APPROVAL SHEET

CUSTOMER	DIGIMAX
CUSTOMER P/N	
DESCRIPTION	**24V/1.5A**
EDAC MPN	**EA1024R1(13)**
EDAC MODEL NO FOR SAFETY	**EA1024R1-240**
DATE	**2020-11-21**
REVISION	**1**

APPROVED	DESIGN	PREPARE	
葉慶兵	陳鳳榮	陳鳳榮	**RoHS**
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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EDACPOWER ELECTRONICS CO., LTD.

EA1024R1(13) / HISTORY

Item	Revision	Description	Date	Remark
1	0	Original Safety standard update to EN/IEC62368. AC ground is connected to DC return.	2020-06-11	---
2	1	Remove both the PSE and EAC safety logos on the rating label.	2020-11-21	---

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: **EA1024R1 Series**
This product is AC to DC switching power transfer device, it can provide for a **24V/1.5A max & 36W max** DC output with constant voltage source.
This Specification defines the input, output, performance characteristics, environment, noise and safety requirement for a power supply.

2-0. 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. 1.0A (Max.) @ 115Vac input with full load.
b. 0.5A(Max.) @ 230Vac input with full load.

2-4. Energy saving standards :

Designed to meet the following standard
DoE Level Ⅵ

2-4-1 Efficiency:

87.40% minimum at 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% & 100% of max output current. Meet DoE Level VI

2-4-2 No Load Power Consumption:

No Load Watt < 0.1W at 115Vac/60Hz & 230Vac/50Hz input voltage.

2-5. Configuration

3-wire AC input (**Line, Neutral, FG)**

2-6. Input Fuse

The hot line side of the input shall have a fuse, rating (**T2A/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 **± 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 220Vac to start up.

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
+24V	**0**	**1.5A**

3-2. Load Regulation

Voltage (Vdc)	Tolerance (%)	Regulation (Vdc)
+24V	**+5/, -5**	**22.8V~25.2V**

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
+24V	1.0% 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 Voltage Protection

40V Max. of rated voltage

(Output clamped with zener diode, do not test with external DC source.)

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 (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.

3-10. 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 failures (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

1800Vac 5mA 2Sec. between primary and secondary circuit

6-2. Insulation Test

500Vdc, 2Sec. between primary and secondary circuit

IR should ≧ **100 MΩ.**

6-3. Leakage Current

≦ **750uA**,at 240 Vac/50 Hz

6-4. Safety

UL, CUL, TUV, CB, CE, FCC, CCC, BSMI, RCM

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) Line to FG: ± 2KV (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 : 98 mm (L) * 46 mm (W) * 31 mm (H)

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

7-3. Output Cable (Reference) :UL 1185 #18 (AC ground is connected to DC return.)

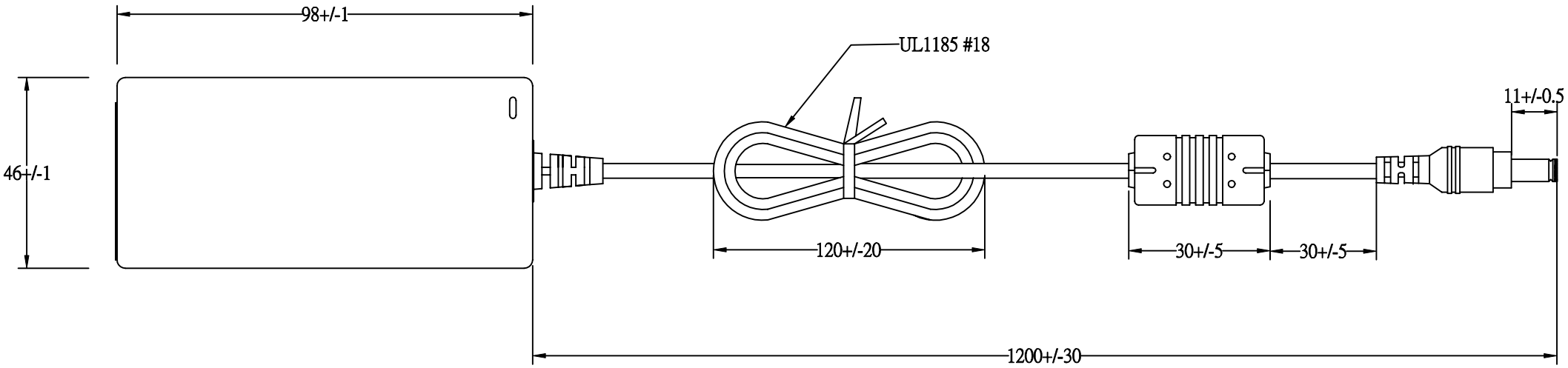
7-4. Vibration Test

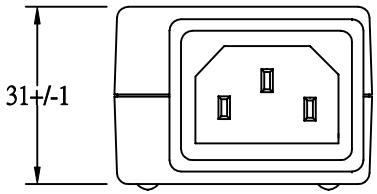
The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm Along the 3 directions namely X-Y-Z. The each direction should be vibrated for 60 minutes, after testing no abnormal electrical or mechanical should occur.

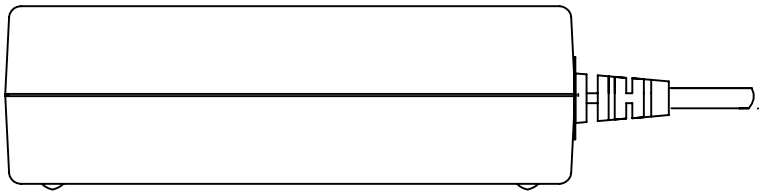
7-5. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN62368)

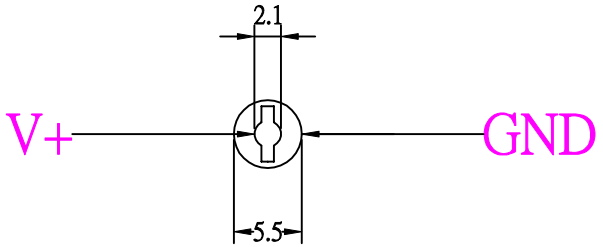
Products shall be dropped from a height of 1000 mm onto a horizontal surface consists of hardwood at 13mm thick , mounted on two layers of plywood each 19mm to 20mm thick , all supported on a concrete or equivalent non-resilient floor. Upon conclusion of test , the equipment cannot into hazardous moving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

7-6. Net Weight (Reference) : 200g









EDACPOWER ELEC.				APPROVED
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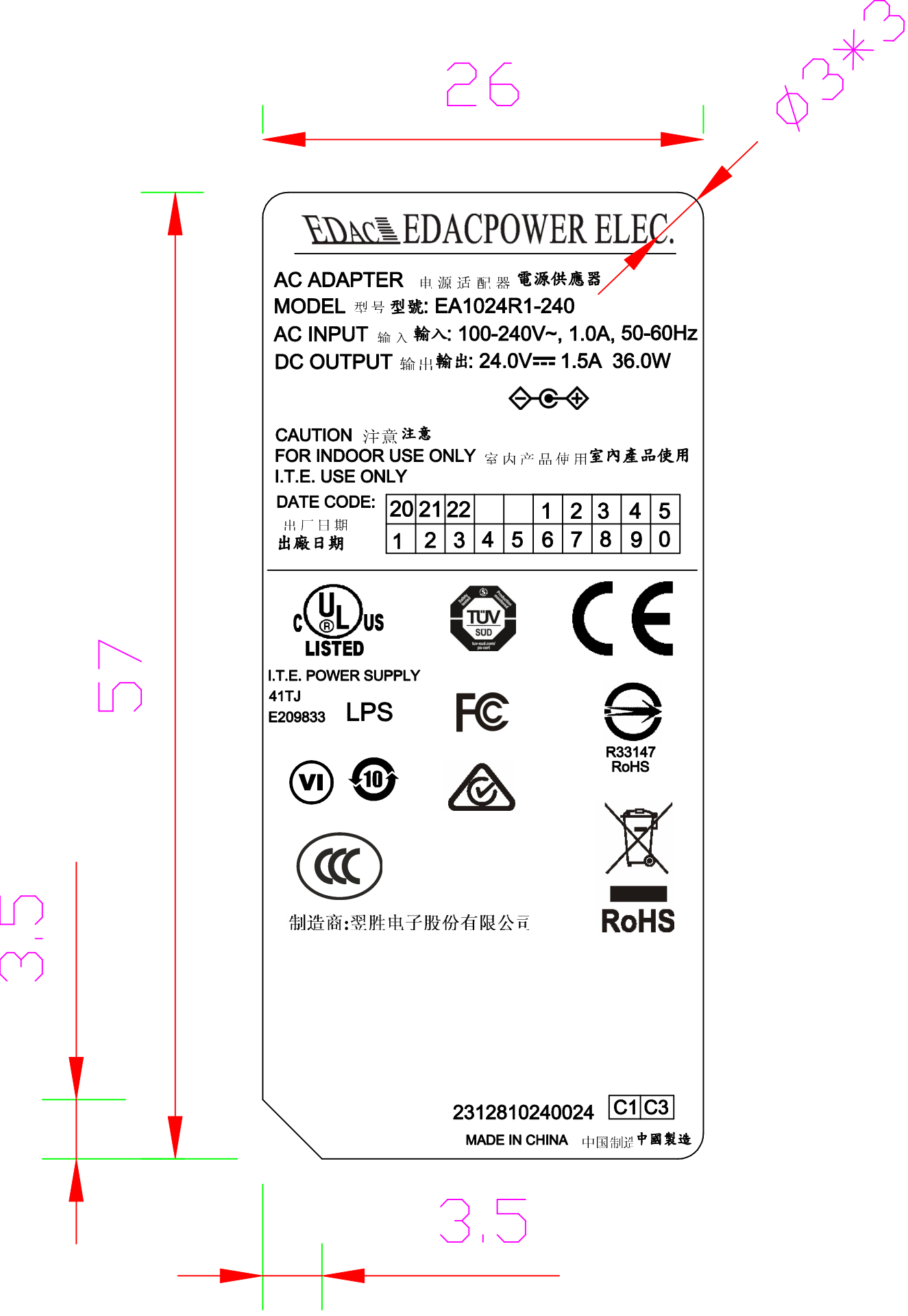
color	BLACK	SCALE		CHECK
cus.		DATE	2020-06-11	DRAWING L.J.YU



EDAC P/N.: 312810240024
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Character: Silver color
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