20W
AC Adapter
SPECIFICATION

Model No.	:	**ATS024T-W050U (Level VI)**
Description	:	**5.0 Volts / 4.0 Amps**
Part No.	:	**ATS024TW050U410204**
Version	:	**A5**
Date	:	**05 – Nov. – 2021**

1. Feature：

- ♦ **Input** ： **Universal 100 ~ 240 Vac / 50 - 60 Hz Input, without any slide switch.**
- ♦ **Output** ： **5.0V / 0~4A**
- ♦ **Case Dimension** ： **72 (L) * 34 (W) * 69 (H) mm (±1mm)**
- ♦ **Efficiency** ： **Eff (av) ≧ 83.083% Min.**
- ♦ **Safety** ： **PSE**
- ♦ **EMI** ： **CE Class B ； Conduction & Radiation Met.**
- ♦ **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 DOE Level VI / Erp / GEMS .**

2. Input：

2.1 Voltage	**Universal 100~240Vac, single phase**
2.2 Frequency	**50 - 60 Hz**
2.3 Current	**0.58A Max.**
2.4 Inrush Current	**50A Max. / 100Vac ； 60A Max. / 230Vac (Cold Start At 25 ºC，Full Load)**
2.5 Efficiency	**Eff (av) ≧ 83.083% Min. (At 115 Vac & 230 Vac)**
2.6 Power Consumption	**Pi ≦ 0.1W (At 230Vac & No Load)**

※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

3. Output：

3.1 DC Output	**Voltage**	**+5V ±6%**
	Current	**4.0A Max.**
	Regulation	**4.70Vmin. ~ 5.0Vtyp. ~ 5.30Vmax.**
	Ripple & Noise	**100 mV Max.**
	Total Power	**20W 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. (10 μF) at output connector terminals. (At nominal line voltage, Full Load)

4. Protection :

4.1 Over Voltage Protection (OVP)	12V Max.
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	8A Max.

Remark : When Short Circuit 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

c. Insulation Resistance ：

(1)	Primary to Secondary	10 M Ohm for 500Vdc

5.2 EMI Requirement ：CE Class B ； Conduction & Radiation Met.

5.3 Leakage Current ： Less than 0.25 mA

6. Operation and Environment Performance：

6.1 Temperature Range

Operating	+ 0ºC ~ + 40ºC
Storage	- 20ºC ~ + 80ºC

6.2 Humidity Range(Non-condensing)

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

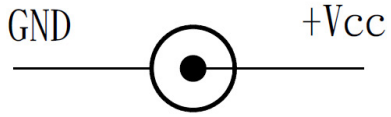
6.3 Cooling：By natural air

7. M.T.B.F.：300000 Hrs.(Calculated Hours at 25ºC , By Telcordia SR-332)

8.Mechanical :

8.1 Weight : 170 g Typical

8.2 Cable Type : Black UL2468 18AWG
(Wire + Plug)
Plug : ∅5.5*∅2.1*9.5mm
(Tuning Fork & Cannelure)



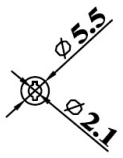
Output Cable Plug Pin Assignment

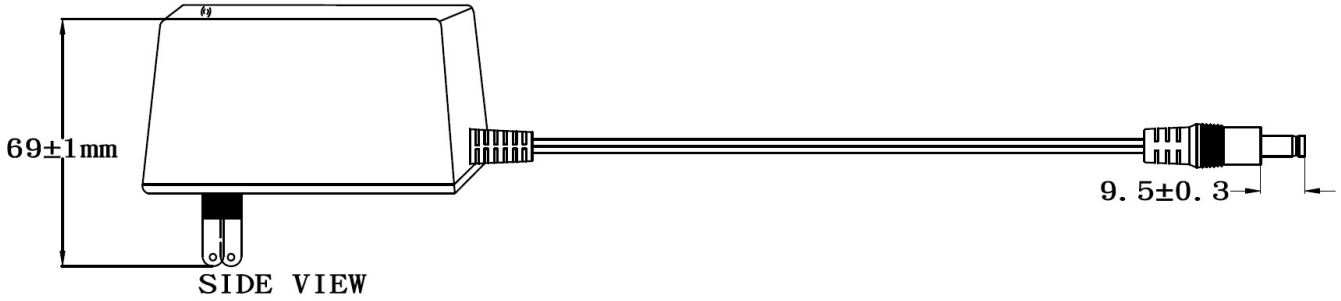
8.3 Cable Length : 1000mm

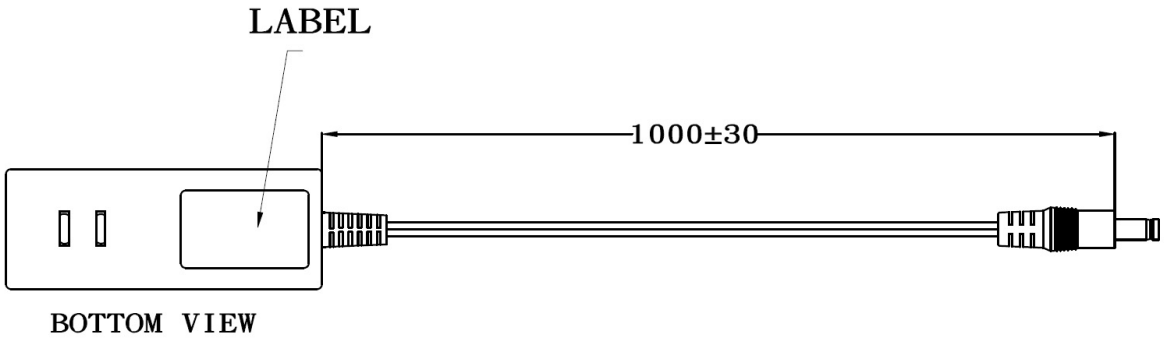
8.4 Case Dimension : 72 (L) * 34 (W) * 69 (H) mm (±1mm)

8.5 Material Flammability : UL 94V-0

8.6 External Appearance : As drawing below (Scale → mm)







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%

300%

"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.

Label Part No. :9443084394

A. Line Regulation Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
115Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
132Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
180Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
230Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
264Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V

B. Efficiency Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	83.083% Min.	83.719%	83.788%	83.757%
230Vac	83.083% Min.	83.814%	83.856%	83.844%

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

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	4.70~5.30 V	5.221 V	5.232 V	5.214 V
115Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
115Vac / 100 % Load	4.70~5.30 V	4.909 V	4.921 V	4.901 V
230Vac / 0 % Load	4.70~5.30 V	5.221 V	5.232 V	5.214 V
230Vac / 50 % Load	4.70~5.30 V	5.064 V	5.078V	5.059 V
230Vac / 100 % Load	4.70~5.30 V	4.909 V	4.921 V	4.901 V

D. Ripple & Noise Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	100mVpp Max	58.4mVpp	53.2mVpp	52.4mVpp
230Vac / 100 % Load	100mVpp Max	55.8mVpp	54.8mVpp	53.6mVpp

E. Inrush Current

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
100Vac / 100 % Load	50A Max.	28.8A	30.2A	28.8A
230Vac / 100 % Load	60A Max	48.4A	48.6A	46.2A

F. Over Current Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	8A Max.	6.25A	6.33A	6.18A
230Vac	8A Max.	6.32A	6.38A	6.21A

G. Short Circuit Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	Auto Recovery	OK	OK	OK
230Vac	Auto Recovery	OK	OK	OK

H. Input Power Consumption(No Load)

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 0 % Load	≦ 0.1W	0.070W	0.071W	0.069W

Efficiency Test Report

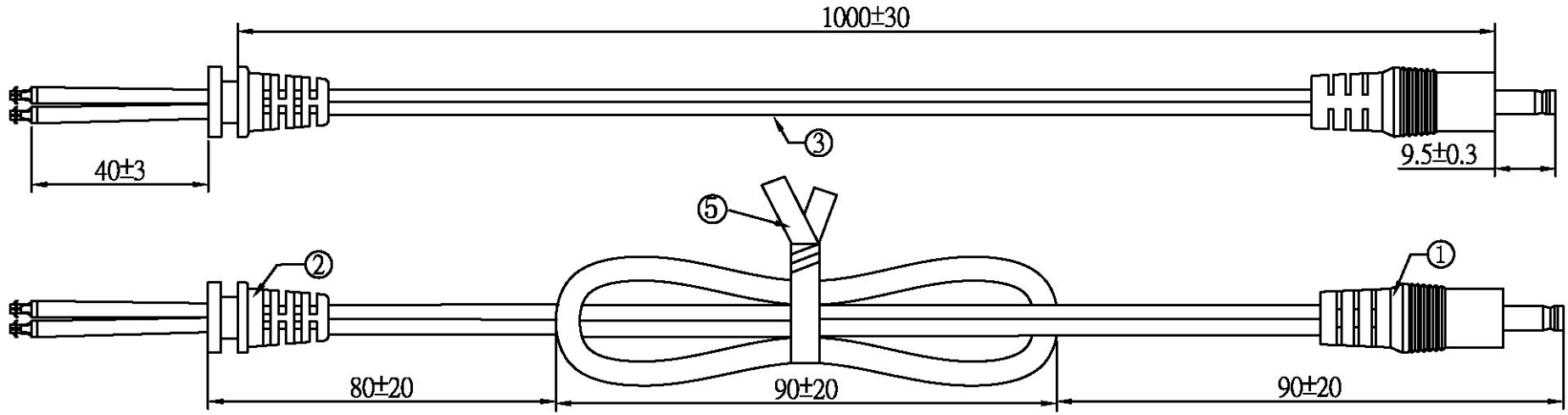
A.	Model Number	:	ATS024T-A/P/W050Z (5V / 4A / 20W)
B.	DC Power Cord	:	UL2468 18WG , 1.0M
C.	Average Efficiency	:	
	Erp (Stage 2)		(0.075*Ln(Nameplate Output)+0.561) = 78.568% Min.
	GEMS V		(0.075*Ln(Nameplate Output)+0.561) = 78.568% Min.
	DOE Level VI		(0.0834*ln(Pout)-0.0014*Pout+0.609) = 83.084% Min.
	GEMS VI		(0.0834*ln(Pout)-0.0014*Pout+0.609) = 83.084% Min.
	COC Tier 2		(0.0834*ln(Pno)-0.0011*Pno+0.609) = 83.684% Min.
	COC Tier 2 (10% Load)		(0.0834*ln(Pno)-0.00127*Pno+0.518) = 74.244% Min.
D.	NO Load Power Consumption	:	
	Erp (Stage 2)		0.3W Max.
	GEMS V		0.3W Max.
	DOE Level VI		0.1W Max.
	GEMS VI		0.1W Max.
	COC Tier 2		0.075W Max.
E.	Testing Dequipment	:	
	a. AC Power Source	:	" Zentech " 2700M-10
	b. Electronic Load	:	" PRODIGIT " 3311C
	c. Power Meter	:	" YOKOGAWA " WT-210A
	d. Digital Meter	:	" FLUKE " 45
F.	AC Input Voltage	:	115Vac/60Hz

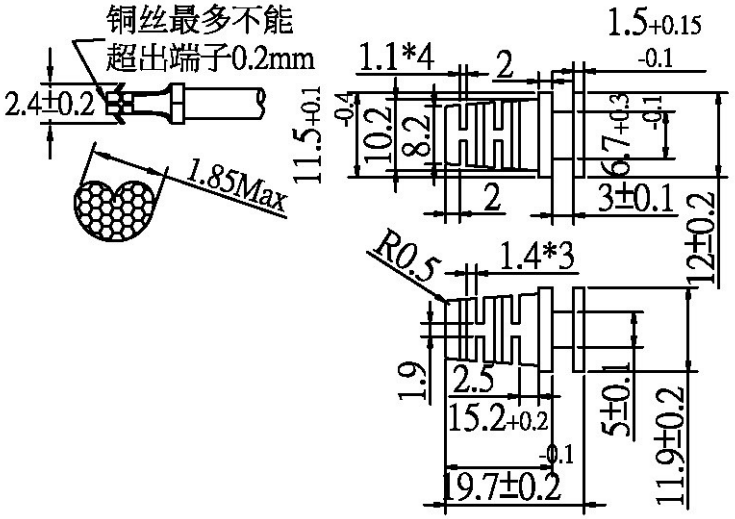
Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	10%* I_0	0%* I_0
Rms Output Current(mA)	4000mA	3000mA	2000mA	1000mA	400mA	0mA
Rms Output Voltage(V)	4.909V	4.987V	5.064V	5.142V	5.189V	5.221V
Active Output Power(W)	19.64W	14.96W	10.13W	5.14W	2.08W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	0.401A	0.318A	0.232A	0.135A	0.062A	0.011A
Rms Input Power(W)	24.035W	17.913W	11.976W	6.043W	2.535W	0.052W
Power Consumed by UUT(W)	4.399W	2.952W	1.848W	0.901W	0.459W	0.052W
Efficiency	81.698%	83.520%	84.569%	85.090%	81.878%	*
Average Efficiency	83.719%				81.878%	*

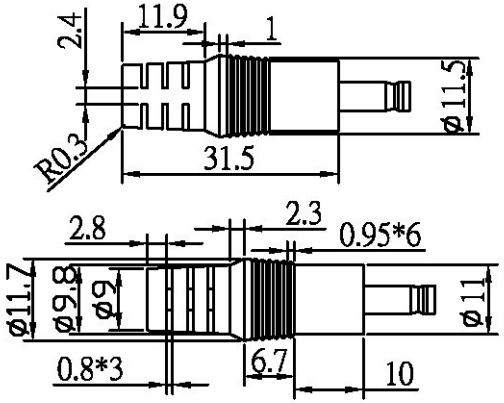
G. AC Input Voltage : 230Vac/50Hz

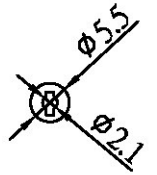
Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	10%* I_0	0%* I_0
Rms Output Current Load Conditions	4000mA	3000mA	2000mA	1000mA	400mA	0mA
Rms Output Voltage(V)	4.909V	4.987V	5.064V	5.142V	5.189V	5.221V
Active Output Power(W)	19.64W	14.96W	10.13W	5.14W	2.08W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	0.276A	0.215A	0.148A	0.082A	0.038A	0.015A
Rms Input Power(W)	23.826W	17.913W	11.970W	6.070W	2.581W	0.069W
Power Consumed by UUT(W)	4.190W	2.952W	1.842W	0.928W	0.505W	0.069W
Efficiency	82.414%	83.520%	84.612%	84.712%	80.418%	*
Average Efficiency	83.814%				80.418%	*

Tester : Wei









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條紋	印字

注意:此圖面所需材料符合"ROHS"標準

① 5.5*2.1*21音叉車溝黑色半邊 ,外模P-184號模(二次成型),
用料外PVC60P黑色(YY-PV-00009)
② SR-101號模,用料PVC60P黑色 ,吊重:1米/20磅/60秒
③ UL 2468 18AWG(0.16*41) BK OD:2.2*4.4 裁線長度:1060+10/-0
④ PE无鐵芯紮帶10CM黑色(YY-ES-00001)
⑤ 1.8双钩机板端*2PCS(进文提供:P1815-A)
⑥ 單位:MM

一 般 公 差 表			
1.0mm以下	±0.1mm	15.0mm以下	±0.80mm
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

版次	變更內容	日期
01	新出	2015/08/28

料號	R44M1G1001H		
客戶		制圖	
頁數	01	審核	
		批準	
圖號	ADT-3557	日期	2015/08/28