

# SPECIFICATION

## High Quality Switching Power Adapter

European AC Plug  
10.5W 5VDC USB A Output  
Black or White Case

**P/N: W050021YFE-U**

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

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

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Company Name

Print Name

Signature

Date

*Specification subject to change without prior notice.*



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## 1. Scope

The purpose of this document is to specify the performance of a single output switching power adaptor providing 5VDC 2.1A 10.5W total power from a single USB A port.

## 2. Electrical Requirements

### 2.1 Input

#### 2.1.1 Input Voltage

The rated input voltage is from 100V to 240V RMS. The power adaptor shall be capable of supplying rated output power with maximum input range of 90V to 264V RMS.

MIN	NORMAL	MAX	UNITS
90	100 – 240	264	Vrms

#### 2.1.2 Input Frequency

The adaptor shall meet all applicable specifications within input frequency range of 47 to 63Hz.

MIN	NORMAL	MAX	UNITS
47	50 – 60	63	Hz

#### 2.1.3 Input Current

The input current is less than 350mA RMS at full load and input voltage range of 100VAC to 240VAC.

AC INPUT	MAX	UNITS
100-240	0.35	Ampere

#### 2.1.4 Stand-by Power

The standby power of the adaptor shall be less than 0.3Watts at input voltage range of 100VAC to 240VAC.

#### 2.1.5 Input Surge Current

The input surge current is less than 30A at 120V and 40A at 240V input voltage.

AC INPUT	MAX	UNITS
120	30	Ampere
240	40	Ampere

## 2.2 Output

### 2.2.1 Total Power

The power adaptor provides one output: 5.0Volts DC. The maximum continuous output power is 10.5Watts(5Vx2.1A).

### 2.2.2 Efficiency

The efficiency of the power adaptor shall be 72% max at full rated load and any rated input voltage.

### 2.2.3 Output Voltage Range

The output voltage shall remain within following limited under all rated conditions.

Voltage	Regulation	Limit
5V	± 6%	4.7V~5.3V

(Note: The limit at no load is 4.7V maximum and at full load is 5.3V minimum.)

### 2.2.4 Output Current

The power adaptor shall have regulated DC output current of 0-2.1A.

### 2.2.5 Hold Up Time

The power supply is capable of maintaining the output voltage as specified in section 2.1.1 for more than 10mSec after removing input voltage.

### 2.2.6 Rise Time

The power supply shall have a start-up rise time of less than 100msec to rise to within regulation limits for all DC outputs.

### 2.2.7 Line Regulation

Input voltage nominal and rated current, output voltage regulation ±1%.

### 2.2.8 Load Regulation

Input voltage nominal and 0~2.1A rated output current, output voltage regulation ±10%.

### 2.2.9 Output Over Current Protection (OCP)

When overload occurs, due to single component failure, the output load current overload protection current limitation in the 1.1 ~ 1.5 times. unit shall automatically recovery once fault condition is removed.

### 2.2.10 Over-Voltage Protection (OVP)

7.2VDC maximum with Zener clamp.

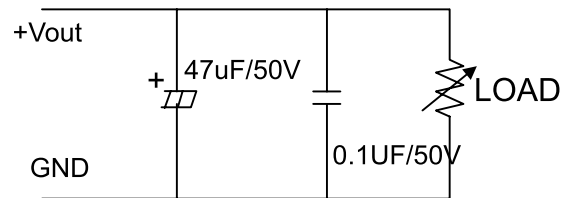
### 2.2.11 Short-Circuit Protection (SCP)

The power supply shall withstand a continuous output short without damage. The short may be applied before or after power-up. The power supply shall resume normal operation after short is removed.

### 2.2.12 Output Ripple and Noise

The specified noise & ripple are measured differently at the supply using maximum loads that are each shunted by 47uF electrolytic capacitor and 0.1uF ceramic capacitor.

Measurements shall be made by using an oscilloscope having a bandwidth of 20MHz



AC Input Voltage	Rated Output	Ripple & Noise	Bandwidth
100-240VAC	5V/2.1A	under 120mVp-p	20MHz

## 3. Test Requirements

### 3.1 Withstand Voltage

When AC voltage of 3.0KV is applied for 60 seconds (or 3.5KV is applied for 2 seconds) between the input and output and between the input and housing, the current sensitivity is output and greater than 5mA. After this test, the adaptor shall exhibit no electrical and mechanical abnormalities.

### 3.2 Insulation Resistance

The insulation resistance is more than 10Mohms at between input-plug and output-plug with 500VDC voltage.

### 3.3 Vibration Test

Frequency=10-55-10Hz, Amplitude 1.5mm, X-Y-Z direction, 30 minutes each direction. Under non-operating status, meet specification after test.

### 3.4 Environmental

#### 3.4.1 Temperature and Humidity

Operating temperature range: 0 degree C to 40 degree C

Operating humidity range: 20%R.H. to 90%R.H.

Storage temperature range: -20 degree C to 70 degree C

Storage humidity range: 5%R.H. to 95%R.H.

### **3.4.2 Drop Test**

The adapter shall exhibit no abnormality in mechanical or electrical performance when it is dropped three times to hardwood from a height of 100cm, with each of the three sides of the adapter striking the hardwood each time. Small nicks or slight deformations in the corners of the housing (will be accepted with 5mm Max. of nicks or 5mm Max. diameter of each corner), or cracks not penetrating the inside may be accepted.

### **3.4.3 Tensile Strength**

Fixing either of the main body shall make the test or the plug and applying a 20N load to the other part for 60seconds. No connections shall be broken and the cord shall not be removed.

### **3.4.4 Bending Test**

The test mode as follows: as shown on figure below, fix the main body and plug of the adapter, and apply a load of 200g to the other ends. Turn the cable connected to each by  $\pm 45$  degrees around the connection. Carry out this process 500 times at a rate of 40 times per minute (bending of 90 degrees shall be counted as one process) in each direction. The cable wires shall not be broken or damaged after test.

## **3.5 Safety Approvals**

The power supply holds valid GS, CE safety certifications.

## **3.6 EMI Standards**

The power supply meets the radiated and conducted emission requirements for EN55022 Class B.

## **3.7 EMS Standards**

### **3.7.1 EN61000-4-2 Electrostatic Discharge (ESD)**

Static – discharge test by contact or air should be conducted with static – discharge teeter, energy storage capacitance of 150pF, and discharge resistance of 330 $\Omega$ .  
8KV air discharge, 4KV contact discharge, Performance Criterion B.

### **3.7.2 EN61000-4-5 Lightning Surge Attachment**

Lightning Surge voltage of differential and command modes shall be applied across AC input lines and across input frame ground.

Power Line to Line: 1KV.

Performance Criterion B.

## **3.8 Leakage Current**

Leakage Current shall not exceed 0.35mA Max.

## **3.10 Burn-in**

The power supply will be performed a minimum for 2 hours Burn-in at 40°C  $\pm$ 5°C under 80% load to full load on all power supplies.

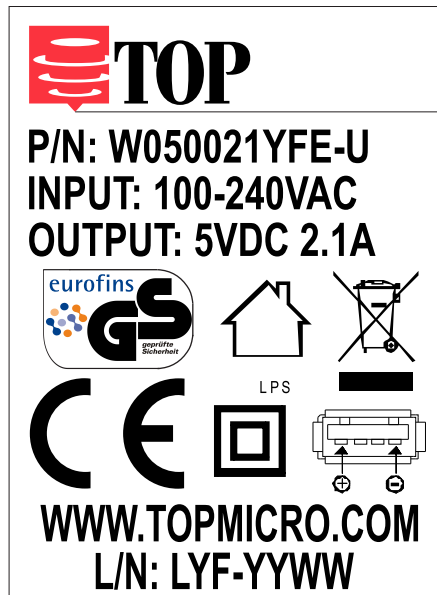
#### 4. Label

Color: Background white with black words.

Thickness: 0.15mm.

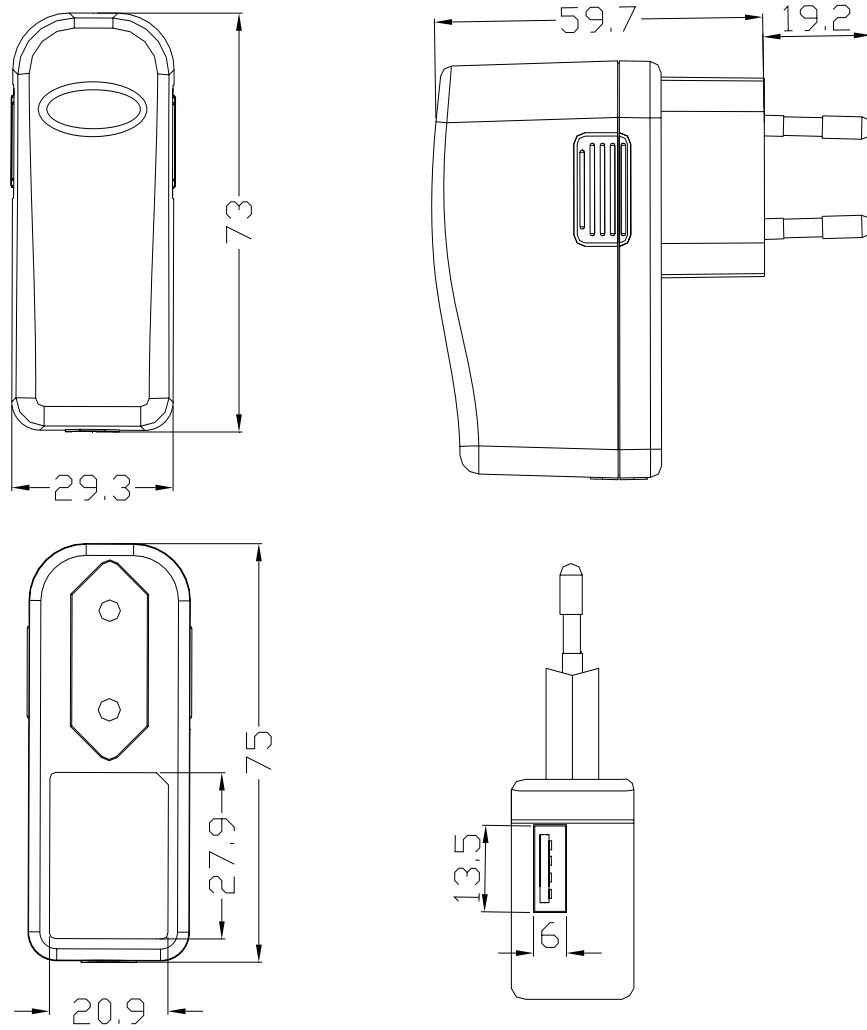
Unit: mm

27.6



20.6

### 5. Mechanical Drawing



P/N:  
W050021YFE-U (Black case color)  
W050021YFE-UW (White case color)

## 6. Packing

