

产品规格承认书
SPECIFICATION

文件编号 File No.: UME-EG-SP24092501/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-AKC120P300	审核 Check	ZL
日期 Date	2024-09-25	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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1 变更履历 Revision History

版本 REV	变更日期 Date	变更内容 Content of Change	制表 Execution	审核 Check	批准 Approval
V1.0	2024-09-25	1.First Issue	BMD	ZL	ZL

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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 Safety Standards

Japan: 电安法【别表第八】(JET6108-61010-1010A)

3.2 Input

Rated Input Voltage	100-240Vac
Operating Range	90-264Vac
Rated Input Frequency	50~60Hz
Rated Input Current	0.9A
Maximum Input Power	45W
Input Power (No Load)	0.1W Max
Primary Current Protection	Current fuse

3.3 Output

Rated Dc Output Voltage	11.4V~12.6V
Rated Load Current	3000mA
Over Current Protection	100%-160% @ Vin=90Vac-264Vac
Line Regulation	The line regulation is less than $\pm 2\%$ while measuring at rated load and $\pm 5\%$ of input voltage changing.
Ripple	$\leq 200\text{mVp-p}$
Switching Efficiency	87.4% minimum@ input 115AC/230VAC, can meet DoE 6 standard.
DC Plug	$\Phi 2.1 * 5.5 * 9.5$ (EIAJ)
DC Cord	20AWG UL2464 L =1500mm, BLK 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 250 μ A
2	ESD Test 1. Test is conducted at room temperature/humidity.(25 $^{\circ}$ C, RH 50-60%) 2. Test set is 150pF/150 Ω . 3.(1) \pm 4KV:Contact discharge test. +phase: 3times, -phase: 3times, total: 6times. (2) \pm 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 $^{\circ}$ C, RH 50-60%) 2. Test set is 150pF/150 Ω . 3.(1) \pm 6KV:Contact discharge test. + phase: 3times, -phase: 3times total: 6times. (2) \pm 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 $^{\circ}$ C, RH 50-60%) 2. Test condition: 150pF/150 Ω . 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 100M Ω
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 $^{\circ}$ C in 1 hour).	Housing surface Temperature rise is less than 40K.
	1. Apply rating input voltage(100/240V),	Housing surface

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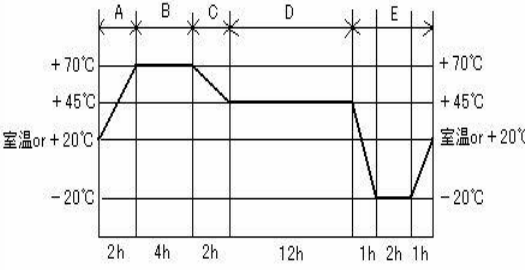
		2.No Load 3.Measure the surface temperature of the adaptor	Temperature rise is less than 15K.
6	Input over / under	Apply voltage=(rating input voltage)x(1±30%) Impressed time : 24h	No destruction
7	EMI/Conducted Emission	Telephone stand by mode with rapid-charge condition	Conform to: FCC 47CFR Part 15 Class B J55032(H29)

【Environmental Test Items】

Item	Conditions	Criteria
1	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	No abnormal appearance, mechanic performance or electric performance
2	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	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	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	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	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>  <p style="font-size: small;">The graph shows a temperature cycle with five stages: A (2h at +70°C), B (4h at +45°C), C (2h at +45°C), D (12h at +45°C), and E (1h at +70°C, 2h at +45°C, 1h at -20°C). Humidity is 90% ± 10% for A, C, D and 90% ± 5% for B. E is at room temperature/humidity. The y-axis ranges from -20°C to +70°C, with '室温 or +20°C' (room temp or +20°C) marked.</p>	
8	Add Material second source	Add Material second source	Add Material second source

【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	Alcohol Examination-resistant	Don't take the label off the main body
8	The reliability to face each other to come off the label	

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9	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
10	Appearance fault	Mode Bali short a bullet hole / a scratch / a sunspot / a white dot / an alien substance / a stain / a mustache / Weld flow mark gate trace / a crack / whitening	A few thing: It determines a limit if necessary. A reference standard: The deep wound 0.2mm ² following, the shallow wound 0.3mm ² following
11	Option carton packing	There is "Railway assurance mark" ① -40°C ② 80°C ③ 50°C 90%, each 96Hr ④ ③ After, it is thermal shock examination -20°C ← → 50°C 96 cycles float screens few thing	No abnormal appearance, mechanic performance or electric performance

【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.

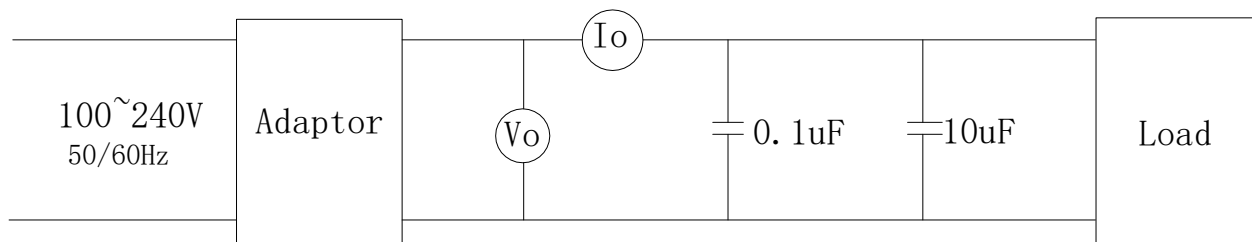
【Safety Test Items】

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	

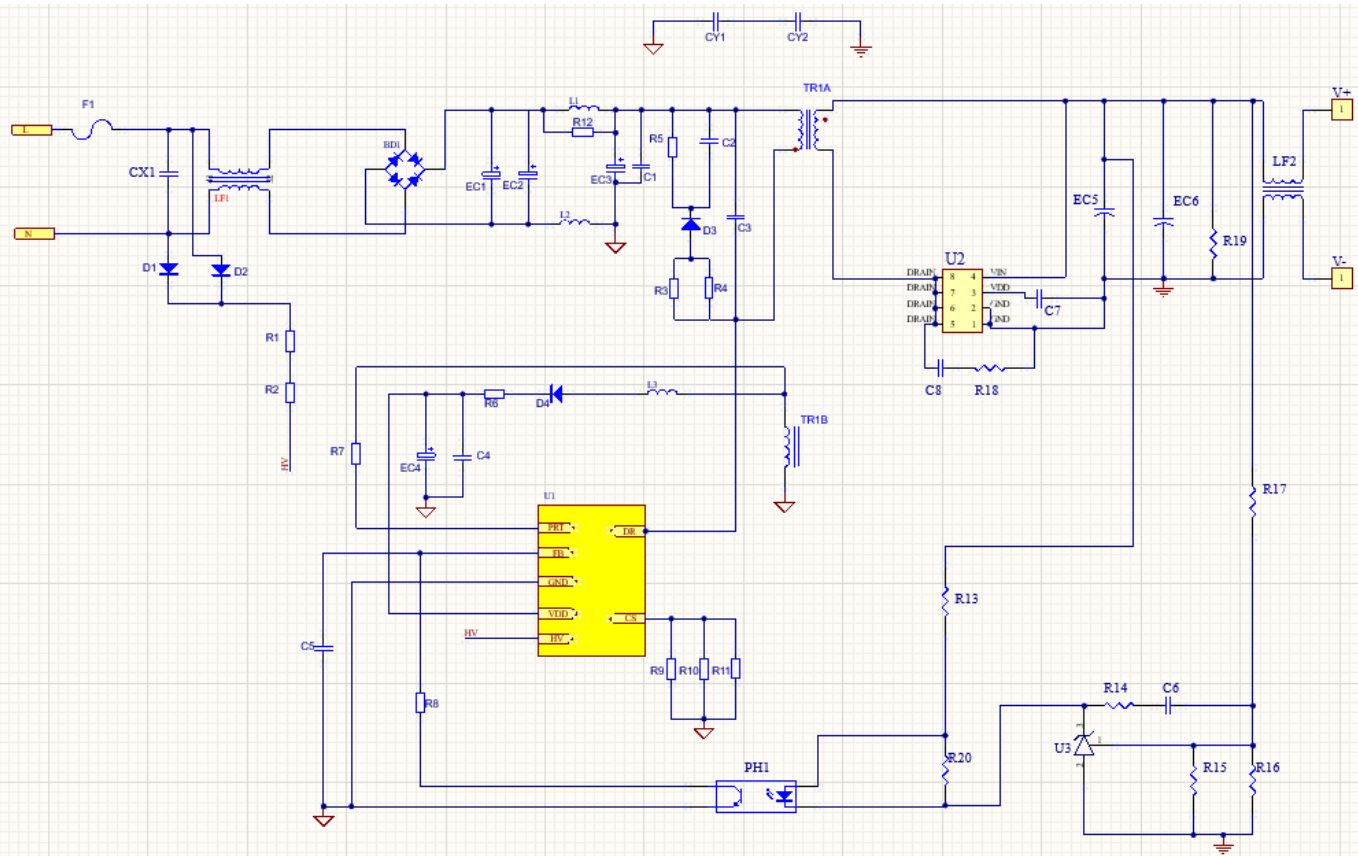
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3.5 测试线路图 Test Circuit



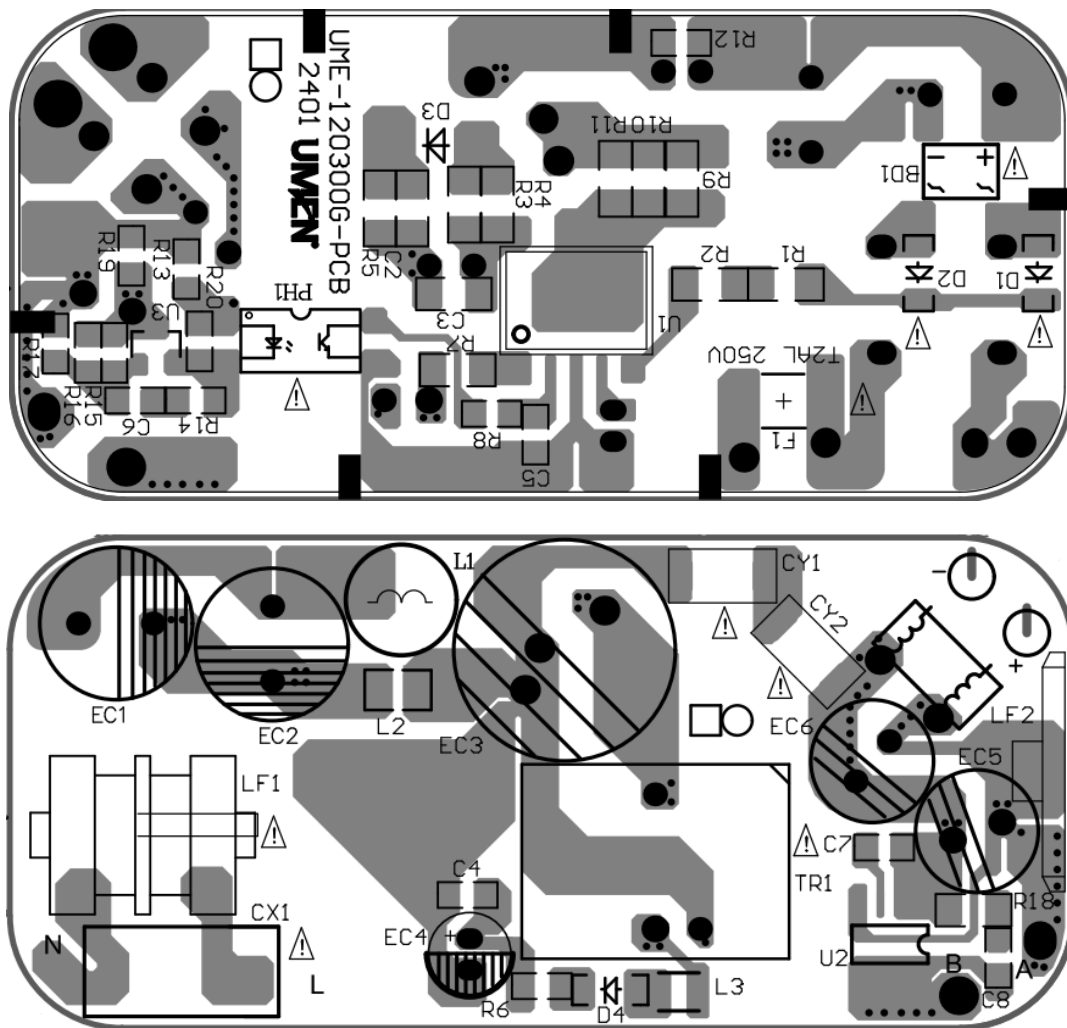
4 线路图 Schematic Diagram



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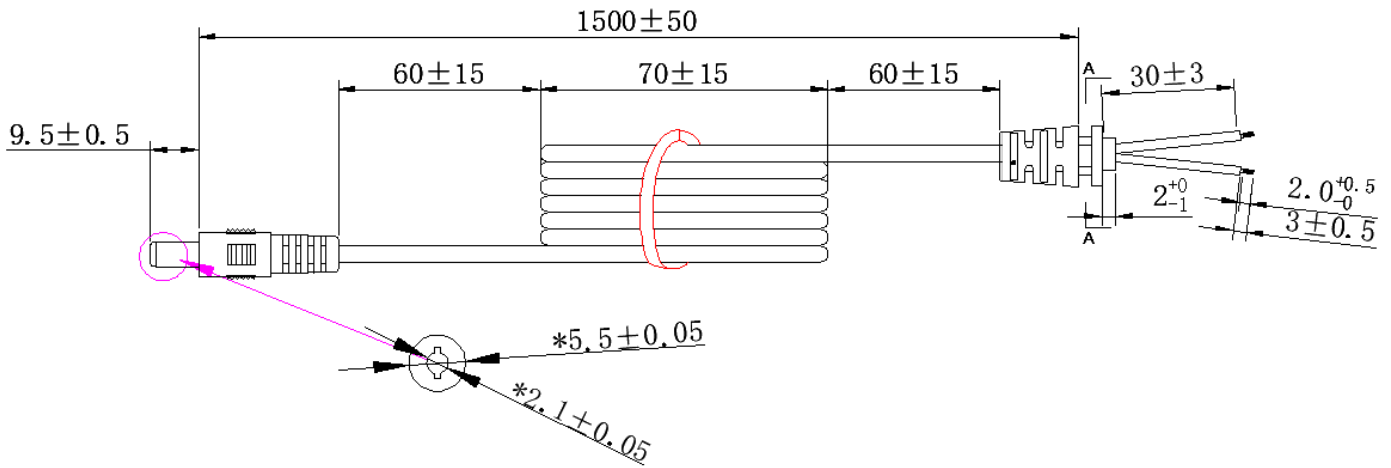
5 电路板图 P.C.B



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6 CORD 图 (单位 unit: mm 颜色 color: BK)



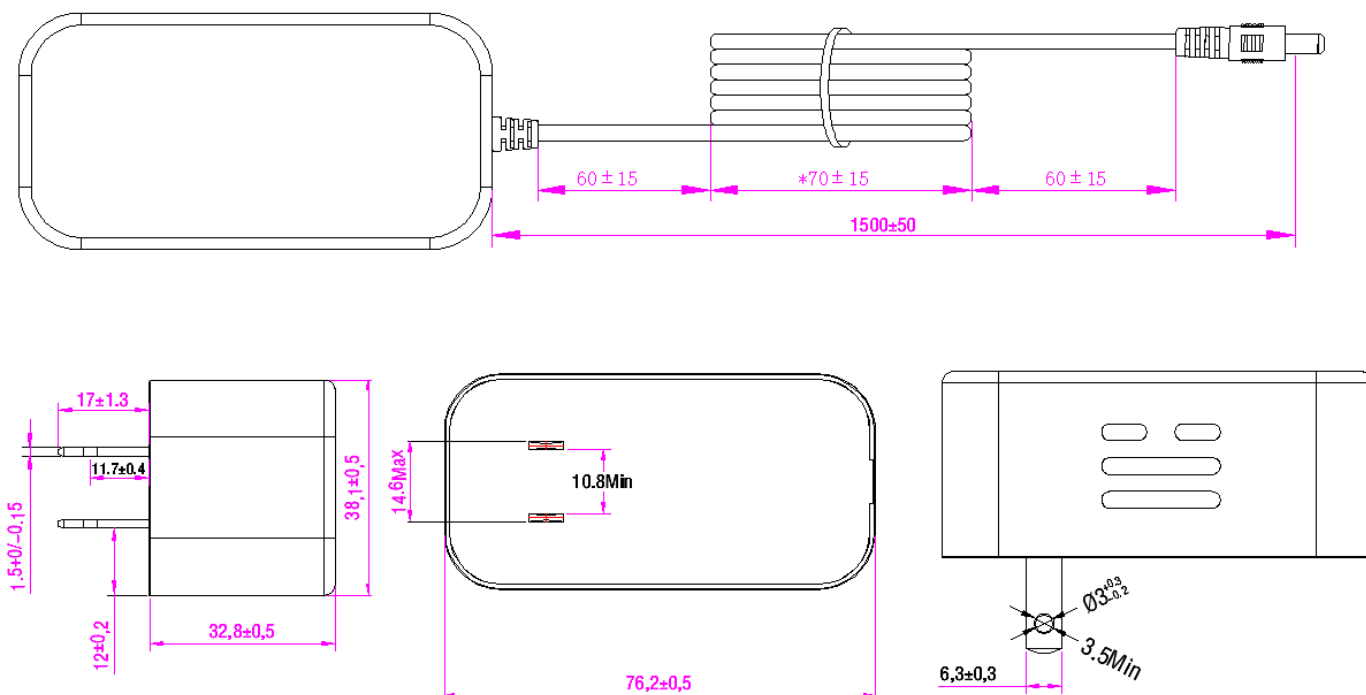
备注:

- 导线规格: 20AWG 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;
- 两头剥线焊锡, 剥线长度 $3\text{mm} \pm 1/-0$ 。剥线要求如图所示, 剥丝线焊锡的直径为 1.5mm 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-002成型, SR002尺寸为 $6.8 \times 7.8\text{mm}$ 。
- 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
- 插拔力测试: 插入力2KgfMAX, 拔出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0.1KgMIN;
- 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;
- PLUG绝缘阻抗测试: $100\text{M}\Omega$ MIN在500DC/分; PLUG接触阻抗测试: $100\text{m}\Omega$ MAX;
- 导线, SR, PLUG非移行性依据厂内一般进行; 禁止使用VDB所禁用的物质。
- 打*号尺寸, 为入料检查项目;

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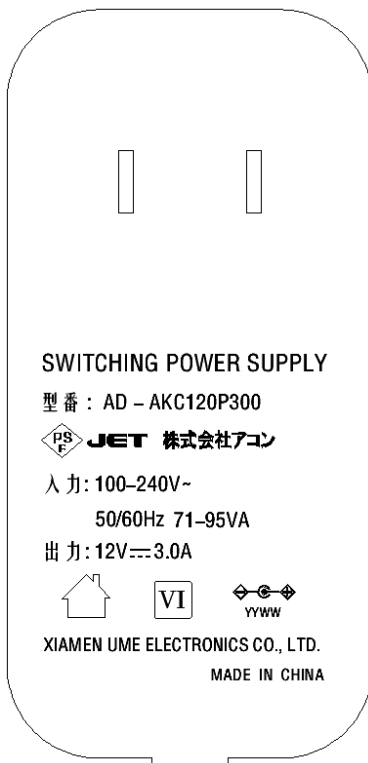
7 外观示意图 Cord and Mechanical Drawing (单位 unit: mm 颜色 color: BK)



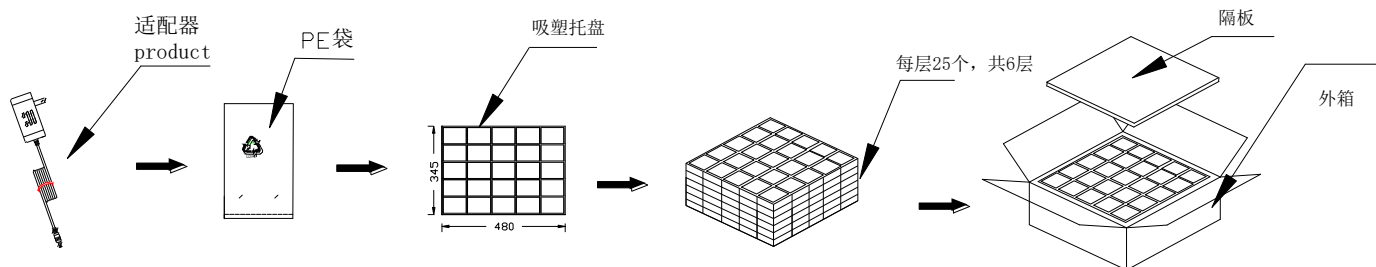
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8 铭板标识 Label



9 包装方式 Packaging



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10 材料清单 BOM

NO	ITEM	DESCRIPTION	SPECIFICATION	QTY	MANUFACTURER
1	PCB	PCB	UME-120300G-PCB	1	TXS/JT/MW/HG
2	L2	Chip L	10MHz 4000mA 600 Ω	1	Taiqing/Fenghua
3	L3	Chip L	10uH±10% 0805	1	Taiqing/Fenghua
4	R1,R2	Chip R	10KΩ±5% 1206	2	YAGEO/FengHua
5	R3,R4	Chip R	51Ω±5% 1206	2	YAGEO/FengHua
6	R5	Chip R	220KΩ±5% 1206	1	YAGEO/FengHua
7	R6	Chip R	4.7Ω±5% 0805	1	YAGEO/FengHua
8	R7	Chip R	300KΩ±5% 1206	1	YAGEO/FengHua
9	R8	Dip R	0Ω±5% 0805	1	YAGEO/FengHua
10	R9,R10	Chip R	0.91Ω±1% 1206	2	YAGEO/FengHua
11	R11	Chip R	0.82Ω±1% 1206	1	YAGEO/FengHua
12	R12	Chip R	4.7KΩ±5% 0805	1	YAGEO/FengHua
13	R13,R14,R20	Chip R	1KΩ±5% 0805	3	YAGEO/FengHua
14	R15	Chip R	10KΩ±1% 0603	1	YAGEO/FengHua
15	R16	Chip R	1.5MΩ±5% 0805	1	YAGEO/FengHua
16	R17	Chip R	39KΩ±1% 0805	1	YAGEO/FengHua
17	R18	Chip R	10Ω±5% 0805	1	YAGEO/FengHua
18	C1	Chip C	103 1KV±10% 1206 X7R	1	YAGEO/FengHua
19	C2	Chip C	471 500V±10% 1206 X7R	1	YAGEO/FengHua
20	C3	Chip C	22PF 1KV±10% 1206 X7R	1	YAGEO/FengHua
21	C4	Chip C	104 50V±10% 0805 X7R	1	YAGEO/FengHua
22	C5	Chip C	471 50V±10% 0805 X7R	1	YAGEO/FengHua
23	C6	Chip C	104 50V±10% 0805 X7R	1	YAGEO/FengHua
24	C7	Chip C	105 50V±10% 0805 X7R	1	YAGEO/FengHua
25	C8	Chip C	221 200V±10% 0805 X7R	1	YAGEO/FengHua
26	BD1	Diode	WRABS20MF 2.0A	1	World
27	D1,D2,D4	Diode	F7 1A/1000V/SOD-123FL	3	JF/GME/PANJIT
28	D3	Diode	M7 SMA	1	JF/EXCELL/PANJIT
29	U1	IC	OB2736VIEP LSOP8	1	OB
30	U2	IC	OB2035	1	OB
31		IC	OB2009DACPA-D		OB

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32	U3	IC	CJ431±0.5% SOT-23	1	CD
33	F1	FUSE	24T T2AL 250VAC	1	FUS
34	CY1,CY2	Y cap	SMD Y2 TBY2222MF 300VAC	2	STE
35	PH1	Photo	EL1018(TA)-VG	1	EVERLIGHT
36		Photo	BPC-1008		BH
37		Photo	CT1018(V)(T1)-W		KJ
38	TR	Transformer	TR-PD3001	1	HXH/CXY/UME
39		Insulation sheet	PC 23.8*28*0.4mm	1	Guanghuitian
40	L1	Inductance	100uH MIN φ0.3 5*11mm	1	HXH/CS/JY
41	LF1	Inductance	25mH	1	HXH/CS/ JY
42	LF2	Inductance	187uH φ 0.6mm 5*11mm	1	HXH/CS/ JY
43	CX1	X Cap	0.33uF 275V±10% P=10mm	1	STE
44	L,N	Lead wire	1015 24AWG 40mm	2	RF
45	EC1,EC2	E cap	18uF 400V±20% 105 °C φ 10*16mm(AX)	2	RUBYCON
46	EC3	E cap	39Uf 400V±20% 105 °C φ 14.5*20mm(BXW)	1	RUBYCON
47	EC4	E cap	4.7uF 50±20% 105 °C 2000H φ 5*11mm(YXF)	1	RUBYCON
48	EC5	E cap	470uF 16V ±20% 105 °C φ 8*12mm(PZ)	1	AISHAI
49	EC6	E cap	1000uF 16V±20% 105 °C φ 8*20mm(ZLH)	1	RUBYCON
50		Thermal film	18*13*2.5mm	2	GK
51		DC Cable	φ2.1*5.5*9.5 2464 20AWG 1500mm BLK	1	DPK/GC
52		Case	UMEC04-B (PSE)BK	1	XF/JLF
53		Case	UMEC04-A BK	1	XF/JLF
54		PE bag	215*135*2.5C	1	JC
55		Out carton	490*356*240mm BIN-050080H	0.0067	Fuxing/Xinruicheng
56		CARTON	485*350*3mm	0.0067	Fuxing
57		plastic tray	480*345*45mm	0.05	Xingchengyi
58		White glue	AP-688	1.2	JX
59		Solder Bar	1Cu 99Sn	0.58	YUNNANTIN
60		Solder wire	0.3Ag 0.7Cu 99Sn	0.1	YUNNANTIN

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