

# Switching Power Supply specifications

## Table of contents

1. 描述: SCOPE
2. 输入特性: INPUT CHARACTERISTICS
3. 输出特性: OUTPUT CHARACTERISTICS
4. 保护功能: PROTECTION REQUIREMENT
5. 环境条件: ENVIRONMENTAL REQUIREMENT
6. 安全及 EMC 要求: SAFETY AND EMC REQUIREMENT
7. 结构参数: MECHANICAL REQUIREMENT
8. 铭牌: NAME PLATE
9. 测试报告: ELECTRICAL TEST REPORT

## 1. 描述 ( SCOPE ) :

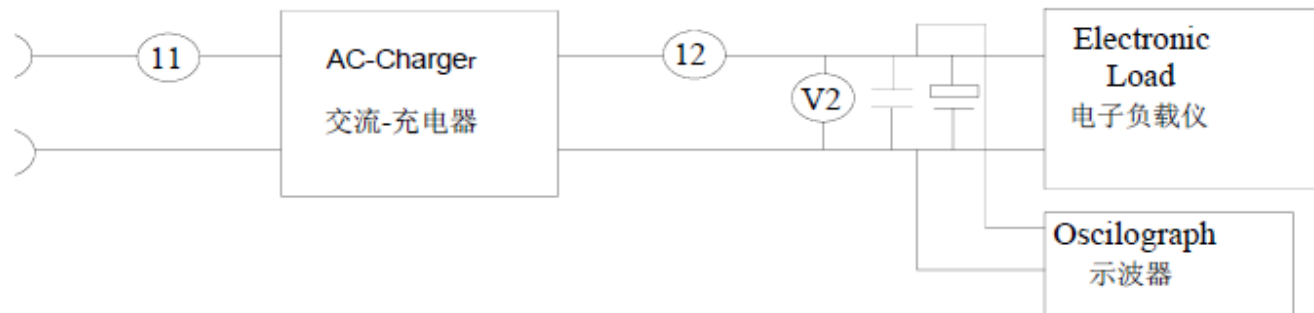
1.1 此文件描述该型号开关电源适配器的电性、机械、环境、ROHS、安规等规格。

This document describes the switching Adapter's electrical, mechanical, environmental, RoHS, safe certificate, and so on.

1.2 Test Circuit ( 测试电路 )

If the test 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)



## 2. 输入特性 ( INPUT CHARACTERISTICS ) :

2.1 输入电压与频率 ( Input Voltage and Frequency ) :

额定电压 Rated Voltage	电压调整范围 Variation Range	额定频率 Rated Frequency	频率调整范围 Variation Frequency
100-240Vac	90-264Vac	50-60Hz	47-63Hz

2.2 输入电流(Input Current):

当输入额定电压,带满载时,最大输入交流电流 0.4 A。

AC current 0.4 A max At input rated voltage with output full load.

2.3 浪涌电流 ( Inrush Current ) :

当输出为额定负载,环境温度为25°C,输入240Vac冷态起机时的最大浪涌电流为 60 A。

In rated load, 25°C ambient temperature, Cold-state starting at 240Vac input,

Inrush Current 60 Amps Max.

## 3. 输出特性(OUTPUT CHARACTERISTICS):

3.1 输出功率 ( Power Output ) :

电压 Voltage	最小负载 Min. Load	最大负载 Max. Load	输出功率 Output Power
12V	0A	1A	12W

3.2 负载特性/调整率 ( Load character / Load Regulation ) :

负载 (Load)	最小负载 ( Min. Load )	最大负载 ( Max. Load )
电流(Current)	0A	1A
电压(Voltage)	12Vdc±5%	12Vdc±5%

3.3 空载待机功耗 ( No load Standby Power ) :

0.1W Max,@AC230V/50Hz and AC115/60Hz

### 3.4 纹波和噪音 ( Ripple And Noise ) :

测试条件：额定电压及额定电流条件下，使用示波器带宽为20MHZ连接到开关电源的输，出端同时输出端并联一个47UF的电解电容和一个0.1UF的瓷片电容。

Under Rated voltage and nominal load , The ripple and noise are as follows when measure with Max.Bandwidth of 20MHz and Parallel 47uF/0.1uF,crossed connected at testing point.

电压(Voltage)	最大波纹最大噪音(Ripple And Noise(Max.))
12V	200mV

### 3.5 启动延迟时间 ( Turn On Delay Time ) :

当输入额定电压和输出最大负载时，最大启动时间为 3 S。

Turn on time 3 second Max. At Rated Voltage input and output Max. Load.

### 3.6 上升时间 ( Rise Time ) :

当输入额定电压和输出最大负载时最大时间为10mS。

10mS Max. At Rated Voltage input and output Max. Load.

### 3.7 保持时间 ( Hold Up Time ) :

当输入额定电压和输出最大负载时，最小保持时间为10mS。

10mS Min. At Rated Voltage input and output Max. Load.

### 3.8 效率 ( Efficiency ) :

当输入115/230Vac时，4个负载（25%、50%、75%、100%）的平均效率最小为82.96%，符合DOE VI等级。

When input voltage 115/230VAC, the average efficiency of (25%. 50%. 75%. 100%) current at load shall be 82.96% Min. Meet DOE level VI.

### 3.9 过冲 ( Overshoot ) :

在电源开启或关闭的时候，最大10%。

10% Max. When power supply at turn on or turn off.

## 4. 保护功能 ( PROTECTION REQUIREMENT ) :

### 4.1 短路电路保护 ( Short Circuit Protection ) :

该电源供给器在短路解除时，能正常工作恢复。

The power supply will be auto recovered when short circuit faults remove.

#### 4.2 过流保护 (Over current Protection) :

在 115/230Vac输入时, 过流保护点2.5A最大。

In the input voltage 115/230Vac, over-Current protection points 2.5A Max.

### 5. 环境要求(ENVIRONMENTAL REQUIREMET):

#### 5.1 工作温度(Operating Temperature):

0°C to 40°C, Full load, Normal operation.

#### 5.2 储藏温度(Storage Temperature):

-10°C to 70°C带外壳(With Case)

#### 5.3 工作湿度 ( Relative Humidity ) :

10%(0°C)~90%(40°C)RH, 72Hrs, Full load, Normal operating.

#### 5.4 振动(Vibration):

##### 5.4.1 测试标准 : 国际电工电子委员会

Operating: IEC 721-3-3 3M3

5-9Hz, A=1.5mm

加速度 ( 9~200Hz, Acceleration 5m/s<sup>2</sup> )

##### 5.4.2 运输 ( Transportation ) :

IEC 721-3-2 2M2

5-9Hz, A=3.5mm

9~200Hz, 加速度Acceleration=5m/S<sup>2</sup>

200~500Hz, 加速度Acceleration=15m/S<sup>2</sup>

##### 5.4.3 轴向振动(Axes, 10 cycles per axis).

在测试过程中不能出现永久性的损坏.

No permanent damage may occur during testing.

在电源开启和关闭后, 电源能够恢复到最初条件.

The product has to restore to its original situation after power off/on.

### 5.5可靠性 ( RELIABILITY ) :

根据“MIL-STD-HDBK-217”标准，环境温度为25°C,满载输出时产品寿命超过20000小时。

According to the standard of MIL-STD-HDBK-217 , when ambient temperature at 25°C , in full load,the life will more than 20000 hours.

## 6. 安全及EMC要求(SAFETY AND EMC REQUIREMENT)

### 6.1安全(Safety):

	认证 ( Certified )	标准 ( Standard )
□	UL/CUL	UL60065
□		

### 6.2 耐压(DIELECTRIC STRENGTH)(Hi-Pot):

初级对次级(Primary to secondary),3000Vac/10mA/60s.

### 6.3 Insulation Resistance(绝缘阻抗)

常温25度环境下，AC输入插头与DC输出插头之间输入DC500V，1分钟后绝缘阻抗大于7MΩ

Room temperature 25 degrees, AC input DC500V between input plugs and DC output plug, insulation impedance is greater than 7 M Ω after 1 minute

### 6.4 泄漏电流(Leakage Current)

额定交流输入电压时，泄漏电流

At nominal AC input voltage and frequency,leage current:

- < 0.25mA@AC240V/50Hz class I
- < 3.5mA@AC240V/50Hz class II

### 6.5 静电放电Electrostatic Discharge ( ESD )

接触放电+/-4KV,空气放电+/-8KV，各次分别测试10次电源无误动作。

For each point, 10 shots of direct discharge +/-4.0KV or air discharge +/-8.0KV.

### 6.6雷击测试 surge test

雷击测试:+ / - 1.0 KV,在交流L和N之间。

Surge test:+/-1.0KV,between AC L and N.

### 6.7 Burn in test (老化测试)

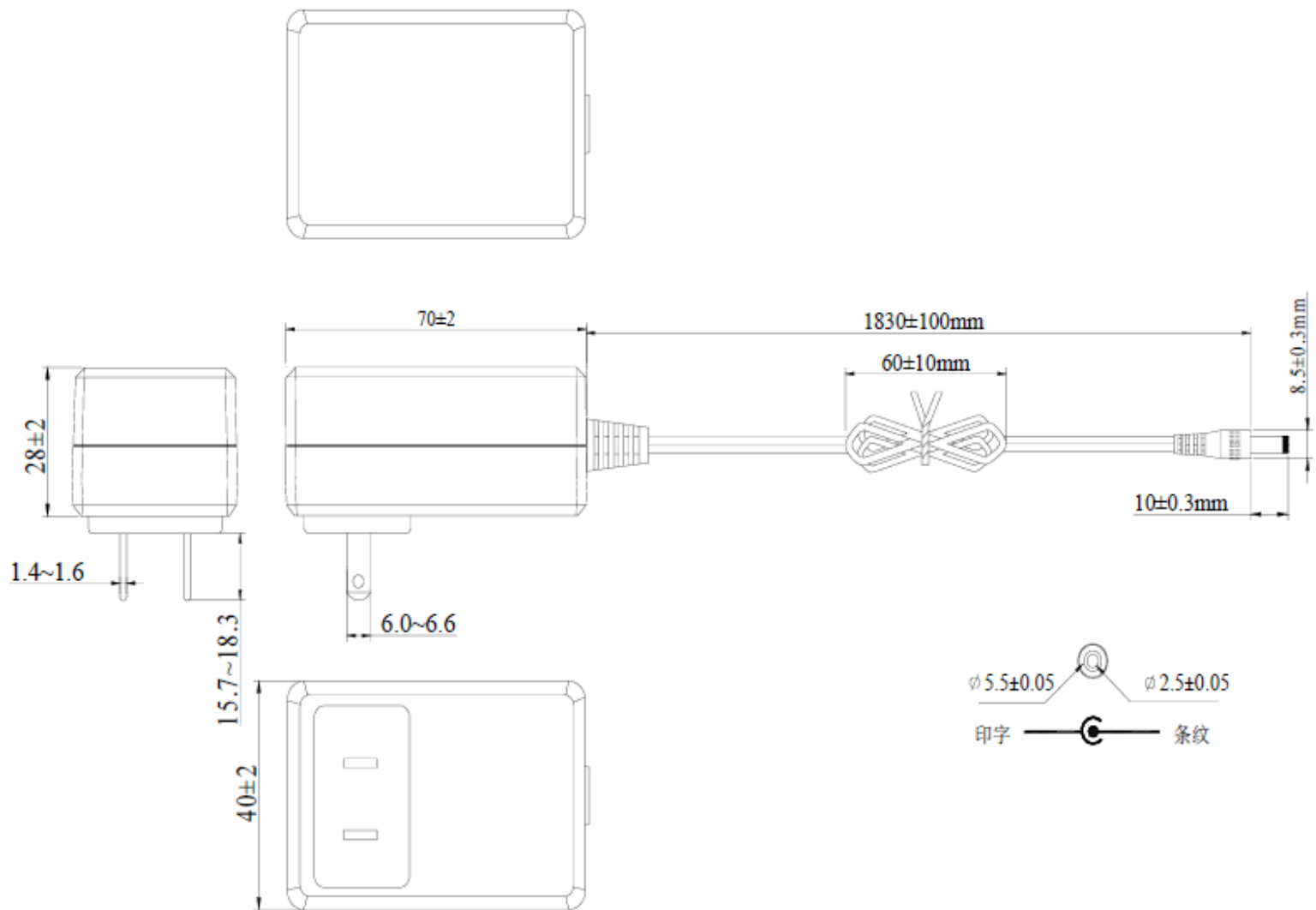
额定输入电压下满载25 +/-5°C环境下老化2小时

2 hours at 25 (+/-5°C), Normal input voltage, full load.

## 7.结构参数(MECHANICAL REQUIREMENT):

7.1 外壳(Enclosure): BLACK(LEAD FREE) 外壳 : 黑色

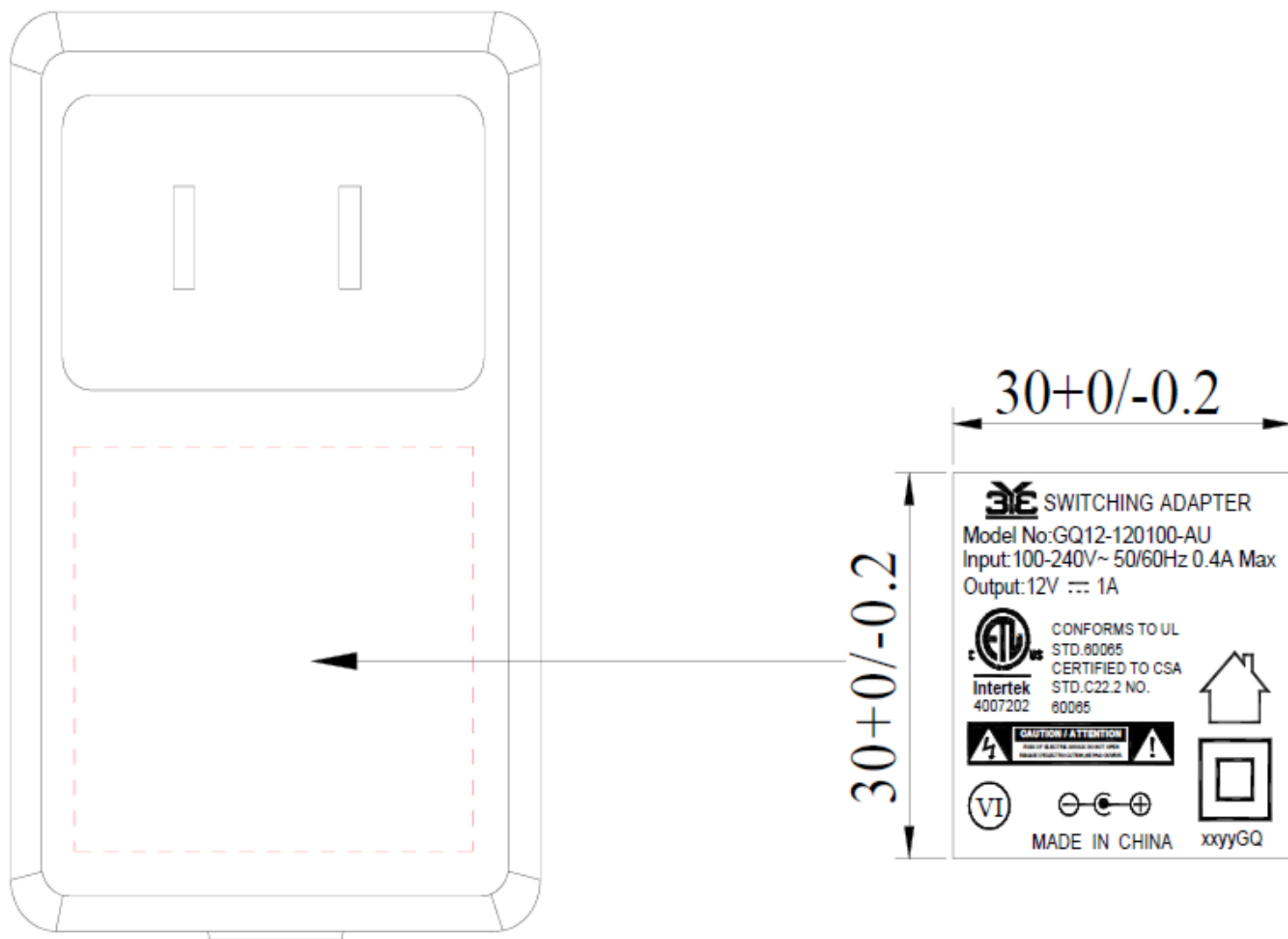
外壳尺寸(The power supply size): L:70\*W:40\*H:28mm



7.2.DC线规格 ( DC CABLE SPEC ) :

UL2468 24AWG 1.83M 黑色 ( BLACK ) .DC PLUG:  $\phi 5.5 \times 2.5 \times 10$ mm/180°直头 内正外负

## 8.铭牌 ( NAME PLATE ) :



Note : 此铭牌内容镭雕于外壳，外框线不用镭雕

Note : Marking will be laser printed(engraved)onto the housing/case.

# 9.测试报告 ( TEST REPORT ) :

## 样品测试记录表 Sample Test Record Sheet

工程编号.: 16947

Date: 2017-01-04

INPUT:												
NO	Vin	Vo empty	Vo full	EFF	STAND BY	I/O	OCP	SHORT	START UP	R/N	hold-up	hi-pot(5mA)
		0 mA	1 A	75.00%	< 0.1 W	0.4 A	2.5A	Auto recove	100Vac	200 mV max	>10mS	I/P to O/P(3000Vac)
		12V $\pm 0.5\%$	12V $\pm 0.5\%$	min			MAX	OK/NG	CC		100Vac	I/P to O/P(500Vdc 10M $\Omega$ )
1	90	12.34	12.21	81.18	0.06	0.28	1.24	OK	OK	110	OK	OK
	115	12.36	12.23	82.65	0.06	0.23	1.32	OK	OK	116	OK	
	230	12.31	12.22	83.93	0.08	0.16	1.23	OK	OK	100	OK	
	264	12.31	12.21	83.46	0.09	0.14	1.24	OK	OK	106	OK	
2	90	12.26	12.13	80.07	0.06	0.27	1.26	OK	OK	128	OK	OK
	115	12.27	12.13	82.38	0.06	0.23	1.26	OK	OK	114	OK	
	230	12.29	12.13	83.66	0.07	0.16	1.22	OK	OK	106	OK	
	264	12.29	12.13	83.19	0.07	0.14	1.22	OK	OK	114	OK	
3	90	12.34	12.22	80.76	0.06	0.27	1.32	OK	OK	104	OK	OK
	115	12.32	12.20	82.55	0.06	0.23	1.29	OK	OK	114	OK	
	230	12.31	12.18	83.84	0.08	0.15	1.23	OK	OK	104	OK	
	264	12.30	12.18	83.55	0.09	0.14	1.23	OK	OK	106	OK	

外观检查:  
符合规格书要求

DC CORD 外观尺寸检查:  
符合规格书要求

### 效率测试(Efficiency TEST)

负载 Load	效率标准 Eff standard	1#		2#		3#		备注
		115V/60Hz	230V/50Hz	115V/60Hz	230V/50Hz	115V/60Hz	230V/50Hz	
25%	82.96%	84.29%	83.33%	84.02%	83.28%	84.29%	83.60%	
50%		84.06%	84.39%	83.74%	84.32%	84.04%	84.48%	
75%		83.13%	84.12%	82.72%	83.97%	83.10%	84.36%	
100%		82.65%	83.93%	82.38%	83.66%	82.55%	83.84%	
平均效率:		83.53%	83.94%	83.22%	83.81%	83.50%	84.07%	