
6.6W
AC Adapter
SPECIFICATION

Model No. : **ATS012T-W033U(USA/Level VI)**

Description : **3.3Volts / 2.0Amps**

Part No. : **ATS012TW033U415202**

Version : **A1**

Date : **06 – Dec. – 2017**

1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.
- ◆ **Output** : +3.3V / 0~2 A
- ◆ **Case Dimension** : 72(L) * 34(W) * 59(H) mm ±1.0mm
- ◆ **Efficiency** : Eff (av) ≥ 75.71%
- ◆ **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) ≥ 75.71% (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	+3.30V ± 10%
	Current	2A Max.
	Regulation	2.97Vmin. ~ 3.30Vtyp. ~ 3.63Vmax.
	Ripple & Noise	100 mVpp Max.
	Total Power	6.6W 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)	5A (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 16AWG
(Wire + Plug)

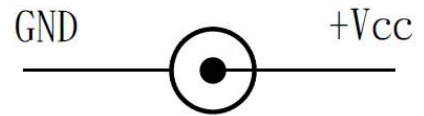
Plug : $\varnothing 5.5 \times \varnothing 2.1 \times 9.5 \text{mm}$
(Tuning Fork & Cannelure)

8.3 Cable Length : 1500mm

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

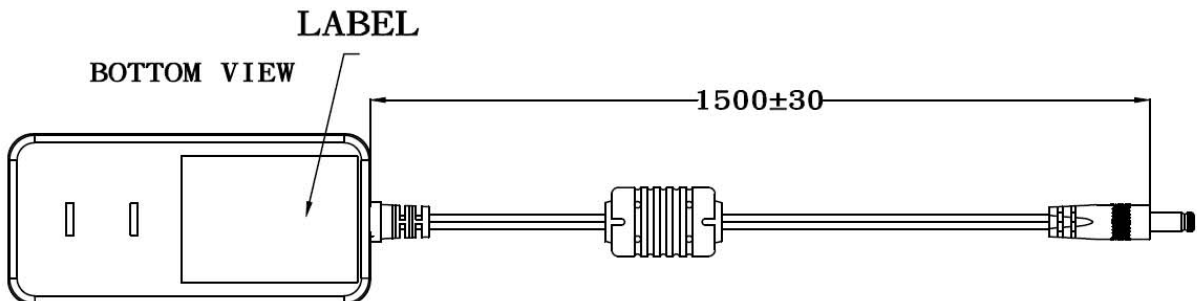
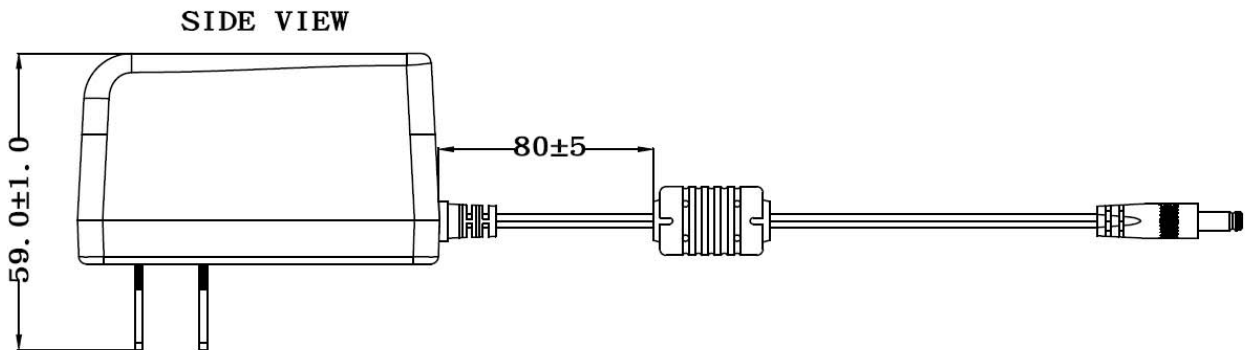
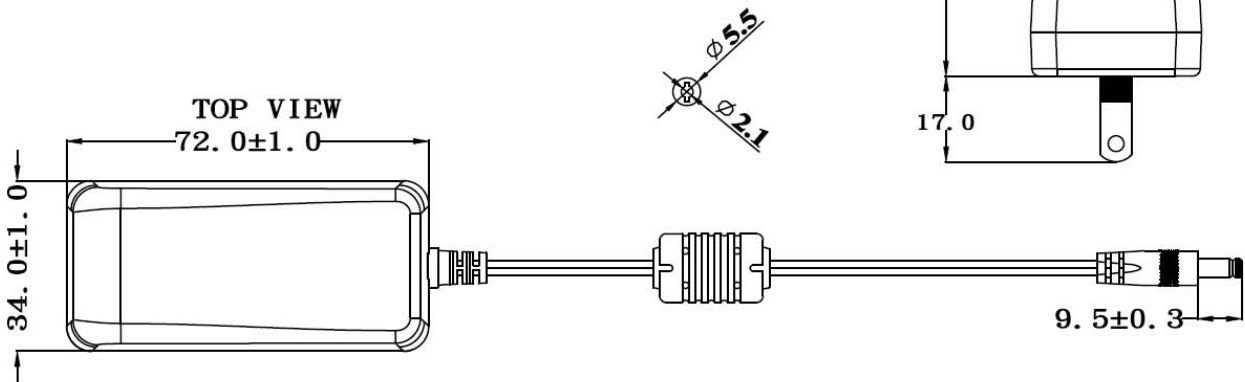
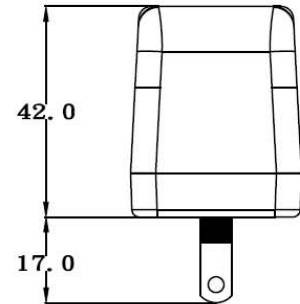
8.5 Material Flammability : UL 94V-0

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



Output Cable Plug Pin Assignment

Front-View



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. :9443084590

A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	2.97~3.63 V	3.381 V	3.373 V	3.374 V
115Vac / 50 % Load	2.97~3.63 V	3.381 V	3.373 V	3.374 V
132Vac / 50 % Load	2.97~3.63 V	3.381 V	3.373 V	3.374 V
180Vac / 50 % Load	2.97~3.63 V	3.379 V	3.372 V	3.373 V
230Vac / 50 % Load	2.97~3.63 V	3.379 V	3.372 V	3.373 V
264Vac / 50 % Load	2.97~3.63 V	3.379 V	3.372 V	3.373 V

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	75.71 % Min.	78.98 %	78.55 %	78.07 %
230Vac	75.71 % Min.	76.10 %	75.80 %	75.82 %

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

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	2.97~3.63 V	3.441 V	3.434 V	3.436 V
115Vac / 50 % Load	2.97~3.63 V	3.381 V	3.373 V	3.374 V
115Vac / 100 % Load	2.97~3.63 V	3.319 V	3.312 V	3.313 V
230Vac / 0 % Load	2.97~3.63 V	3.441 V	3.433 V	3.434 V
230Vac / 50 % Load	2.97~3.63 V	3.379 V	3.372 V	3.373 V
230Vac / 100 % Load	2.97~3.63 V	3.318 V	3.312 V	3.312 V

D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	100 mVpp Max.	34.0 mVpp	47.2 mVpp	42.0 mVpp
230Vac / 100 % Load	100 mVpp Max.	28.8 mVpp	30.6 mVpp	27.2 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	47.2 A	46.8 A	47.0 A

F. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	5.0A Max.	2.21 A	2.44 A	2.33 A
230Vac / 100 % Load	5.0A Max.	2.35 A	2.45 A	2.33 A

G. Short Circuit Protection

Test Result :

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

H. Input Power Consumption(No Load)

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	≤ 0.075 W	0.02W	0.02 W	0.02 W
230Vac / 0 % Load	≤ 0.075 W	0.03W	0.03 W	0.03 W

Efficiency Test Report

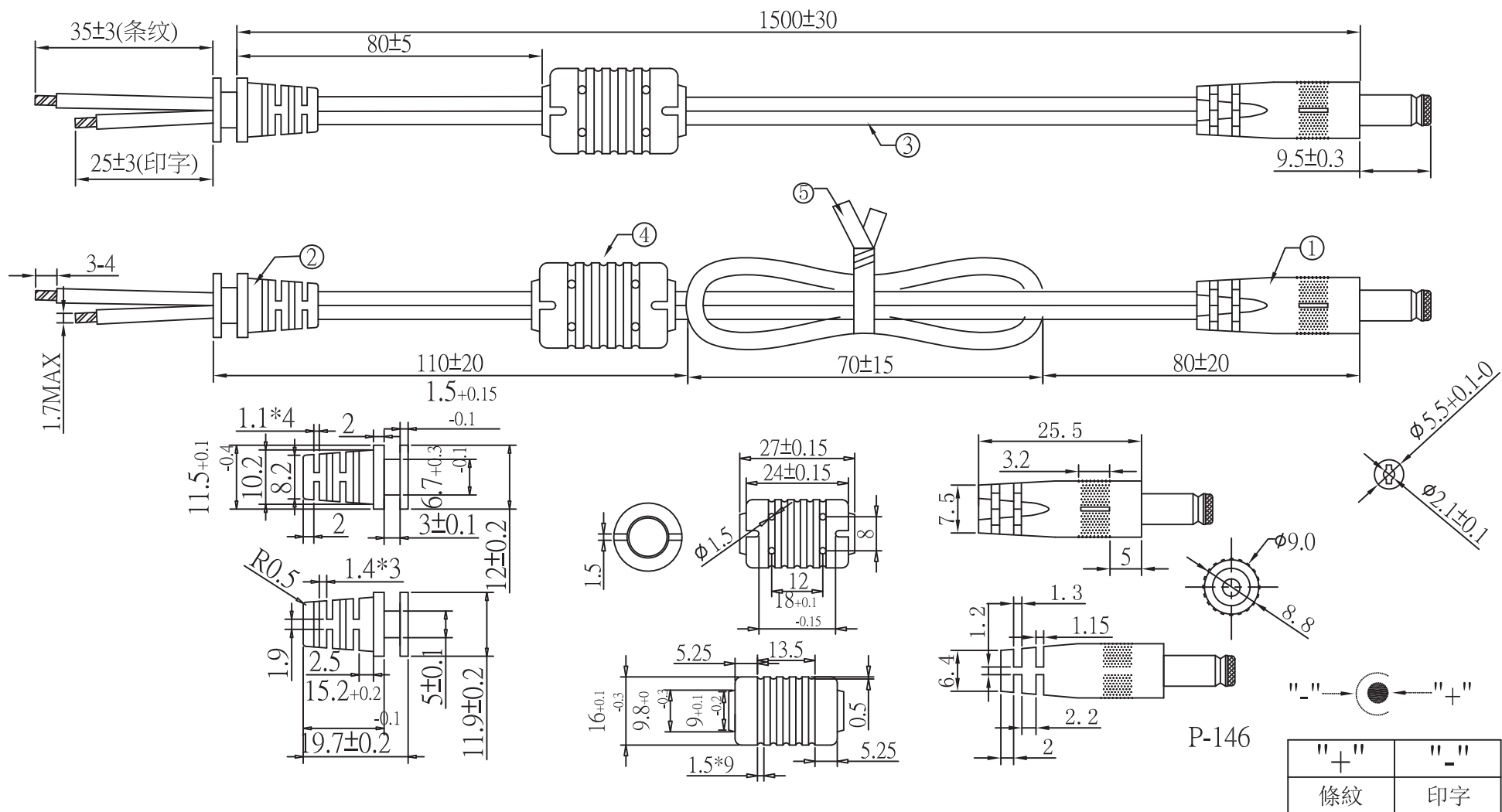
- A. Model Number : ATSO12T-W033Y(Y=A,B,C,E,K,U,R)(3.3V /2.0A /6.6W)
- B. DC Power Cord : UL2468 , 16AWG , 1.5M
- C. Average Efficiency :
- DOE Level VI $0.0834 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.609 = 75.71\% \text{ Min.}$
- GEMS VI $0.0834 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.609 = 75.71\% \text{ Min.}$
- ErP (Stage 2) $0.075 \cdot \ln(\text{Nameplate Output}) + 0.561 = 70.25\% \text{ Min.}$
- CEC Level IV $0.09 \cdot \ln(\text{Nameplate Output}) + 0.5 = 66.98\% \text{ Min.}$
- NRCan Level IV $0.09 \cdot \ln(\text{Nameplate Output}) + 0.5 = 66.98\% \text{ Min.}$
- 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 Dequpiment :
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	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Reported Quantity					
Rms Output Current(mA)	2000mA	1500mA	1000mA	500mA	0mA
Rms Output Voltage(V)	3.319V	3.350V	3.381V	3.411V	3.441V
Active Output Power(W)	6.64W	5.03W	3.38W	1.71W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	0.149A	0.120A	0.089A	0.053A	0.019A
Rms Input Power(W)	8.48W	6.38W	4.25W	2.15W	0.02W
True Power Factor	0.484	0.462	0.415	0.352	0.011
Power Consumed by UUT(W)	1.84W	1.35W	0.87W	0.45W	0.02W
Efficiency	78.29%	78.81%	79.55%	79.25%	*
Average Efficiency	78.98%				*

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

Load Conditions	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Reported Quantity					
Rms Output Current(mA)	2000mA	1500mA	1000mA	500mA	0mA
Rms Output Voltage(V)	3.318V	3.349V	3.379V	3.409V	3.441V
Active Output Power(W)	6.64W	5.02W	3.38W	1.70W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.105A	0.081A	0.059A	0.035A	0.007A
Rms Input Power(W)	8.70W	6.51W	4.44W	2.28W	0.03W
True Power Factor	0.350	0.346	0.326	0.279	0.016
Power Consumed by UUT(W)	2.07W	1.48W	1.06W	0.57W	0.03W
Efficiency	76.27%	77.20%	76.05%	74.89%	*
Average Efficiency	76.10%				*

Tester:Ken



注意:此圖面所需材料符合"ROHS"標準

- ① 5.5*2.1*1音叉车沟黑色带尾,外模P-146號模(二次成型),用料外PVC60P黑色
- ② SR-101號模,用料PVC75P黑色,吊重:1米/20磅/60秒
- ③ UL 2468 16AWG(0.16*65)*2C BK OD:2.5*5.0裁線長度:1560+10/-0
- ④ 鐵芯:12*20*5.6,外模P-136號模,用料外PVC60P黑色
- ⑤ PE无鐵芯紮帶12CM黑色
- ⑥ 單位:MM

一般公差表			
1.0mm以下	±0.1mm	15.0mm以下	±0.60mm
2.0mm以下	±0.15mm	20.0mm以下	±0.80mm
3.0mm以下	±0.20mm	30.0mm以下	±1.0mm
10.0mm以下	±0.50mm	30.0mm以上	±1.2mm

料號	R44M17150141		
客戶		制圖	陶勝英
頁數	01	審核	
		批準	

01	新出	2017/12/04
版次	變更內容	日期

圖號	ADT-5085	日期	2017/12/04
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