APPROVAL SHEET

CUSTOMER	**DIGIMAX**
CUSTOMER P/N	
DESCRIPTION	**12V/2A**
EDAC MPN	**EA1019HVES(04)**
EDAC MODEL NO FOR SAFETY	**EA1019HVES**
DATE	**2018-03-20**
REVISION	**0**

APPROVED	DESIGN	PREPARE	RoHS
蔡朝豐	諶文	諶文	
CONCLUSION 判定結果	**APPROVED** 承認	**CONDITON** **APP'D** 有條件承認	**CUSTOMER'S SIGNATURE:** 客戶簽章:

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SUBJECT: SCOPE OF DOCUMENT

CONTAINS :

1-0 General Description

2-0. Input Requirements

3-0. Output Requirements

4-0. Reliability

5-0. Environment

6-0. Safety

7-0. Mechanical Characteristics

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: **EA1019HVES Series**

This product is AC to DC switching power transfer device, it can provide for an **12V, 2A max & 24W 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. 0.8A (Max.) @ 115Vac input with full load.
b. 0.4A(Max.) @ 230Vac input with full load.

2-4. Energy saving standards :

Designed to meet the following standard
DOE Level Ⅵ

2-4-1. Efficiency

Average Efficiency ≧ 86.2% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% &100% of max output current. Meet DoE Level VI requirement .

2-4-2 No Load Power Consumption:

No Load Watt < 0.1W 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 (**T2.0A/250V**)

2-7. Inrush Current

≦ **40A** at 115 Vac

≦ **80A** at 230 Vac At cold start, maximum load.

2-8. Line Regulation

This line regulation is less than **± 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)
+12V	**0**	**2.0A**

3-2. Load Regulation

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

3-3. Dynamic Load Regulation

±**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
+12	Vp-p ≦**180mV**

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. Short-Circuit Protection

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

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

3-7. Stability

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

3-8.Temperature Rise

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

3-9. Drop-out

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

3-10. 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 5,000 Meters (operation) and 5,000 Meters (non operation)

6-0. Safety

6-1. Hi-Pot Test

4242Vdc 3mA 2Sec. 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**,at 240Vac/50 Hz

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 550322 Class B FCC PART 15 Class B

7-0. Mechanical Characteristics

7-1. Physical Size : 60.5 L x 39 W x 45H (mm)

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

7-3. Output Cable (Reference) : UL2468 #18

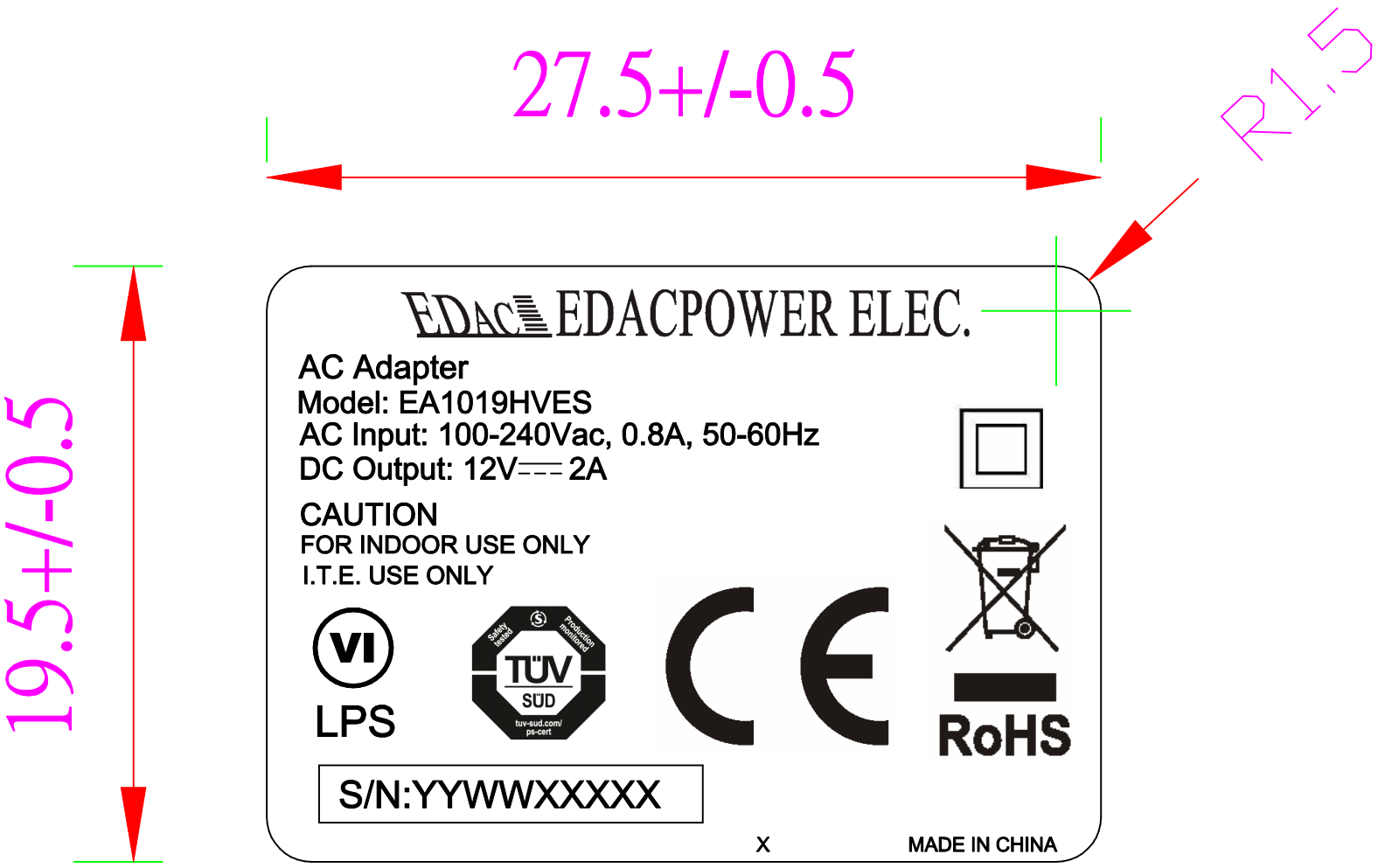
7-4. Vibration Test

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/EN60950)

Products shall be dropped from a height of 900 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 need not be operational.

7-6. Net Weight (Reference) :110±10 g



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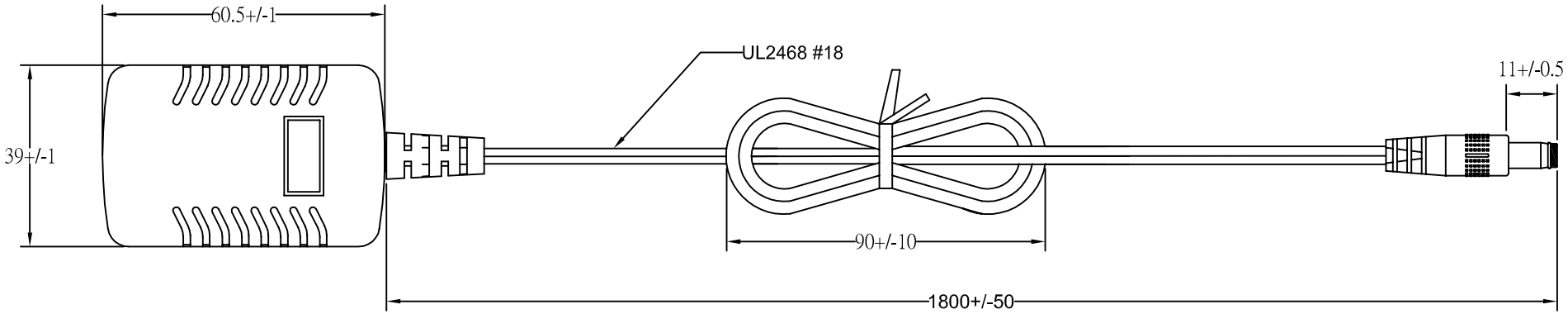
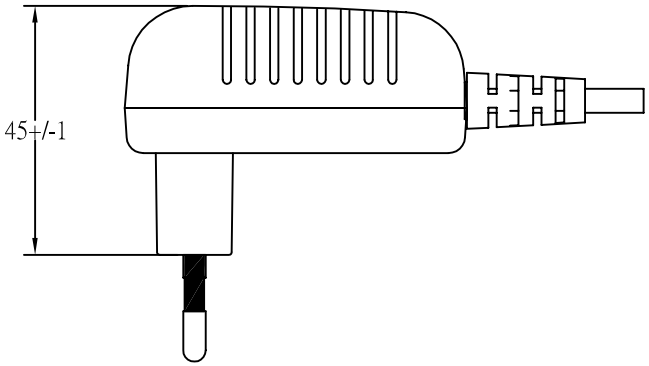
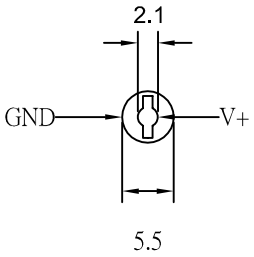
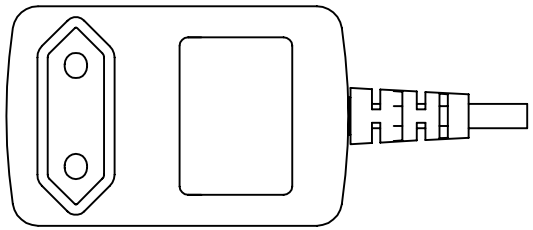
Character: Silver color
Unit: mm









EDAC POWER ELEC.				APPROVED
MODEL	EA1019HVES(04)	UNIT	mm	DESIGNED
color	BLACK	SCALE		CHECK
cus.		DATE	2018-03-20	DRAWING L.J.YU