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PART NUMBER (样单编号)	KA1947010	CUSTOMER MODEL (客户型号)		

APPROVAL SHEET

(承认书)

FOR

AC/DC ADAPTER

(适配器)

MODEL NO.

(型号)

[KA2401A-1202000EU](#)

color 颜色: (black 黑色) (white 白色)

MANUFACTURER (制造商)				
EDIT (制订)	CONFIRM (品质部确认)	CONFIRM (研发部确认)	CHECK (审核)	APPROVAL (批准)
谭甜甜				

说明:, 实际生产中如有使用替代物料均在承认书中所列物料清单之中, 我司不再另做报备通知, (替代料均测试合格, 满足功能和安规) 请知悉:

CUSTOMER APPROVAL



(客户承认)

签收:

印章:

日期:



- ◆ **Address:** Bldg. 2-1 & 2-2, Photoelectric Industrial Park, Jianli Economic Development Area, Jianli County, Jingzhou City, Hubei, China (湖北)
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1. General Description(概述)

This specification defines the input, output, performance characteristics, and environment, noise and safety requirements for **24Watts** adaptor. (The environment temperature is 25°C or aging test after 15 minutes), this product is for indoor use only.

(本规格详细说明了 **24W** 的适配器输入、输出特性、环境、噪音和安全要求。(环境温度为 25 度或老化 15 分钟后进行测试), 本产品只限室内使用。

2. Environment Protection Laws (环保法规)

ROHS
 REACH
 CPSIA
 EN71
 PHTHALATE
 HALOGEN

3. According with Safety and EMC Criterion (符合的安全及电磁兼容标准)

EN62368
 EN61558-1
 EN60065-1
 EN55032
 UL60950-1
 UL1310
 UL60065-1
 EN55024
 GB4943.1
 GB9254
 GB17625.1
 FCC Part15
 J60065
 J55013

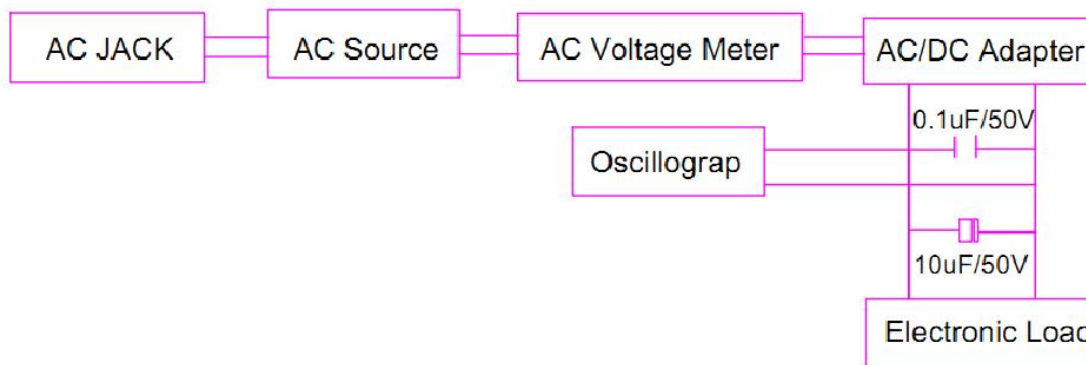
4. Safety and EMC Approval (已认可的安全 及电磁兼容标准)



CB
 TUV/GS
 CE
 PSE
 UL
 FCC
 SAA
 C-tick
 KC
 CCC
 J TLC
 E-mark

5. 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.)



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6. Input Characteristics (输入特性)

6.1 Input Voltage and Frequency (输入电压及频率)

6.1.1 Rated Input voltage 额定输入电压: **100~240V**

6.1.2 Reliable Input voltage 输入电压范围: **90~264V**

6.1.3 Rated Input Frequency 额定输入频率: **50~60Hz**

6.1.4 Reliable Input Frequency 输入频率范围: **47~63Hz**

6.2 Steady AC Current (AC 输入电流)

The maximum input current shall be less than **0.65A** at 100~240Vac input

(在额定输入电压 100V~240V 时输入电流小于 **0.65A**)

6.3 Inrush Current (峰值输入电流)

With cold starting, input AC 240V the inrush current should **60A** Max

(电源启动时最大峰值输入电流小于 **60A**)

6.4 Standby (待机功耗)

The input power shall be less than **0.1W** at 115 or 230Vac input

(在输入电压 115V 或 230V 时待机功耗小于 **0.1W**)

6.5 Full load Efficiency (满载效率)

Measured at 115Vac or 230Vac input voltage, 100% load ,The efficiency is **82%** Min

(在输入电压 115Vac 或 230Vac, 输出带满载效率不低于 **82%**)

6.6 Average Efficiency (平均效率)

Measured at 115Vac or 230Vac input voltage, Average efficiency can reach energy star VI

(**86.20%**) standard

(在输入电压 115Vac 或 230Vac, 平均效率可达到能效六级 **86.20%**标准)

7. Output Characteristics (输出特性)

7.1 Rated Output Voltage&Current (额定输出电压和电流)

No load voltage (空载输出电压范围): **11.4V ~ 12.6V**



Full load voltage (满载输出电压范围): **11.4V ~ 12.6V** (内正外负 inside:+; outside:-)

Rated Output Current(额定输出电流): **2A**

7.2 Hold-up Time (关机维持时间)

The maximum turn-off hold-up time shall be least **10mS** at input 230Vac and the rated load condition.

(在输入 230Vac 及额定负载情况下,关机输出维持时间不低于 **10mS**)

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7.3 Output Rise Time (输出上升时间)

Input 110Vac/230Vac and rated load, The rise time shall not exceed **50mS** that the output voltage rise from 10% to 90% rated voltage.

(在输入 110Vac/230Vac,输出额定负载条件下,输出电压由 10%额定电压上升至 90%额定电压的上升时间不会超过 **50mS**)

7.4 Output Fall Time (输出下降时间)

Input 110Vac/230Vac and rated load,**20mS** max

(输入 110Vac/230Vac & 输出额定负载, 最大 **20mS**)

7.5 Turn - on Delay Time(开机延迟时间)

3S max. @ 100Vac to 240Vac input & Full load

(100-240Vac 输出满载开机延迟时间最大 **3** 秒)

7.6 Rated Power (额定功率)

This adaptor is capable to support **24Watts** continuously at all specified conditions.

(此产品额定功率为 **24W**)

7.7 Ripple and Noise (纹波和噪音) (AC100V-240V 测试)

Ripple voltage is **150mV** p-p (Full load **2A**) measured methods: Performed by 20MHz bandwidth in oscilloscope Applied 0.1uF ceramic capacitor and 10uF electrolytic capacitor across output connector terminals Measured at the end of DC cable. The environment temperature is 25°C or aging test after 15 minutes.

(输出端并 0.1uF 与 10uF 电容, 限制示波器带宽 20MHz 时, 测得纹波小于 **150mV** p-p,输出负载 **2A**, 环境温度为 25 度或老化 15 分钟后进行测试)

7.8 Protection (保护)

7.8.1 Over Current Protection (过流保护)



OCP Point Limited: **110%~250%** 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 **1.1~2.5** 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)

7.8.2 Short Circuit Protection (短路保护)

The input power shall decrease when the output short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed.

(当输出短路时,产品输入功率降低且不会损伤,当短路情况解除后,产品将会自动恢复正常)

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8. Reliability Items (可靠性项目)

8.1 Electrostatic discharge (静电)

At 150pF: 330Ω, for each point, 10 shots of direct discharge or air discharge (1 MΩ/ SHOT), have no malfunction. Direct discharge: **±4kV**, Air discharge: **±8kV**

(在接触放电**±4kV**和空气中放电**±8kV**模式下,各处分别放电 10 次无误动作)

8.2 Hi-Pot Test (高压测试)

Primary to Secondary: **3000Vac / 10mA Max / 60S** (when safety testing)

初级对次级: **3000Vac / 10mA Max / 60 秒** (安规试验)

Primary to Secondary: **3300Vac / 5mA Max / 3S** (when production)

初级对次级: **3300Vac / 5mA Max / 3S**(生产作业)

8.3 Insulation Resistance (绝缘电阻)

100MΩ Min. between primary to secondary add **500Vdc** test voltage.

在初级与次级间加 **500Vdc** 进行测试, 最小 **100MΩ**。

8.4 Leakage Current (泄漏电流)

0.25mA maximum, at nominal AC input voltage and frequency

(在额定输入时泄漏电流最大 **0.25mA**)

8.5 Burn-In Test (老化测试)

2 hours at **40°C** maximum, Normal input voltage, rated load.

(在高温 **40°C** 工作 **二小时** 情况下, 额定输入电压和负载条件下)

8.6 Lightning surge (雷击浪涌)

EMS Standards/EMS 标准

SURGE LEVEL: **±1KV**(DM), **±2KV**(CM) Standards IEC61000-4-5

雷击 等级: **±1KV**(差模), **±2KV**(共模) 标准 IEC61000-4-5

Note: Power supply is not damaged, allowing restart



备注: 电源不损坏, 允许重启

8.7 MTBF (平均无故障时间)

When the power supply is operating within the limits of this specification the MTBF

shall be at least **50000** hours at **25°C** (MIL-HDBK-217F).

(当电源在本规范运行时, 平均无故障时间在 **25°C** 至少为 **50000** 小时 MIL-HDBK-217F)

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9. Mechanical Requirement (机械要求)

9.1 Weight (重量)

120g ± 10g

9.2 Input plug type (输入插头类型)

Wall-mounted type. EU-pin. 2 Conductors, < Live. Neutral > (欧规 AC 输入 2PIN 插头)

9.3 Drop Test (跌落试验)

1M for wall mount type and 0.76M for desktop as above described. Test times for each 1 times, a total of 6 times

插墙式跌落高度为 1 米、桌面式跌落高度为 0.76 米；试验次数为每面 1 次，共 6 次。

The horizontal surface consists of hardwood at least 13mm thick, the plug can be bend, and scratch, but the structure should not be damaged, and can work normally

测试台面是厚 13mm 的夹木板, 测试后插脚可以弯曲, 外壳可以有伤但外观不能有结构性损毁, 能正常工作。

9.4 Vibration (振动)

10 to 300Hz sweep at a constant acceleration of 1.0G (Breadth: 3.5mm) for 1Hour for each of the perpendicular axes X, Y, Z

(扫描频率: 10 to 300Hz, 加速度: 1.0G(位移: 3.5mm), X, Y, Z 三垂直坐标轴向各振动 1 小时)

10. Environmental Performances(环境性能)

10.1 Operating Temperature and Relative Humidity(工作温度和湿度要求)

0°C to +40°C

10%RH to 90%RH

10.2 Storage Temperature and Relative Humidity(储存温度和湿度要求)



-25°C to +70°C

5%RH to 95%RH non-condensing

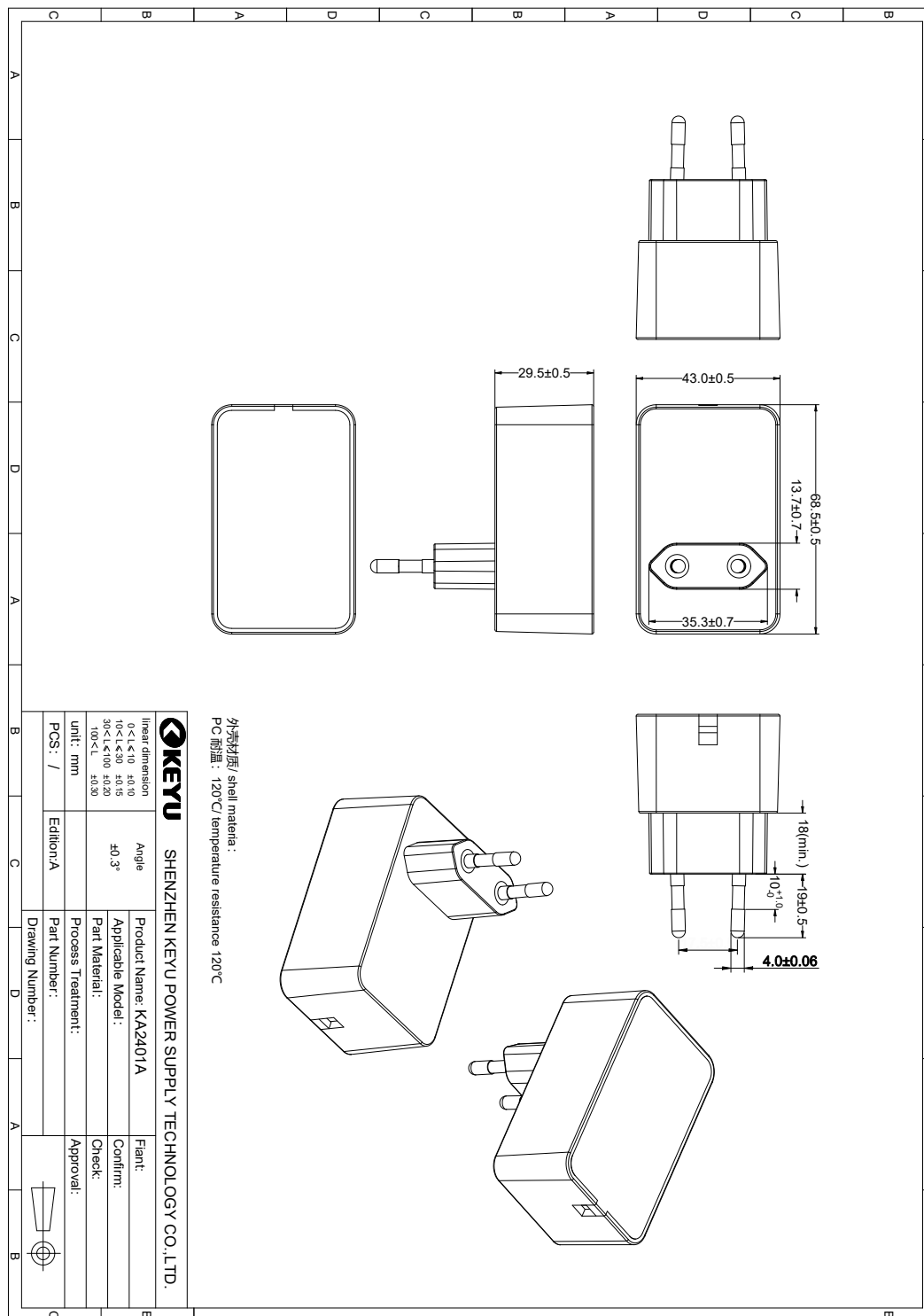
10.3 Noise(噪声)



A weighted sound pressure levels should be consistently under 30 dB at 30cm from PSU.

(在静音环境距产品 30 厘米处测试, 产品噪声小于 30dB)

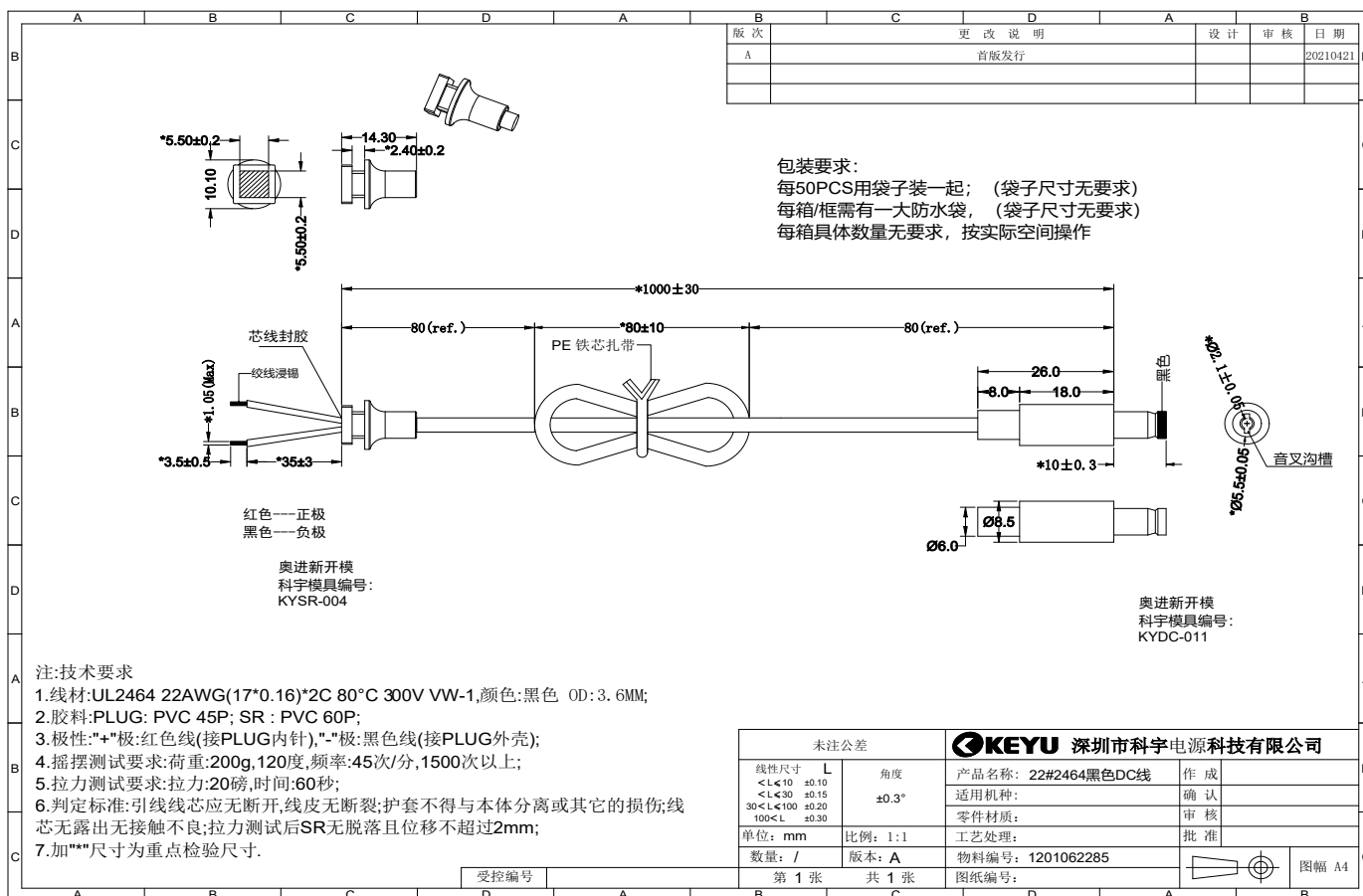
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11. Product Outline Drawing (制品结构尺寸图)



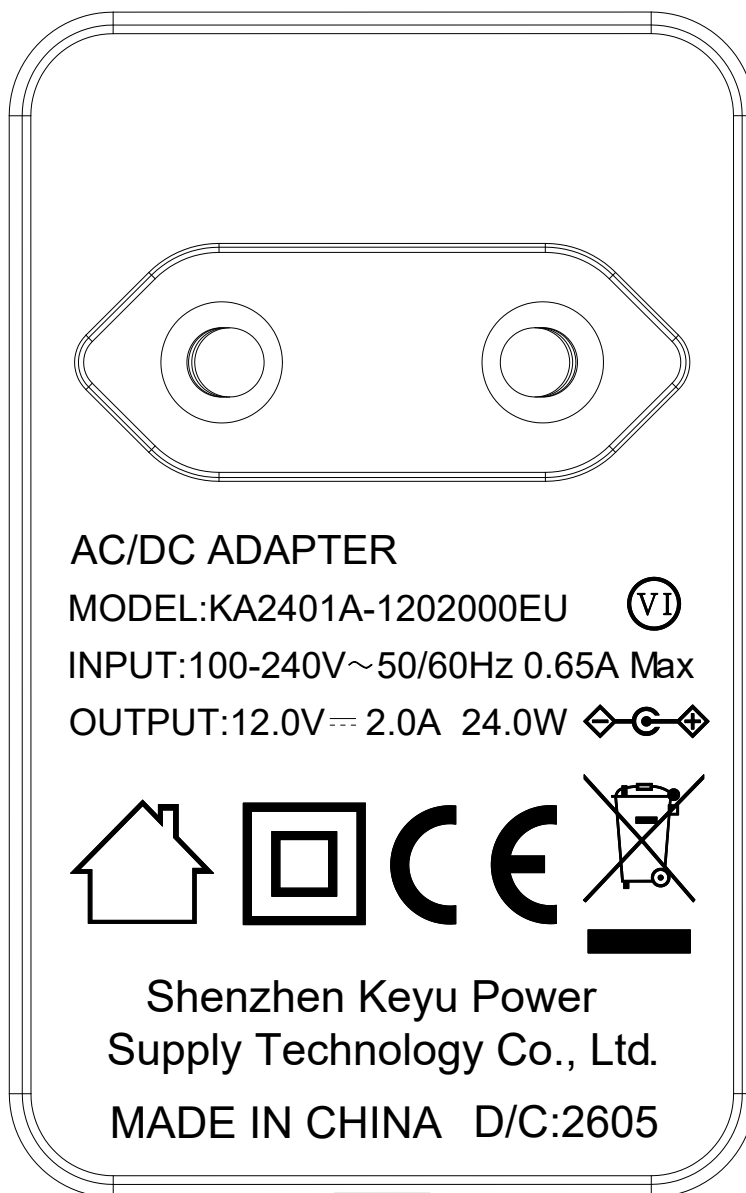
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12. DC Output Cable and Plug Drawing (输出线材图)




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13. Rating Label Drawing (标贴纸图)

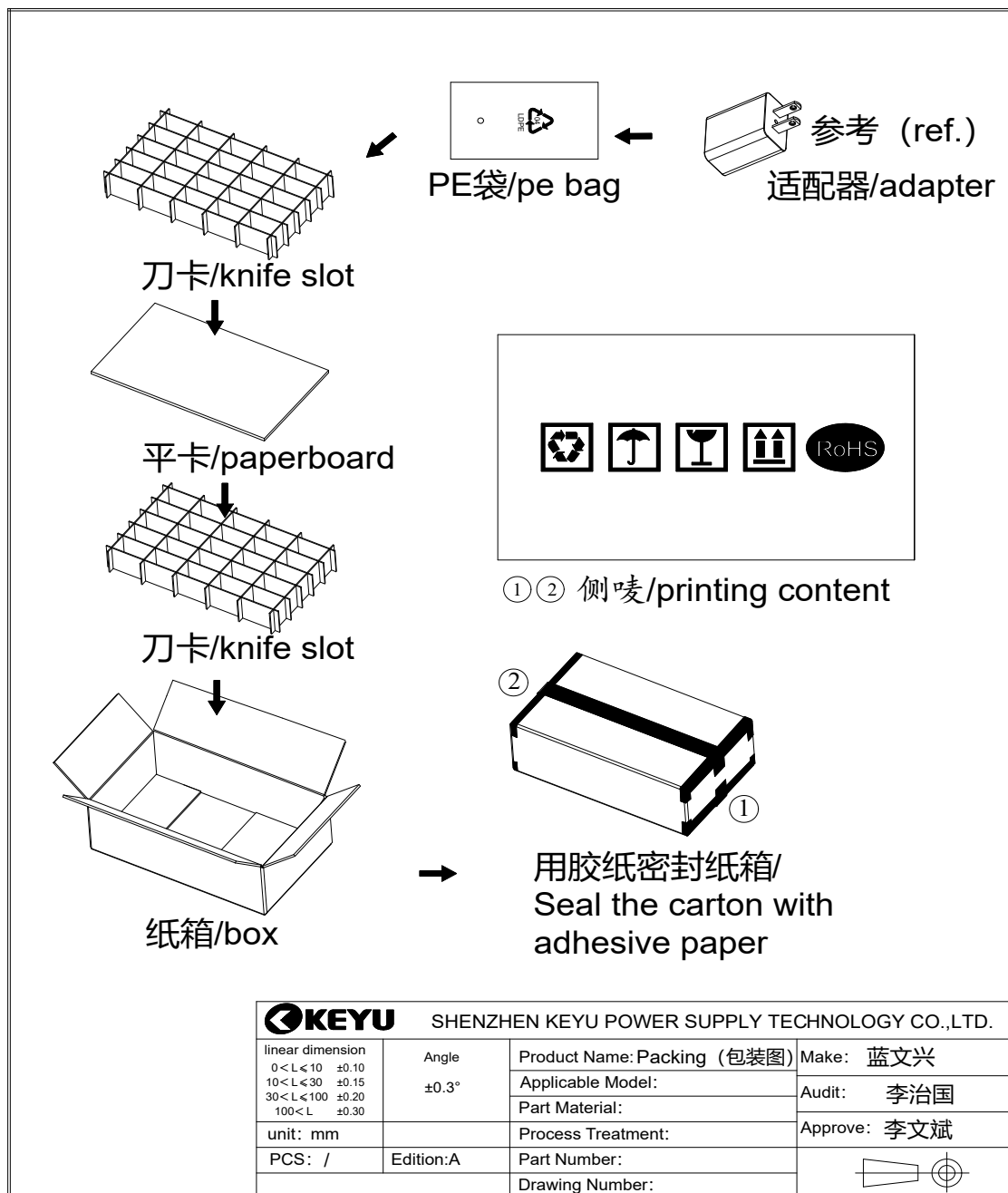


Note: "D/C:2605": 26for the year of production,05 for the production cycle, D/C will be updated with the production cycle

标贴：镭射 (laser)

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14. Packaging vector diagram (包装矢量图)



技术要求/technical request:



1. PE 袋/PE bag: 200*120mm

(带线产品, 默认 PE 袋只套本体, 线材不装入 PE 袋)

With wire products, wire and the main body into the PE bag

2. 纸箱/BOX: 570*340*197mm 材质/material:K=K

3. 50 个/箱 (50PCS/BOX)

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15. List of key materials (关键材料清单)

品名	规格	组成量	单位	位号
保险丝	T2A/250V Φ3.6*10mm 玻璃延时慢断 泓达	1	PCS	F1
安规 X 电容	MPX X2 0.22uF/275V±10% W*T*H=13*6*12 P=10 松田/祥泰	1	PCS	CX1
共模电感	UU9.8 L≥22mH 线径 0.27mm 极佳	1	PCS	LEM1
电解电容	33uF/400V±20% 105℃ Φ16*18mm	1	PCS	EC1
变压器	EE22 加宽 L=1.8mH KA2401A-12V	1	PCS	T1
安规 Y 电容	222M/400V Y5V P=10mm 松田/浩田/祥泰	1	PCS	CY2
光耦 IC	817C DIP-4 佰鸿/亿光	1	PCS	U1
肖特基二极管	20A/100V TO-220AB 铁封 康虹/平伟	1	PCS	D2
环形电感	L≥20uH±10% T9*5*3mm 线径 0.6mm	1	PCS	LEM2
贴片整流桥堆	ABS210-CY 2A1KV 康虹/合科泰	1	PCS	BG1
贴片整流二极管	M7F 1A/1KV SMAF 鲁光/康虹	1	PCS	D4
贴片整流二极管	FM4007 1A/1KV SOD-123FL 康虹	1	PCS	D5
稳压 IC	TL431-0.5% 36V SOT-23 长电/UTC	1	PCS	U3
贴片 IC	AT3238 SOT23-6 ATC / CR6890A SOT 23-6 启臣微	1	PCS	U2
MOSFET	4N65DC 4A/650V TO-252 深爱	1	PCS	Q1
PCB	KA2401A Rev:B L61.7mm*W36.1mm*T1.6mm	1	PCS	
电解电容	1000uF/16V±20% 105℃ Φ8*16mm 晶正/龙奇/凯特/新熠杰	2	PCS	EC3.EC4
电解电容	4.7uF/50V±20% 105℃ Φ5*11mm 晶正/龙奇/新熠杰	1	PCS	EC2