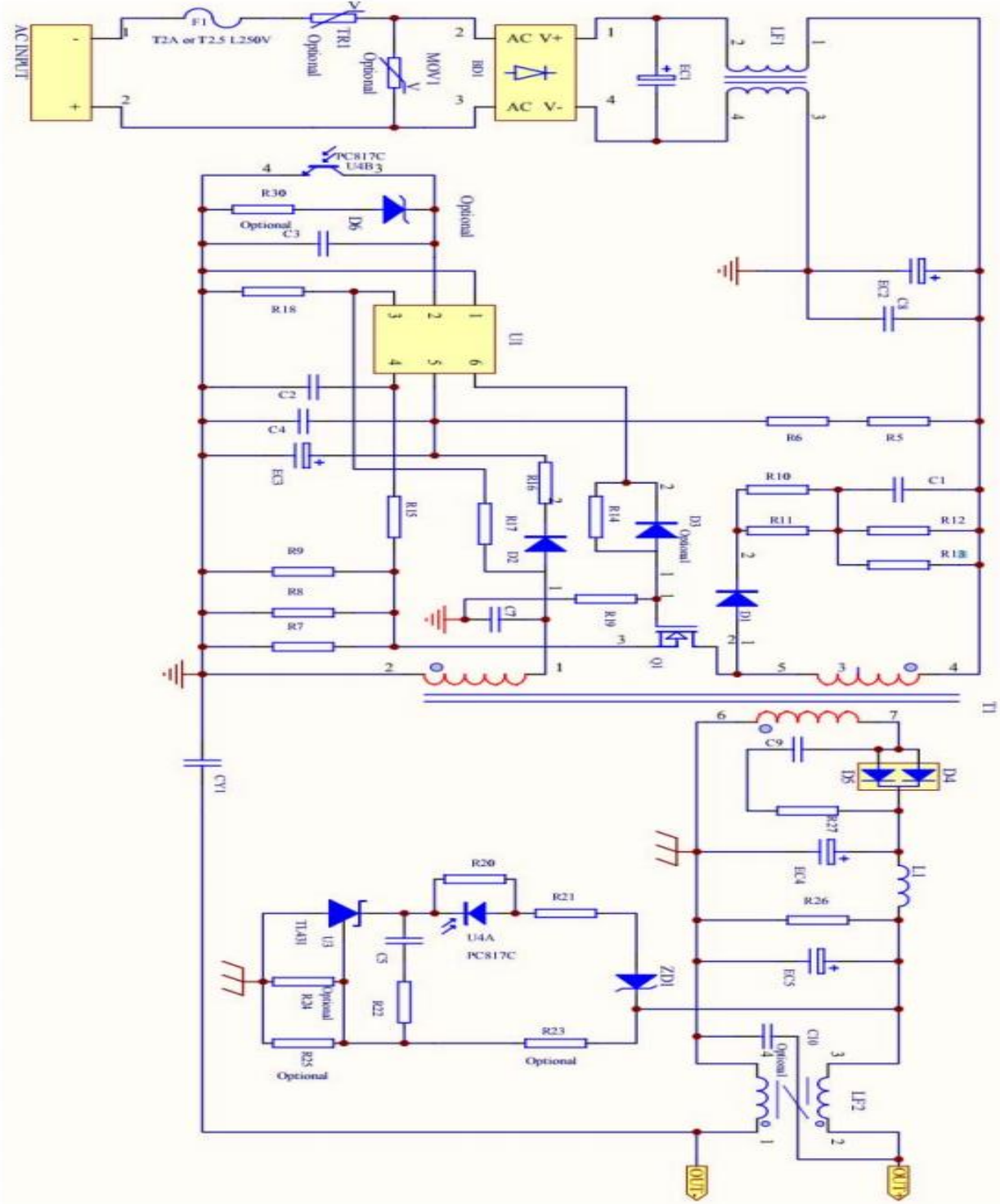
6.3 Operating Humidity (工作湿度) : 35~85% RH. Non-condensing.


6.4 Storage Humidity (储藏湿度) : 5 ~ 95% RH. Non-condensing.

6.5 Altitude (海拔高度) : Operating 5000 meters.

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7. Schematic Diagram(电气原理图)



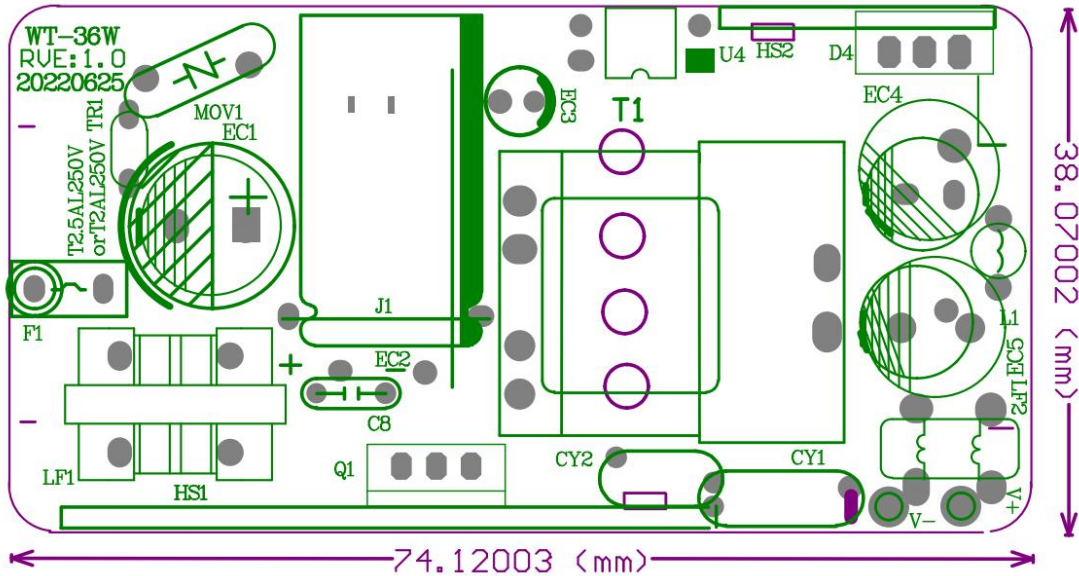
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8.PCB Artwork (PCB 板图)

top surface

The following pictures are for reference only, the adapter is based on the latest PCB version.

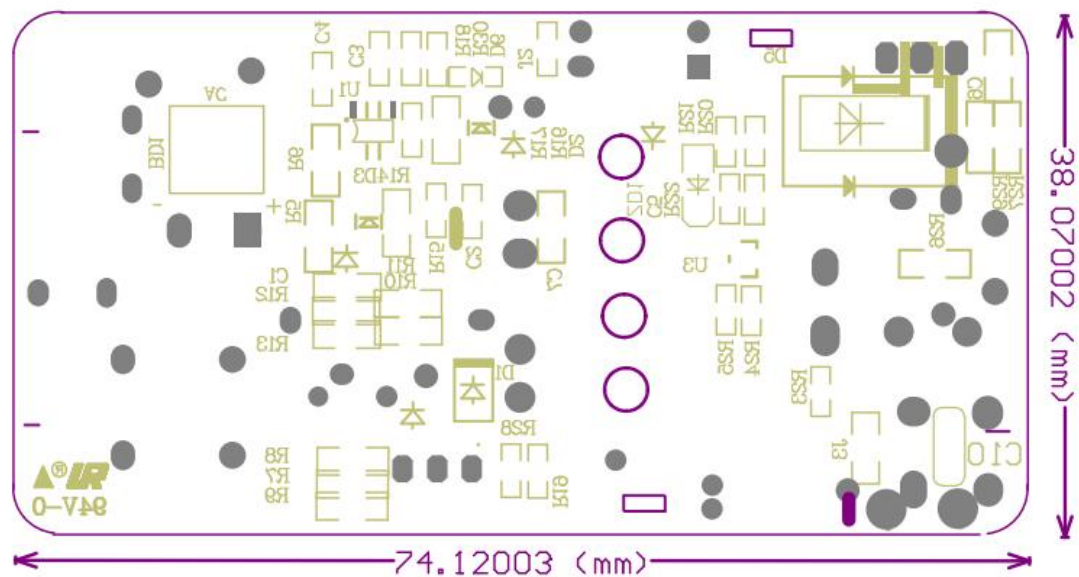
以下图片仅供参考，适配器根据最新的PCB版本。




Underside

The following pictures are for reference only, the adapter is based on the latest PCB version.

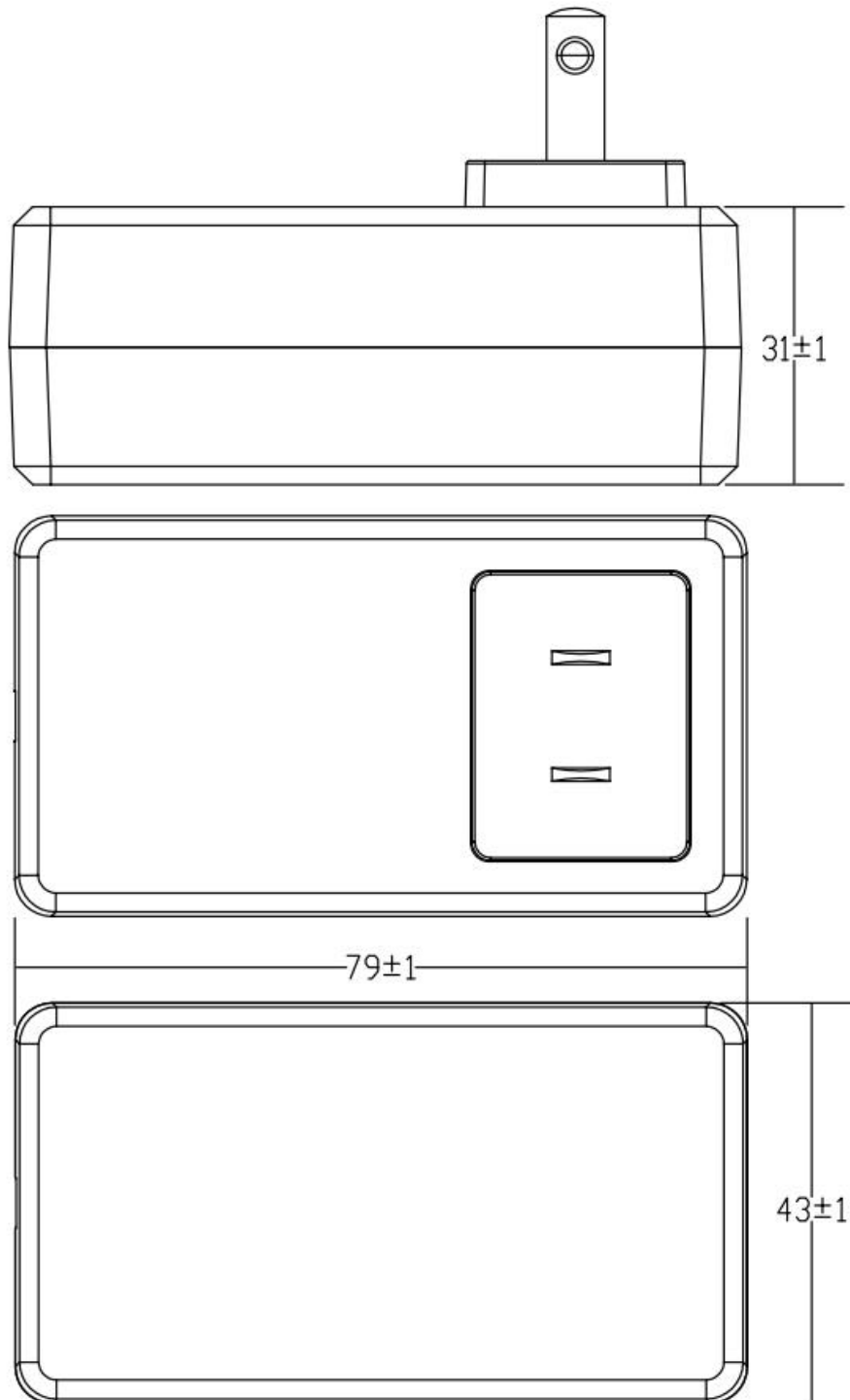
以下图片仅供参考，适配器根据最新的PCB版本。




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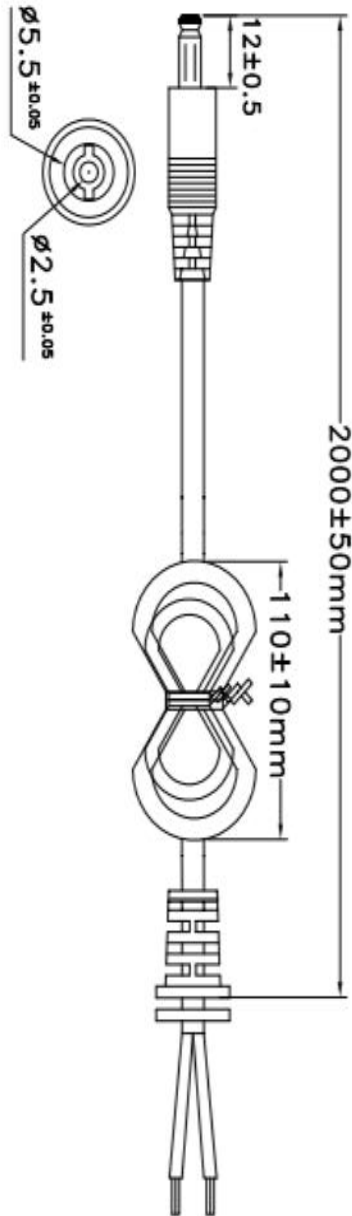
9. Structure specification (结构规格)

外壳尺寸/Shell size: L79 x W43 x H31mm



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10. CORD 线材



线材规格: UL2464 20AWG DC头: 5.5*2.5*12 音叉叉沟镀镍黑胶 L=2M(白色线)

厂商A: 宏亚


印字内容: E346933 **AWM** 2464 20AWG VW-1 80°C 300V HONGYA C **AWM**

AWM I/II A 80°C 300V FT1-LF-

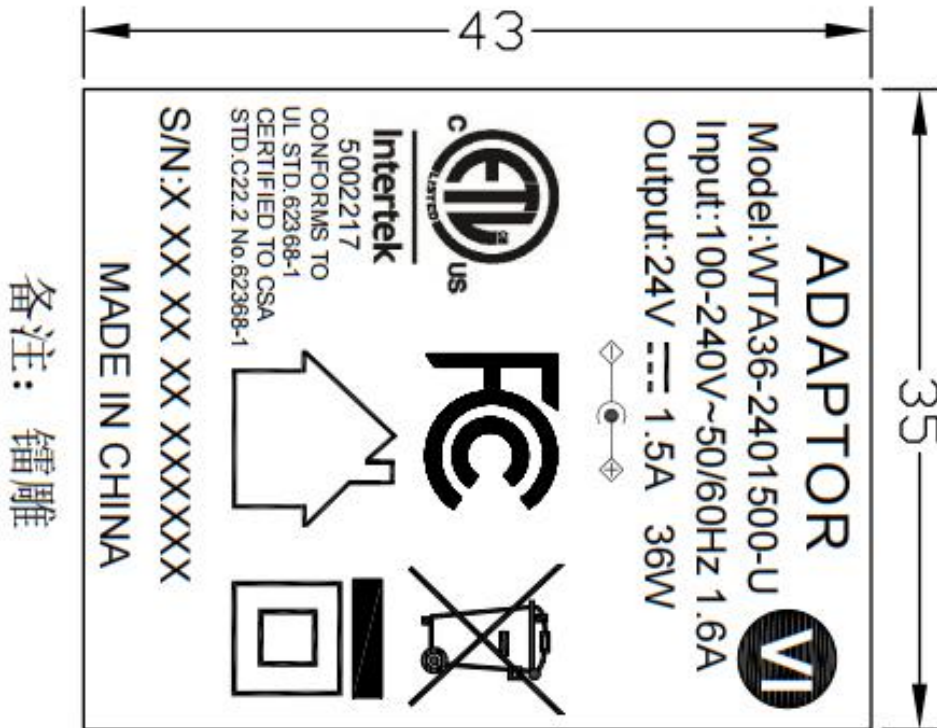
厂商B: 伟泰兴

印字内容: **AWM** 2464 VW-1 80°C 300V E481928 C **AWM** 20AWG I/II AB 80°

C 300V FT1 WTX

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11.Laser carving figure (镭雕图)



S/N:X XX XX XX XXXXXX

S/N:代表 抬头


X 代表 生产拉别 (1位): A 代表 A 拉段, B 代表 B 拉段...以此类推;

XX 代表 生产年份 (2位): 19 代表 2019 年, 20 代表 2020 年...以此类推;

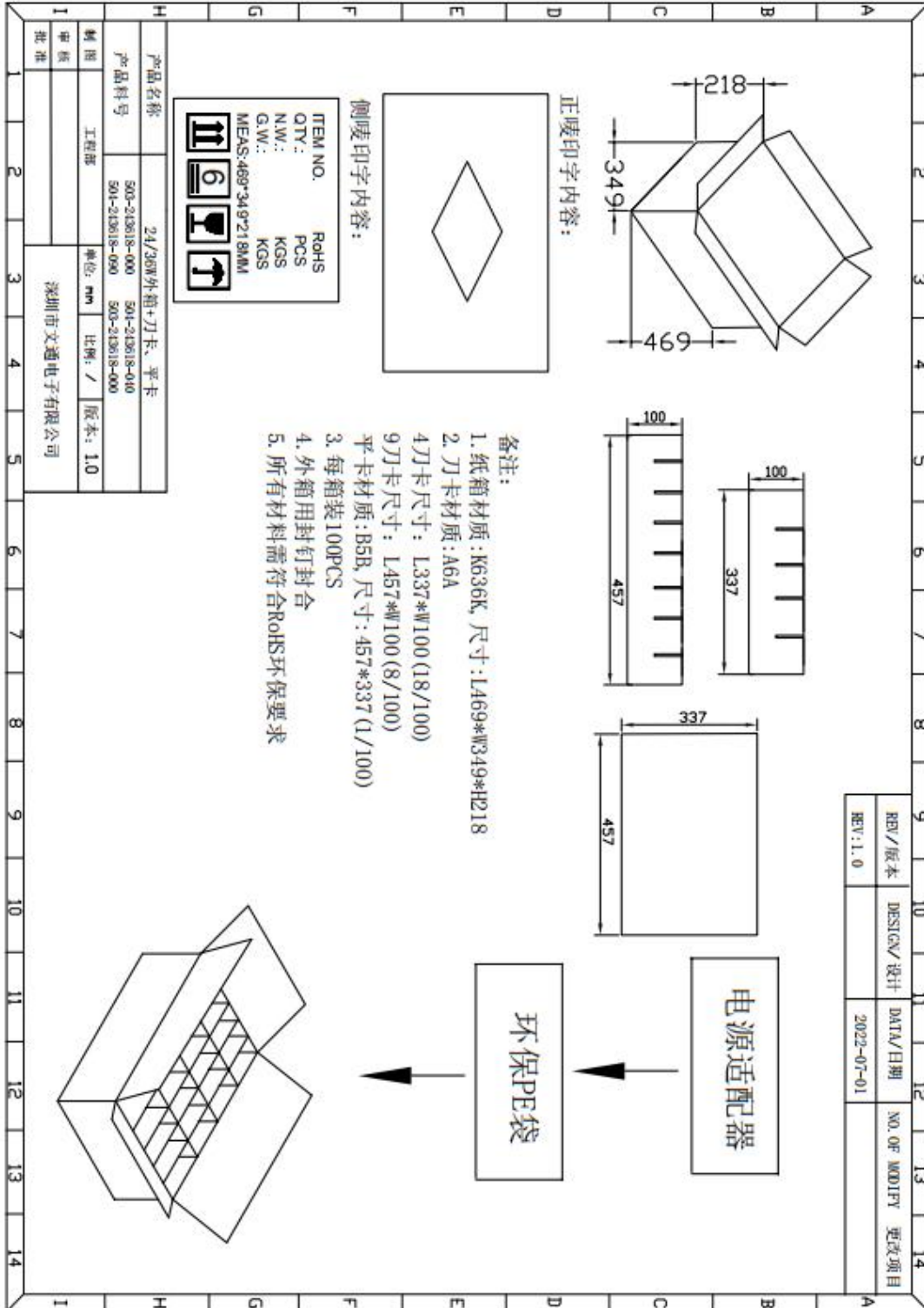
XX 代表 生产月份 (2位): 01 代表 1 月份, 02 代表 2 月份用...12 代表 12 月份;


XX 代表 生产日期 (2位): 01 代表 1 号, 02 代表 2 号...31 代表 31 号;

XXXXXX 代表 订单数量 (6位): 如订单量为 10000 个, 标识为 010000。

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12.PACKING (包装说明)



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13. ELECTRICAL TEST REPORT (测试报告)

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		
1	Output Voltage 输出电压	Vin100Vac 60Hz I=0 输入 100Vac 空载	±5%	24.22			V	Pass
2	Output Voltage 输出电压	Vin100Vac 60Hz I=Rated Current 输入 100Vac 60Hz 额定电流	±5%	23.90			V	Pass
3	Average Efficiency 平均效率	Vin115Vac 60Hz 输入 115Vac 60Hz	87.403%	88.83			%	Pass
4	Ripple&Noise mVp-p 纹波&杂讯	Vin100Vac 60Hz Full load 输入 100Vac 60Hz 满载	≤240mVp-p	68.00			mVp-p	Pass
5	Line Regulation 线性调整率	Vin=100V~240V I=Rated Current 额定电流	±5%	0.0%			/	Pass
6	Standby Power 待机功耗	Vin 115Vac 60Hz I=0 输入 115Vac 60Hz	0.1W max	0.08			W	Pass
7	Short circuit test 短路测试	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			/	Pass
8	OCP 过电流保护	Vin100Vac 60Hz 输入 100Vac		2.60			A	
9	Output Voltage 输出电压	Vin240Vac 50Hz I=0 输入 240Vac 空载	±5%	24.24			V	Pass
10	Output Voltage 输出电压	Vin240Vac 50Hz I=Rated Current 输入 240Vac 60Hz 额定电流	±5%	23.91			V	Pass
11	Average Efficiency 平均效率	Vin230Vac 50Hz 输入 230Vac 50Hz	87.403%	89.19			%	Pass
12	Ripple & Noise mVp-p 纹波&杂讯	Vin240Vac 50Hz Full load 输入 240Vac 50Hz 额定电流	≤240mVp-p	66.00			mVp-p	Pass
13	Line Regulation 线性调整率	Vin=100V~240V I=Rated Current 输入 100V~240V	±5%	0.0%			/	Pass
14	Standby Power 待机功耗	Vin230Vac 50Hz I=0 输入 230V 50Hz	0.1W max	0.09			W	Pass
15	Short circuit test 短路测试	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				Pass
16	OCP 过电流保护	Vin230Vac 50Hz 输入 230Vac 50Hz		2.60			A	
17	Hi-pot test 高压测试	高压/DIELECTRIC STRENGTH Hi-Pot 初级对次级/Primary to secondary:3000Vac/10mA/3S for type test		OK				Pass
18	Burn in 老化	Input:220Vac/50Hz Full Load 4hrs 输入 220Vac/50Hz 满载 4 小时		OK				Pass
19	Drop test 跌落	Height: 1 meter, 6 sides, 1 time per side. 高: 1米,6个面,每面1次。		OK				Pass
Remark 备注								