

# SPECIFICATION FOR APPROVAL

## 承认书

<b>CUSTOMER APPROVAL /客户确认</b>	
CONTENT/内容:	
SIGNATURE/签名:	DATE/日期:

CUSTOMER/客户: \_\_\_\_\_ S003

PART NO./料号: \_\_\_\_\_ REV/版本: \_\_\_\_\_ A0

Please sign and return one copy.

请回签一份

All production units will be built according to this specification, The component specifications remain as same, its brand can be changed

所有生产规格将符合此承认书,所用元件规格不变, 其厂牌可变更。

Manufacturer/制造商				
Approved 核准	Checked 审查	Prepared 拟制	QA 品保	Sales 业务
		雷 广		

Model No.机种型号:  K20APDGC

Unit Color/颜色:  白色-1683A

Input/输入:  100-240V<sub>AC</sub> 50/60Hz

Output/输出:  5.0V<sub>DC</sub>/3.0A 9.0V<sub>DC</sub>/2.0A 12.0V<sub>DC</sub>/1.6A

Product Category/产品类别: AC ADAPTOR/电源适配器

Description/描述: ROHS

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## 2.0 Electrical performance 电气性能

### 2.1 Input Characteristics 输入特性:

Rated input voltage 额定输入电压	100-240Vac
Operating range 工作范围	90-264Vac
Rated input frequency 额定输入频率	50-60Hz
Rated input current 额定输入电流	<b>0.5A Max.</b>
Power consumption (no loading) 功耗 (空载)	<b>0.1W Max.</b> (Input voltage 115V and 230V) 在输入电压 115V 和 230V 条件下 0.1W 最大
Primary current protection 初级电流保护	An adequate internal Resistance fuse on the AC input line is provide.在交流输入的火线上加一个 2A/250V 保险丝。
Configuration 结构	<u>2</u> Conductor 2 类电源

### 2.2 Output Characteristics 输出特性:

2.2.1	Nominal dc output voltage 额定直流输出电压	<b>5.0V /9.0V/12.0V</b>
2.2.2	Minimum load current 最小负载电流	<b>0.0A</b>
2.2.3	Rating load current 额定负载电流	<b>3.0A /2.0A/1.6A</b>
2.2.4	Rating output power 额定输出功率	<b>15.0W/18.0W/19.2W</b>
2.2.5	Line regulation 线性调节	The line regulation is less than $\pm 5\%$ while measuring at rated load and $\pm 10\%$ of input voltage changing. 额定输入电压 $\pm 10\%$ 内变化, 带额定负载, 线性调节小于 $\pm 5\%$
2.2.6	Load regulation 负载调节	The load regulation for output is less than $\pm 5\%$ , at measured output load from 10% to 100% rated load . 从负载 10%到 100%变化,输出负载调节率小于 $\pm 5\%$ 。
2.2.7	No load voltage range 空载电压范围	<b>4.75-5.25V /8.55-9.45V /11.4-12.6V</b>
2.2.8	Ripple and noise 纹波和噪声	<b><math>\leq 200mVp-p(100-240Vac)</math></b>
		Test condition:at the minimum and maximum load of rated input and Output. Measurement is done by 20MHZ bandwidth oscilloscope and the output Paralleled a 0.1 $\mu$ F ceramic capacitor and a 10 $\mu$ F electrolysis capacitor.(test under the Condition of rated input and rated output) 测试条件:在额定输入和输出最小及最大负载时,使用示波器带宽为 20MHz 连接到适配器的输出端,同时输出端并联一个 10 $\mu$ F 的电解电容和一个 0.1 $\mu$ F 的瓷片电容.
2.2.9	Average efficiency 平均效率	Accord with energy level VI. Average efficiency <b>81.39%</b> minimum (5.0V/3.0A) 符合能效六级, 平均效率 <u>81.39%</u> 最小
		Accord with energy level VI. Average efficiency <b>85.00%</b> minimum (9.0V/2.0A) 符合能效六级, 平均效率 <u>85.00%</u> 最小
		Accord with energy level VI. Average efficiency <b>85.29%</b> minimum (12.0V/1.6A) 符合能效六级, 平均效率 <u>85.29%</u> 最小
		115V/60Hz and 230V/50Hz, output current from 100%、75%、50%、25%. 当 115Vac 和 230Vac 输入电压时 100%、75%、50%和 25%. 计算平均效率。

2.2.10	Turn on delay time 启动延迟时间	Less than <b>3000 mS</b> . At nominal input AC voltage and full load 在额定输入交流电压和满负载状态下, 不超过 3000 毫秒
2.2.11	Rise time 上升时间	The Supply shall have a start-up rise time of less than <b>100 mS</b> to rise to within regulation limits for all DC outputs. 在直流输出端, 启动上升时间限制在 100 毫秒以内
2.2.12	Hold up time 保持时间	<b>5 mS</b> minimum At nominal input AC voltage and full load 在额定输入交流电压和满负载状态下, 输出维持至少 5 毫秒
2.2.13	Output over-shoot 输出过冲	Less than <b>10%</b> of nominal voltage value 低于额定电压值的 10%
2.2.14	Protection function	
	Over current protection 过流保护	At rated AC input, output current in the range of <b>102%-130%</b> , the power supply will protect. 在额定交流输入下, 输出电流在 <b>102%-130%</b> 范围时, 电源供应器将保护

### 2.3 Dielectric Withstand Voltage (HI-POT) 电气耐压:

Engineering test: This Adapter shall be applied 3000Vac for 60s between AC input terminal to DC output terminal and enclosure. The cutoff current is specified as 10 mA; Large cargo product testing: This Adapter shall be applied 3000Vac for 2s between AC input terminal to DC output terminal and enclosure. The cutoff current is specified as 10 mA

工程样品测试: 在交流输入端与输出端和交流输入与外壳之间, 适配器须承受持续 60 秒的 3000 伏交流电压, 截止电流设定为 10 毫安; 大货产品测试: 在交流输入端与输出端和交流输入与外壳之间, 适配器须承受持续 2 秒的 3000 伏交流电压, 截止电流设定为 10 毫安。

### 2.4 Insulation Resistance 绝缘阻抗:

DC 500 V 30 MΩ min between input to output and enclosure.

在初级与次级间加 500VDC 进行测试, 其绝缘电阻 30 兆欧最小。

### 2.5 Overload Test 过载试验:

In an ambient temperature of 25°C applies a power source of rated input with the output load adjusted to 10% of rated output and rated continuously for 4 Hours, after turning off 60 minutes in normal temperature.

在 25°C 环境温度下, 提供额定交流源给适配器, 让适配器输出大于额定值的 10%, 连续工作 4 小时后, 在常温下关闭 60 分钟. 测试电性正常。

### 2.6 Humidity Test 湿度测试:

Temperature 35°C, 90~95% RH for 4 Hours after taken out from oven.

温度 35°C, 相对湿度 90~95%, 4 小时后从烤箱中取出测试电性正常。

### 3.0 Mechanical Characteristics 机械特性

#### 3.1 Drop Test 跌落测试:

Product shall be dropped from a height of 80cm, onto 1cm thickness dry wood surface 1 times from 3 different surface.

产品从 3 个不同的表面进行测试, 在 80 厘米的高度上跌落在 1 厘米厚干实木板表面各 1 次

**4.0 Environmental 环境:****4.1 Operating Temperature and Humidity Range 工作温度和湿度范围:**

Operate over the temperature range of 0°C to 25°C , 20% to 90% relative humidity no condensation.

工作在 0°C至 25°C温度范围内, 20%到 90%相对湿度无冷凝

**4.2 Storage Temperature and Humidity Range 贮藏温度和湿度范围**

The operation specified herein will not be adversely affected if stored or transported within the temperature limits of -20°C to +70°C with relative humidity up to 90% no condensation.

储存在 -20°C至+70°C温度范围, 相对湿度运送高达 90%无凝结, 操作不会受到影响

**5.0 Surface Structure 表面结构:****5.1 Appearance: Rift, dirty etc. are not permitted.**

外观: 裂缝, 脏等都是不允许的

**5.2 Outline: Dimension and express as drawing**

外形: 素描的方式表示尺寸

**5.3 Net Weight: 80g Max.**

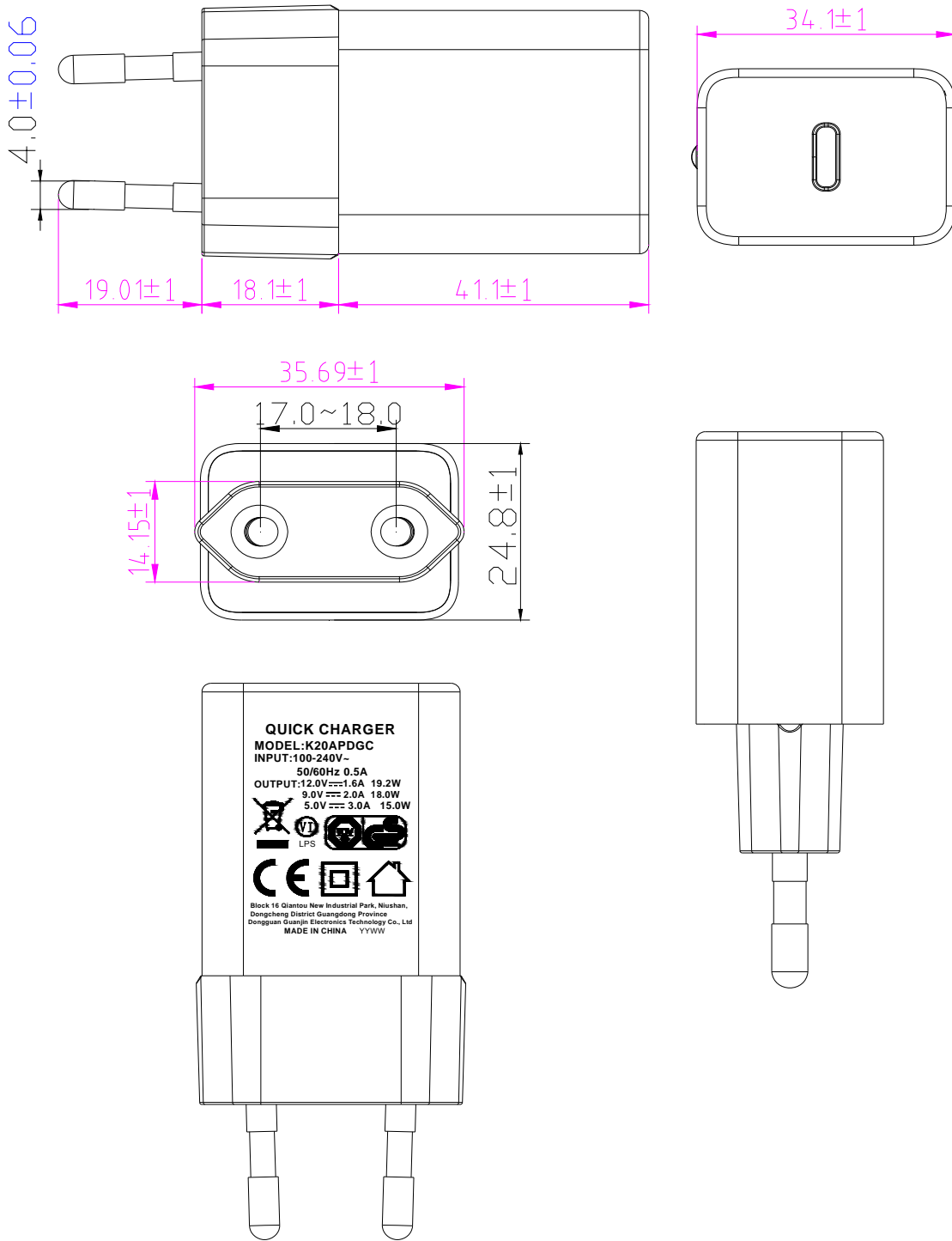
净重量: 80g最大

**6.0 Safety & EMC 安全与电磁兼容:****6.1 Safety Standard 安全标准:EN62368-1:2014/A11:2017****6.2 EMC Standard 电磁标准: EN55032:2015,EN55035:2017.****7.0 MTBF 平均故障间隔时间: <MIL-HDBK-217F>**

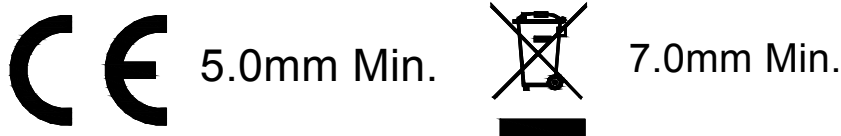
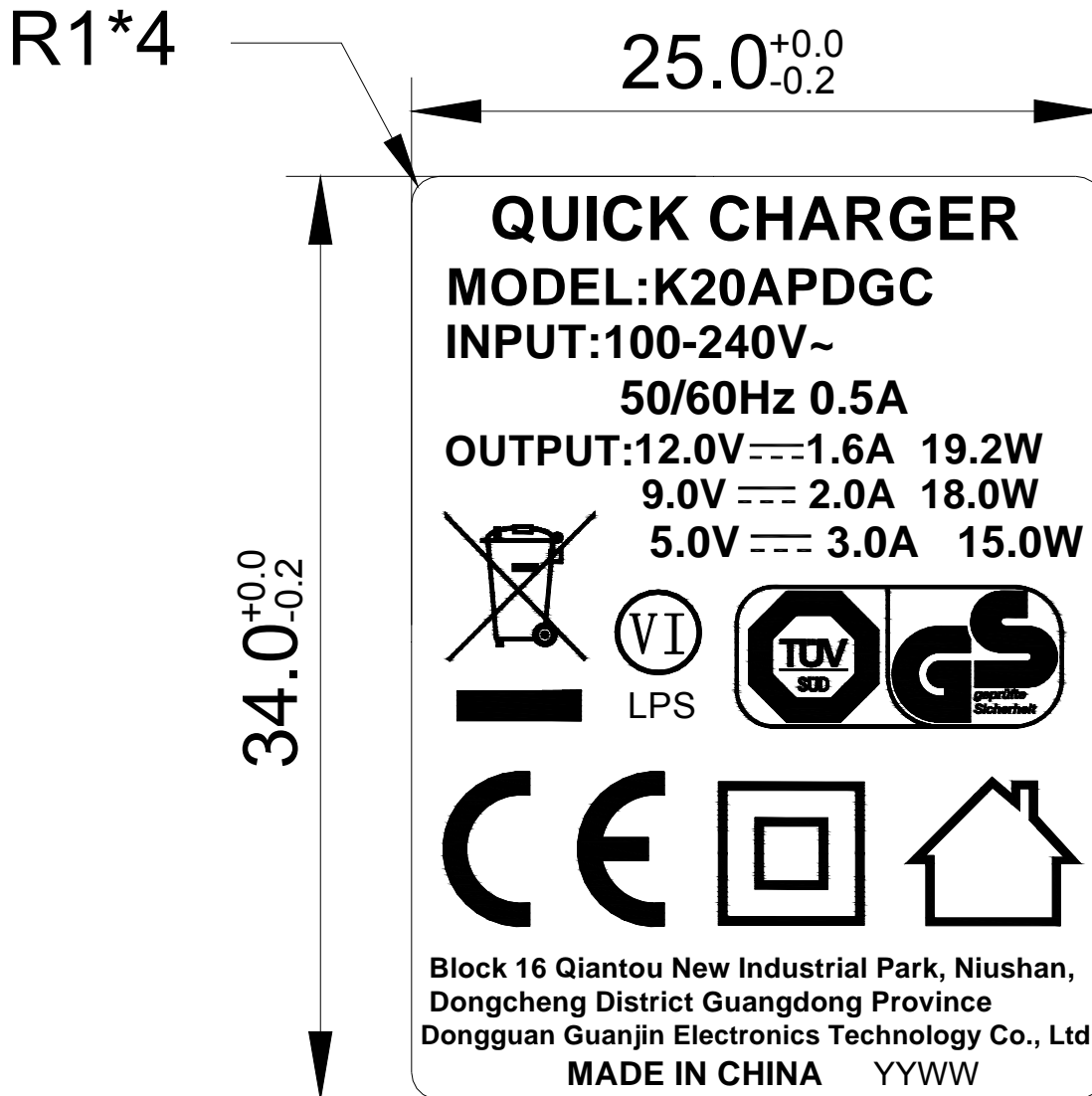
The design and construction of this power supply shall exhibit a minimum mean time between failure of 50000 hours full rated load operation at 20--25°C.

在满载 20-25°C环境下, 这个电源适配器的设计 MTBF 是 30000 小时

8.0 Appearance Drawing(Unit:mm) 外观尺寸图 (单位: 毫米):



9.0 Nameplate(Unit:mm) 铭牌 (单位: 毫米):

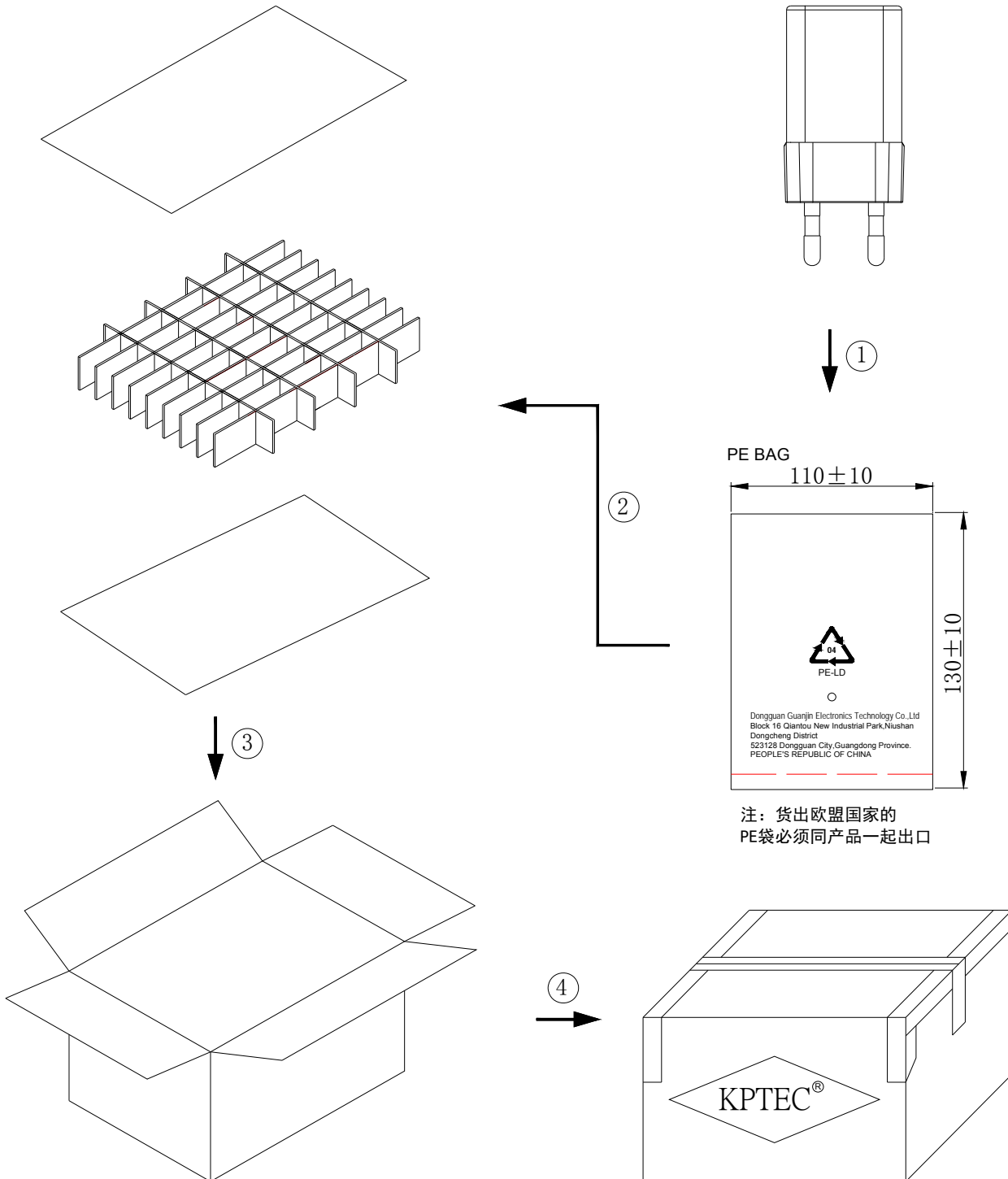


**Note:**

- 1) Ming Plate for redium carving  
铭板为镭雕
- 2) "YYWW"expressed the production cycle:  
"YY" the year, "WW" the week.  
YYWW表示周期:YY表示年,WW表示周.
- 3) 具体以客户确认回签为准.



## 10. Packing Drawing(Unit:mm) 包装图 (单位: 毫米) :



**NOTE: A case of 300 PCS, a total of 3 layers, 100 PCS/layer. 一箱 300pcs, 共 3 层, 一层 100pcs.**

- |   |  |
|---|--|
| 1) Cardboard and Corrugated Board Material: B=C<br>隔板及刀卡材质: B=C   | 2) PE Bag Material :0.03mm<br>PE 袋材质: 0.03mm |
| 3) Outer Carton Material: A=B<br>外箱材质: A=B  | 4) Anlistatig: No requirement.<br>防静电: 无要求   |
| 5) Environmental protection requirement: 94/62/EC. 环保要求: 94/62/EC   |  |
| 6) We will select cardboard packing if customer don't specify packing type.<br>如果客户没有指定包装类型, 我们将选择纸板包装                      |  |
| 7) The sample package for temporary packaging, the big goods packaging as shown above packaging.<br>样品包装为临时包装, 大货包装如上图所示包装。 |  |
| 8) 具体以客户确认回签为准.   |  |

## 8.0. Testing Report 测试报告:

CUSTOMER / 客户:		S003		SAMPLE NO./样单编号:			K34820				
MODEL NO. / 产品型号:		K20APDGC		Voltage / Current/电压/电流:			5.0V/3.0A 9.0V/2.0A 12.0V/1.6A				
Sample form		sample ( 1 )									
Items No.	Test Items / 测试项目 (5.0V/3.0A)	Unit/ 单位	Test condition & result							Spec. Limit	Pass/ Fail
			90V	100V	115V	200V	230V	240V	264V		
1	Unload input power 空载输入功率	W	0.02	0.03	0.03	0.03	0.03	0.04	0.05	≤0.1W	PASS
2	Unload output voltage 空载输出电压	V	5.11	5.11	5.10	5.10	5.10	5.10	5.10	4.75-5.30V	PASS
3	Rated load output voltage 额定负载输出电压	V	4.99	4.99	4.99	4.98	4.98	4.98	4.98	4.75-5.25V	PASS
5	Output ripple&noise voltage 输出纹波及噪声电压	mV	176	144	124	108	112	116	114	≤200mVp-p (100-240Vac)	PASS
6	Over current protection 过流保护点	A	3.23	3.23	3.23	3.23	3.22	3.23	3.23	3.06-3.9A	PASS
6	Short-circuit Protection 短路保护	not damage and with auto recovery function									
7	Average Efficiency 平均效率	%	/	/	84.45	/	83.19	/	/	≥81.39% (AV Eff.)	PASS
8	Drop test 跌落试验	OK									
9	Burn-in test 老化试验	35°C Ambient, 85-95% load, 50min. ON and 10min. OFF, Burn-in 4Hrs 35°C 环境, 85-95%负载, 50分钟/开和10分钟/关, 老化4小时									
10	Insulation test 绝缘测试	INPUT TO OUTPUT: 30MΩ min/DC500V, 输入对输出: 30兆欧最小/直流500V									
11	Hi-pot test 介电强度	INPUT TO OUTPUT: 3000Vac, 60s, Cut off current ≤10mA 输入对输出: 3000Vac, 60s, 切断电流≤10mA									
Items No.	Test Items / 测试项目 (9.0V/2.0A)	Unit/ 单位	Test condition & result							Spec. Limit	Pass/ Fail
			90V	100V	115V	200V	230V	240V	264V		
1	Unload input power 空载输入功率	W	0.02	0.03	0.03	0.03	0.03	0.04	0.05	≤0.1W	PASS
2	Unload output voltage 空载输出电压	V	9.03	9.03	9.03	9.03	9.03	9.03	9.03	8.55-9.45V	PASS
3	Rated load output voltage 额定负载输出电压	V	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.55-9.45V	PASS
5	Output ripple&noise voltage 输出纹波及噪声电压	mV	180	134	120	122	116	116	122	≤200mVp-p (100-240Vac)	PASS
6	Over current protection 过流保护点	A	2.45	2.46	2.46	2.45	2.45	2.46	2.45	2.06-2.6A	PASS
6	Short-circuit Protection 短路保护	not damage and with auto recovery function									
7	Average Efficiency 平均效率	%	/	/	87.54	/	86.72	/	/	≥85.00% (AV Eff.)	PASS
8	Drop test 跌落试验	OK									
9	Burn-in test 老化试验	35°C Ambient, 85-95% load, 50min. ON and 10min. OFF, Burn-in 4Hrs 35°C 环境, 85-95%负载, 50分钟/开和10分钟/关, 老化4小时									
10	Insulation test 绝缘测试	INPUT TO OUTPUT: 30MΩ min/DC500V, 输入对输出: 30兆欧最小/直流500V									
11	Hi-pot test 介电强度	INPUT TO OUTPUT: 3000Vac, 60s, Cut off current ≤10mA 输入对输出: 3000Vac, 60s, 切断电流≤10mA									

Items No.	Test Items / 测试项目(12.0V/1.6A)	Unit/ 单位	Test condition & result							Spec. Limit	Pass/ Fail
			90V	100V	115V	200V	230V	240V	264V		
1	Unload input power 空载输入功率	W	0.02	0.03	0.03	0.03	0.03	0.04	0.05	≤0.1W	PASS
2	Unload output voltage 空载输出电压	V	11.99	11.98	11.99	11.99	11.99	11.99	11.99	11.4-12.6V	PASS
3	Rated load output voltage 额定负载输出电压	V	11.93	11.93	11.93	11.93	11.93	11.93	11.93	11.4-12.6V	PASS
5	Output ripple&noise voltage 输出纹波及噪声电压	mV	142	124	122	118	112	116	120	≤200mVp-p (100-240Vac)	PASS
6	Over current protection 过流保护点	A	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.65-2.08A	PASS
6	Short-circuit Protection 短路保护	not damage and with auto recovery function									
7	Average Efficiency 平均效率	%	/	/	87.55	/	86.95	/	/	≥85.29% (AV Eff.)	PASS
8	Drop test 跌落试验	OK									
9	Burn-in test 老化试验	35°C Ambient, 85-95% load, 50min. ON and 10min. OFF, Burn-in 4Hrs 35°C 环境, 85-95%负载, 50 分钟/开和 10 分钟/关, 老化 4 小时									
10	Insulation test 绝缘测试	INPUT TO OUTPUT:30MΩ min/DC500V, 输入对输出: 30 兆欧最小/直流 500V									
11	Hi-pot test 介电强度	INPUT TO OUTPUT: 3000Vac, 60s, Cut off current ≤10mA 输入对输出: 3000Vac, 60s, 切断电流≤10mA									

### 14. 0External Power Supply Efficiency 能效测试报告:

	机种名称/型号: Model:	K20APDGC		电压/电流: Voltage / Current:		5.0V/3.0A	
	测试项目/条件 Test items/conditions	115Vac/60Hz			230Vac/50Hz		
		限制值 /Limit	实测值/Measured Values		限制值 /Limit	实测值/Measured Values	
1#	空载测试功耗 No-load test power	≤0.1W	0.03		≤0.1W	0.03	
	10%负载测试: 10% load test:	/	82.20%		/	77.15%	
	25%负载测试: 25% load test:	81.39%	85.61%	84.45%	81.39%	82.82%	83.19%
	50%负载测试: 50% load test:		85.42%			83.90%	
	75%负载测试: 75% load test:		84.13%			83.49%	
	100%负载测试: 100% load test:		82.67%			82.55%	
机种名称/型号: Model:	K20APDGC		电压/电流: Voltage / Current:		9.0V/2.0A		
测试项目/条件 Test items/conditions	115Vac/60Hz			230Vac/50Hz			
	限制值 /Limit	实测值/Measured Values		限制值 /Limit	实测值/Measured Values		
2#	空载测试功耗 No-load test power	≤0.1W	0.03		≤0.1W	0.03	
	10%负载测试: 10% load test:	/	83.08%		/	79.41%	
	25%负载测试: 25% load test:	85.00%	87.25%	87.54%	85.00%	85.46%	86.72%
	50%负载测试: 50% load test:		88.16%			87.01%	
	75%负载测试: 75% load test:		87.75%			87.30%	
	100%负载测试: 100% load test:		87.00%			87.11%	

	机种名称/型号: Model:	K20APDGC		电压/电流: Voltage / Current:	12.0V/1.6A		
	测试项目/条件 Test items/conditions	115Vac/60Hz			230Vac/50Hz		
		限制值 /Limit	实测值/Measured Values		限制值 /Limit	实测值/Measured Values	
3#	空载测试功耗 No-load test power	≤0.1W	0.03		≤0.1W	0.03	
	10%负载测试: 10% load test:	/	80.04%		/	77.27%	
	25%负载测试: 25% load test:	85.29%	86.10%	87.55%	85.29%	84.67%	86.95%
	50%负载测试: 50% load test:		87.99%			87.18%	
	75%负载测试: 75% load test:		88.22%			87.87%	
	100%负载测试: 100% load test:		87.90%			88.09%	

批准 Approval:

审核 Checked:

测试 Test: 张子豪