APPROVAL SHEET

CUSTOMER	神雲
CUSTOMER P/N	**4 4 2 1 1 0 0 0 0 1 4 9**
DESCRIPTION	**24V/9.16A**
EDAC MPN	**EA12501J(T01)**
EDAC MODEL NO FOR SAFETY	**EA12501J-2400**
DATE	**2020-02-22**
REVISION	**1**

APPROVED	DESIGN	PREPARE	RoHS
葉慶兵	朱杰鈴	朱杰鈴	
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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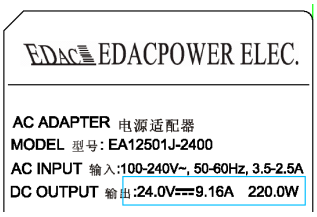
EDACPOWER ELECTRONICS CO., LTD.

EA12501J(T01) / HISTORY

Item	Revision	Description	Date	Remark
1	0	Original	2019-06-05	---
2	1	Add insulation condition to 6-2. Update the label information for ERP lot 7 as blue area. 	2020-02-22	---

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: **EA12501J** Series

This product is AC to DC switching power transfer device, it can provide for a **24V/9.16A** max & **220W** 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 Requirements

2-1. Input Voltage:

Maximum Voltage: 264Vac

Normal Voltage: 115~230Vac

Minimum Voltage: 90Vac

2-2**.** Input Frequency:

Maximum Frequency: 63Hz

Normal Frequency: 50~60Hz

Minimum Frequency: 47Hz

2-3. Input Current

a. 3.5A (Max.) @ 115Vac input with full load.

b. 2.5A(Max.) @ 230Vac input with full load.

2-4. Energy saving standards :

Designed to meet the following standard :

CoC Tier2

2-4-1 Efficiency:

Average Efficiency >= 89% at 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% & 100% of max output current.

10% load efficiency >= 79% at 115Vac/60Hz & 230Vac/50Hz input voltage

2-4-2 No Load Power Consumption: No Load Watt < =0.15W at normal line input.

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 (T5AH/250V)

2-7. Inrush Current

The adapter cold inrush current should be less than the surge rating of its critical components(include fuse and bulk rectifiers) under all conditions of line voltage and frequency. And we are sure that our adapter isn’t damaged with 10,000 power-on cycles, the

cold i^2t calculation shows the endurance of them.

Maximum inrush current, from power-on(with power on an any point on the sinewave):

≦ 70A at 110 Vac

≦ 140A at 220 Vac At cold start, maximum load.

When doing the test, the adapter should be disconnected from power supply long enough until the electrical charge stored in all energy storage components(capacitors) has been fully discharged. Then apply the input voltage

2-8. Line Regulation

This line regulation is less than ± 2%, of rated output voltage @ full load .

2-9. Hold Up Time

≧ 10 mSec., @ Normal line, with full load.

2-10. Rise Time

≦100 mSec., @ 115V 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 110Vac start up.

2-12. Harmonic Standard and Power Factor

The adapter complied with IEC 61000-3-2 class D harmonic standard while input power over than 75W. The P.F. shall >0.95 @100Vac input and >0.9 @240Vac input with full load condition.

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
+24	0	9.16

3-2. Load Regulation

Voltage (Vdc)	Tolerance (%)
+24	+5/, -5

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	360mVp-pk

Input condition : for rated voltage , Output condition : for max load

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. Short circuit protection :

The output should shut-down when subjected to a short circuit(R<0.3R). After shut-down the power supply shall return to normal operating conditions after removing the short situation .

3-6. Over Voltage Protection

175% Max. of rated voltage.

The output voltage shall be shutdown and latched when OVP occurred.

3-7. Over Current Protection

105~150% of rated output current.

The adapter will enter protection at overload mode 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℃ on top/bottom case at normal AC input & 80% load of DC output at environment temperature 25℃.

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 and normal AC line input

3-11. Voltage Isolation

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

3-12. Over shoot

During either Turn-on or Turn-off of the power supply, the out put voltage should not exceed 110%Vo.

No voltage of opposite polarity shall be present on the output during turn-on or turn-off

4-0.Reliability

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

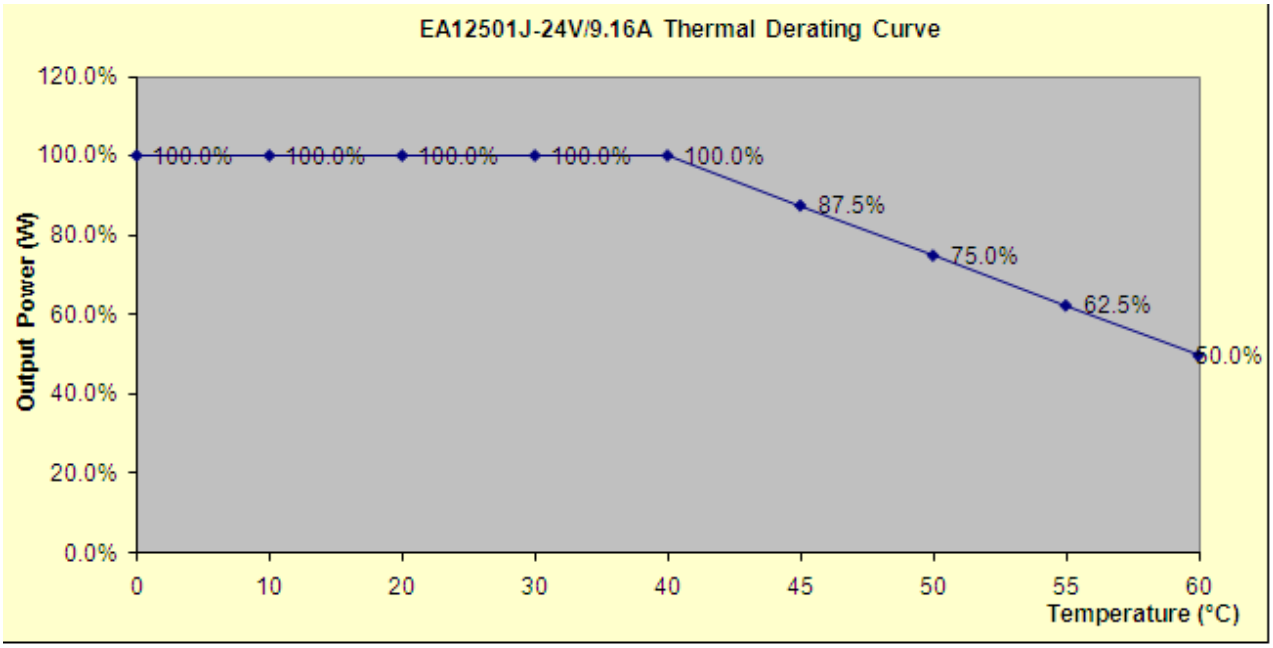
The power supply shall be designed and produced to have a mean time between failure (MTBF) of 100,000 hours at 25 degrees C.

5-0. Environment

5-1 Temperature

a. Operating : 0 to 40 ℃

b. Practical Operating: -30℃ to 60 ℃(Over 40℃ need derating by 2.5%/℃)



Temperature(℃)	0	10	20	30	40	45	50	55	60
Output Power(W)	220	220	220	220	220	192.5	165	137.5	110
Output Power(%)	100.0%	100.0%	100.0%	100.0%	100.0%	87.5%	75.0%	62.5%	50.0%

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

P---> S 3000Vac 5mA 2Sec

L、N ---> FG 1800Vac 5mA 2Sec

6-2. Insulation Test

6-2-1. 500Vdc, 3 Sec. between primary and secondary circuit, IR should ≧ 100 MΩ.

6-2-2. Grounding: 100mΩ Max 40A 2Sec

6-3. Leakage Current

≦3.5mA, at 264Vac/60 Hz

6-4. Safety

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

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	± 1KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: ± 1KV (peak)	IEC 61000-4-5
	Line to FG: ± 2KV (peak)	

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 : 182 mm (L) * 84.5 mm (W) * 46 mm (H)

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

7-3. Output Cable (Reference) : UL1185 #14

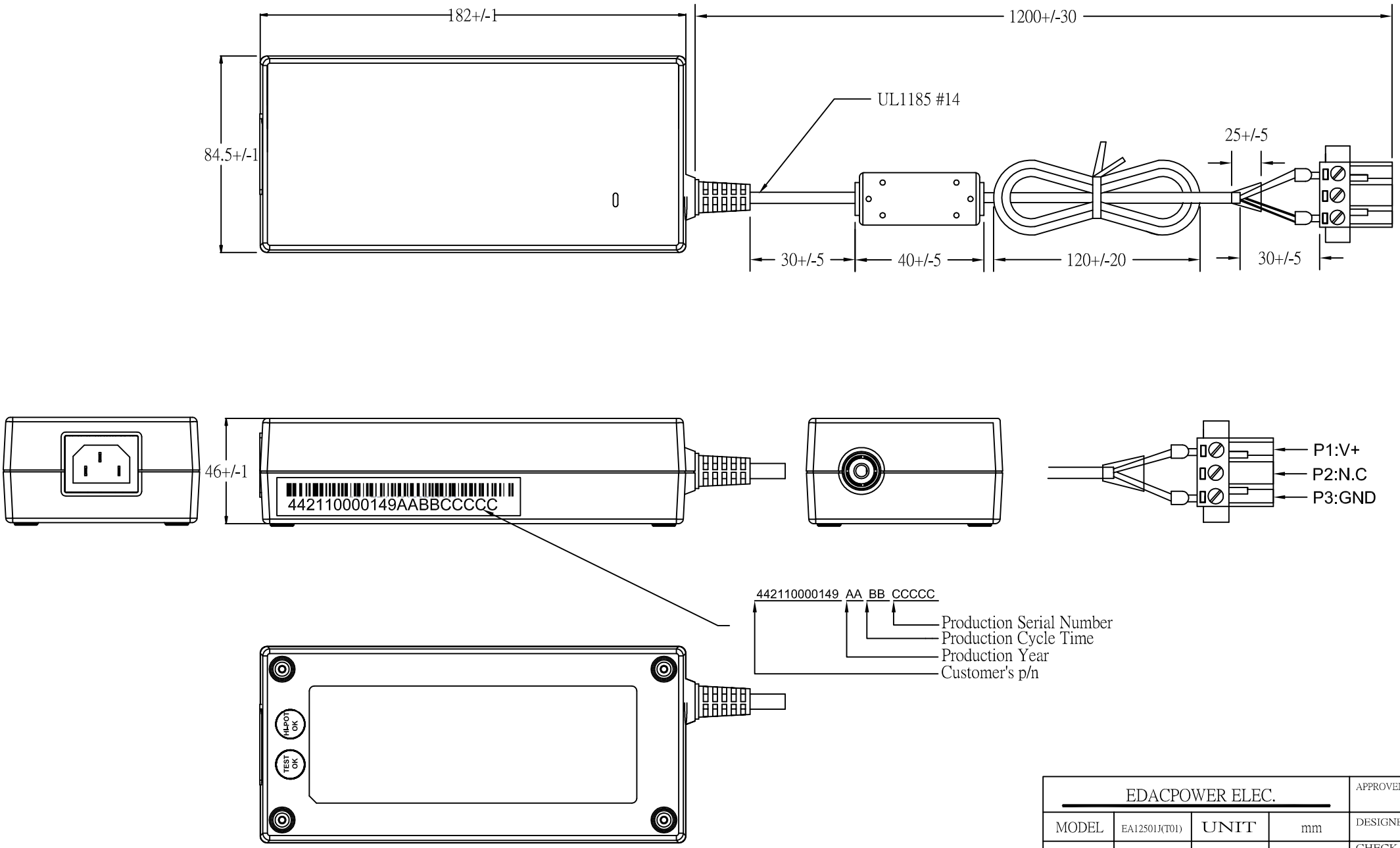
7-4. Vibration Test

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.

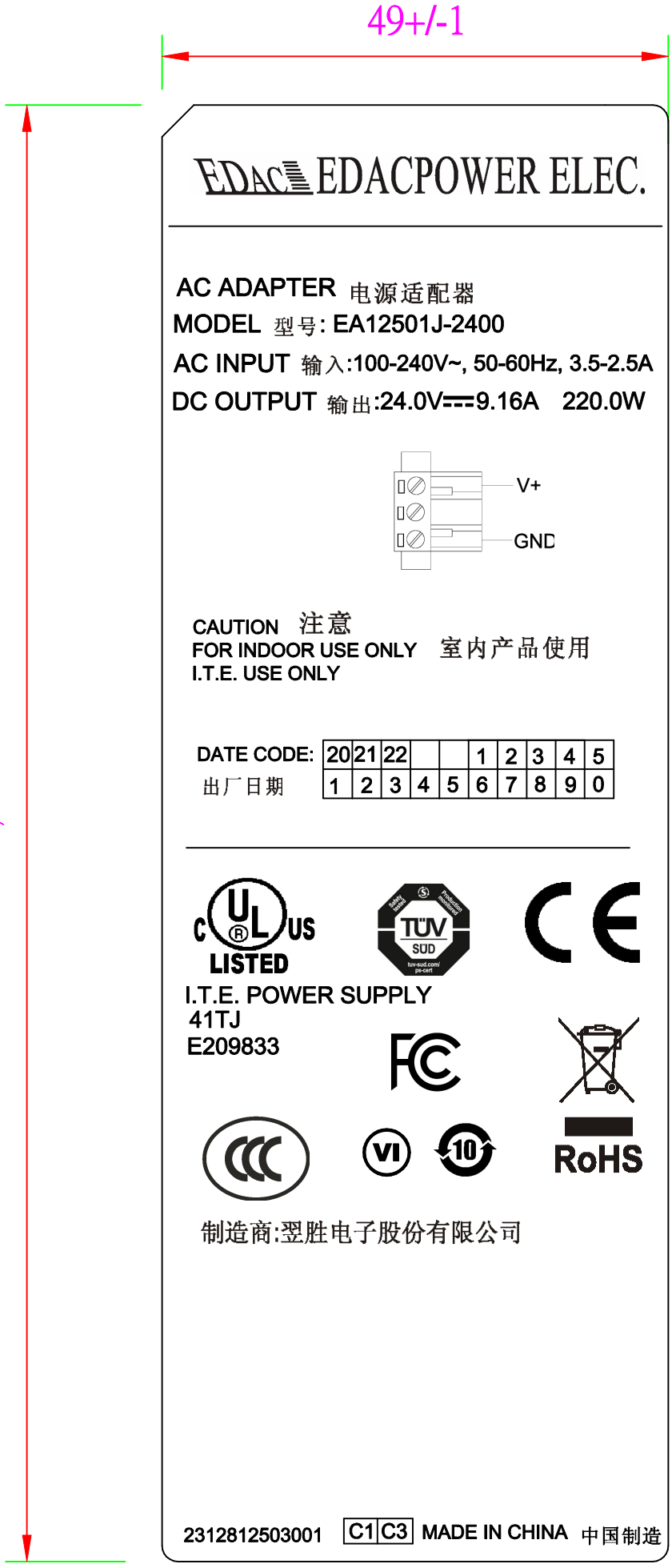
7-5. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN62368)

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) : 1000±50 g(Ref.)



EDACPOWER ELEC.				APPROVED
MODEL	EA12501J(T01)	UNIT	mm	DESIGNED
color	BLACK	SCALE		CHECK
cus.		DATE	2019-06-05	DRAWING L.J.YU



EDAC P/N.: 312812503001
Background: Black color
Character: Silver color
Unit: mm