



# MODEL NO. MPSM-5500V

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1.0 Scope

This specification defines the performance characteristics of a grounded, Ac input,500 watts, 5 output level power supply. This specification also defines world wide safety requirements and manufactures process test requirements.

2.0 Input requirements

2.1 Voltage (sinusoidal) : 100~240 VAC full range(With  $\pm 10\%$  tolerance).

2.2 Frequency

The input frequency range will be 47hz~63hz.

2.3 Steady-state current

8A/4A at any low/high range input voltage.

2.4 Inrush current

20/40 Amps @ 115/230 VAC

2.5 Power factor correction

The power supply shall incorporate universal power input with active power factor correction, which shall reduce line harmonics in accordance with the EN61000-3-2 standards.

PFC can reach the target of 95% @230VAC,Full load.

3.0 Output requirements

3.1 DC load requirements

Normal Output voltage	Load current(A)		Regulation tolerance	
	Min.	Max.	Max.	Min.
+5V	0.5	20	+5%	-5%
+12V	2	36	+5%	-5%
-12V	0	0.8	+5%	-5%
+3.3V	0.5	20	+5%	-5%
+5Vsb	0.1	3.5	+5%	-5%

Total power :500W(MAX)

+5V AND +3.3V Total Max.:40A

When doing the cross regulation test (one output channel at high load and the other output channels at low load), it is requested to set the higher output channel at 80% max. of its spec., and the lower output channels at 20% max. of theirs.

### 3.2 Regulation

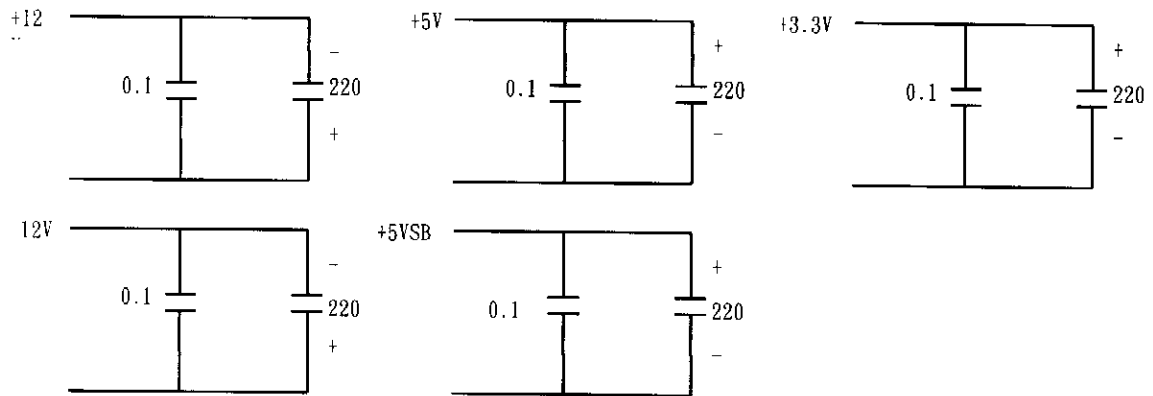
Output DC voltage	Line regulation
+5V	±50mV
+12V	±50mV
-12V	±50mV
+3.3V	±50mV
+5Vsb	±50mV

### 3.3 Ripple and noise

#### 3.3.1 Specification

+5V	50mV (P-P)
+12V	120mV (P-P)
-12V	120mV (P-P)
+3.3V	50mV (P-P)
+5Vsb	50mV (P-P)

#### 3.3.2 Ripple voltage test circuit



0.1uf is ceramic the other is tantalum.  
Noise bandwidth is from DC to 20MHz

### 3.4 Overshoot

Any overshoot at turn on or turn off shall be less 10% of the nominal voltage value , all output shall be within the regulation limit of section 3.2 before issuing the power good signal of section 6.0.

3.5 Efficiency

Power supply efficiency typical 80-85% at 25 °C 115V FULL LOAD .

4.0 Protection

4.1 Input (primary)

The input power line must have an over power protection device in accordance with safety requirement of section 8.0

4.2 Output (secondary)

4.2.1 Over power protection

The power supply shall provide over power protection on the power supply latches all DC output into a shutdown state. Over power of this type shall cause no damage to power supply, after over load is removed and a power on/off cycle is initiated, the power supply will restart. Trip point total power min. 120%, max. 160%.

4.2.2 Over voltage protection

If an over voltage fault occurs, the power supply will latch all DC output into a shutdown state.

	Min	Typical	Max
+3.3V	3.6V	4.1V	4.3V
+5V	5.6V	6.1V	6.5V
+12V	13.2V	14.3V	15.0V

4.2.3 Short circuit

A short circuit placed on +5V, +3.3V, +12V, -12V output to DC return shall cause no damage and power supply latch.

4.2.4 Restart after protection

After the protection mode (OPP/OVP) or short circuit is removed and a power on/off cycle is initiated, the power supply will restart. If the PSU is using AC power switch to control on/off, it has to be switched off at least for 5 seconds to restart the unit.

5.0 Power supply sequencing

5.1 Power on (see fig.1)

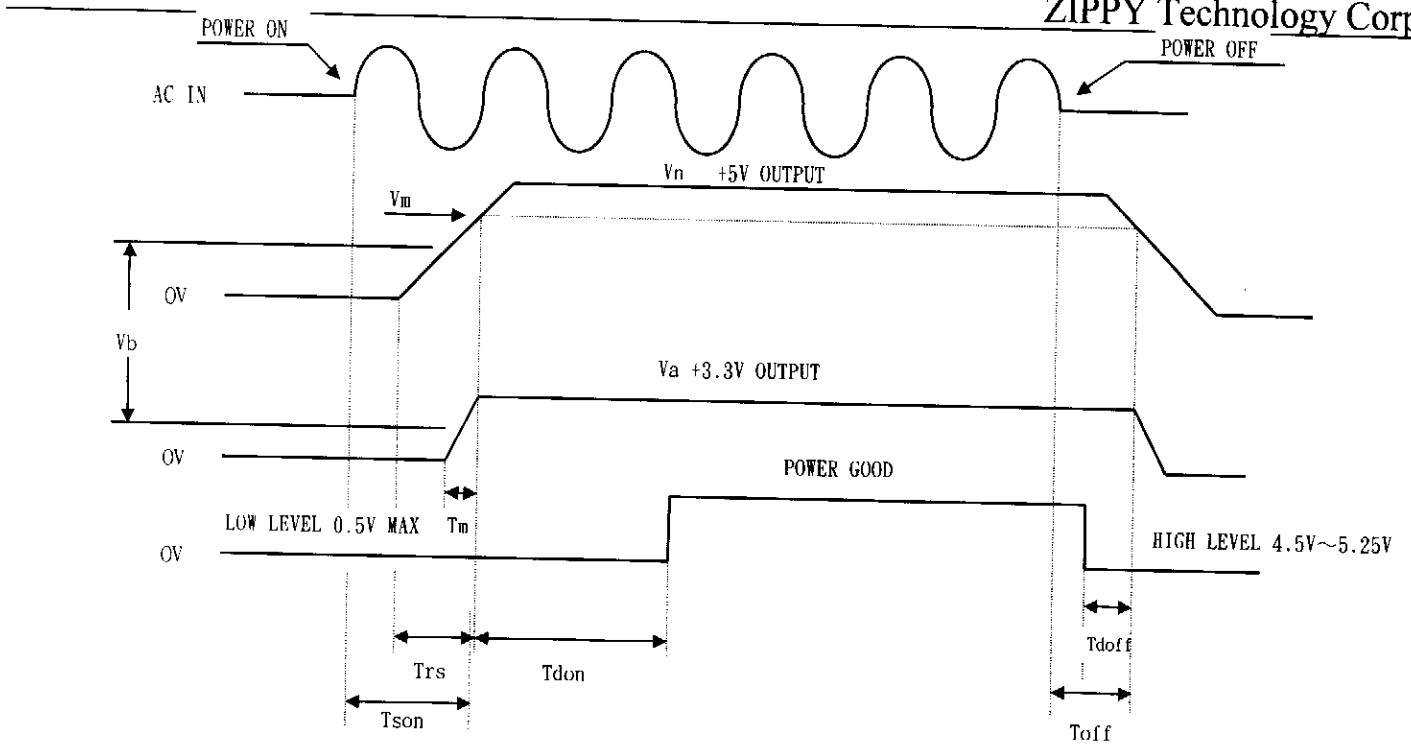
5.2 Hold up time

When power shutdown DC output 5V must be maintain 16msec in regulation limit at. normal input voltage

5.3 Power off sequence (see fig. 1)

6.0 Signal requirements





- Vn Nominal voltages +5V
- Vm Minimum voltages +4.5V
- Va Nominal voltages +3.3V
- Vb +2.0V max
- Tson Switch on time (2000 ms. max.)
- Trs +5V rise time (50ms. max.)
- Tdon Delay turn-on (100ms. < Tdon < 500ms.)
- Tdoff Delay turn-off (1 ms. min.)
- Toff Hold up time (16ms Min)

《Figure 1》