



60 W

AC ADAPTER

SPECIFICATION

Model No. : **ATS065T-P120 (Level VI)**

Description : **12Volts / 5Amps**

Part No. :

Version : **01**

Date : **30-Sep.-2016**

Approved	Reviewed	Checked	Prepared	Sales
		 阿達特 2016.10.12 李智杰		



1. Feature :

- ◆ Input : Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.
- ◆ Output : +12V / 0~5A
- ◆ Case Dimension : 115 (L) * 53 (W) * 38 (H) mm
- ◆ Efficiency : Eff (av) $\geq$ 88%
- ◆ Safety : UL / cUL / GS / PSE / BSMI / CB / RCM
- ◆ EMI : CE / FCC 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 / ErP (Stage 2) / GEMS / NRCAN / CEC / EPA

2. Input :

2.1 Voltage	Universal 100~240Vac, single phase
2.2 Frequency	50 ~ 60 Hz
2.3 Current	1.4A Max.
2.4 Inrush Current	80A Max. / 240Vac (Cold start at 25 °C, full load)
2.5 Efficiency	Eff (av) $\geq$ 88% (At 115 Vac & 230 Vac)
2.6 Power Consumption	Pi $\leq$ 0.21 W (At 230Vac & No load)

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

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

3. Output :

3.1 DC Output	Voltage	+12V $\pm$ 5%
	Current	5A Max.
	Regulation	11.40Vmin. ~ 12.00Vtyp. ~ 12.60Vmax.
	Ripple & Noise	120mV Max.
	Total Power	60 W Max.

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. (10 μ F) at output connector terminals. (At nominal line voltage, full load)



4. Protection :

4.1 Over Voltage Protection (OVP)	(V out *150%) Max.
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	(I out *180%) Max.

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 latch .

5. Safety、EMI and EMC Requirement :

5.1 Safety Requirement

a. Safety : UL / cUL / GS / PSE / BSMI / CB / RCM

b. Dielectric Strength : Cut off current 10mA

(1)	Primary to Secondary	3000Vac for 1 Minute
(2)	Primary to Frame Ground	1500Vac for 1 Minute

c. Insulation Resistance :

(1)	Primary to Secondary	10 M ohm for 500Vdc
(2)	Primary to Frame Ground	10 M ohm for 500Vdc

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

5.3 Leakage Current : Less than 3.5mA

5.4 Grounding Test : Resistance 0.1ohm Max. @ 32A

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. : 300,000 Hrs.(Calculated Hours At 25°C, By Telcordia SR-332)



8. Mechanical :

8.1 Weight : 310 g Typical

8.2 Cable Type : Black UL1185 AWG16

(Wire + Plug)

Plug : $\phi 5.5 \times \phi 2.1 \times 9.5 \text{mm}$

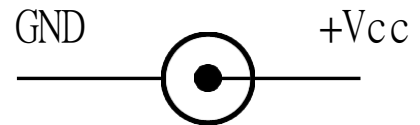
(Tuning Fork & Cannelure)

8.3 Cable Length : 1500mm

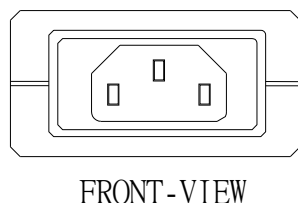
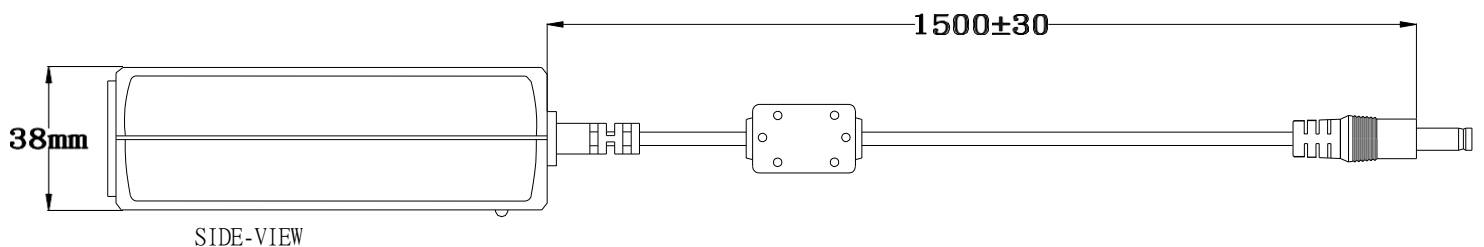
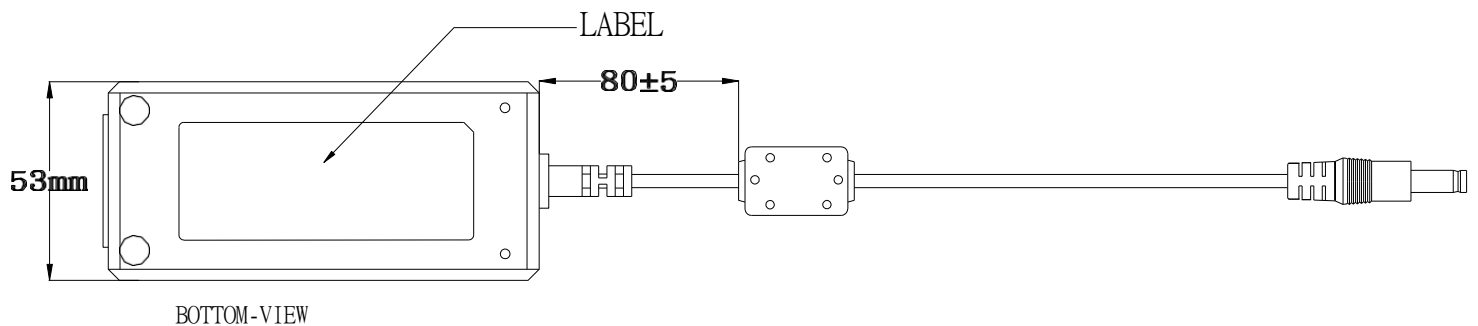
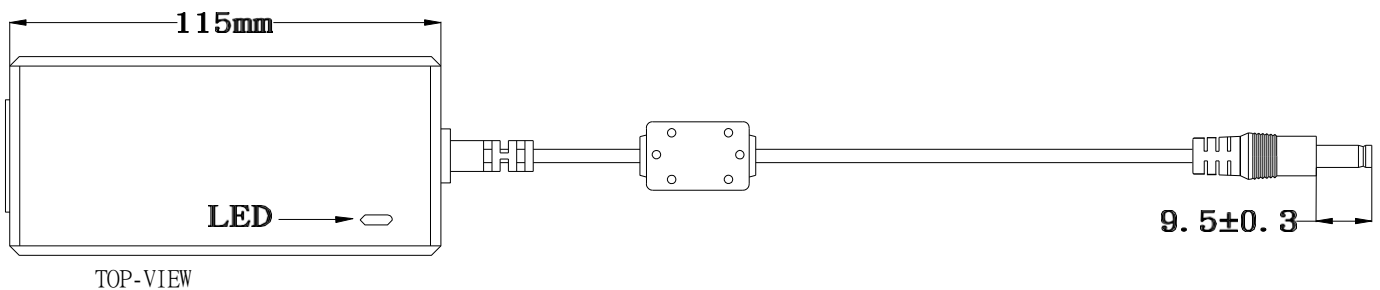
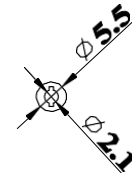
8.4 Case Dimension : 115mm(L)*53mm(W)*38mm(H)

8.5 Material Flammability : UL 94V-0

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



Output Cable Plug Pin Assignment



A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
115Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
132Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
180Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
230Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
264Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	88 % Min.	89.10 %	89.07%	89.10 %
230Vac	88 % Min.	89.38 %	89.15%	89.47 %

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

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 ~ 12.60V	12.33 V	12.33 V	12.31 V
115Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
115Vac / 100 % Load	11.40 V ~ 12.60V	12.03 V	12.00 V	11.98V
230Vac / 0 % Load	11.40 V ~ 12.60V	12.25 V	12.33 V	12.31 V
230Vac / 50 % Load	11.40 V ~ 12.60V	12.18 V	12.16 V	12.15 V
230Vac / 100 % Load	11.40 V ~ 12.60V	12.03 V	12.00 V	11.98V

D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	120mV Max.	63.4 mV	60.8 mV	65.4 mV
230Vac / 100 % Load	120mV Max.	61.2 mV	62.1 mV	63.3 mV

E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
240Vac / 100 % Load	80A Max	63 A	65 A	64 A

F. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	(Iout *180%) Max.	122 %	120 %	121 %
230Vac / 100 % Load	(Iout *180%) Max.	121 %	122 %	123 %

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
230Vac / 0 % Load	$\leq$ 0.21 W	0.05 W	0.05 W	0.05 W

Efficiency Test Report

- A. **Model Number** : ATS065T-P120 (12V/5A/60W)
- B. **DC Power Cord** : UL1185 , 16AWG ,1.5M
- C. **Average Efficiency** :
LEVEL VI Eff (av) $\geq$ 88%
- D. **NO Load Power Consumpti** :
LEVEL VI 0.21W max.
- E. **Testing Dequpment** :
1. AC Power Source : " ALL POWER " APW-110N
2. Electronic Load : " PRODIGIT " 3311F
3. Power Meter : "YOKOGAWA " WT310
4. Digital Meter : " FLUKE " 179
- F. **AC Input Voltage** : 115Vac/60Hz

Load Conditions	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	0% * I ₀
Rms Output Current(mA)	5000mA	3750mA	2500mA	1250mA	0mA
Rms Output Voltage(V)	12.000V	12.080V	12.160V	12.240V	12.330V
Active Output Power(W)	60.00W	45.30W	30.40W	15.30W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	1.128A	0.890A	0.667A	0.353A	0.016A
Rms Input Power(W)	68.59W	51.13W	33.88W	16.91W	0.03W
Voltage T.H.D.(%)	0.57%	0.51%	0.42%	0.28%	0.11%
True Power Factor	0.524	0.492	0.453	0.410	0.065
Power Consumed by UUT(W)	8.59W	5.83W	3.48W	1.61W	0.03W
Efficiency	87.48%	88.60%	89.73%	90.48%	*
Average Efficiency	89.07%				*

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

Load Conditions	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	0% * I ₀
Rms Output Current(mA)	5000mA	3750mA	2500mA	1250mA	0mA
Rms Output Voltage(V)	12.000V	12.070V	12.160V	12.240V	12.330V
Active Output Power(W)	60.00W	45.26W	30.40W	15.30W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.691A	0.530A	0.367A	0.216A	0.024A
Rms Input Power(W)	67.86W	50.95W	34.16W	16.99W	0.08W
Voltage T.H.D.(%)	0.50%	0.41%	0.32%	0.23%	0.11%
True Power Factor	0.422	0.411	0.399	0.367	0.022
Power Consumed by UUT(W)	7.86W	5.69W	3.76W	1.69W	0.05W
Efficiency	88.45%	88.88%	89.06%	90.20%	*
Average Efficiency	89.15%				*

Tester :Sun