

产品规格承认书 SPECIFICATION

文件编号 File No.: UME-EG-SP26012103/A1

客户 Customer	AKON	核准 Approval	ZL
品名 Product	开关电源 Switching power supply	品管确认 QC	LTF
型号 Model	AD-AKA168P200	审核 Check	ZL
日期 Date	2026-01-21	拟制 Execution	BMD

客户承认意见 Confirmation by Customer	客户签署 Stamp & Signature
<input type="checkbox"/> 合格 Accept	
<input type="checkbox"/> 不合格 Reject	
<input type="checkbox"/> 条件合格 Conditional Acceptance	

确认签署后，请回传一份。有任何问题，请尽快告知我们。

Please return one copy to us with your signature and feel free to contact us for any questions.

厦门友盟电子有限公司

XIAMEN UME ELECTRONICS CO., LTD.

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*** The products limited warranty period is 18 months.
(From date code of product.)**

*** The products meet RoHS requirements.**

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2 概述 Summary

2.1 本文件包含一般的客户要求及电气、机构和安全性能等方面的描述。

This document contains general customer requirements and those of specific electrical, mechanical and safety for this product.

3 技术要求 Technical requirements

3.1 安全标准和认证证书 Safety Standards and Certificate number

Japan: 电气用品安全法别表第八【JET6108-61010-1014】

3.2 Input

Rated Input Voltage	100-240Vac
Operating Range	90-264Vac
Rated Input Frequency	50~60Hz
Rated Input Current	0.6A
Maximum Input Power	40W
Input Power (No Load)	0.3W Max
Primary Current Protection	Over current protection: Current fuse

3.3 Output

Rated Dc Output Voltage	16.8V ± 5%	No Load
Rated Load Current	2.0A+15%/-5%	CV 16V
Switching current range of traffic lights	0.2 - 0.6A	
Line Regulation	The line regulation is less than ±2% while measuring at rated load and +/-5% of input voltage changing.	
Ripple	≅ 200mVp-p	
Switching Efficiency	84.20% minimum @ input 115AC/230VAC to meet Energy Star V	
DC Plug	Φ2.1*5.5*9.5mm	
DC Cord	22AWG 2464 L = 1500mm, Black Lead-free soldering	

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3.4 可靠性及质量控制 Reliability and Quality Control

【Electrical Test Items】

Item	Conditions	Criteria
1	Leakage Current Measure the leakage current between Primary and Secondary when adding rated input. AC input = Rating voltage (100/240V)	Less than 250μA
2	ESD Test 1. Test is conducted at room temperature/ humidity.(25°C, RH 50-60%) 2. Test set is 150pF/150Ω. 3. (1)±4KV: Contact discharge test. +phase: 3times, -phase: 3times, total: 6times. (2)±8KV: Air discharge test. +phase: 3times, -phase: 3times, total: 6times. (Note) After each ESD test, it should be discharged.	No malfunction (must be in spec after test).
	1. Test is conducted at room temperature/humidity.(25°C, RH 50-60%) 2. Test set is 150pF/150Ω. 3. (1)±6KV: Contact discharge test. + phase: 3times, -phase: 3times total: 6times. (2)±10KV: Air discharge test. + phase: 3times, -phase: 3times, total: 6times. (Note) After each ESD test, it should be discharged.	No destruction
	ESD Test (Ability test) 1. Test is conducted at room temperature/humidity.(25°C, RH 50-60%) 2. Test condition: 150pF/150Ω. 3. Contact discharge / Air discharge 4. Load: 1)no load 2)rated load 5. Impressing 10 times continuously to plus and minus each. 6. Discharging once after impressing 10 times (To confirm the capacity of unit up to the unit destroyed)	It confirms at which voltage value the adapter breaks.(Note: Not part of qualification)
3	Hi-POT test Condition=AC3000V, 1min. Test place=Between AC blade and DC plug Sensitivity current=10mA	No malfunction. (damage, arc, breakdown etc)
4	Insulation resistance DC500V, 1min. Between AC blade and DC plug	More than 100MΩ
5	Temperature Rise Test 1. Apply rating input voltage(100/240V), 2. Load: Charge actual Cellular phone 3. Measure the surface temperature of the adaptor 4. T ambient = The room temperature 5. Condition: Until it carries out temperature saturation (the definition of temperature than 1°C in 1 hour).	Housing surface Temperature rise is less than 45K.

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		1. Apply rating input voltage(100/240V), 2.No Load 3.Measure the surface temperature of the adaptor	Housing surface Temperature rise is less than 15K.
6	Input over / under	Apply voltage=(rating input voltage)x(1±30%) Impressed time : 24h	No destruction
7	EMI/Conducted Emission	Telephone stand by mode with rapid-charge condition	Conform to: FCC 47CFR Part 15 Class B J55032(H29)
8	Surge	IEC61000-4-5 1.2×50μs 1.0KV Positive and negative all three times, Current limiting impedance 100 Ω, Time interval 30 seconds min.	No destruction.

【Environmental Test Items】

Item	Conditions	Criteria
1	Temperature range Electrical performance guarantees temperature range: 0°C to 40°C Electrical performance not guarantees working temperature range: -20°C to 50°C Storage temperature range: -30°C to 80°C	
2	High Temperature Leave 1. Temperature 80°C for 96 hours. 2. After that test, test set is left in normal temperature, humidity condition for more than 1hour, then evaluate.	No abnormal appearance, mechanic performance or electric performance
3	Low Temperature Leave 1. Temperature -30°C for 96 hours. 2. After that test, test set is left in normal temperature, humidity condition more than 1(hour), then evaluate.	
4	High Temperature Humidity 1. Temperature 50°C, air moisture 90-95% RH for 96 hours. 2. After that test, test set is left in normal temperature, humidity condition more than 30min, then evaluate.	
5	Temperature Humidity test 1. Temperature 40°C, air moisture 90-95% RH for 96 hours. 2. After that test, test set is left in normal temperature, humidity condition more than 30min, then evaluate.	
6	Heat Shock Test 1. Condition: -30°C/ 1 hour to +80°C/ 1 hour, 60 cycles 2. After that test, test set is left in normal temperature, humidity condition more than 1 hour, then evaluate.	

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7	Heat/humidity Cycle Test	<p>A, C, D : RH=90 ± 10% B : RH= 90 ± 5% E : No limit After 5cycles, put EUT at room temperature/humidity condition</p>	
8	Humidity	<p>Operation is 10~85%. Storages is 5~95%</p>	Non-condensing

【Mechanical Test Items】

Item	Conditions	Criteria	
1	Drop Test	No parts remove, no abnormal mechanic performance, (outside scratches are acceptable)	
2	Package Drop Test		
3	Unit Vibration Test		
4	Package Vibration		
5	AC Plug in/out Test (AC Blade part)		
6	Exfoliate with cellophane tape and examine it	A character do not disappear.	
7	The reliability to face each other to come off	① - 40°C ② 80°C ③ 50°C 90% Each 96 hours ④ ③ After, it is a thermal shock examination	Don't take the label off the main body

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	the label	of 96 cycles	
8	No tally part step	Difference of the pitch by height differences of the tally part between casts	less than 0.25mm after an environmental examination

【DC cord Test Items】

Item	Conditions	Criteria
1	DC Cord strength (adaptor side / plug side) 1. Test part: Between adaptor and DC cord 2. Pull a cord with 49N(5Kgf) force 3. Time: 1min.	No abnormality such as wire cut, bushing come off
2	DC Cord Bending Test (adaptor side / plug side) Weight = 4.9N(500g) Angle = +/-90° Cycles in every minute = 40times/min. Test cycles = 1000times Note: contrarotate 90°, and then rotate it clockwise with 180°(+90°~-90°), and at last return to origin. (1 Cycle : 0°⇒-90°⇒0°⇒+90°⇒0°)	Operate properly.

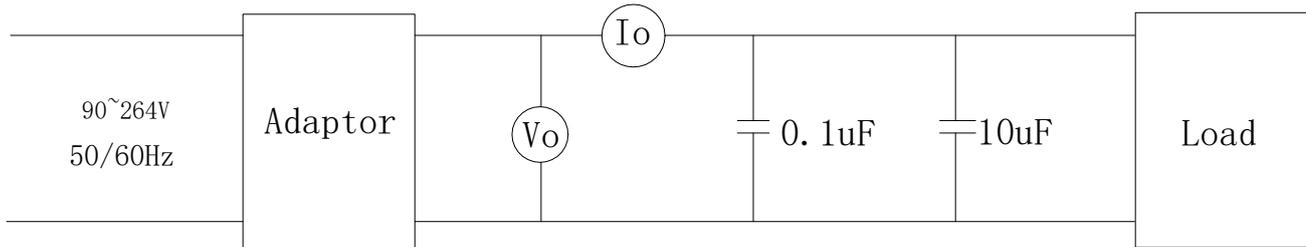
【Safety Test Items】

1	MTBF	Make a measurement condition, a calculation standard clear	More than 50,000 hours
2	Part materials	It is maintenance or the incombustibility of contact / part materials approaching it in an outer fence, the charge department of the electric part	same as UL94V-0; more than it
3	print board	Incombustibility	same as UL94V-0; more than it
4	No tally part step	Difference of the pitch by height differences of the tally part between casts	less than 0.25mm after an environmental examination

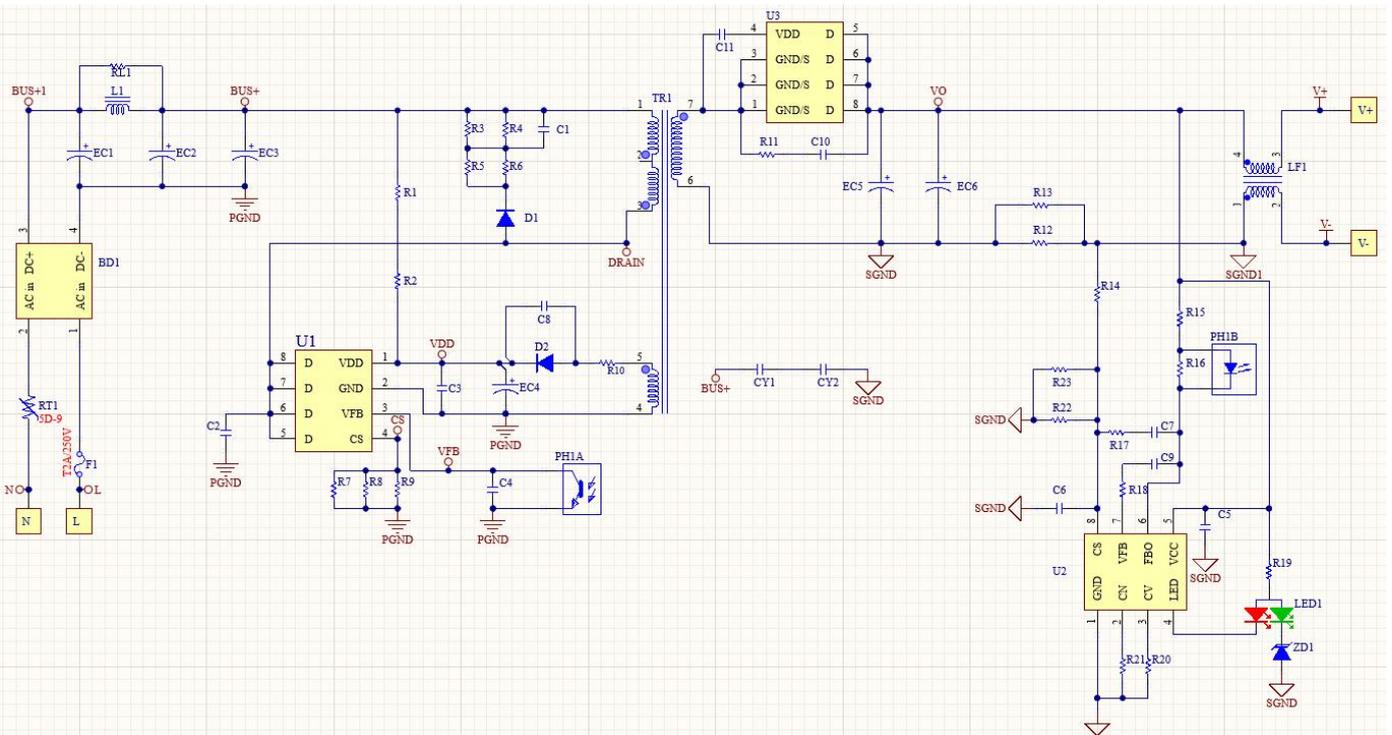
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3.6 测试线路图 Test Circuit



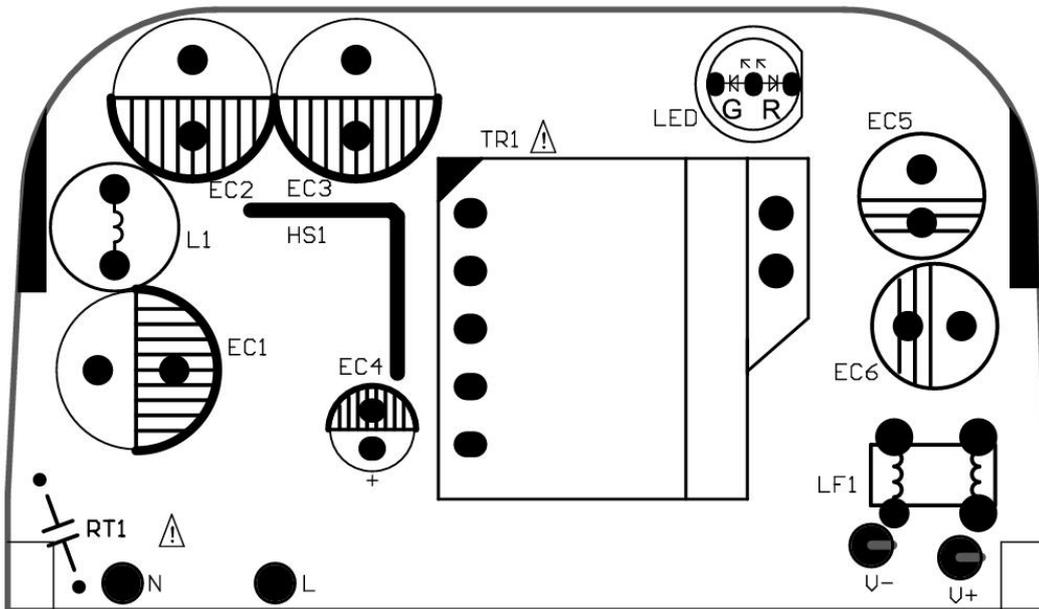
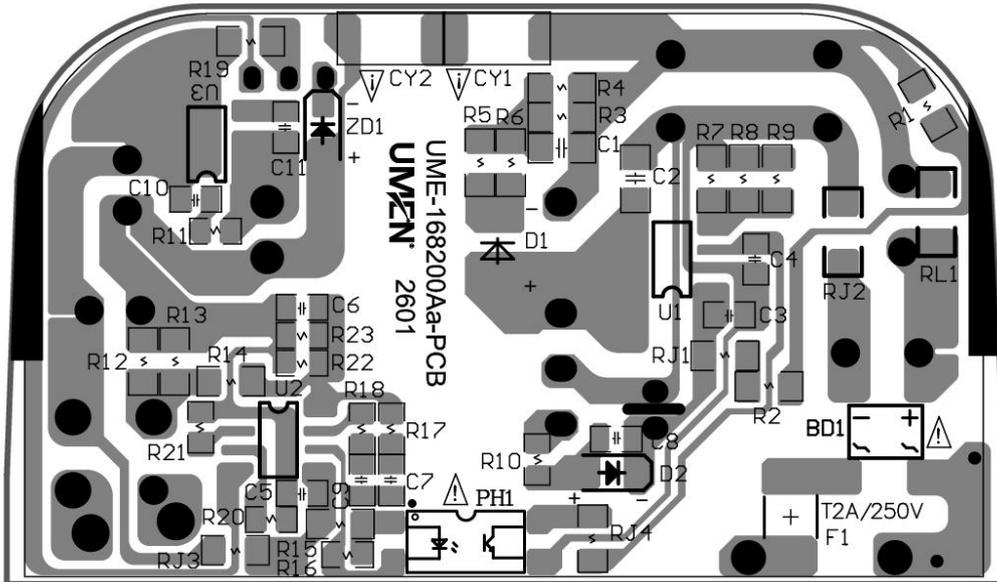
4 线路图 Schematic Diagram



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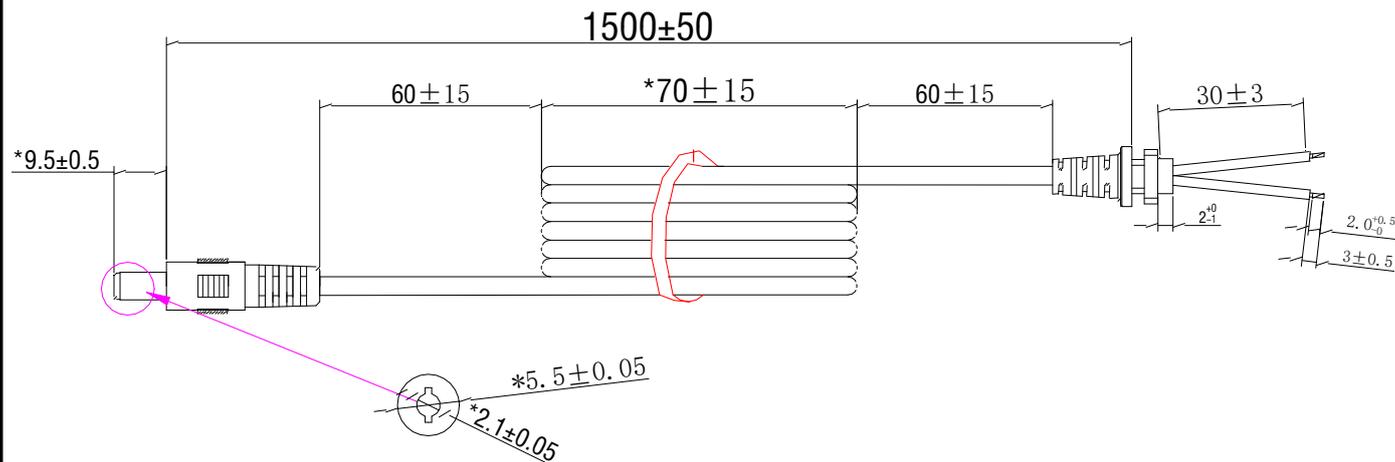
5 电路板图 P.C.B



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6 Cord (单位 unit: mm 颜色 color: BK)



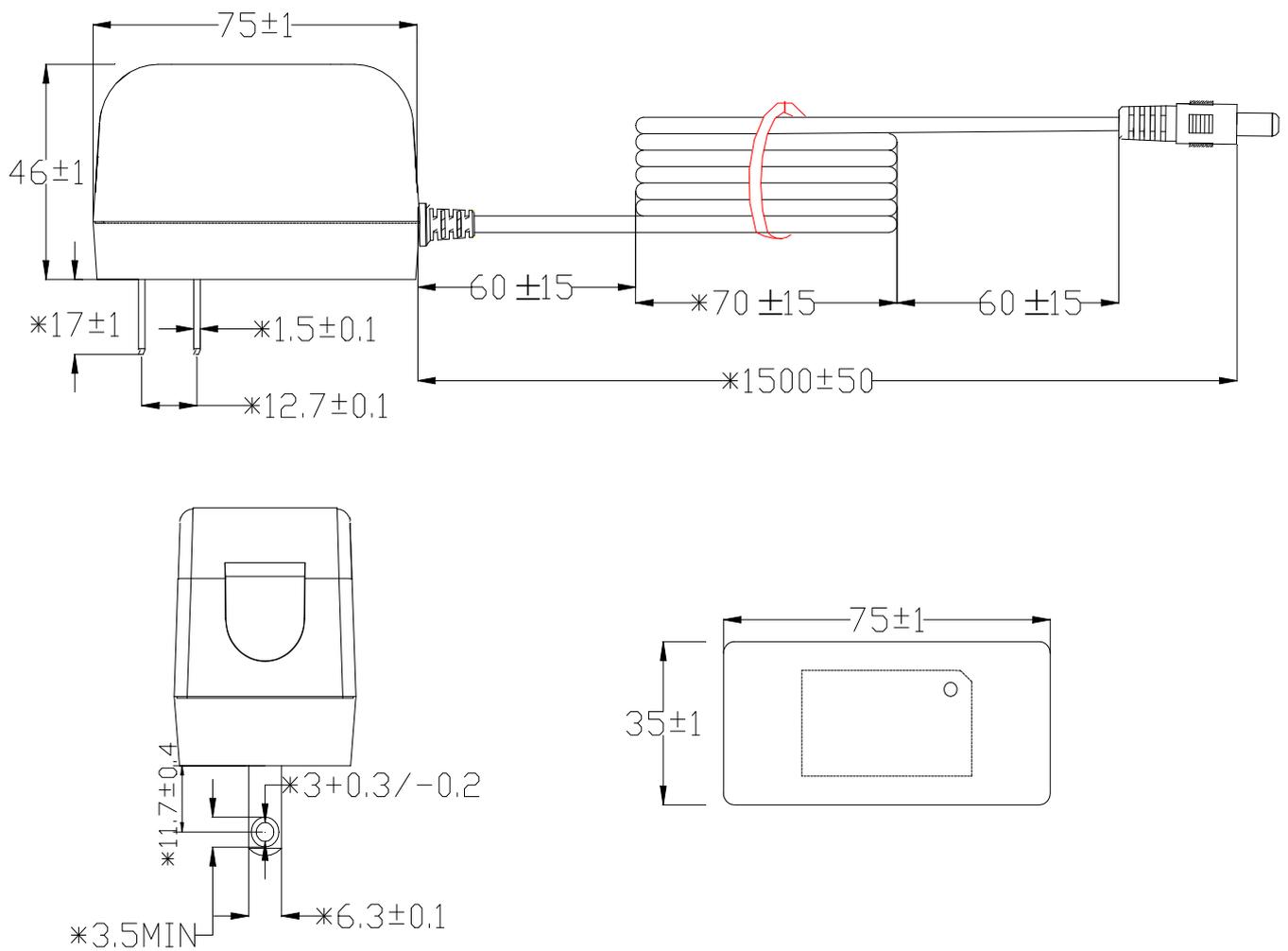
备注:

1. 导线规格: 22AWG 2464 音叉型 黑色, 芯线颜色: 红色+黑色, 导线总长 1500mm; 材质符合RoHS要求。导线按图示尺寸捆扎、测试, 导线间应开路, 对应线头线尾应短路导通, 极性连接正确;
2. 两头剥线焊锡, 剥线长度3mm+1/-0。剥线要求如图所示, 剥丝线焊锡的直径为1.15mm MAX。接线方式: 红色芯线接PIN中心, 黑色芯线接外侧, PG头成型, SR-021成型; SR021尺寸为6.8*7.8mm.
3. SR拉力测试: 吊重1Kg/10分钟, 不可有位移, 吊重5Kg/1分钟, 位移2mmMAX
4. 插拔力测试: 插入力2KgfMAX, 拔出力0.3KgfMIN; 插拔6000MIN次不允许有电气和机械性能的损坏, 且满足拔出力0.1KgMIN;
5. 摇摆测试: 吊重500g, 以40次/分作90°往返, 每一往返为一次, 至少1000次;
6. PLUG绝缘阻抗测试: 100MΩ MIN在500DC/分; PLUG接触阻抗测试: 100mΩ MAX;
7. 导线, SR, PLUG非移行性依据厂内一般进行; 禁止使用VDE所禁用的物质。

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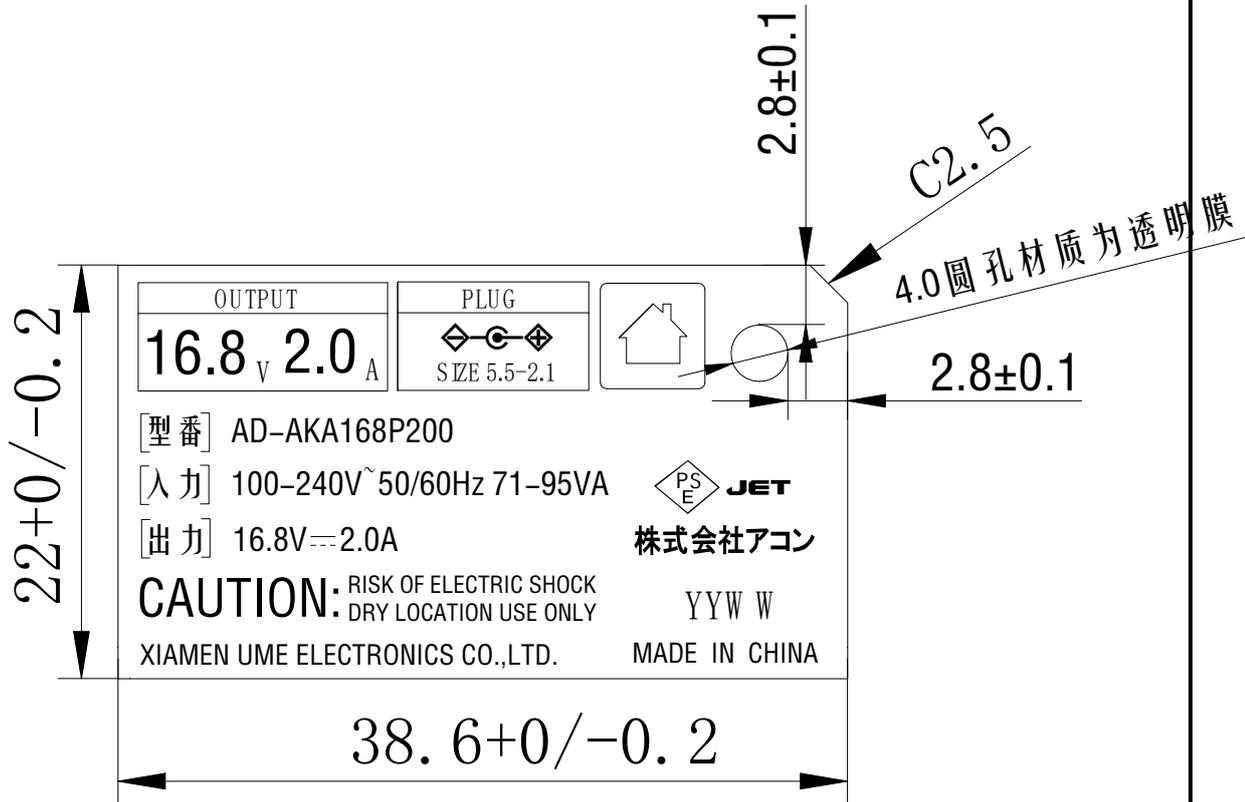
7 外观示意图 Mechanical Drawing (单位 unit: mm 颜色 color: BK)



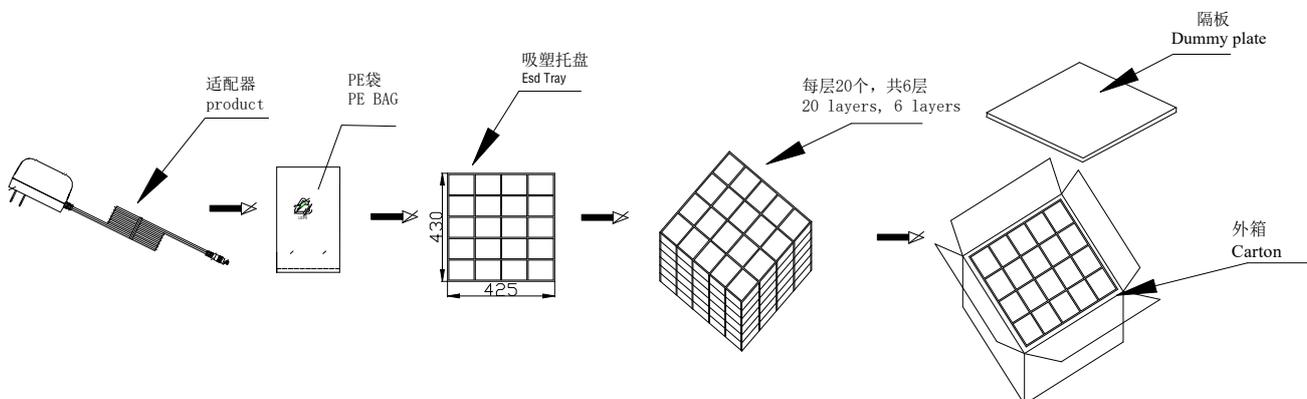
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8 铭板标识 Label



包装方式 Packaging



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9 BOM list

NO.	ITEM	DESCRIPTION	SPECIFICATION	QTY	MANUFACTURER
1	PCB	PCB	UME-168200Aa-PCB	1	TengShengXing/HG
2	RL1	CHIP R	4.7KΩ±5% 1206	1	YAGEO/FENG HUA
3	R1,R2	CHIP R	1.5MΩ±5% 1206	2	YAGEO/FENG HUA
4	R3,R4	CHIP R	510KΩ±5% 1206	2	YAGEO/FENG HUA
5	R5,R6	CHIP R	150Ω±5% 1206	2	YAGEO/FENG HUA
6	R7,R8,R9	CHIP R	1.5Ω±1% 1206	3	YAGEO/FENG HUA
7	R10	CHIP R	4.7Ω±5% 0805	1	YAGEO/FENG HUA
8	R11	CHIP R	22Ω±5% 0805	1	YAGEO/FENG HUA
9	R12,R13	CHIP R	50mΩ±1% 1206	2	YAGEO/FENG HUA
10	R14	CHIP R	4.7KΩ±1% 0805	1	YAGEO/FENG HUA
11	R15	CHIP R	1.2KΩ±5% 0805	1	YAGEO/FENG HUA
12	R17,R18	CHIP R	1KΩ±5% 0805	2	YAGEO/FENG HUA
13	R19	CHIP R	3.6KΩ±5% 0805	1	YAGEO/FENG HUA
14	R20	CHIP R	15KΩ±1% 0805	1	YAGEO/FENG HUA
15	R21	CHIP R	82KΩ±1% 0805	1	YAGEO/FENG HUA
16	R22	CHIP R	75KΩ±1% 0805	1	YAGEO/FENG HUA
17	RJ1,RJ2,RJ3,RJ4	CHIP R	0Ω±5% 1206	4	YAGEO/FENG HUA
18	C1	CHIP C	222 500V±10% 1206 X7R	1	YAGEO/FENG HUA
19	C2	CHIP C	10PF 1KV±5% 1206 COG	1	YAGEO/FENG HUA
20	C3,C5	CHIP C	104 50V±10% 0805 X7R	2	YAGEO/FENG HUA
21	C4	CHIP C	102 50V±10% 0805 X7R	1	YAGEO/FENG HUA
22	C6,C11	CHIP C	105 50V±10% 0805 X7R	2	YAGEO/FENG HUA
23	C7,C9	CHIP C	222 50V±10% 0805 X7R	2	YAGEO/FENG HUA
24	C8	CHIP C	221 200V±10% 0805 X7R	1	YAGEO/FENG HUA
25	C10	CHIP C	102 100V±10% 0805 X7R	1	YAGEO/FENG HUA
26	ZD1	Diode	13V /0.5W SOD-123FL	1	JF/ World
27	BD1	Rectifier Bridge	WRABS20M 2.0A 1000V	1	JF/ World

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28	D1	Diode	M7 SMA	1	JF/MIC/PANJIT
29	D2	Diode	F7 1A/1000V/SOD-123FL	1	ZW/JF
30	U1	IC	LC8103S SO-8	1	LSM
31	U2	IC	LC8404A SO-8	1	LSM
32	U3	IC	LC1239W SO-8	1	LSM
33	CY1, CY2	Y Cap	SMD Y2 TBY2222MF 300VAC	2	TRX
34	F1	Fuse	DESC 24T 2A 250VAC	1	FYS/XC
35	PH1	Photo	EL1018(TA)-VG	1	EVERLIGHT
36		Photo	BPC-1008		BH
37		Photo	CT1018(V)(T1)-W		KJ
38	L1	Inductor	DR 8*12 880uH Min	1	HXH/CS/ZY
39	LF1	Inductor	187uH Φ0.6mm 5*11mm	1	HXH/CS/ZY
40		Silicon Sheet	15*25*3mm	1	GK/HY
41	TR1	TRANSFORMOR	TR-168200A	1	HM/ HXH
42	EC1,EC2,EC3	E cap	22uF 400V±20% 105℃ Φ10*20 mm(WH)	3	AISHI
43	EC4	E cap	4.7uF 50V±20% 105℃ Φ5*11mm(RR)	1	AISHI
44	EC5,EC6	E cap	680uF 25V±20% 105℃ Φ8*16mm(RR)	2	AISHI
45	LED		Φ3mm	1	BH
46	L, N	Lead wire	UL1007 24AWG 30mm	2	RF/GC
47		Lead wire	UL1015 24AWG 30mm		RF/GC
48	CASE	CASE	UME2001A(BK)	1	JLF/YGE
49	CASE	CASE	UME2001B(BK)	1	JLF/YGE
50	DC cord	Cable	Φ2.1*5.5*9.5mm L:1500mm 22AWG 2464 BK	1	DPK/GC
51	NAP	NAP	NAP-168200A1-PSE	1	Yihangxin /JinXin
52		PE bag	215*135*0.05	1	Xincheng
53		Out carton	430*440*220mm	0.0833	XinRuicheng/ FuXing
54		Partition	435*418*3mm	0.0833	XinRuicheng/ FuXing

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55		White glue	AP-688	0.8	JX
56		Solder Bar	1Cu 99Sn	0.4	Yun Nan TIN
57		Solder wire	0.3Ag 0.7Cu 99Sn	0.2	Yun Nan TIN

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