

# SPECIFICATION

## High Quality Switching Desktop Adapter

**45W 5VDC 9.0A Output  
Universal AC Input**



**P/N: A050090ED1**

**\*\* Specification Approval\*\***

This specification (total 7 pages including cover page) is approved in it's entirety by:

---

Company Name

Print Name

Signature

Date



3261 Keller St.  
Santa Clara CA 95054  
Tel: 1-408-980-9813  
Fax: 1-408-980-8626  
Email: [infor@topmicro.com](mailto:infor@topmicro.com)  
Web: [www.topmicro.com](http://www.topmicro.com)

# **CONTENTS**

**1.0 General Description**

**2.0 Input Requirements**

**3.0 Output Requirements**

**4.0 Reliability**

**5.0 Environment**

**6.0 Mechanical Characteristics**

**7.0 Mechanical Drawing**

## 1.0 General Description

The purpose of the document is to specify a Single phase AC input , single output switching power supply. This specification alludes to Top Micro P/N: A050090ED1.

This product is an AC to DC switching power transfer device, it can provide for a 5V, 9.0A max & 45W max DC output with constant voltage source.

This Specification defines the input, output, performance characteristics, environment, noise and safety requirement for the specified power supply.

## 2.0 Input Requirements

### 2.1 Input Voltage

Rated Voltage 100-240 Vac +/- 10% full range. Normal line input 110Vac/220Vac.

### 2.2 Input Frequency

47~63 Hz

### 2.3 Input Current

- a. 1.8A (Max.) @ Rated AC input with full load.
- b. 0.9A (Max.) @ Rated AC input with full load.

### 2.4 Efficiency

75% typical at normal line input and full load output

### 2.5 Configuration

3-wire AC input (Line, Neutral, FG)

### 2.6 Input Fuse

The hot line side of the input shall have a fuse, rating ( T3.15A/250V)

### 2.7 Inrush Current

30A at 110 Vac

60A at 220 Vac At cold start, maximum load.

### 2.8 Line Regulation

This line regulation is less than 1% of rated output voltage @ full load .

### 2.9 Hold Up Time

8.3 mSec, @ Normal line, with full load.

### 2.10 Rise Time

50 mSec, @ Rated AC input, with full load.  
From 10% to 90% of output voltage.

### 2.11 Turn-ON Time

The output voltage should rise to 90% of rated output voltage  
in less than 3 SEC.from AC apply to 110Vac start up.

## 3.0 Output Requirements

### 3.1 Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
+5V	0	9A

### 3.2 Load Regulation

Voltage (Vdc)	Tolerance (%)	Regulation (Vdc)
+5V	+5/, -5	4.75~5.25V

### 3.3 Dynamic Load Regulation

5% excursion for 50% - 100% or 100% - 50% load change of DC output at  
any frequency up to 1KHz (duty 50%)

### 3.4 Ripple & Noise

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, Switching frequency ripple and noise and dynamic load variations measured with a 20MHz bandwidth

Output	Ripple/Noise
+5V	2.0% max. of rated output voltage

Ripple / Noise: 60Hz ripple + switching ripple and noise  
Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor

### 3.5 Short Circuit Protection

The adapter can withstand continuous short at DC output and no damage. It will enter into normal condition if the fault condition is removed.

### 3.6 Stability

2% Max. at constant load with constant input (after 30 minutes of operation).

### 3.7 Temperature Rise

Less than rise 45 on top/bottom case at normal AC input & 80% load of DC output at environment temperature 25 .

### 3.8 Drop-out (Power Line Disturbance)

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

### 3.9 Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

## 4.0 Environment

### 4.1 Temperature

- a. Operating : 0 to 40
- b. Storage : -20 to 85

### 4.2 Humidity

- a. Operating : 10 to 90 %
- b. Storage: 5 to 90 %

### 4.3 Altitude

From sea level to 10,000Ft ( operation ) and 40,000Ft ( non operation )

## 5.0 Safety

### 5.1 Hi-Pot Test

4242 Vdc 5mA 3 Sec. between primary and secondary circuit

### 5.2 Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit  
IR should 50 M .

### 5.3 Leakage Current

750  $\mu$ A at 240Vac/50 Hz

### 5.5 EMS

Items	Specification	Reference
ESD	Contact: $\pm$ 4KV	IEC 61000-4-2
	Air: $\pm$ 8KV	
RS	Frequency: 1KHz Field Strength: 3V/M	IEC 61000-4-3
EFT	1.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: $\pm$ 4KV (peak)	IEC 61000-4-5
	Line to F.G : $\pm$ 2KV (peak)	

### 5.6 EMI

Comply with Standards
CISPR 22, EN 55022 Class B

## 6.0 Mechanical Characteristics

**6.1 Physical Size** : 120 mm (L) \* 60 mm (W) \* 35 mm (H)

**6.2 Enclosure material** : 94V-1 minimum

**6.3 Output Cable (Reference)** : UL1185 #16

### 6.4 Vibration Test

The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm Along the 3 directions namely X-Y-Z. The each direction should be vibrated for 60 minutes, after testing no abnormal electrical or mechanical should occur.

### 6.5 Drop Test(Referencing to CSA C22.2 No.950/UL1950/UL1310/EN60950)

Products shall be dropped from a height of 900 mm onto a horizontal surface consisting of 13mm thick hardwood, mounted on two layers of plywood each 19mm to 20mm thick, all supported on a concrete or equivalent non-resilient floor.

**6.6 Net Weight (Reference)** :310  $\pm$ 20g

### 7.0 Mechanical Drawing

