

AC Adapter

5.0 Volts | 2 Amps

- Input: Universal 100 ~ 240 Vac / 50 ~ 60 Hz input without any slide switch
- Output: 5 V / 0 ~ 2 A
- Case dimension: 80.2 (L) * 46.0 (W) * 40.5 (H) ± 1 mm
- Efficiency: Eff(av) ≥ 78.704 % (at 115 V / 60 Hz input)
Eff(av) ≥ 79.004 % (at 230 V / 50 Hz input for CoC Tier 2)
Eff ≥ 69.734 % (at 230 V / 50 Hz input 10 % load for CoC Tier 2)
- Safety: I.T.E PSE / RCM / BSMI / UL / cUL / GS
- EMC: CE / FCC Class B ; conduction & radiation
- Protection: OVP (Over voltage protection)
SCP (Short circuit protection)
OCP (Over current protection)
- High frequency design less power consumption
- NRCan / DoE Level VI / CEC / GEMS VI / ErP (Stage 2) / CoC Tier 2

Item	Value Unit Remarks
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1. Input

Voltage	Universal 100 ~ 240 Vac single phase
Frequency	50 - 60 Hz
Current	0.32 ~ 0.19 A
Inrush Current	Cold start at 25 °C full load 60 A max. / 240 Vac (ac source chroma 6530) 120 A max. / 230 Vac (mains electricity from wall)
Efficiency	Eff(av) ≥ 78.704 % (at 115 V / 60 Hz input) Eff(av) ≥ 79.004 % (at 230 V / 50 Hz input for CoC Tier 2) Eff ≥ 69.734 % (at 230 V / 50 Hz input 10 % load for CoC Tier 2)
Power Consumption	Pi ≤ 0.075 W (at 115 Vac & 230 Vac & 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

2. Output

DC output	
Voltage	5.00 V ± 5 %
Current	2 A Max.
Regulation	4.75 V min. ~ 5.00 V typ. ~ 5.25 V max.
Ripple & Noise	100 mV _{p-p} max.
Total Power	10 W 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)

3. Protection

Over Voltage Protection (OVP)	12V Max
Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
Over Current Protection(OCP)	4A 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.	

4. Safety EMI and EMC Requirement

Safety Requirement	
a. Safety	I.T.E PSE / RCM / BSMI / UL / cUL / GS
b. Dielectric Strength	Cut off current 10 mA
1 Primary to Secondary	3000 Vac for 1 minute
c. Insulation Resistance	
1 Primary to Secondary	10 MΩ for 500 Vdc
EMI Requirement	CE / FCC Class B; conduction & radiation
Leakage Current	Less than 0.25 mA

5. Operation and Environment Performance

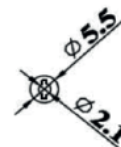
Temperature Range	
Operating	+0°C ~ +40° C
Storage	-20°C ~ +80° C
Humidity Range(Non-condensing)	
Operating	20% ~ 80% RH
Storage	10% ~ 90% RH
Cooling	By natural air

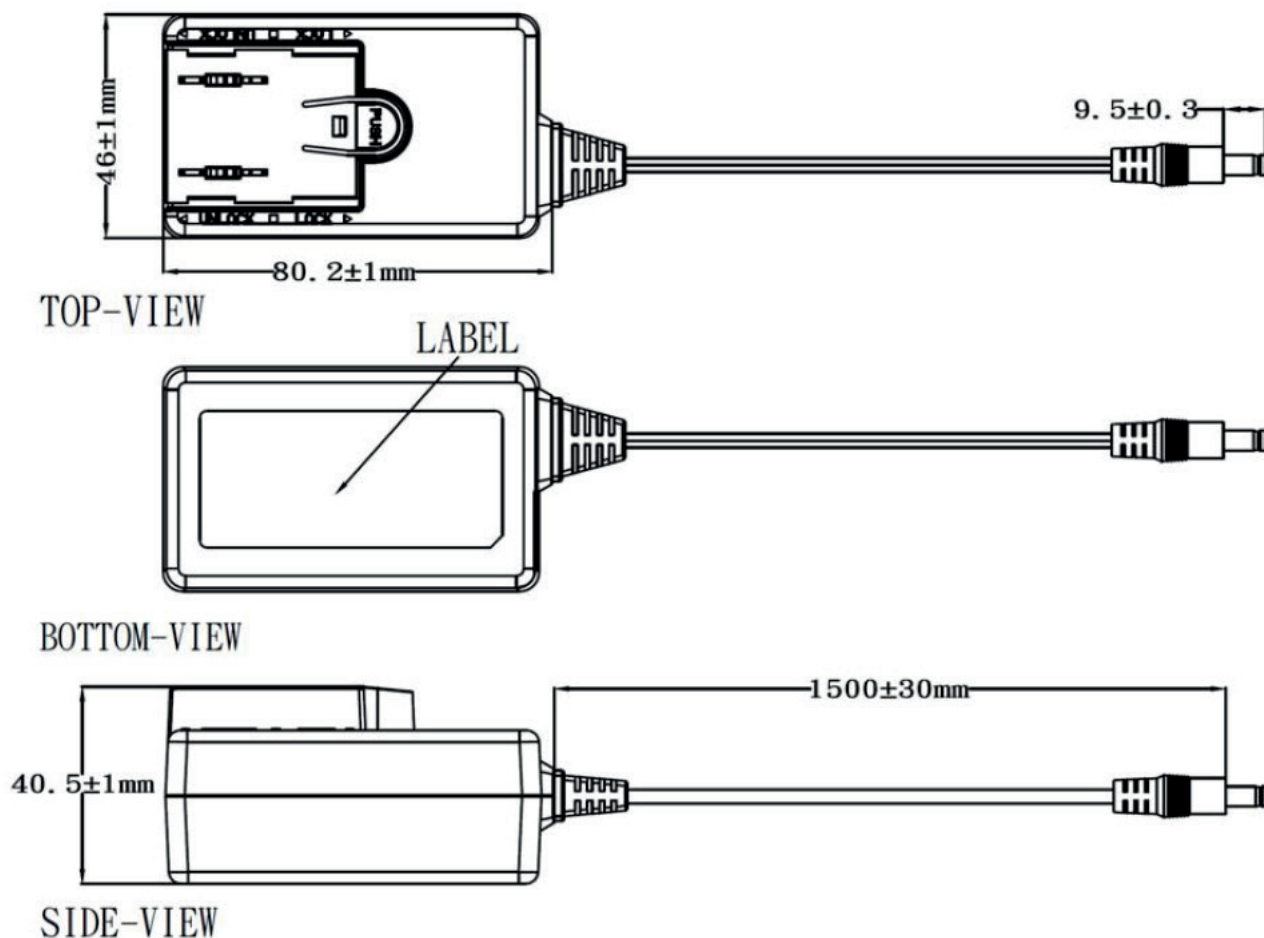
6. M.T.B.F.

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

7. Mechanical

Weight	140 g Ref.
Cable Type	Black UL 2468 20 AWG (wire + plug) Plug : Ø5.5 * Ø2.1 * 9.5 mm (tuning fork & cannellure) 
Cable Length	1500mm
Case Dimension	80.2 (L) * 46.0 (W) * 40.5 (H) ± 1 mm
Material Flammability	UL 94V-0
External Apperance	As drawing below (Scale -> mm)





☒ USA	☒ Europe	☒ U.K.	☐ Australia	☐ China	☐ Korea

ATM012T-W050V-I

8. Label

Label materials	Metalized polyester label (silver gloss)
Color	Black background with silver printing
Label dimension	27.5 (L) * 61.8 (W) ± 0.1 mm
Label thickness	75#

100%



200%



"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. :

Line regulation test**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
90 Vac / 50 % Load	4.75 V ~ 5.25 V	5.111 V	5.112 V	5.110 V
115 Vac / 50 % Load	4.75 V ~ 5.25 V	5.111 V	5.112 V	5.110 V
132 Vac / 50 % Load	4.75 V ~ 5.25 V	5.111 V	5.112 V	5.110 V
180 Vac / 50 % Load	4.75 V ~ 5.25 V	5.111 V	5.112 V	5.110 V
230 Vac / 50 % Load	4.75 V ~ 5.25 V	5.110 V	5.111 V	5.109 V
264 Vac / 50 % Load	4.75 V ~ 5.25 V	5.110 V	5.111 V	5.109 V

Efficiency test**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac DOE Level VI	78.704 % min.	82.416 %	82.416 %	82.416 %
230 Vac COC Tier 2	79.004 % min.	82.131 %	82.131 %	82.131 %
230 Vac COC Tier 2 (10 % Load)	69.734 % min.	76.586 %	76.586 %	76.586 %

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

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

Load regulation test**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	4.75 V ~ 5.25 V	5.227 V	5.228 V	5.226 V
115 Vac / 50 % Load	4.75 V ~ 5.25 V	5.111 V	5.112 V	5.110 V
115 Vac / 100% Load	4.75 V ~ 5.25 V	4.993 V	4.994 V	4.992 V
230 Vac / 0 % Load	4.75 V ~ 5.25 V	5.227 V	5.228 V	5.226 V
230 Vac / 50 % Load	4.75 V ~ 5.25 V	5.110 V	5.111 V	5.109 V
230 Vac / 100 % Load	4.75 V ~ 5.25 V	4.992 V	4.993 V	4.991 V

Ripple & Noise Test**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	100mVp-p Max	39.6 mVp-p	39.6 mVp-p	39.6 mVp-p
230Vac / 100 % Load	100mVp-p Max	35.4 mVp-p	35.4 mVp-p	35.4 mVp-p

Inrush Current**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 100 % Load	60A Max. (chroma 6530)	50.2 A	50.2 A	50.2 A

Over Voltage Protection**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	12V max.	8.36 V	8.36 V	8.36 V
230Vac / 100 % Load	12 V max.	8.00 V	8.00 V	8.00 V

Over Current Protection**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	4A max.	2.97 A	2.97 A	2.97 A
230Vac / 100 % Load	4A max.	2.97 A	2.97 A	2.97 A

Short Circuit Protection**Test Result:**

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

Input Power Consumption(No Load)**Test Result:**

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	≤ 0.075 W	0.035 W	0.035 W	0.035 W
230 Vac / 0 % Load	≤ 0.075 W	0.050 W	0.050 W	0.050 W

ATM012T-W050V-I

Efficiency Test Report

A.	Model Number	: ATM012T-W050Z	5.0V	2.00A	10.00W
B.	DC Power Cord	: UL2468 20AWG , 1.5M			
C.	Average Efficiency	:			
	NRCan Level IV	$0.09 \cdot \ln(\text{Nameplate Output}) + 0.5 =$	70.723%	Min.	
	CEC Level IV	$0.09 \cdot \ln(\text{Nameplate Output}) + 0.5 =$	70.723%	Min.	
	Erp (Stage 2)	$0.075 \cdot \ln(\text{Nameplate Output}) + 0.561 =$	73.369%	Min.	
	DoE Level VI	$0.0834 \cdot \ln(\text{Pout}) - 0.0014 \cdot \text{Pout} + 0.609 =$	78.704%	Min.	
	GEMS VI	$0.0834 \cdot \ln(\text{Pout}) - 0.0014 \cdot \text{Pout} + 0.609 =$	78.704%	Min.	
	CoC Tier 2	$0.0834 \cdot \ln(\text{Pno}) - 0.0011 \cdot \text{Pno} + 0.609 =$	79.004%	Min.	
	CoC Tier 2 (10% Load)	$0.0834 \cdot \ln(\text{Pno}) - 0.00127 \cdot \text{Pno} + 0.518 =$	69.734%	Min.	
D.	NO Load Power Consumption :				
	NRCan Level IV	0.5W Max.			
	CEC Level IV	0.5W Max.			
	Erp (Stage 2)	0.3W Max.			
	DoE Level VI	0.1W Max.			
	GEMS VI	0.1W Max.			
	CoC Tier 2	0.075W Max.			
E.	Testing Dequpiment	:			
	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)	2000mA	1500mA	1000mA	500mA	200mA	0mA
Rms Output Voltage(V)	4.993V	5.016V	5.111V	5.169V	5.204V	5.227V
Active Output Power(W)	9.99W	7.52W	5.11W	2.58W	1.04W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	0.198A	0.154A	0.112A	0.066A	0.032A	0.001A
Rms Input Power(W)	12.321W	9.150W	6.133W	3.112W	1.306W	0.035W
True Power Factor (PF)	0.536	0.512	0.472	0.407	0.357	0.273
Power Consumed by UUT(W)	2.335W	1.626W	1.022W	0.528W	0.265W	0.035W
Efficiency	81.049%	82.230%	83.336%	83.049%	79.694%	*
Average Efficiency	82.416%				79.694%	*

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	2000mA	1500mA	1000mA	500mA	200mA	0mA
Rms Output Voltage(V)	4.992V	5.051V	5.110V	5.169V	5.204V	5.227V
Active Output Power(W)	9.98W	7.58W	5.11W	2.58W	1.04W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	0.136A	0.110A	0.077A	0.043A	0.020A	0.001A
Rms Input Power(W)	12.250W	9.200W	6.175W	3.155W	1.359W	0.050W
True Power Factor (PF)	0.391	0.361	0.346	0.316	0.293	0.311
Power Consumed by UUT(W)	2.266W	1.624W	1.065W	0.571W	0.318W	0.050W
Efficiency	81.502%	82.353%	82.753%	81.918%	76.586%	*
Average Efficiency	82.131%				76.586%	*

Tester : KEN