

产品规格承认书
SPECIFICATION

文件编号 File No.: UME-EG-SP17092201/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-A090P200	审核 Check	ZL
日期 Date	2025-08-14	拟制 Execution	BMD

客户承认意见 Confirmation by Customer	客户签署 Stamp & Signature
☐ 合格 Accept	
☐ 不合格 Reject	
☐ 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 Safety Standards

Japan: 電安法別表第八【JET6108-61010-1006A】

3.2 Input

Rated Input Voltage	100-240Vac
Operating Range	90-264Vac
Rated Input Frequency	50~60Hz
Rated Input Current	0.5A
Maximum Input Power	23W
Input Power (No Load)	0.1W Max
Primary Current Protection	Over current protection: Current fuse

3.3 Output

Rated Dc Output Voltage	9V $\pm$ 5%
Rated Load Current	2000mA
Over Current Protection	110-130% @Vin=90-264Vac
Line Regulation	The line regulation is less than $\pm$ 2% while measuring at rated load and +/-5% of input voltage changing.
Ripple	$\leq$ 200mVp-p
Switching Efficiency	85% minimum @ input 115AC/230VAC to meet DOE6
DC Plug	Φ 2.1*5.5*9.5mm
DC Cord	20AWG 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 250 μ A
2	ESD Test	1.Test is conducted at room temperature/humidity.(25°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°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°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°C in 1 hour).	Housing surface Temperature rise is less than 45K.
		1.Apply rating input voltage(100/240V),	Housing surface

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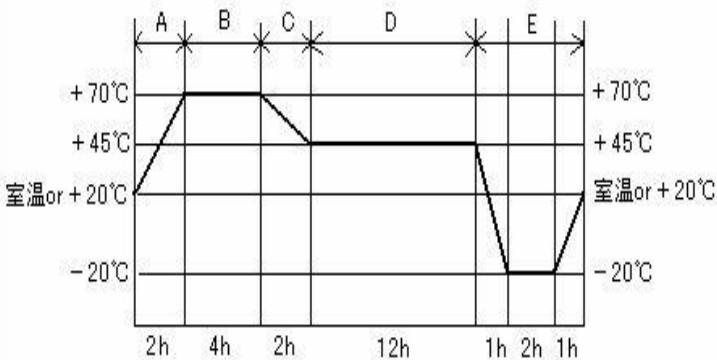
		2.No Load 3.Measure the surface temperature of the adaptor	Temperature rise is less than 15K.
6	Input over / under	Apply voltage=(rating input voltage)x(1±30%) Impressed time : 24h	No destruction
7	EMI/Conducted Emission	Telephone stand by mode with rapid-charge condition	Conform to: FCC 47CFR Part 15 Class B (for US) J55032 (For Japan)
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℃ to 40℃ Electrical performance not guarantees working temperature range: -20℃ to 50℃ Storage temperature range: -30℃ to 80℃	No abnormal appearance, mechanic performance or electric performance
2	High Temperature Leave	1. Temperature 80℃ 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℃ 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℃, 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℃, 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℃/ 1 hour to +80℃/ 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	A, C, D : RH=90 ± 10% B : RH= 90 ± 5% E : No limit After 5cycles, put EUT at room temperature/humidity condition 			
8	Humidity	Operation is 10~85%. Storages is 5~95% Non-condensing			

【Mechanical Test Items】

Item		Conditions	Criteria
1	Drop Test	Height of drop: 1m, 1times/each surface (total 6 times), Floor: Hardwood.	No parts remove, no abnormal mechanic performance, (outside scratches are acceptable)
2	Package Drop Test	1. Packaged condition. 2. Drop test points (1) 1 corner (2) 2 edges (3) 4 surfaces, Total: 7times drop test. 3. Height of drop:50cm. Bottom surface drop test only apply 65cm.	
3	Unit Vibration Test	1. Vibration condition:33.3Hz/min. 20.6m/s ² 2. (1) Top/Bottom direction:4-hours (2) Right/Left direction:2-hours (3) Front/Back direction:2-hours	
4	Package Vibration	1.Vibration condition: 5-55-5Hz/2min. (1) Top/Bottom direction : 12.5(m/S ²)30(min) (2) Right/left direction : 7.5(m/S ²)15(min)*2	
5	AC Plug in/out Test (AC Blade part)	1. AC Plug in/out test more than 5000times 2.10(times/min). 1 time is in/out action.	
6	Exfoliate with cellophane tape and examine it	Use Nichiban 18mm or 24mm width	A character do not disappear.
7	The reliability to face	① -40℃ ② 80℃ ③ 50℃ 90% Each 96 hours	Don't take the label off the main

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	each other to come off the label	④ ③ After, it is a thermal shock examination of 96 cycles	body
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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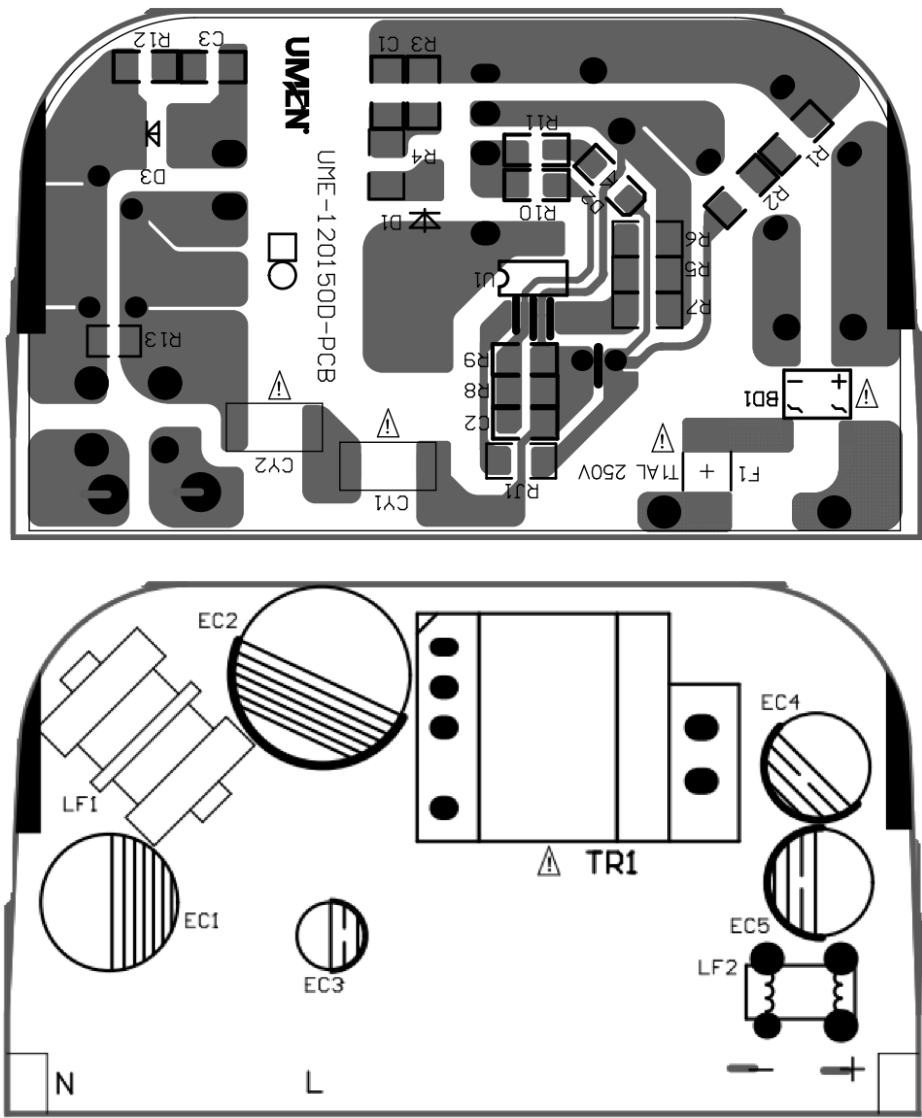
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The diagram illustrates a power supply circuit. On the left, an AC source is labeled with voltage $90 \sim 264V$ and frequency $50/60Hz$. This source is connected to a block labeled "Adaptor". The output of the adaptor is connected to a series combination of three components: a voltmeter labeled V_o , a current meter labeled I_o , and two capacitors with values $0.1\mu F$ and $10\mu F$. Finally, the circuit connects to a block labeled "Load".

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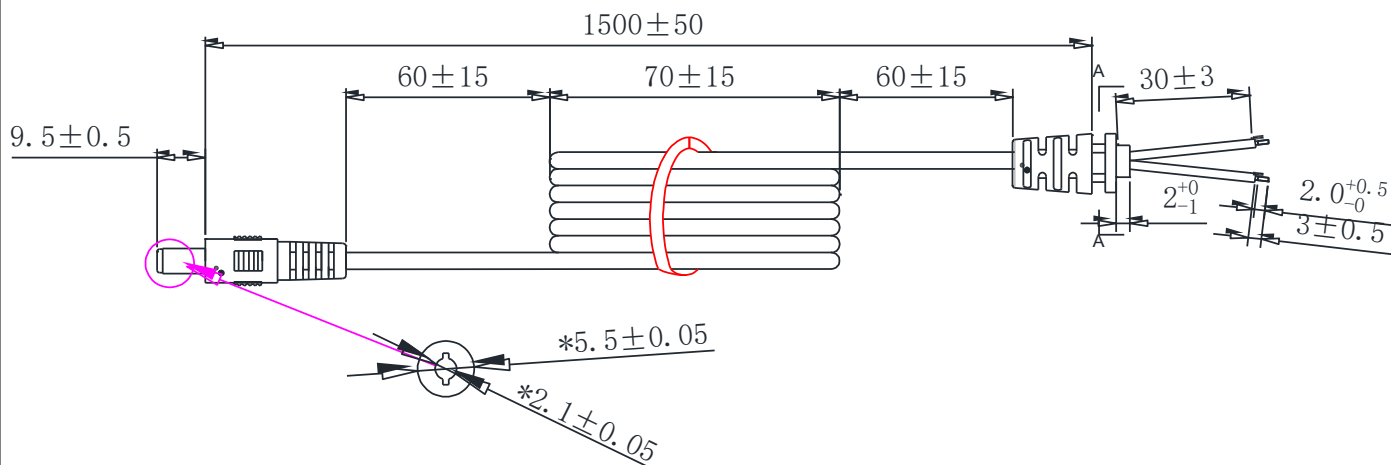
5 电路板图 P.C.B



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6 Cord (单位 unit: mm 颜色 color: BK)



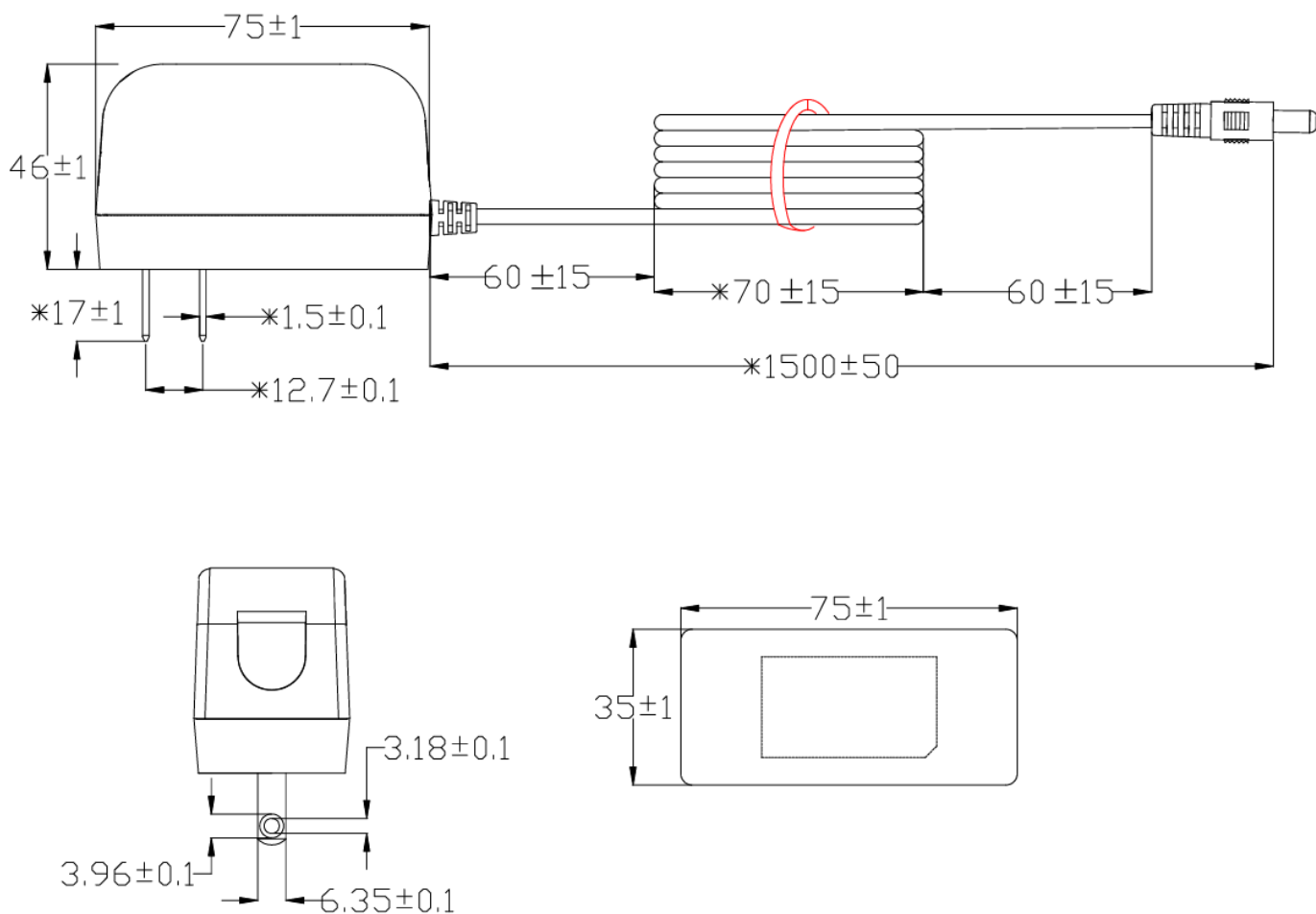
备注:

- 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 $3\text{mm}+1/-0$ 。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-002成型; SR002尺寸为 $6.8 \times 7.8\text{mm}$ 。
- SR拉力测试: 吊重 $1\text{Kg}/10$ 分钟, 不可有位移, 吊重 $5\text{Kg}/1$ 分钟, 位移 2mm MAX
- 插拔力测试: 插入力 2Kg fMAX , 拔出力 0.3Kg fMIN ; 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 ;
- 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: $100\text{M}\Omega\text{MIN}$ 在 500DC/分 ; PLUG接触阻抗测试: $100\text{m}\Omega\text{MAX}$;
- 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。
- 打*号尺寸, 为入料检查项目;

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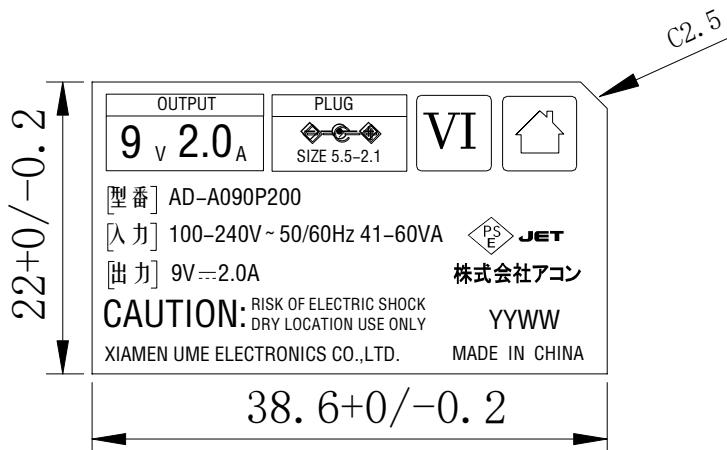
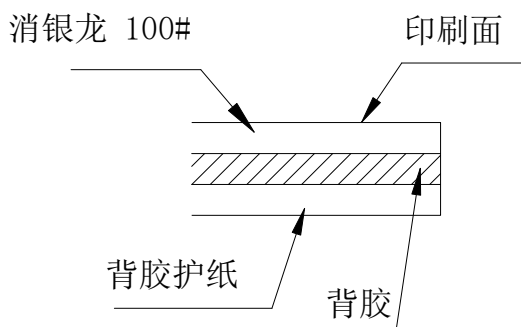
7 外观示意图 Mechanical Drawing (单位 unit: mm 颜色 color: BK)



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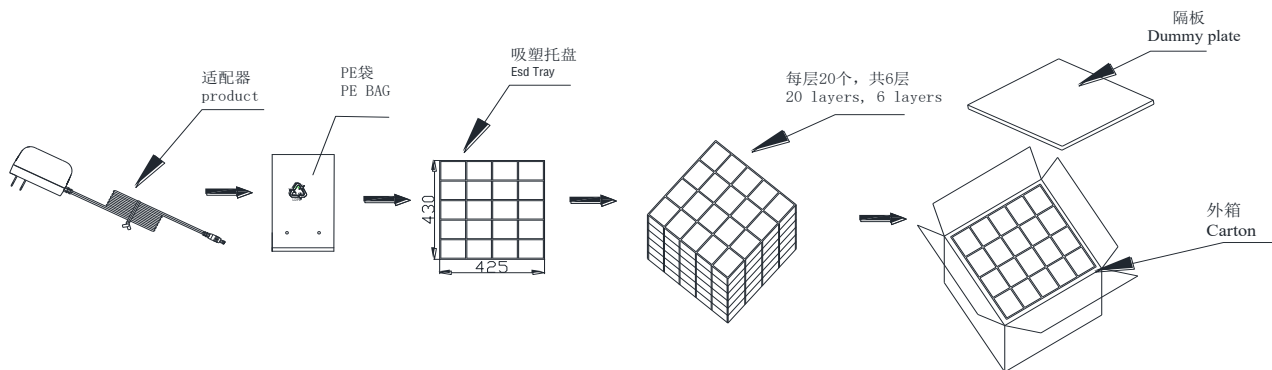
8 铭板标识 Label



备注:

1. 材质: 消银龙 100# (材质: PET, 厚度: 0.1mm)。
2. 黑底银字, 亚膜, 印刷参照ARTWORK, 印刷位置居中。
3. 背胶: 高冠DT#。
4. 密着性: 将铭板贴于实际CASE上, 在-40° C下放置48小时, 再放入75° C, 85%RH下放置48小时后, 于常温常湿下放1小时, 在铭板长度方向上贴上强力胶带(3M NO.610 18mm宽或等价物), 以垂直方向急速拉起, 铭板不能有起泡或脱落。
5. 粘着力: 依据铭板检验标准测试。
6. YYPE表示年份, WW表示周期, 年周依订单要求或实际生产日而定。
7. 字体清晰可读, 布局居中, 字体或图案与铭板边缘距离大于0.4mm。
8. 铭板字体为方正姚体。

9 包装方式 Packaging



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10 材料清单 BOM

NO.	ITEM	DESCRIPTION	SPECIFICATION	QTY	MANUF ACTURER
1	PCB	PCB	UME-120150D-PCB	1	TengShengXing/HG
2	R1,R2	CHIP R	1.5M Ω ±5% 1206	2	YAGEO/FENG HUA
3	R3	CHIP R	300K Ω ±5% 1206	1	YAGEO/FENG HUA
4	R4	CHIP R	100 Ω ±5% 1206	1	YAGEO/FENG HUA
5	R5,R6	CHIP R	2.4 Ω ±1% 1206	2	YAGEO/FENG HUA
6	R7	CHIP R	2 Ω ±1% 1206	1	YAGEO/FENG HUA
7	R8	CHIP R	3.6K Ω ±1% 0805	1	YAGEO/FENG HUA
8	R10	CHIP R	21.5K Ω ±1% 0805	1	YAGEO/FENG HUA
9	R11	CHIP R	4.7 Ω ±5% 0805	1	YAGEO/FENG HUA
10	R12	CHIP R	22 Ω ±5% 0805	1	YAGEO/FENG HUA
11	R13	CHIP R	5.1K Ω ±5% 0805	1	YAGEO/FENG HUA
12	RJ1	CHIP R	0 Ω ±5% 1206	1	YAGEO/FENG HUA
13	C1	CHIP R	471 500V±10% 1206 X7R	1	YAGEO/FENG HUA
14	C2	CHIP R	22PF 50V 0805 COG	1	YAGEO/FENG HUA
15	C3	CHIP R	102 100V±10% 0603 X7R	1	YAGEO/FENG HUA
16	BD1	Rectifier Bridge	WRABS M10 1000V 1A	1	JF/ World
17	D1	Diode	M7 SMA	1	JF
18	D2	Diode	F7 1A/1000V/SOD-123FL	1	JF
19	D3	Diode	SP10U60L 10A 60V TO-277 SMD	1	JF
20	U1	IC	OB2571ATCPH SO-8	1	OB
21	CY1,CY2	Y CAP	SMD Y2 TBY2222MF 300VAC	2	TRX
22	F1	FUSE	DESC 24T 1A 250VAC	1	FYS
23	LF1	Inductor	18mH MIN UU9.8	1	HXH/CS
24	LF2	Inductor	187uH Φ 0.6mm 5*11mm	1	HXH/CS
25	TR1	TRANSFMOR	TR-090200B	1	HM/ HXH
26	EC1, EC2	E cap	18uF 400V±20% 105℃ Φ 10*20 mm(BXW)	2	AISHI
27	EC3	E cap	4.7uF 50V±20% 105℃ 2000H Φ 5*11mm(YXF)	1	AISHI
28		E cap	4.7uF 50V ±20% 105℃ 5000H Φ 5*11mm(YXJ)		AISHI
29	EC4,EC5	Fuse	680uF 16V±20% 105℃ Φ 8*16mm(ZLH)	2	AISHI
30	L, N		UL 1007 24AWG 30mm	2	FA/GC
31	CASE	CASE	UME2001A(BK)	1	JLF/XF
32	CASE	CASE	UME2001B(BK)	1	JLF/XF

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33	DC cord	Cable	Φ2.1*5.5*9.5mm L:1500mm 20AWG 2464 BK	1	DPK/GC
34	NAP	NAP	NAP-090200D-PSE	1	YHX
35		PE bag	215*135*0.05	1	Xincheng
36		Out carton	430*440*220mm	0.0833	XinRuicheng/ FuXing
37		Partition	435*418*3mm	0.0833	XinRuicheng/ FuXing
38		Esd Tray	430*425*35mm	0.05	XinRuicheng/ FuXing
39		White glue	AP-688	0.9	JX
40		Solder Bar	1Cu 99Sn	0.4	Yun Nan TIN
41		Solder wire	0.3Ag 0.7Cu 99Sn	0.2	Yun Nan TIN

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