
12W
Switching Power Adapter
SPECIFICATION

Model No. : **ATS012T-W120U(USA/Level VI)**

Description : **12Volts / 1.0Amps**

Part No. : **ATS012TW120U415217**

Version : **A1**

Date : **06 – Dec. – 2017**

1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.
- ◆ **Output** : +12V / 0~1.0 A
- ◆ **Case Dimension** : 72(L) * 34(W) * 59(H) mm ±1.0mm
- ◆ **Efficiency** : Eff (av) ≥ 82.96%
- ◆ **Safety** : PSE
- ◆ **EMI** : Class B ; Conduction & Radiation Meet
- ◆ **Protection** : OVP (Over Voltage Protection) 、 SCP (Short Circuit Protection) 、 OCP (Over Current Protection)
- ◆ High frequency design , less power consumption.
- ◆ Suitable for usage at Telecommunication, Computer, Industrial Controller, & OA System.
- ◆ Meet CEC / DOE(LEVEL VI) / NRCAN / Erp / GEMS(LEVEL VI)

2. Input :

2.1 Voltage	Universal 100~240Vac, single phase
2.2 Frequency	50 ~ 60 Hz
2.3 Current	0.31A Max.
2.4 Inrush Current	60A Max. / 240Vac (Cold Start At 25 °C , Full Load)
2.5 Efficiency	Eff (av) ≥ 82.96% (At 115 Vac & 230 Vac)
2.6 Power Consumption	Pi ≤ 0.075 W (At 115 Vac & 230Vac & No Load)

$$\text{※Eff (av)} = \frac{E1 + E2 + E3 + E4}{4}$$

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load
E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

3. Output :

3.1 DC Output	Voltage	+12V ± 5%
	Current	1.0A Max.
	Regulation	11.40Vmin. ~ 12.00Vtyp. ~ 12.60Vmax.
	Ripple & Noise	120 mVpp Max.
	Total Power	12.0W Max.

Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1μF multilayer Cap. and a Low ESR Electrolytic Cap. (47μF) at output connector terminals. (At nominal line voltage, Full Load)

4. Protection :

4.1 Over Voltage Protection (OVP)	V out *180%(Max)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	3.0A (Max)(Auto Recovery)

Remark : When Short Circuit Protection or Over Current Protection is activated,the power supply will shutdown automatically.

Once the abnormal condition resulting in the failure being removed, the power supply will restart accordingly. When

Over Voltage Protection is activated, the power supply will shutdown .

5. Safety 、 EMI and EMC Requirement :

5.1 Safety Requirement

a. Safety : PSE

b. Dielectric Strength : 10mA Max. Cut off current

(1)	Primary to Secondary	3000Vac for 1 Minute
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c. Insulation Resistance :

(1)	Primary to Secondary	10 M Ohm for 500Vdc
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5.2 EMI Requirement : Class B ; Conduction & Radiation Meet

5.3 Leakage Current : Less than 0.25mA

6. Operation and Environment Performance :

6.1 Temperature Range

Operating	+ 0°C ~ + 40°C
Storage	- 20 °C ~ + 80 °C

6.2 Humidity Range(Non-condensing)

Operating	20% ~ 80% RH
Storage	10% ~ 90% RH

6.3 Cooling : By natural air..

7. M.T.B.F. : 300,000Hrs.(Calculated Hours at 25°C,By Telcordia SR-332)

8.Mechanical :

8.1 Weight : 165 g Ref.

8.2 Cable Type : Black UL2468 22AWG
(Wire + Plug)

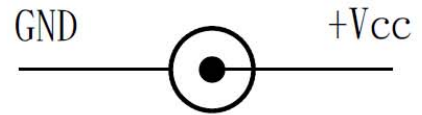
Plug : $\varnothing 5.5 \times \varnothing 2.1 \times 9.5 \text{mm}$
(Tuning Fork & Cannelure)

8.3 Cable Length : 1500mm

8.4 Case Dimension : 72mm(L)*34mm(W)*59mm(H) $\pm 1.0 \text{mm}$

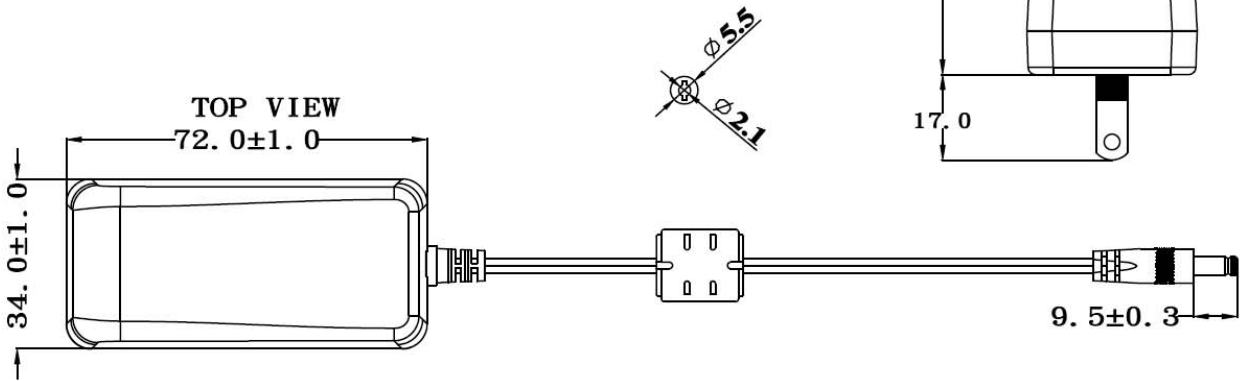
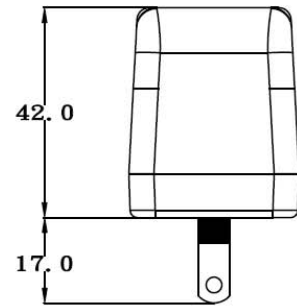
8.5 Material Flammability : UL 94V-0

8.6 External Appearance : As drawing below (Scale \rightarrow mm)

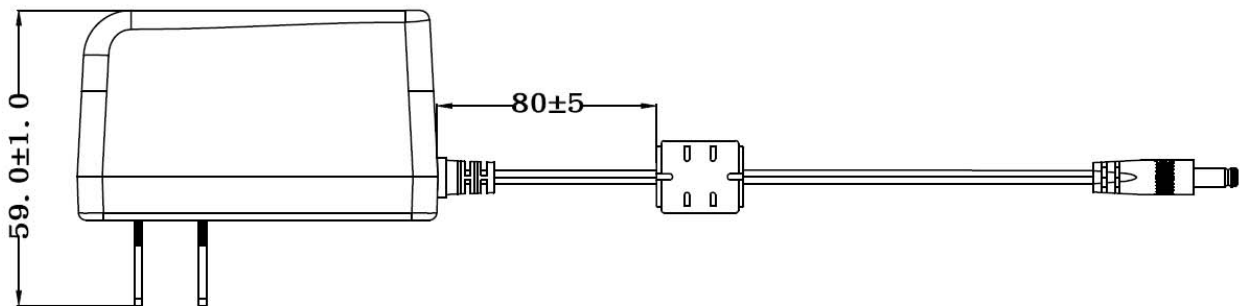


Output Cable Plug Pin Assignment

Front-View

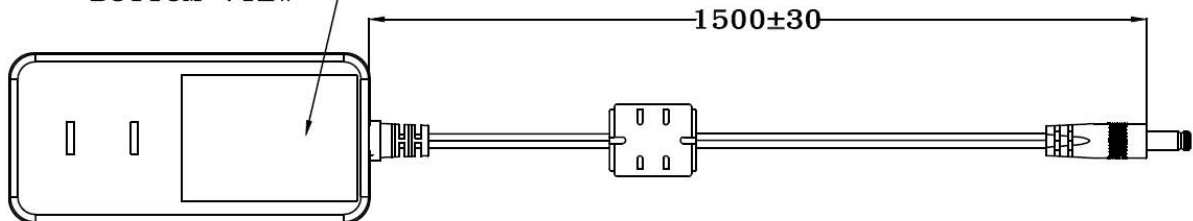


SIDE VIEW



LABEL

BOTTOM VIEW



8.7 Spec. Label Materials : Metalized Polyester Label (Silver Gloss)
 Color : Black Background with Silver Printing
 Label Dimension : 34.5mm(L)*24.5mm(W)+/-0.1mm
 Label Thickness : #75

100%



"XXX"

Label supplier's code.
 It is accurate that the number of words depends on the real finished product.

ID NO. "X"

Manufacturer's code.
 It is accurate that the number of words depends on the real finished product.

300%



Label Part No. :9443084570

A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.40 V ~ 12.60 V	12.119 V	12.140 V	
115Vac / 50 % Load	11.40 V ~ 12.60 V	12.119 V	12.140 V	
132Vac / 50 % Load	11.40 V ~ 12.60 V	12.119 V	12.140 V	
180Vac / 50 % Load	11.40 V ~ 12.60 V	12.120 V	12.140 V	
230Vac / 50 % Load	11.40 V ~ 12.60 V	12.120 V	12.140 V	
264Vac / 50 % Load	11.40 V ~ 12.60 V	12.120 V	12.140 V	

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	82.96 % Min.	85.49 %	85.56 %	
230Vac	82.96 % Min.	83.35 %	83.69 %	

$$\text{Eff}_{(AV)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load
E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

C. Load Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	11.40 V ~ 12.60 V	12.216 V	12.229 V	
115Vac / 50 % Load	11.40 V ~ 12.60 V	12.119 V	12.140 V	
115Vac / 100 % Load	11.40 V ~ 12.60 V	12.023 V	12.046 V	
230Vac / 0 % Load	11.40 V ~ 12.60 V	12.217 V	12.230 V	
230Vac / 50 % Load	11.40 V ~ 12.60 V	12.120 V	12.140 V	
230Vac / 100 % Load	11.40 V ~ 12.60 V	12.023 V	12.047 V	

D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	120 mVpp Max.	60.0 mVpp	85.6 mVpp	
230Vac / 100 % Load	120 mVpp Max.	54.4 mVpp	88.2 mVpp	

Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1 μ F multilayer Cap. and a Low ESR Electrolytic Cap. (47 μ F) at output connector terminals. (At nominal line voltage, full load)

E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
240Vac / 100 % Load	60A Max	47.6 A	47.6A	

F. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	3.0A (Max)	1.55 A	1.54 A	
230Vac / 100 % Load	3.0A (Max)	1.79 A	1.75 A	

G. Short Circuit Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Auto Recovery	OK	OK	
230Vac / 100 % Load	Auto Recovery	OK	OK	

H. Input Power Consumption(No Load)

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	\leq 0.075 W	0.040W	0.034W	
230Vac / 0 % Load	\leq 0.075 W	0.056W	0.047W	

Efficiency Test Report

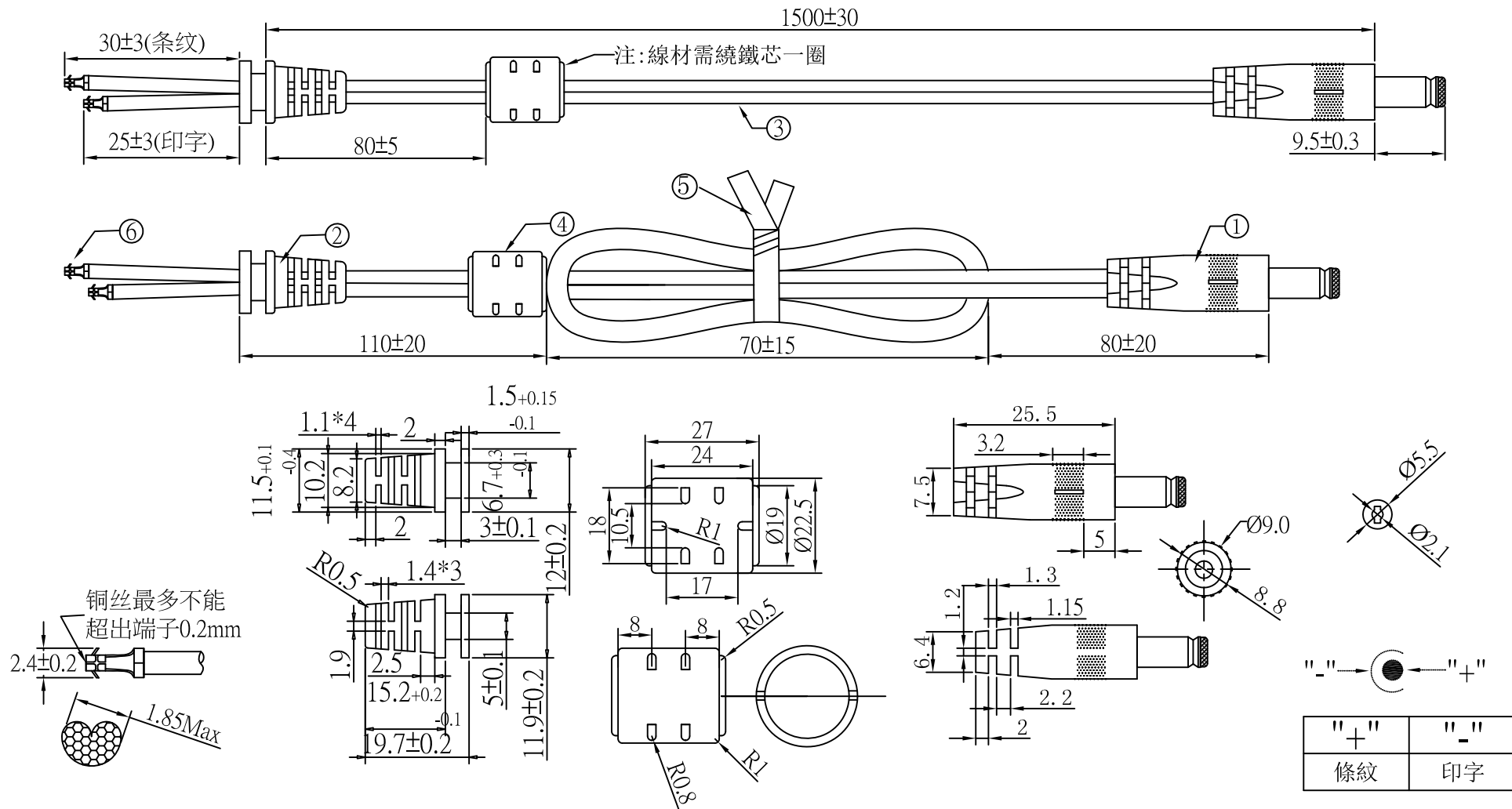
- A. Model Number : ATS012T-W120Z(Z=A,B,C,E,K,U,R)(12V /1.0A /12.0W)
- B. DC Power Cord : UL2468 , 22AWG , 1.5M
- C. Average Efficiency :
- DoE Level VI $0.071 \cdot \ln(P_{no}) - 0.0014 \cdot P_{no} + 0.670 = 82.96\% \text{ Min.}$
- GEMS VI $0.071 \cdot \ln(P_{no}) - 0.0014 \cdot P_{no} + 0.670 = 82.96\% \text{ Min.}$
- Erp (Stage 2) $0.063 \cdot \ln(\text{Nameplate Output}) + 0.622 = 77.85\% \text{ Min.}$
- CEC Level IV $0.09 \cdot \ln(\text{Nameplate Output} + 0.5) = 72.36\% \text{ Min.}$
- NRCAN Level IV $0.09 \cdot \ln(\text{Nameplate Output} + 0.5) = 72.36\% \text{ Min.}$
- D. NO Load Power Consumption :
- DOE Level VI 0.1W Max.
- GEMS VI 0.1W Max.
- Erp (Stage 2) 0.3W Max.
- CEC Level IV 0.5W Max.
- NRCAN Level IV 0.5W Max.
- E. Testing Dequipment :
1. AC Power Source : " Zentech " 2700M-10
2. Electronic Load : " PRODIGIT " 3311C
3. Power Meter : " YOKOGAWA " WT210
4. Digital Meter : " FLUKE " 45
- F. AC Input Voltage : 115Vac/60Hz

Load Conditions Reported Quantity	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Rms Output Current(mA)	1000mA	750mA	500mA	250mA	0mA
Rms Output Voltage(V)	12.092V	12.136V	12.179V	12.223V	12.268V
Active Output Power(W)	12.09W	9.10W	6.09W	3.06W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	0.246A	0.195A	0.145A	0.083A	0.019A
Rms Input Power(W)	14.31W	10.60W	7.11W	3.61W	0.040W
True Power Factor	0.504	0.472	0.426	0.377	0.018
Power Consumed by UUT(W)	2.22W	1.50W	1.02W	0.55W	0.04W
Efficiency	84.50%	85.87%	85.65%	84.74%	*
Average Efficiency	85.19%				*

- G. AC Input Voltage : 230Vac/50Hz

Load Conditions Reported Quantity	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Rms Output Current(mA)	1000mA	750mA	500mA	250mA	0mA
Rms Output Voltage(V)	12.090V	12.134V	12.177V	12.221V	12.265V
Active Output Power(W)	12.09W	9.10W	6.09W	3.06W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.172A	0.132A	0.092A	0.053A	0.007A
Rms Input Power(W)	14.47W	10.77W	7.28W	3.72W	0.056W
True Power Factor	0.365	0.354	0.341	0.302	0.028
Power Consumed by UUT(W)	2.38W	1.67W	1.19W	0.66W	0.06W
Efficiency	83.55%	84.50%	83.68%	82.22%	*
Average Efficiency	83.49%				*

Tester :Ken



注意:此圖面所需材料符合"ROHS"標準

- ① 5.5*2.1*21音叉车沟黑色半边,外模P-146號模(二次成型),用料外PVC60P黑色
- ② SR-101號模,用料PVC60P黑色,吊重:1米/20磅/60秒
- ③ UL 2468 22AWG(0.16*17) BK OD:1.8*3.6裁線長度:1590+10/-0
- ④ 鐵芯:16*16*9,外模A-156號模(二次成型),用料外PVC60P黑色
- ⑤ PE无鐵芯紮帶10CM黑色
- ⑥ 1.8双钩机板端*2PCS(进文提供:P1815-A)
- ⑦ 單位:MM

一般公差表			
1.0mm以下	±0.1mm	1.5.0mm以下	±0.0mm
2.0mm以下	±0.15mm	20.0mm以下	±0.8mm
3.0mm以下	±0.20mm	30.0mm以下	±1.0mm
10.0mm以下	±0.50mm	30.0mm以上	±1.2mm

02	更正磁环模型尺寸	2016/07/19
01	新出	2015/02/23
版次	变更内容	日期

料號	R44M1C150163		
客戶		制圖	潘胜
頁數	01	審核	
		批准	
圖號	ADT-3384	日期	2016/07/20