

SPECIFICATION FOR APPROVAL

客户承认书

Customer ID 客户: 141141-UKB P/N No.: KRE-2402000D Model No. 型号: KRE-2402000D
 Sample Date 日期: 2017-07-07 Design No. 设计流水号: 170616-141141-150949-B4



景荣企业有限公司
 中山市景荣电子有限公司

KINGRONG ENTERPRISE LTD. (Since 2008)

ZHONGSHAN KINGRONG ELECTRONICS CO., LTD.

客户承认书

SPECIFICATION FOR APPROVAL

CUSTOMER ID/客户编号: 141141-UKB

DESCRIPTION/概述: Switching Power Supply (AC/DC adaptor)

CUSTOMER P.N. /客户料号:

PART NO. /产品编号: KRE-2402000D REV: 1.0 RoHS: Yes

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核

Notes Special 特殊要求	1.	Signature & seal: Date:
	2.	
	3.	
	4.	

Sign it means acknowledge our sample(s) performance and we production to samples.
 In the event of discrepancies between the sample(s) and specification, the sample(s)
 shall prevail. /客户确认签字, 盖章即视为确认样品性能, 以样品为准生产.

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盖章前审查: 拍照了吗? 录入产品库了吗?

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	黄秀红	吴静雯	王苑

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TABLE OF CONTENTS/目录

1. Reversion List /变更履历表	2
1. General Scope/简述.....	3
2. Input Characteristics /输入特性.....	3
3. Output Characteristics/输出特性.....	3
4. Dielectric Strength (Hi-Pot) Test /介电耐压强度(高压)测试.....	4
5. Insulation Resistance Test /绝缘阻抗测试.....	5
6. Protection Requirements /保护特性	5
7. Environment Requirements/环境要求.....	5
8. SAFETY Standards /安规标准	5
9. EMI/EMS Standards /电磁兼容标准	6
10. Reliability Requirements /可靠性要求.....	6
11. Mechanical Characteristics /机械特性	6
12. Test Schematic /测试示意图	7
13. Label Diagram /铭牌图.....	8
14. Mechanical Outline Photograph /外观示意图.....	9
15. ErP 2/ CEC V/ GEMS/ CoC V5/ DoE VI / Test Report/节能测试报告	10
16. Package Drawing /包装示意图	11
17. Certificates /认证证书.....	11

1. Reversion List /变更履历表

变更后立即通知生产更新资料，切记！

Rev. 版本	Date 日期	Description of Changes 变更内容描述	Notes 备注
1.0			
2.0			
3.0			

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1. General Scope/简述

The document describes the electrical, mechanical and environmental specifications of a power supply product, which provides/资料详细描述了一款 48W continuous output power./(连续输出功率)开关电源的电气性,结构性及环境等要求.

The product shall meet the/此款电源符合 CE+VI+ROHS requirements.

2. Input Characteristics /输入特性

2.1 Nominal Input Voltage &Frequency/输入电压与频率

The range of input voltage, single phase.

输入电压范围：单相输入

Items	Minimum/最小	Nominal/额定值	Maximum/最大
Input voltage/输入电压	90Vac	100Vac~240Vac	264Vac
Input frequency/输入频率	47Hz	50/60Hz	63Hz

2.2 Input AC Current/ AC输入电流

@ Nominal input & full load/ 满载：2 A max.

2.3 Inrush Current(cold start)/浪涌电流（冷启动）

@ Nominal input: 50A max

2.4 ☐ Normal Efficiency 常规效率, ☒ Average Efficiency 平均效率

Nominal input额定输入 87.77 % min.

2.5 Energy Consumption/空载功耗

Stand-by power/空载功耗标准：小于 0.1W max (no-load).

2.6 If LED Power Supply, PF值/PF Factor: _____

3. Output Characteristics/输出特性

3.1 Static Output Characteristics <Vo & R+N>/静态输出特性

Output	Rated load/额定负载		Output voltage range	R+N	Remarks
Rate	Min. load	Max. load	输出电压范围	纹波与噪声	备 注
+24V	0.0A	2A	±5%	150 mVp-p	

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 47uF electrolysis capacitor. (Test under the condition of rated input and rated output)

纹波与噪声:测量时示波器选用 20MHz 带宽限制,输出端要并联一颗 0.1uF 的陶瓷电容和一颗 47uF 的电解电容。(在额定输入及输出的条件下检测)

3.2 Load Regulation/线性/负载调整率: 5%

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3.3 If Charger, Charging Characteristics / 充电特性(Applicable for charger only)

(如果是充电器线路才适用) ☐ **Charger circuit design**

3.3.1 Charging method/充电模式: CC/CV

3.3.2 Main charge current/主要充电电流③: mA

3.3.3 Best for battery, charging time not less than /充电时间不少于: 6 hours

3.3.4 Charging LED indication/充电 LED 灯颜色④: ☐ Red ☐ Green

3.3.5 Charging turn lamp current/充电转灯电流⑤ to ①: - mA

3.4 If POE Power Supply, Data Interfaces(Applicable for POE PSU only)/数据接口

(如果是POE电源才适用): ☐ **POE power supply** ☐ **Surge protected**

Ports Number: **Single port data & power out, RJ-45 female**

Data LAN : ☐ **10/100Mbps** ☐ **10/100/1000Mbps**

Data & Power out (Optional): **Data on pins: full duplex**

☐ **+VDC on pins: 4, 5; -VDC on pins: 7, 8**

☐ **+VDC on pins:1,2,3,6; -VDC on pins:4,5,7,8**

The power out pins assignment is optional; please specify it in your order.

3.5 Turn-on Delay Time/开机延迟时间:

3S max. @ 100Vac to 240 Vac input & full load/满载

Rise time/上升时间: 10mS max. @ rated load/额定负载

Fall time/下降时间: 20mS max. @ full load/满载

3.6 Hold-up Time/关机维持时间

10mS min. @ full load & 115Vac/ 60Hz input turn off at worst case/在最差情况关机

20mS min. @ full load & 230Vac/ 50Hz input turn off at worst case/在最差情况关机

4. Dielectric Strength (Hi-Pot) Test /介电耐压强度(高压)测试

4.1 Primary to Secondary & Case for Class I /初级对次级, 初级对外壳::

1500Vac /10mA max / 60 seconds

4.2 Primary to Secondary & Case for Class II /初级对次级, 初级对外壳::

3750Vac /10mA max / 60 seconds

4.3 Leakage Current/漏电流

0.25 mA max. At 264Vac / 50Hz

4.4 If, Surge Test (雷击测试) ☒ N/A

☒ 3KV ☐ 6KV Common mode, different test phase mode at 0°, 90°, 180°, 270° as per

EN61000-4-5:2006.

4.5 ESD Test (防静电测试) ☒ N/A

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Air discharge: ☒ $\pm 8KV$ ☐ $\pm 15KV$, contact discharge: ☒ $\pm 4KV$ ☐ $\pm 8KV$.

5. Insulation Resistance Test /绝缘阻抗测试

50M Ω min. at primary to secondary add 500Vdc 在初级与次级间加 500Vdc进行测试

6. Protection Requirements /保护特性

6.1 Input Protection /输入保护

It has a/电源输入端内置inner current fuse to protection itself/电流保险管

6.2 Over Voltage Protection /过压保护

When overvoltage occurs on DC output shall cause no damage or auto-recover the power supply/
当输出电压超过额定电压时,电源将保护,故障排除后能恢复正常工作

6.3 Over Current Protection /过流保护

Over Current Point Limit: /过流点限制: < 3.0 – 3.2 A (@ Nominal input)

The output shall hiccup when the over currents applied to the output rail, and shall be self-recovery when the fault condition is removed.

当过电流时,输出将进入打嗝模式,当过流情况解除后,产品将会自动恢复正常

6.4 Short Circuit Protection /短路保护

The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed. And SCP power is small/短路功率较小
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

7. Environment Requirements /环境要求

7.1 Operating Temperature and Relative Humidity /操作温/湿度要求

-20 $^{\circ}C$ to +40 $^{\circ}C$ 20% to 80%RH

7.2 Storage Temperature and Relative Humidity /存储温/湿度要求

-20 $^{\circ}C$ to +85 $^{\circ}C$ 5% to 95%RH non-condensing @ sea level shall below 10k feet/低于10,000英尺

8. SAFETY Standards /安规标准

The product has designed / approved by the following safety standards:

☐ UL60950 ☐ IEC/EN60950 ☐ AS/NZS60950 ☐ J60950 ☐ K60950 ☐ GB4943
☐ UL60065 ☒ IEC/EN60065 ☐ AS/NZS60065 ☐ J60065 ☐ K60065 ☐ GB8898
☐ UL60335 ☐ IEC/EN60335 ☐ AS/NZS60335 ☐ J60335
☐ UL1310 ☐ IEC/EN61558 ☐ AS/NZS61558 ☐ J61558
☐ IEC/EN61347

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9. EMI/EMS Standards /电磁兼容标准

9.1 EMI Standards/ EMI标准

- ☐ EN55022:2010+AC:2011(IT) ☒ EN55013:2001+ A1:2003+ A:2006(AV)
☐ FCC Part 15 Class B:2014 & ANSI C63.4:2009(USA)
☐ GB9254-2008(IT) ☐ GB13837(AV)
☐ J55022(IT) ☐ J55013(AV) ☐ CISPR 32/22/射频干扰
☐ IEC/EN61547(LED)

9.2 EMS Standards/ EMS标准

- ☒ EN55024:2010(IT&AV) ☐ EN62493:2010(EMF) ☐ GB17625.1-2012/谐波电流限值
☒ IEC61000-4-2/ESD静电放电 ☒ IEC61000-4-3/辐射搞干扰
☒ IEC61000-4-4/EFT电快速瞬变脉冲群 ☒ IEC61000-4-5/雷击surge测试
☒ IEC61000-4-6/CS传导性干扰 ☐ IEC61000-4-8/电源频率磁场耐受检测
☐ IEC61000-4-11/电压跌落及中断
☐ EN61000-3-2/谐波电流
☐ EN 61000-3-3:2013/电压波动和闪烁

10. Reliability Requirements /可靠性要求

10.1 Burn-in/煲机

The power supply shall be burn-in for 4 Hours under normal input and 100% rated load at 40°C ± 5°C
 产品至少要在40°C ± 5°C的环境及100%额定负载条件下煲机4小时

10.2 MTBF Qualification/平均间隔故障时间估算

The MTBF is designed to bear 50,000 hours at 25°C, full load and nominal input condition as per
 Telcordia SR-332 methodology.平均间隔故障时间设计在25°C及额定输入与满载条件下工作时间

11. Mechanical Characteristics /机械特性

11.1 Dimension /尺寸(LxWxH)cm: 11.6x5.2x3.4 cm

11.2 Net Weight/重量Kgs(ref.): 0.241

11.3 AC Inlet/输入插头: ☐ 2P EU ☐ 2P US ☐ 3P UK ☒ IEC320-C8

11.4 Power Cord/输入电源线: N/A

11.5 Case Material/外壳材质: PC+ABS or PC ; 94V0

11.6 Outline Color/颜色: Black

11.7 LED color/指示灯颜色: N/A

11.8 Output cord & Length/输出线及长度: 22AWG UL2464 1.5M

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11.9 DC Plug Size& Shape/DC头尺寸:

2.1x5.5x12mm ☒ Straight ☐ L-type ☒ Fork Type

11.10 DC Plug Polarity/极性: ☒ Center + ☐ Center-

11.11 Drop Test/跌落

Height: 1.0m; the product should be fell off on the hardwood with the thickness of 20mm, and the hardwood should be put on the base of the cement or on the ground without flexibility by apply two times on all surfaces. 跌落高度: 1米, 并跌落到厚度为20mm的硬木上, 且硬木应放在水泥基座或等同的无弹性地面上, 每面各2次

11.11 Ball Pressure Test/球压测试

Pass 通过

11.12 Vibration Test/振动测试:

10 to 300Hz sweep at a constant acceleration of 1.0G (Breadth: 3.5mm) for 1 hour 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

11.13 Cord Bending Test /摇摆测试:

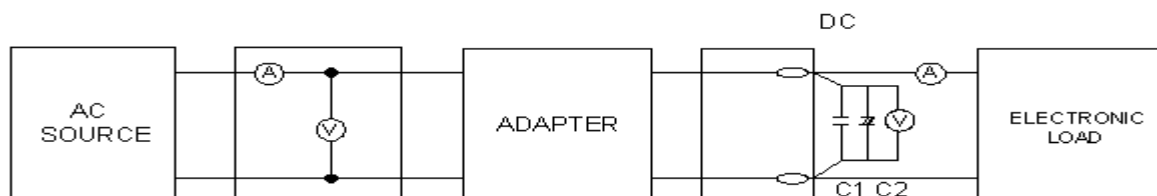
The cord shall withstand a weight of 200 g, it swings from left to right at an angle of 90 degree(total), 40 cycle/min, 300 times minimum. The cord shall be conductible.

输出线悬挂 200 克重量, 以 90 度、40周/分钟 左右摇摆最小 300 次, 输出线无异常。

11.14 Strain Relief Test / 拉力测试:

Plug and cord, at their normal position applied a weight of 20lbs to input plug, 5lbs to output cord, for 60 seconds each, there shall be no broken of lead or other damage result. 输入插头能承受 20lbs 的拉力, 输出线能承受 5lbs 的拉力, 无任何损坏

12. Test Schematic /测试示意图



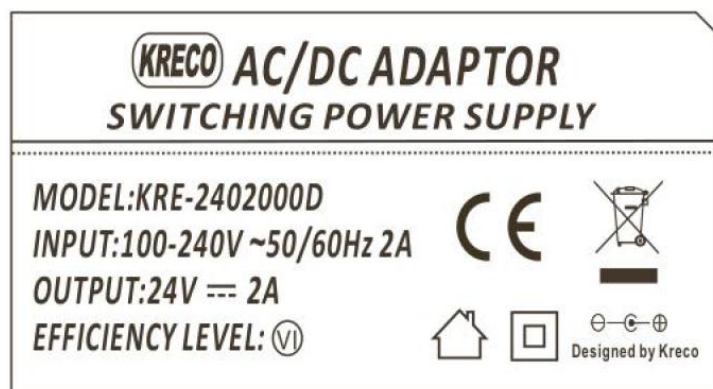
C1: 0.1uF/ 50V(or high voltage) ceramics capacitor/瓷片电容

C2: 47uF/ 50V(or high voltage) aluminum electrolytic capacitor/铝电解电容

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13. Label Diagram /铭牌图

☐ Laser engraving ☒ PVC sticker ☒ Serial code 128

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14. Mechanical Outline Photograph /外观示意图

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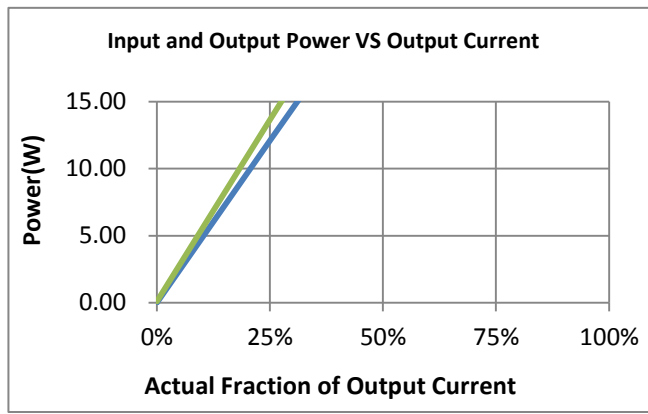
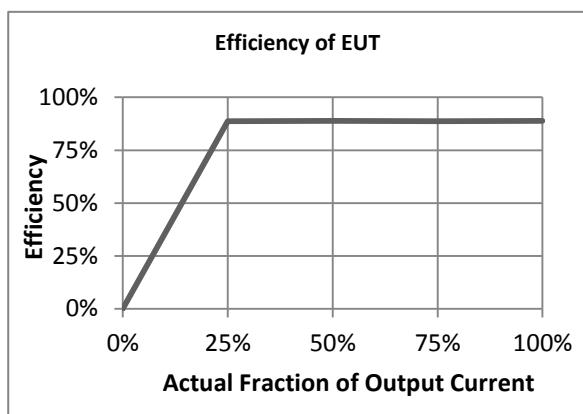
15. ErP 2/ CEC VI/ GEMS/ CoC V5/ DoE VI / Test Report/节能测试报告

☐ N/A ☐ IV ☐ V ☒ VI Efficiency Test Report 节能测试报告

☐ GEMS ☐ CEC ☐ ErP ☐ DoE VI 6 (US) ☒ CoC (EU 6级)

Item 项目	Standard No-load Power 标准空载损耗 (W)	Standard Average Efficiency 标准平均效率%
Standard 标准	0.1	87.77%

	No Load	Active power values					
Percent of nameplate current 负载比例	0%	25%	50%	75%	100%	No load Power 空载功率 W	Average Efficiency 平均效率%
Output Current 输出电流	0	0.5	1	1.5	2	0.10	88.80%
Output voltage 输出电压	0	24.17	24.04	23.91	23.77		
Output power 输出功率 W 次	0	12.09	24.04	35.87	47.54		
AC input power 输入功率 W 初	0.09	13.62	27.04	40.44	53.48		
Efficiency% 效率%	0	88.71%	88.92%	88.69%	88.89%		



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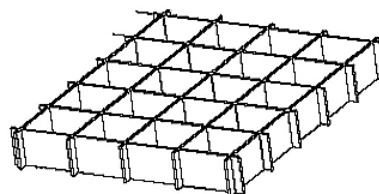
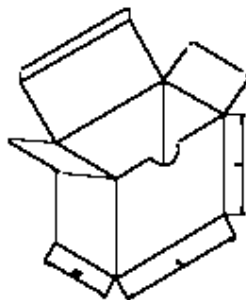
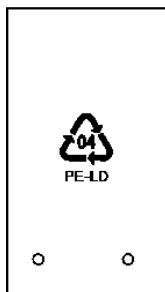
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16. Package Drawing /包装示意图



☒: PE Bag

☒: White Box

☐: Blade Cardboard.

No.	Item Name	Density/Spec	Dimension (LxWxH cm)
1	PE bag 袋	N/A	16*12
2	White box 小白盒	400g/cm3	TBA



Name	Material	Measurement (LxWxH)	Q'ty	Shipping Mark	Part No. On Carton
Outer Carton	K=K	42x26x23cm	50Pcs	KRECO	KRE-2402000D

17. Certificates /认证证书

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