1. Feature：

- ♦ **Input** ： **Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.**
- ♦ **Output** ： **5.0V / 0~1.0 A**
- ♦ **Case Dimension** ： **37.5(L) * 28 (W) * 21 (H) mm ±1mm**
- ♦ **Efficiency** ： **Eff (av) ≧73.623%**
  Eff ≧ 64.588% (At 230V/50Hz input@10% load for CoC Tier2)
- ♦ **Safety** ： **UL 62368-1, 3rd Ed, 2021-10-22**
  CAN/CSA C22.2 No. 62368-1:19,3rd Ed, 2021-10-22
  EN IEC 62368-1:2020+A11:2020,BS EN IEC 62368-1:2020+A11:2020.
  AS/NZS 62368.1:2022 (meet)
  National standard SASO-IEC 62368-1:2020 (meet)
  GB 4943.1-2022 (meet)
  電気用品安全法 別表第十二(準拠)
- ♦ **EMC** ： **CE Conduction & radiation Class B**

STANDARDS OF TEST METHOD:

EN 55032:2015 +AC:2016 +A11:2020 +A1:2020/CISPR 32:2015 +COR1:2016 +A1:2019
BS EN 55032:2015 +AC:2016 +A11:2020 +A1:2020
EN IEC 61000-3-2:2019 +A1:2021
BS EN IEC 61000-3-2:2019 +A1:2021
EN 61000-3-3:2013 +A1:2019 +A2:2021 +AC:2022
BS EN 61000-3-3:2013 +A1:2019 +A2:2021 +AC:2022
EN 55035:2017 + A11:2020 / CISPR 35: 2016
BS EN 55035:2017 +A11:2020
IEC 61000-4-2/IEC 61000-4-3/IEC 61000-4-4/IEC 61000-4-5/IEC 61000-4-6/IEC 61000-4-8/IEC 61000-4-11
AS/NZS CISPR 32:2015+A1:2020

- ♦ **Protection** ： **OVP (Over Voltage Protection)、SCP (Short Circuit Protection)、OCP (Over Current Protection)**
- ♦ **Suitable for usage at I.T.E., industrial controller**
- ♦ **Meet DoE VI / ErP (Lot 7) / GEMS / NRCan / CEC**

2. Input：

2.1 Voltage	**Universal 100~240Vac, single phase**
2.2 Frequency	**50 ~ 60 Hz**
2.3 Current	**0.19A Max.**
2.4 Inrush Current	**Cold start at 25 ºC，full load** **60 A max. / 240 Vac (ac source chroma 6530)** **120 A max. / 230 Vac (mains electricity from wall)**
2.5 Efficiency	**Eff (av) ≧ 73.623 % (At 115 Vac & 230 Vac)** **Eff ≧ 64.588% (At 230V/50Hz input@10% load for CoC Tier2)**
2.6 Power Consumption	**Pi ≦ 0.1 W (At 115 Vac & 230 Vac & 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	5.0V ± 5%
	Current	1.0A Max.
	Regulation	4.75Vmin. ~ 5.00Vtyp. ~ 5.25Vmax.
	Ripple & Noise	100 mVpp Max.
	Total Power	5.0W 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. (47 μF) at output connector terminals. (At nominal line voltage, Full Load)

4. Protection :

4.1 Over Voltage Protection (OVP)	10V(Max)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	2A(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.

5. Safety requirement：

5.1. Dielectric strength ： Cut off current 10 mA

(1)	Primary to secondary	3000Vac (RMS) for 1 minute

5.2. Insulation resistance ：

(1)	Primary to secondary	10 MΩ for 500Vdc

5.3 Leakage current ： Less than 0.25 mA

6. Operation and Environment Performance：

6.1 Temperature Range

Operating	- 20 ºC ~ + 50ºC
Storage	- 20 ºC ~ + 80 ºC

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℃,By Telcordia SR-332)

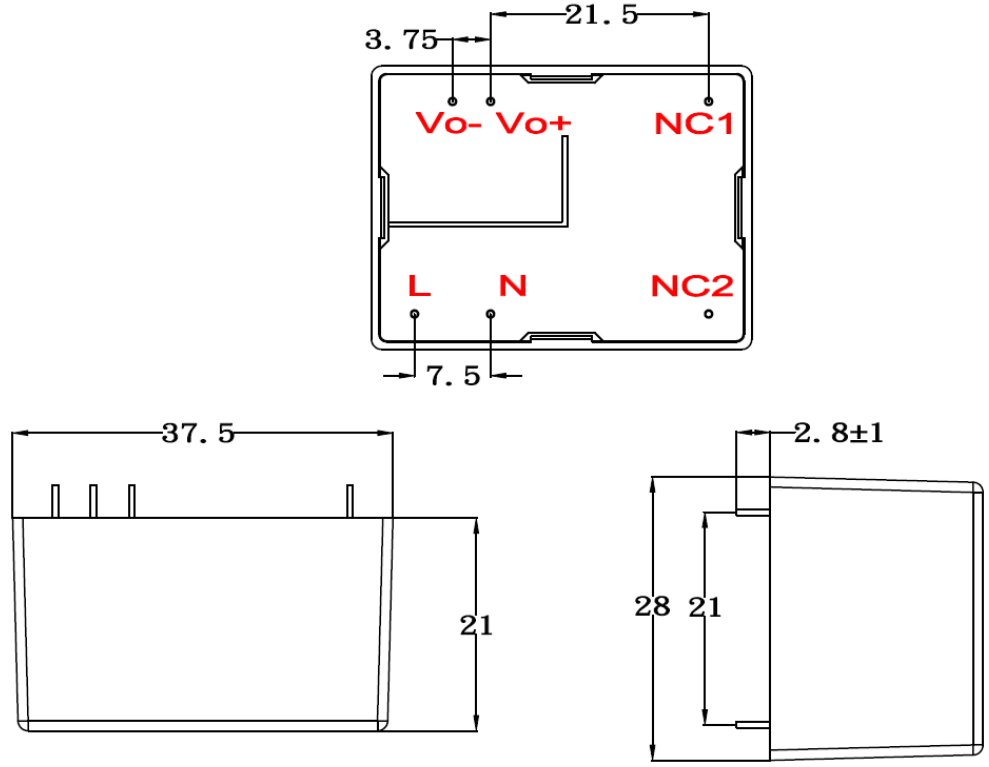
8.Mechanical :

8.1 Weight : 20g Typical

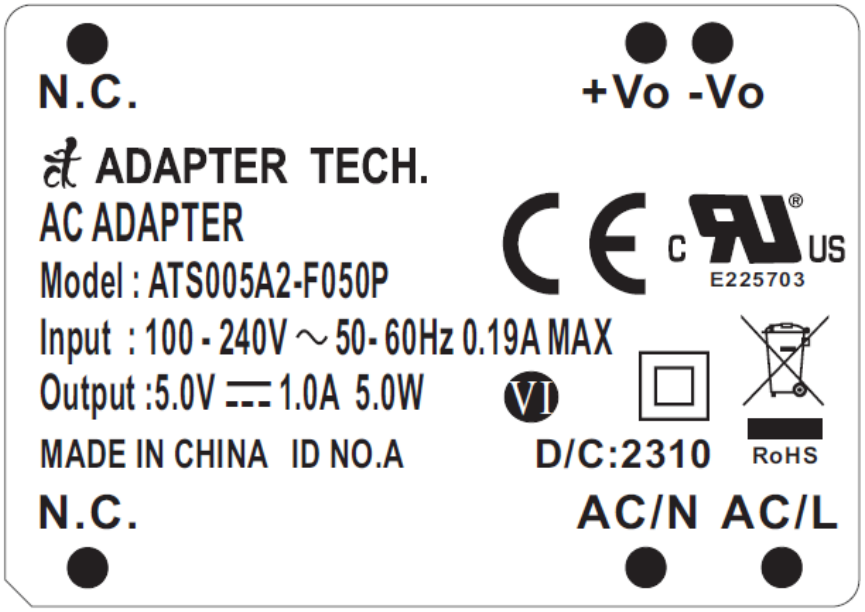
8.4 Case Dimension : 37.5mm(L)*28mm(W)*21mm(H)±0.1mm

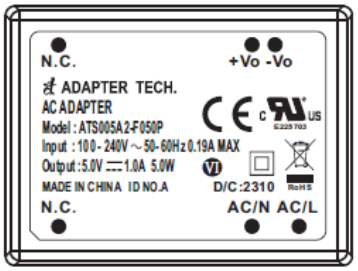
8.5 Material Flammability : UL 94V-0

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



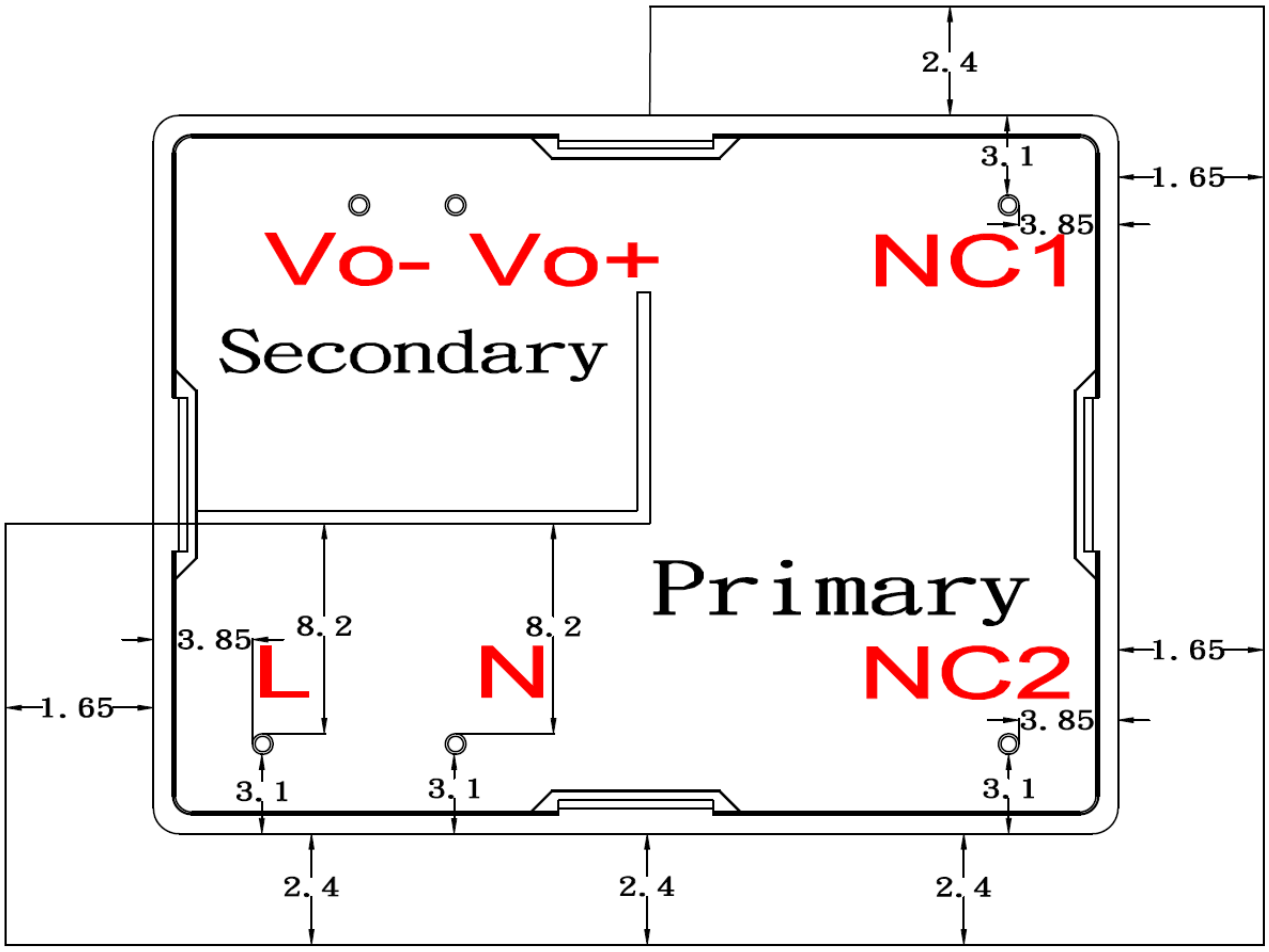
9.LABEL





*Precaution of Safety Distance

L, N, NC1, NC2 are located at the primary side. The total safety distance from the primary side to the touchable surface should be 5.5mm.
The following figure shows the distance that needs to be reserved around the power supply.



Unit:mm

A. Line Regulation Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
115Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
132Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
180Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
230Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
264Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V

B. Efficiency Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	73.623 % Min.	80.416 %	80.415 %	80.416 %
230Vac	73.623 % Min.	77.353 %	77.352 %	77.353 %
230Vac 10% load	64.588 % Min.	66.981 %	66.980 %	66.981 %

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

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	4.75 V ~ 5.25 V	5.038 V	5.037 V	5.038 V
115Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
115Vac / 100 % Load	4.75 V ~ 5.25 V	5.028 V	5.027 V	5.028 V
230Vac / 0 % Load	4.75 V ~ 5.25 V	5.038 V	5.037 V	5.038 V
230Vac / 50 % Load	4.75 V ~ 5.25 V	5.033 V	5.032 V	5.033 V
230Vac / 100 % Load	4.75 V ~ 5.25 V	5.028 V	5.027 V	5.028 V

D. Ripple & Noise Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	500mVpp Max.	256 mVpp	265 mVpp	270 mVpp
230Vac / 100 % Load	500mVpp Max.	260 mVpp	271 mVpp	274 mVpp

Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1μF multilayer Cap. and a Low ESR Electrolytic Cap. (47 μF) 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 (chroma 6530)	43.0 A	42.8 A	43.2 A

F. Over Current Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	2A (Max)	1.71 A	1.51 A	1.54 A
230Vac / 100 % Load	2A (Max)	1.61 A	1.60 A	1.63 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	≦ 0.10 W	0.037 W	0.036 W	0.037 W
230Vac / 0 % Load	≦ 0.10 W	0.056 W	0.055 W	0.056 W

Efficiency Test Report

A.	Model Number	: ATS005A2-F050P	5.0V	1.00A	5.00W
B.	DC Power Cord	:			
C.	Average Efficiency	:			
	Erp (Lot 7)	0.071*ln(Pout)-0.0014*Pout+0.67 =	73.623%	Min.	
	DoE Level VI	0.071*ln(Pout)-0.0014*Pout+0.67 =	73.623%	Min.	
	GEMS Level VI	0.071*ln(Pout)-0.0014*Pout+0.67 =	73.623%	Min.	
	CoC Tier 2	0.071*ln(Pno)-0.00115*Pno+0.67 =	73.773%	Min.	
	CoC Tier 2 (10% Load)	0.071*ln(Pno)-0.00115*Pno+0.57 =	64.588%	Min.	
D.	NO Load Power Consumption	:			
	Erp (Lot 7)	0.1W Max.			
	DoE Level VI	0.1W Max.			
	GEMS Level VI	0.1W Max.			
	CoC Tier 2	0.075W Max.			
E.	Testing Equipment	:			
	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)	1000mA	750mA	500mA	250mA	100mA	0mA
Rms Output Voltage(V)	5.028V	5.031V	5.033V	5.035V	5.037V	5.038V
Active Output Power(W)	5.03W	3.77W	2.52W	1.26W	0.50W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	0.101A	0.080A	0.059A	0.354A	0.019A	0.002A
Rms Input Power(W)	6.151W	4.620W	3.126W	1.619W	0.710W	0.037W
True Power Factor (PF)	0.543	0.518	0.474	0.408	0.353	0.026
Total Harmonic Distortion of the input current	137.3A%	150.5A%	172.4A%	208.5A%	234.0A%	20.2A%
Power Consumed by UUT(W)	1.123W	0.847W	0.610W	0.360W	0.206W	0.037W
Active Efficiency	81.743%	81.672%	80.502%	77.749%	70.944%	*
Average Efficiency	80.416%				70.944%	*

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(mA)	1000mA	750mA	500mA	250mA	100mA	0mA
Rms Output Voltage(V)	5.028V	5.030V	5.033V	5.035V	5.037V	5.038V
Active Output Power(W)	5.03W	3.77W	2.52W	1.26W	0.50W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	0.066A	0.054A	0.040A	0.025A	0.013A	0.001A
Rms Input Power(W)	6.273W	4.754W	3.229W	1.749W	0.752W	0.056W
True Power Factor (PF)	0.370	0.351	0.341	0.343	0.287	0.013
Total Harmonic Distortion of the input current	230.0A%	247.7A%	254.6A%	257.9A%	196.7A%	6.5A%
Power Consumed by UUT(W)	1.245W	0.982W	0.713W	0.490W	0.248W	0.056W
Active Efficiency	80.153%	79.354%	77.934%	71.970%	66.981%	*
Average Efficiency	77.353%				66.981%	*

Tester : Jordan