

# AC / DC Power Adapter



## Description

These are general purpose AC/DC SMPS Adapter (Wall mount) which convert 100V AC ~ 240V AC to a stabilized DC voltage of 5V.

RoHS  
Compliant

## Input Feature

### Input Voltage and Frequency

Rating Voltage	: 100V AC ~ 240V AC
Input Frequency	: 50/60Hz
Minimum Voltage	: 90V AC
Maximum Voltage	: 264V AC

### Average Efficiency

Part Number	Specification
MC002382	Input 115V AC and 230V AC, the average efficiency is more than 73.62%.
MC002383	Input 115V AC and 230V AC, the average efficiency is more than 68.95%.

### Input Current

The maximum input current shall be less than 0.2A.

### Input In-rush Current

Part Number	Specification
MC002382	Peak inrush current shall be limited to 50A.
MC002383	The inrush current will not exceed 60A.

### Input Leakage Current

The leakage current shall not exceed 0.25mA.

## Output Feature

### Output Voltage and Current for MC002382

The switching mode power supply shall have one regulated DC output voltage: 5V DC. The table below defines the total regulation banding for the output, which includes line regulation, load regulation, transient response, and effects due to environmental conditions and aging. Voltage shall be measured at its output connector.

Output	Output Current Range		Output Voltage Range		Ripple & Noise
	Min.	Max.	Min.	Max.	Max.
+5V	0.0A	1.0A	4.7V	5.3V	150mVpp

Ripple & Noise Test: Add 0.1 $\mu$ F/50V ceramic capacitor and 10 $\mu$ F/50V aluminium electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope.

### Output Voltage and Current for MC002383

Static Output Characteristics <Vo & R+N>

Output	Rated Load		Output Range	R+N	
	Rate	Min. Load			Max. Load
+5V		0A	0.55A	4.7V ~ 5.3V	150mVp-p

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1µF ceramic capacitor and a 10µF electrolysis capacitor. (Test under the condition of rated input and rated output)

## Dynamic Response for MC002382

The load current of the output is changed between 20% and 80% under full load at 0.25A/us; the excursion of the output shall not exceed 10% of the nominal output voltage. The output voltage shall be within 10% of the steady state voltage in 1ms.

## Startup and Turn- on Delay for MC002382

The switching mode power supply shall be able to start up into a resistive load up to the maximum rated current with maximum load capacitance of 1,000µF. The elapsed time between the application of input power and the attainment of output voltage to the nominal value shall not exceed 3 seconds.

## Line/ Load Regulation for MC002383

Output	Load Condition		Line Regulation	Load Regulation
Rate	Min. Load	Max. Load		
+5V	0A	0.55A	±3%	±5%

## Turn - on Delay Time for MC002383

3S max. @ 100V AC to 240V AC input & Full load

## Hold-up Time for MC002383

5mS min. @ Full load & 115V AC/60Hz input turn off at worst case

## Capacitance Load for MC002383

Input 100 ~ 240V AC and capacitance load is 470µF, the adapter can turn on normally and the output is in the rated range.

## Output Overshoot / Undershoot for MC002383

10% max. When the power on or off

## Output Load Transient Response for MC002383

The output shall not exceed 10% of the nominal output voltage, load fluctuation: from 20% to 80%, R/S: 0.5A/µS, frequency: 100Hz duration and 8mS at 80%.

## Environment Requirements for Part No. MC002382 & MC002383

### Temperature

Operating Temperature : 0°C ~ +45°C

Storage Temperature : -20°C ~ +80°C

### Humidity

Operating Humidity : 10%RH ~ 90%RH ( non condensing)

Relative Humidity : 5%RH ~ 95%RH (non condensing)

## Protection Requirements

### Over Current Protection

Part Number	Specification
MC002382	The switching mode power supply shall withstand a continuous over current without damage. It may be applied before power-up, or after power-up. The switching mode power supply shall perform normally again after the over current removed.

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Part Number	Specification
MC002383	Over Current Point Limited : $I > 0.7A$ The output shall hiccup when the over currents applied to the output rail, and shall be self-recovery when the fault condition is removed

## Short Circuit Protection

Part Number	Specification
MC002382	Short circuit will do not cause the switching mode power supply to damage, or any safety hazards. It shall perform normally again after the short circuit removed.
MC002383	The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed

## Reliability Requirements for Part No. MC002382 & MC002383

### Burn-in

The power supply shall be burn-in at least 4 Hours under normal input and 80% rated load at  $40^{\circ}C \pm 5^{\circ}C$

### MTBF Qualification

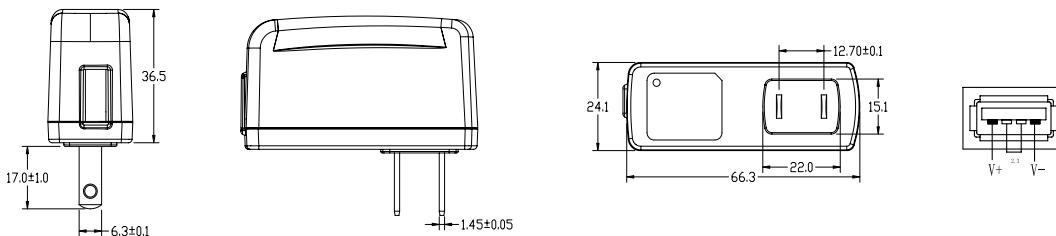
The MTBF shall be at least 50,000 hours at  $25^{\circ}C$ , Full load and nominal input condition

## Safety Standards for Part No. MC002382 & MC002383

### Dielectric Strength(Hi-pot)

Primary to Secondary: 4242V DC / 5mA Max. / 60 second(3 seconds for mass production)

## Diagram



Dimensions : Millimetres

## Part Number Table

Description	Part Number
SMPS Adapter (Wall mount), USB Output, Input 100~240V AC 50/60Hz, Output 5V, 2A, Efficiency Level VI	MC002382
SMPS Adapter (Wall mount), USB Output, Input 100~240V AC 50/60Hz, Output 5V, 0.55A, Efficiency Level VI	MC002383

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