

## **SUBJECT: SCOPE OF DOCUMENT**

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## **1-0. General Description**

The purpose of the document is to specify a **Single phase AC input, single output** switching power supply. This specification is suitable for: **EA1005BHES Series**

This product is AC to DC switching power transfer device,

it can provide for a **12V/0.5A max & 6W max** DC output with constant voltage source.

This Specification defines the input, output, performance characteristics, environment, noise and safety requirement for a power supply.

## **2. Input Electrical Specification**

### **2-1. AC Input Voltage**

Maximum Voltage: 264Vac

Normal Voltage : 100~240Vac

Minimum Voltage: 90Vac

### **2-2. AC Input Frequency**

Maximum Frequency: 63Hz

Normal Frequency: 50~60Hz

Minimum Frequency: 47Hz

### **2-3. Input Current**

a. **0.6A** (Max.) @ 115Vac input with full load.

b. **0.3A**(Max.) @ 230Vac input with full load.

### **2-4. Energy saving standards :**

Designed to meet the following standard

CoC Tier II

#### **2-4-1 Efficiency:**

79.03% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% & 100% of max output current. Meet CoC Tier II

69.03% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 10% of max output current. Meet CoC Tier II

#### **2-4-2 No Load Power Consumption:**

No Load Watt < 0.075W at 115Vac/60Hz & 230Vac/50Hz input voltage.

### **2-5. Configuration**

2-wire AC input (**Line, Neutral** )

### **2-6. Input Fuse**

The hot line side of the input shall have a fuse, rating (**T1A/250V**)

### 2-7. Inrush Current

**30A** at 115 Vac

**60A** at 230 Vac At cold start, maximum load.

### 2-8. Line Regulation

This line regulation is less than  $\pm 1\%$ , of rated output voltage @ full load.

### 2-9. Hold Up Time

**8.3mSec.**, @ Normal line, with full load.

### 2-10. Rise Time

**50mSec.**, @ Rated AC input, with full load.

From 10% to 90% of output voltage.

### 2-11. Turn-ON Time

The output voltage should rise to 90% of rated output voltage in less than **3 SEC.** from AC apply to 100Vac from start up.

## 3-0. Output Requirements

### 3-1. Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
<b>+12V</b>	<b>0</b>	<b>0.5A</b>

### 3-2. Load Regulation

Voltage (Vdc)	Tolerance (%)	Regulation (Vdc)
<b>+12V</b>	<b>+5/, -5</b>	<b>11.4V~12.6V</b>

### 3-3. Dynamic Load Regulation

**$\pm 5\%$**  excursion for **50% - 100%** or **100% - 50%** load change of DC output at any frequency up to 1KHz(duty 50%)

### 3-4. Ripple & Noise

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, Switching frequency ripple and noise and dynamic load variations measured with a 20MHz bandwidth

Output	Ripple/Noise
+12V	1.5% max. of rated output voltage

Ripple / Noise: 60Hz ripple + switching ripple and noise

Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor

### 3-5. Over Load Protection

180% Max. of rated output current.

The adapter can withstand continuous short at DC output and no damage.

It will enter into normal condition if the fault condition is removed.

### 3-6. Over Voltage Protection

150% Max. of rated voltage.

(Based on output clamped with zener diode other than test with external DC source.)

The properties of the IC used for this power is to detect operation voltage of each electronic component and active OVP when there is any abnormal voltage rise while operation.

### 3-7. Short-Circuit Protection (Auto)

The adapter can withstand continuous short at DC output and no damage.

It will enter into normal condition if the fault condition is removed.

### 3-8. Stability

2% Max. at constant load with constant input (after 30 minutes of operation).

### 3-9. Temperature Rise

Less than 45 °C on top/bottom case at normal AC input & 80% load of DC output at environment temperature 25 °C .

### 3-10. Drop-out (Power Line Disturbance)

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load at 115Vac/50Hz & 230Vac/50Hz input voltage.

### 3-11. Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

#### 4-0. Reliability

##### 4-1. MTBF(MIL-HDBK-217F)

The power supply shall be designed and produced to have a mean time between failure (MTBF) of 100,000 hours at 25 degrees C

#### 5-0. Environment

##### 5-1 Temperature

- a. Operating : 0 to 40
- b. Storage : -20 to 85

##### 5-2 Humidity

- a. Operating : 10 to 90 %
- b. Storage: 5 to 90 %

##### 5-3 Altitude

From sea level to 5,000Meter ( operation ) and 5,000Meter ( non operation )

#### 6-0. Safety

##### 6-1. Hi-Pot Test

3000Vac 10mA 2 second. between primary and secondary circuit

##### 6-2. Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit  
IR should **50 MΩ**.

##### 6-3. Leakage Current

**250uA @ 240VAC 50Hz**

##### 6-4. Safety

TUV, CB, CE

##### 6-5. EMS

Items	Specification	Reference
ESD	Contact: ± 4KV	IEC 61000-4-2
	Air: ± 8KV	
RS	Frequency:80~1000MHz Field Strength: 3V/M , 80% AM(1KHz)	IEC 61000-4-3
EFT	±1.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: ± 1KV (peak)	IEC 61000-4-5

## 6-6. EMI

Comply with Standards
CISPR 32,EN 55032 Class B
FCC PART 15 CLASS B

## 7-0. Mechanical Characteristics

**7-1. Physical Size :** 55mm (L) \* 25 mm (W) \* 55 mm (H)

**7-2. Enclosure material :** 94V-0 minimum

**7-3. Output Cable (Reference) :** UL2468 #24

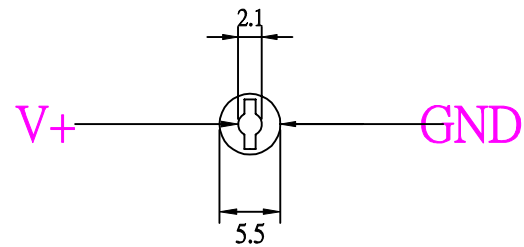
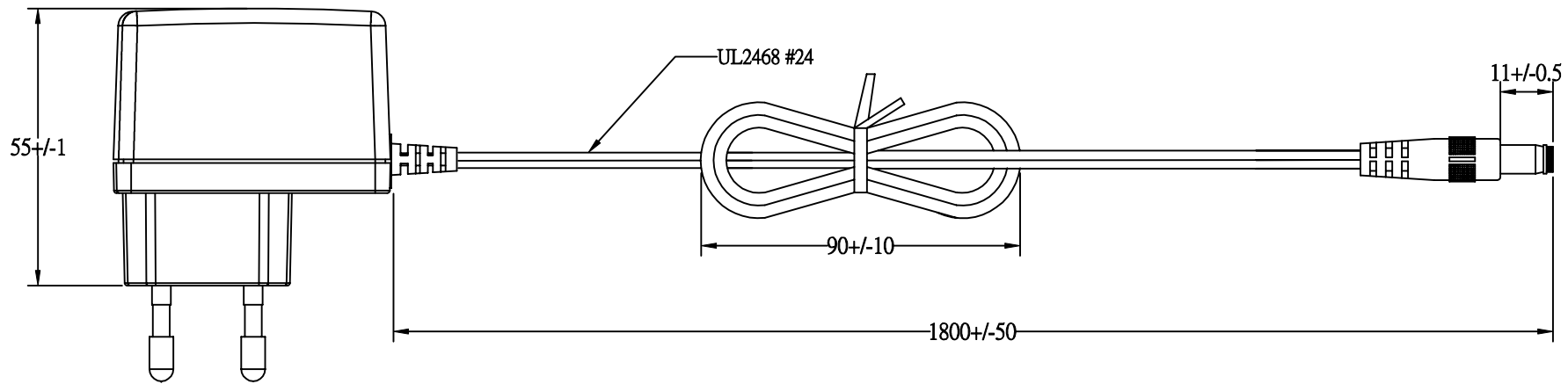
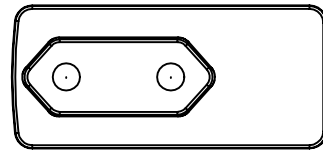
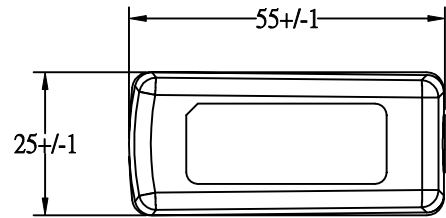
### 7-4. Vibration Test

The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm  
Along the 3 directions namely X-Y-Z. The each direction should be vibrated  
for 60 minutes, after testing no abnormal electrical or mechanical should occur.

### 7-5. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN62368)

Products shall be dropped from a height of 1000 mm onto a horizontal surface  
consists of hardwood at 13mm thick , mounted on two layers of plywood each  
19mm to 20mm thick , all supported on a concrete or equivalent non-resilient  
floor. Upon conclusion of test , the equipment cannot into hazardous moving  
parts and hazardous voltage circuits need be operational , and need meet Hi-Pot  
specification requirement .

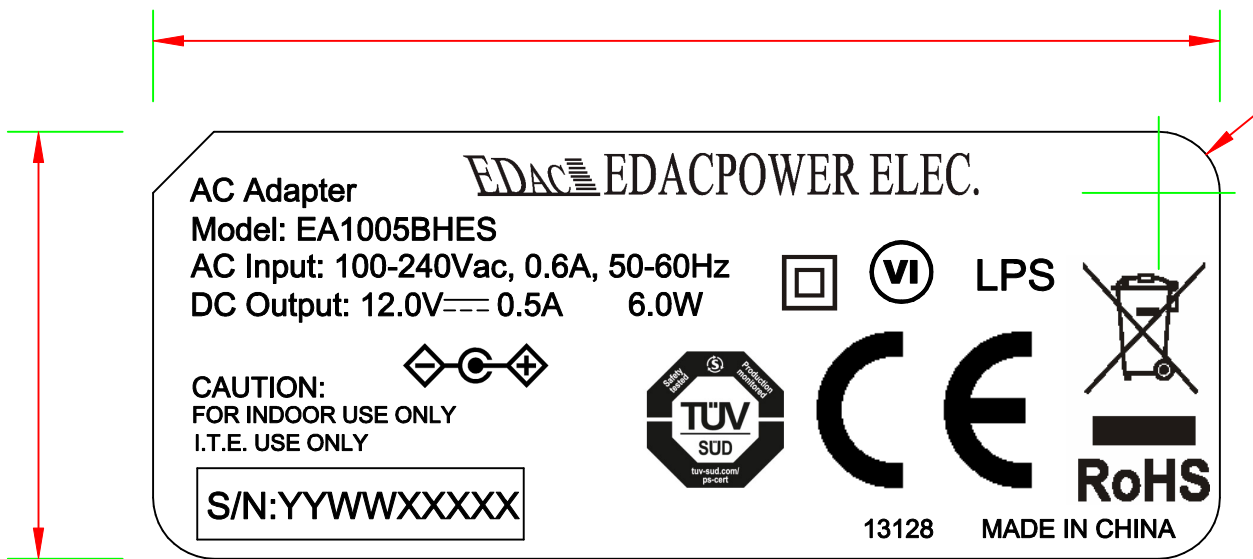
**7-6. Net Weight (Reference) :** 70g



EDACPOWER ELEC.				APPROVED
MODEL	EA1005BHES(T01)	UNIT	mm	DESIGNED
color	Black	SCALE		CHECK
cus.		DATE	2020-05-16	DRAWING L.J.YU

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R2\*3



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P/N.: 3128  
Background: Black color  
Character: Silver color  
Unit: mm