Specification For 180 Watts/ Switching Mode Power Supply

Product No./产品料号:P23-18019AP01R	Model No./产品型号:HKA18019095-6C
Customer/客户: 创源科技标准品	File No./文件编号: EQS-731-5686
Revision/版本: V07	Date/日期: 2024-02-28

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客户承认书

SPECIFICATION FOR APPROVAL

CUSTOMER/ 客户： 创源科技标准品

CUSTOMER P.N./客户物料号：

MODEL NO./ 产品型号： **HKA18019095-6C**

APPROVAL NO./ 承认编号：

PREPARED DATE/拟定日期： **2024-02-28**

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

Please return to us one copy of "SPECIFICATION FOR APPROVAL"with you approved signature. / /客户确认签字，盖章后请回传一份承认书给我司。

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Prepared By : 拟　制：		Checked By : 审　核：		Approved By : 批　准：	

E. C. LIST/变更履历表

Rev. 版本	Description of Change/变更内容描述		Changed Date/日期	ECN No.
	Before/变更前	After/变更后		
V01	Original Release	---	2020-02-28	---
V02		更改外观图	2020-06-19	---
V03		变更标贴（改 SN 编码规则）	2020-12-16	---
V04		1.变更标贴 2.客户由“极米”变更为“渠道”	2021-12-29	---
V05		高压改成全电压	2023-03-28	---
V06	客户：渠道	1.客户：创源科技标准品 2.版本升级（由第二升为第三版）	2023-09-09	---
V07		1.变更标贴	2024-02-28	

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1、Electrical Specification/电气特性

1.1.SCOPE/概述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provides 180 W continuous output power .

资料详细描述了一款 180W(连续输出功率)开关电源的电气性,结构性及环境等要求.

The power supply shall meet the **RoHS** requirements.

此款电源符合 RoHS 要求.

Description/描述：

- ☐ SMPS Adaptor(Wall mount)/插墙式适配器
- ■ SMPS Adaptor(Desk-top)/桌面型适配器
- ☐ Open Frame/开放式结构
- ☐ SMPS Unit (With Case)/带铁壳型
- ☐ Others/其他

1.2.Input Characteristics/输入特性

1.2.1. Input Voltage & Frequency/输入电压与频率

The range of input voltage is from 90Vac to 264Vac with a single phase.

输入电压范围：从 90Vac 到 264Vac, 单相输入.

	Minimum/最小	Rating/额定值	Maximum/最大
Input Voltage/输入电压	90Vac	100Vac~240Vac	264Vac
Input Frequency/输入频率	47Hz	60Hz/50Hz	63Hz

1.2.2. Input AC Current/输入交流电流

2.5Amax. @ 90Vac input & Full load/在 90Vac 输入和满载条件下最大 2.5A

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

Power supply inrush current shall be less than the ratings of its critical components (including bulk rectifiers, fuses, and surge limiting device) under all conditions of line voltage of Section 1. 2.1.

在 1.2.1 中所有输入条件下，浪涌电流应小于关键器件的额定值(包括保险丝、桥整等浪涌限制元件)。

1.2.4. Average Efficiency /平均效率

While input 115Vac and 230Vac, the average efficiency is more than 89%.The test point is at 25%,50%,75% and 100% of max load respectively.(warm up after 30 minutes)

在输入 115Vac 和 230Vac 条件下，平均效率不小于 89%。测试点分别是最大载的 25%, 50%, 75%和 100%。(热机半小时后测试)

1.2.5. No-Load Input Power Dissipation/输入空载功率损耗

While input 115Vac or 230Vac and the output is no load, the input power loss must be less than 0.21W.

在输入 115Vac/230Vac，空载功耗小于 0.21W.

1.2.6.Power Factor/功率因数

AC Input	DC Output	Loading	PF
115Vac/60Hz	19V	9.47A	>0.9

1.3.Output Characteristics/输出特性

1.3.1.Static Output Characteristics <Vo & R+N>/静态输出特性<输出&纹波+噪音>

Output	Rated Load/额定负载		Peak Load	Output Range	R+N	Remark
Rating	Min. Load	Max. Load		输出电压范围	纹波与噪声	备 注
+19.0V	0A	9.47A		18.05V ~ 19.95V	300mVp-p	

Ripple & Noise: Tested by a oscilloscope using 20MHz bandwidth and the output is paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor. (Under the input Voltage 100~240Vac)

纹波与噪声: 量测时示波器选用 20MHz 带宽限制,输出端要并联一颗 0.1uF 的陶瓷电容和一颗 10uF 的电解电容(输入电压 100~240Vac)

1.3.2.Line/ Load Regulation/线性/负载调整率

Output	Load Condition/负载条件		Line Regulation	Load Regulation	Remark
Rating	Min. Load	Max. Load	线性调整率	负载调整率	备 注
+19.0V	0A	9.47A	±2%	±5%	

1.3.3.Turn – on Delay Time/开机延迟时间

3S max. @90Vac input & Full load/在 90Vac 输入和满载条件下最大 3S

1.3.4. Hold-up Time/关机维持时间

10mS min. @ Full load &115Vac/60Hz input turn off at worst case

在 115V/60Hz 输入,满载同时最差情况下关机，最小 10mS

1.3.5.Rise Time/上升时间

200mS max. @ Full load/在满载条件下最大 200mS

1.3.6.Fall Time/下降时间

20mS max. @ Full load/在满载条件下最大 20mS

1.3.7.Output Overshoot / Undershoot/输出过冲/欠冲

10% max. When the power on or off/当电源开，关机时最大 10%

1.3.8.Output Load Transient Response/输出负载瞬态响应

Output voltage is within 18.05-19.95V while the load step is from 25% to 50% to 25% of max load or 50% to 75% to 50% of max load, R/S: 0.2A/uS, periods: 4mS, the maximum of comeback time is 200uS.Output Overshoot is less then ±5%.

输出电压在 18.05-19.95V 之间,负载变化: 从最大载的 25%到 50%再到 25%或从最大载的 50%到 75%再到 50%,斜率: 0.2A/uS,周期：4mS, 恢复时间最大为 200uS。输出过冲应小于±5%.

1.3.9.Peak Load test /峰值负载测试

Output voltage is within 17.1-19.95V while the load step is from 50% to 200% of max load, R/S: 10mA/uS, frequency: 200Hz ; 3mS duration at 50% of max load,2mS duration at 200% of max load.

输出电压在 17.1-19.95V 之间,负载变化: 从最大载的 50%到 200%,斜率: 10mA/uS,频率: 200Hz, 50%负载持续时间为 3mS，200%负载持续时间为 2mS

1.3.10.Capacity load test/容性负载测试

Full load. Input voltage is 90Vac/63Hz or 264Vac/47Hz,while the DC output is required to add capacity load: 3000uF,The power supply can turn on normal and the DC output voltage shall not exceed the Specification.

输入电压为 90Vac/63Hz、264Vac/47Hz 时，输出端满载，外加容性负载 3000uF 条件下，电源均可以正 常开启，且输出电压不超出电压范围.

1.4.Protection Requirements/保护要求

1.4.1.Over Current Protection/过流保护

OCP Point Limited: 11A~21A /保护点限制: 11A≤~≤21A

The output shall hiccup when the over current applied to the output, 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

1.4.2.Short Circuit Protection/短路保护

The input power shall decrease when the output is short to GND; the power supply shall not damage, and shall be self-recovery when the fault condition is removed

当输出对地短路时, 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

1.4.3.Over Voltage Protection/过压保护

OVP Point limited: 25V of Max. /保护点限制：最大 25V

The power supply shall be protected when the output is over voltage, and the power supply shall not be damaged

当输出过压时,产品保护且不会损伤

2、Environment Requirements/环境要求

2.1. Operating Temperature and Relative Humidity/操作温度和湿度要求

0℃ to +40℃

5%RH to 95%RH@ Sea level shall below 5,000 meter

2.2. Storage Temperature and Relative Humidity/存储温度和湿度要求

-40℃ to +70℃

5%RH to 95%RH （non-condensing） @ Sea level shall below 5,000 meter

在海拔低于 5,000 米的条件下，低温存储下限为-40℃（无结冰环境）；高温存储上限为 +70℃,相对湿度为 5%RH to 95%RH。

3、Reliability Requirements/可靠性要求

3.1. Vibration/振动

5 to 9Hz & 9-200Hz sweep at a constant acceleration of 1.0G (Breadth: 3.5mm Max) for 5 times for each of the perpendicular axes X, Y, Z

扫描频率: 5 to 9Hz & 9-200Hz 恒定加速度: 1.0G(位移: 最大 3.5mm), X, Y, Z 三垂直坐标轴向各 5 次扫描

3.2.Drop in/跌落

6 Surfaces each once, Height: 75cm, on the wooden floor
6 面各一次，跌落高度: 75 厘米，跌落到木地板上

3.3.MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 100,000hours at 25℃, Full load and nominal input condition
平均间隔故障时间：至少 100,000 小时,25℃环境及额定输入与满载条件下

3.4.The lifetime electrolyte capacitor/电解电容寿命

The lifetime of electrolyte capacitor shall be at least 26280 hours at 30℃, of full load and 115Vac/60Hz and 230Vac/50Hz input condition
电解电容寿命至少 26280 小时,30℃环境及输入 115Vac/60Hz 和 230Vac/50Hz 输出满载条件下

3.5.Low Temperature Storage Test/低温存储

At -40℃, test of non-operated for 48 hours, the speed of temperature change is 1℃/min, (The distance at least 1~3cm between the products). No abnormality in electric and mechanical characteristic after 1.5 hours recovery at the room temperature.

非工作状态，在-40℃环境下，存储 48 小时，温度变化速度为 1℃/min（每个产品保持 1~3cm 距离），再放置室温 1.5 小时后，正常工作，无电性能故障

3.6.High Temperature Damp Storage Test/高温存储

At 70℃ and 95%RH, test of non-operated for 48 hours, the speed of temperature change is 1℃/min, (The distance at least 1~3cm between the products). No abnormality in electric and mechanical characteristic after 1.5 hours recovery at the room temperature.

非工作状态，在 70℃环温和 95%湿度环境下，存储 48 小时，温度变化速度为 1℃/min（每个产品保持 1~3cm 距离）。然后放置室温 1.5 小时后，正常工作，无电性能故障

3.7.High / Low Temperature Thermal Shock Test/高低温冲击

The products test of non-operated with no-packing, storage the products 1 hour at +70℃, then storage the products 1 hour at -40℃. The temperature change time must less than 5 minutes. Total 12 cycles shall be applied. (The distance at least 1~3cm between the products).No abnormality in electric and mechanical characteristic after 1.5 hours recovery at the room temperature.

产品测试在无包装和未工作条件下，放置+70℃环温存储 1 小时，再在-40℃环温下存储 1 小时，温度变化至少 5 次，运行 12 个循环周期（每个产品保持 1~3cm 距离）。然后放置室温 1.5 小时后，正常工作，无电性能故障

4、EMI/EMS Standards/EMI/EMS 标准

	项目 Item	等级/Rating	标准 Standards
1	传导干扰 Conducted interference	*CLASS B*	EN55032、FCC part15、GB 9254
2	辐射干扰 Radiated interference	*CLASS B*	EN55032、FCC part15、GB 9254
3	谐波电流 Harmonic Current	Class A	EN61000-3-2
4	电压闪烁 Voltage fluctuations and flicker	dmax 不大于 4% Pst 不大于 1	EN61000-3-3
5	SURGE	DM: ±1KV，CM:2KV；Rating: B	EN61000-4-5 EN55035
6	EFT	±1kV；Rating: B，2min	EN61000-4-4 EN55035
7	DIP	跌落至 0％U、时间 10ms、B 级要求 跌落至 70％U、时间 500ms、C 级要求 跌落至 0％U、时间 5000ms、C 级要求 Drop to 0％U、lasts 10ms、B rating Drop to 70％U、lasts 500ms、C rating Drop to 0％U、lasts 5000ms、C rating	EN61000-4-11 EN55035
8	ESD	Contact: ±8KV /Air：±15KV ，Rating: B	EN61000-4-2 EN55035
9	CS	Test Voltage：4V，Rating：A	EN61000-4-6 EN55035
10	RS	Test Voltage：4V/m，Rating：A	EN61000-4-3 EN55035

Performance Criteria Description:

A—— normal performance within limits specified by the manufacturer, requestor or purchaser.

B——temporary loss of function or degradation of performance which ceases after the disturbance Ceases, and from which the equipment under test recovers its normal performance, without operator Intervention.

C——temporary loss of function or degradation of performance, the correction of which requires Operator intervention.

D——loss of function or degradation of performance which is not recoverable, owing to damage to Hardware or software, or loss of data.

A:在制造厂或委托方或客户规定的技术规范限值内性能正常；

B 功能暂时丧失或性能暂时降低，但在骚扰停止后待测物能自行恢复，无需操作者干预；

C 功能暂时丧失或性能暂时降低，但需操作者干预才能恢复正常；

D 因硬件或软件损坏，或数据丢失而造成不能够自行恢复至正常状态的功能降低或丧失。

5、Safety Standards/安规标准

5.1.Dielectric Strength(Hi-pot)/介电耐压强度(高压)

Primary to Secondary: 1500Vac / 10mA / 60second Or 2121Vdc / 10mA / 60second
初级对次级: 1500Vac / 10mA / 60 秒 或 2121Vdc / 10mA / 60 秒

Primary to FG: 1500Vac / 10mA / 60second Or 2121Vdc / 10mA / 60second
初级对大地: 1500Vac / 10mA / 60 秒或 2121Vdc / 10mA / 60 秒

5.2.Leakage Current/漏电流

0.25mAmax. at 264Vac / 50Hz input/在输入 264Vac/50Hz 的条件下最大 0.25mA

5.3.Insulation Resistance/绝缘阻抗

100MΩ min. @ primary to secondary add a 500Vdc test voltage
在初级与次级间加 500Vdc 进行测试,最小 100MΩ

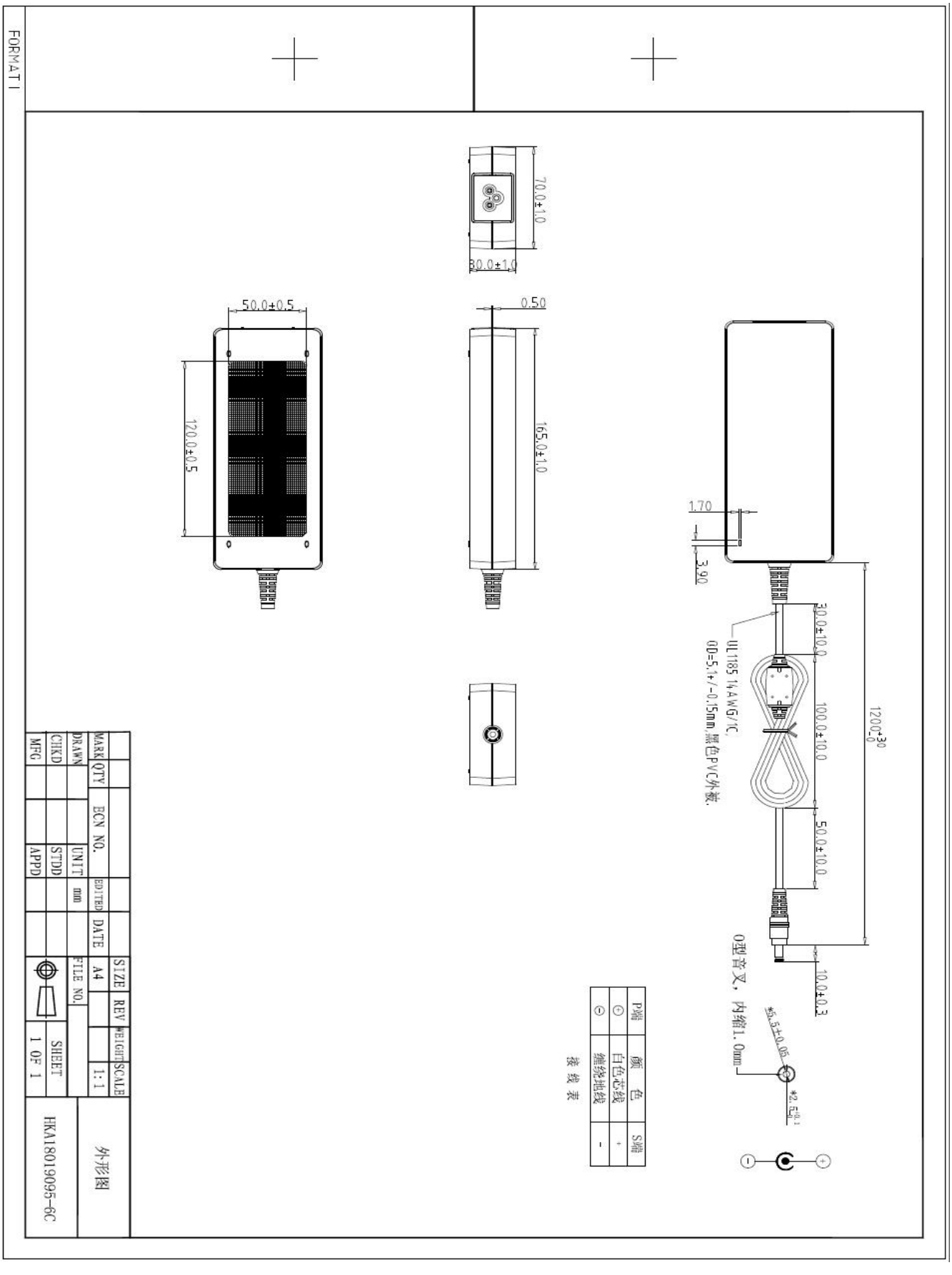
5.4.Regulatory Standards/安规标准

■音视频和信息技术类 IEC/UL/EN 62368、GB4943、IEC/UL/EN60950、IEC/UL/EN 60065
□家电类 IEC/EN 60335、GB4706、UL1026,UL1083,UL982
□医疗类 IEC/EN/UL 60601、GB9706
□灯具类 IEC/EN61347、GB15910，UL8750
□通用标准 IEC/EN 61558

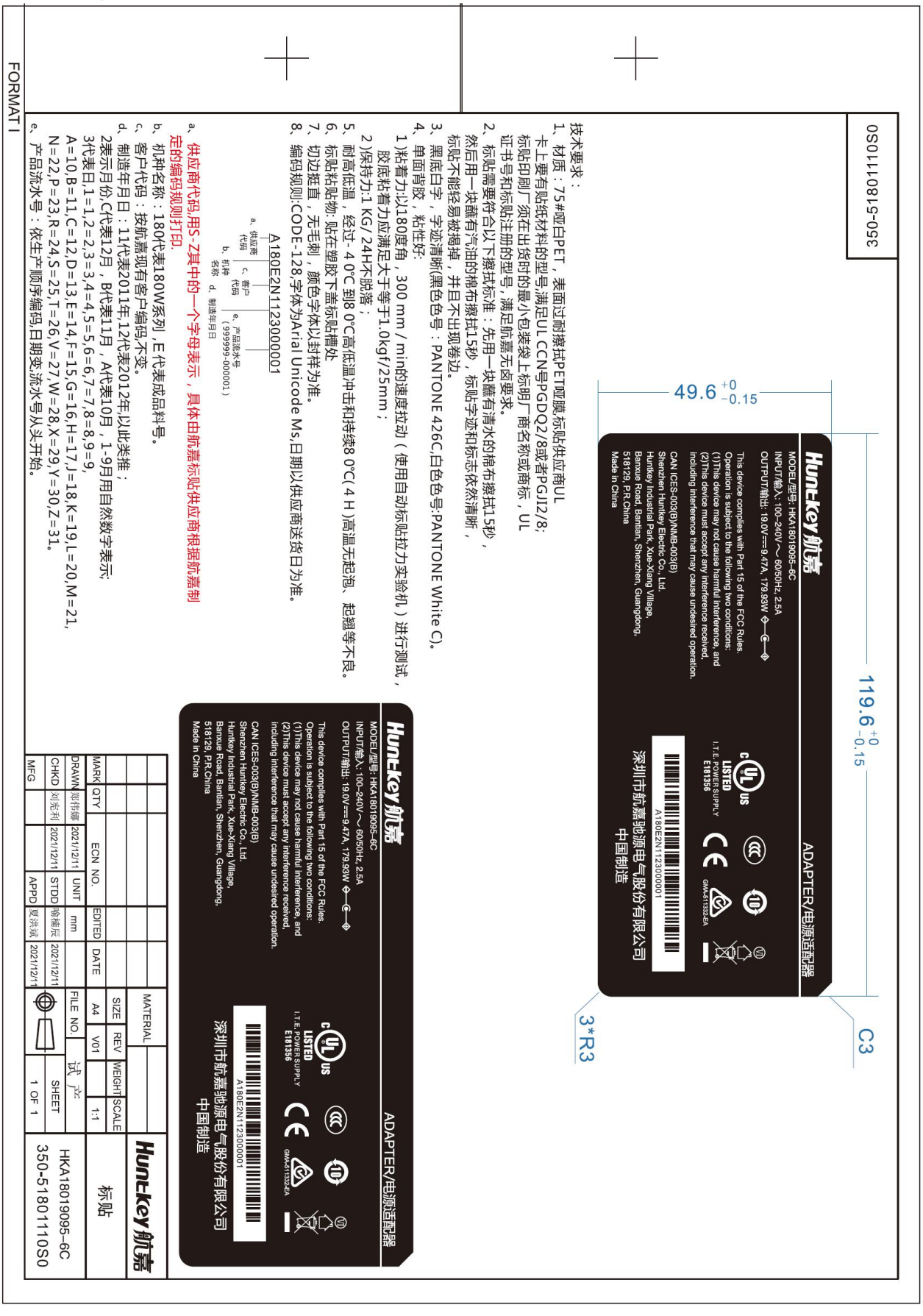
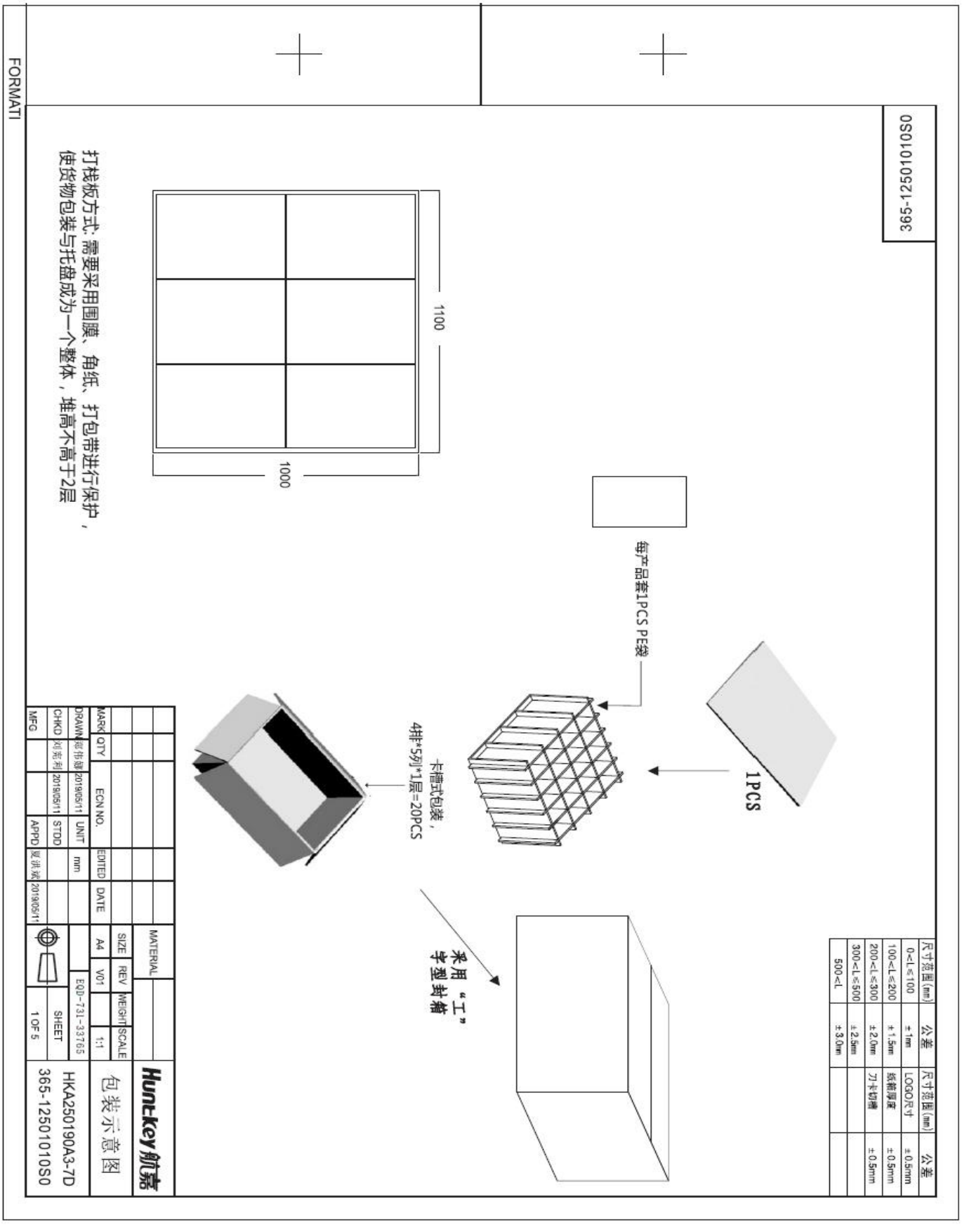
Country（国家或地区）	Mark		Country（国家或地区）	Mark
■China 中国	CCC+CQC		■USA 美国	UL/FCC/DOE/CEC
■IEC 电工委员会	CB		□Japan 日本	PSE
■Europe 欧洲	CE/ERP/EMC		□Taiwan 台湾	BSMI
□South Korea 韩国	KC+KCC+MEPS		□India 印度	BIS
■Australia/New Zealand	RCM+GEMS+SAA+C-Tick		□Germany 德国	TUV
■Canada 加拿大	CSA+ICES+NRCAN		□Singapore 新加坡	PSB
□Argentina 阿根廷	IRAM-S Mark		□Russia 俄罗斯	EAC

6、Mach. Outline Drawing/外观图

外壳尺寸	165*70*30；
外壳颜色	黑色
DC 线类型	1185
DC 线长度	1.2m
DC 头尺寸	5.5*2.5*10
LED 颜色	蓝色
单体净重	约 560g


FORMAT I
70.0±1.0
30.0±1.0
0.50
165.0±1.0
50.0±0.5
120.0±0.5
1.70
3.90
30.0±10.0
100.0±10.0
50.0±10.0
1200+30 -0
UL1185 14AWG/1C,
OD=5.1+/-0.15mm,黑色PVC外被.
10.0±0.3
O型音叉，内缩1.0mm
*5.5±0.05
*2.5+0.1 -0
P端 颜 色
⊕ 白色芯线 +
⊖ 缠绕抽线 -
S端
接 线 表
MARK QTY ECN NO. EDITED DATE
DRAWN UNIT mm
CHKD STDD
MFG APPD
SIZE A4 REV WEIGHT SCALE 1:1
FILE NO.
SHEET 1 OF 1
外形图
HKA18019095-6C

7、Label Drawing/标贴图



8、**Package Drawing/包装示意图**