

# SPECIFICATION

**STYLE**                      **SWITCHING POWER SUPPLY**  
**NAME :** \_\_\_\_\_

**MPW- 6180F**  
**MODEL NO. :** \_\_\_\_\_

**PART NO. :** \_\_\_\_\_

**A4**  
**REVISION :** \_\_\_\_\_

<b>APPROVE</b>			
<b>CHECK BY</b>			
<b>FORM MAKER</b>			

- 1.0 Scope
- 2.0 Input requirements
  - 2.1 Voltage
  - 2.2 Frequency
  - 2.3 Stead-state current
  - 2.4 Inrush current
- 3.0 Output requirements
  - 3.1 DC load requirements
  - 3.2 Regulation and protection
  - 3.3 Ripple and noise
    - 3.3.1 Specification
    - 3.3.2 Ripple voltage test circuit
  - 3.4 Overshoot
  - 3.5 Efficiency
  - 3.6 Remote on/off control
- 4.0 Protection
  - 4.1 Input
  - 4.2 Output
    - 4.2.1 OPP
    - 4.2.2 OVP
    - 4.2.3 Short current
- 5.0 Power supply sequencing
  - 5.1 Turn on
  - 5.2 Hold up time
  - 5.3 Power off sequence
- 6.0 Signal requirements
  - 6.1 Power good (POR)
  - 6.2 Under voltage sense level
- 7.0 Environment
  - 7.1 Operation
  - 7.2 Insulation resistance
  - 7.3 Dielectric withstanding voltage
  - 7.4 Leakage current
- 8.0 Safety
  - 8.1 UL & UL+C
  - 8.2 TUV

## 9.0 Reliability

### 9.1 Burn in

## 10.0 Mechanical requirements

### 10.1 Physical dimension

### 10.2 AC inlet

## 1.0 Scope

This specification defines the performance characteristics of a grounded single-phase 180 watts 6 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)

Low range	95 132 VAC	Normal	100 125 VAC
High range	180 260 VAC	Normal	200 240 VAC

A manual switch shall be provided to select the appropriate range.

An automatic voltage selector can be an optional item which replace the manual switch.

Starting voltage	: 85 VAC
Working voltages	: 90 260 VAC
Switch-over voltage	: 150±10 VAC

### 2.2 Frequency

The input frequency range will be 47hz 63hz.

### 2.3 Steady-state current

6/3. amps maximum at 115/230 VAC input voltage.

### 2.4 Inrush current

30/60 amps @ 110/220 VAC (at 25 degrees ambient cold start)

## 3.0 Output requirements

### 3.1 DC load requirements

Normal Output voltage	Load current		Regulation tolerance	
	Max.	Min	Max.	Min.
+5V	12.0	3.0	+5%	-5%
+12V	7.0	1.0	+8%	-8%
-5V	0.2	0.0	+10%	-10%
-12V	1.0	0.0	+15%	-10%
+3.3V	6.0	1.0	+5%	-5%
+5VSB	1.5	0.0	+6%	-5%

### 3.2 Regulation and protection

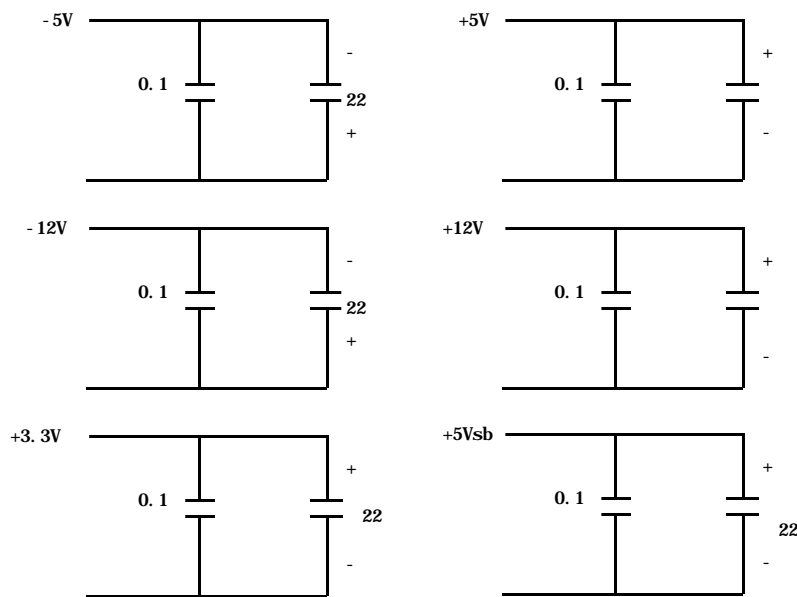
Output DC voltage	Line regulation	Load regulation	Cross regulation
+5V	±50mV	±250mV	±200mV
-5V	±50mV	±150mV	±150mV
+12V	±50mV	±500mV	±500mV
-12V	±50mV	±600mV	±500mV
+3.3V	±50mV	±200mV	±150mV
+5VSB	±50mV	±200mV	±150mV

### 3.3 Ripple and noise

#### 3.3.1 Specification

+5V	160mV (P-P)
+12V	120mV (P-P)
-5V	120mV (P-P)
-12V	150mV (P-P)
+3.3V	80mV (P-P)
+5VSB	70mV (P-P)

#### 3.3.2 Ripple voltage test circuit



0.1uF is ceramic the other is tantalum

#### 3.4 Overshoot

Any overshoot at turn on or turn off shall be less 15% 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 60% at 115V full load. Power factor can not below 0.5

#### 3.6 Remote on/off control

The power supply DC outputs (with the exception of +5VSB) shall be enabled with an active-low TTL-compatible signal("PS-ON")

When PS-ON is pulled to TTL low the dc outputs are to be enabled.

When PS-ON is pulled to TTL high or open circuited the DC outputs are to be disabled.

The DC output enable circuit shall be SELV compliant.

## 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

Over power protection at 110% 150% of rated output power .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 power is removed and a power on/off cycle is initiated the power supply will restart.

#### 4.2.2 Over voltage protection

If an over voltage fault occurs (internal of the power supply) the power supply will latch all DC output into a shutdown state before

+5V	5.5V	7.0V
+12V	13.5V	16.5V
+3.3V	4.0V	5.0V

#### 4.2.3 Short circuit

A short circuit placed on any DC output to DC return shall cause no damage and power supply latch.

## 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

### 6.1 Power good signal (see fig. 1)

The power supply shall provide a "power good" signal to reset system logic indicate proper operation of the power supply and give advance warning of impending loss of regulation at turn off. This signal shall be a TTL compatible up level (2.4V to 5.25V) when +5V output voltage are present and above the minimum UV sense levels specified in paragraph 6.2 or a down level (0.0V to 0.8V) when any output is below its minimum UV sense level.

At power on the power good signal shall have a turn on delay of at least 100ms but not greater than 500ms after the output voltages have reached their respective minimum sense levels.

## 6.2 Under voltage (UV) sense levels

<u>Output</u>	<u>Minimum sense voltage</u>
+5V	+4.50V
+3.3V	+2.50V

## 7.0 Environment

### 7.1 Operation

Temperature

10 to 50 degrees centigrade

(Evaluated for UL recognition at an operating temperature of 25 ambient)

### 7.2 Insulation resistance

Primary to secondary

: 20 meg. ohm min. 500 VDC

Primary to FG

: 20 meg. ohm min. 500 VDC

### 7.3 Dielectric withstanding voltage

Primary to secondary

: 1500 VAC for 1 sec.

Primary to FG

: 1500 VAC for 1 sec.

### 7.4 Leakage current

3.5 mA. max. at nominal voltage 250 VAC

## 8.0 Safety

8.1 Recognized to U.S. and Canadian requirements under the component recognition program of Underwriters Laboratories Inc.

### 8.2 TUV approval

The power supply shall be designed to meet TUV EN-60950.

## 9.0 Reliability

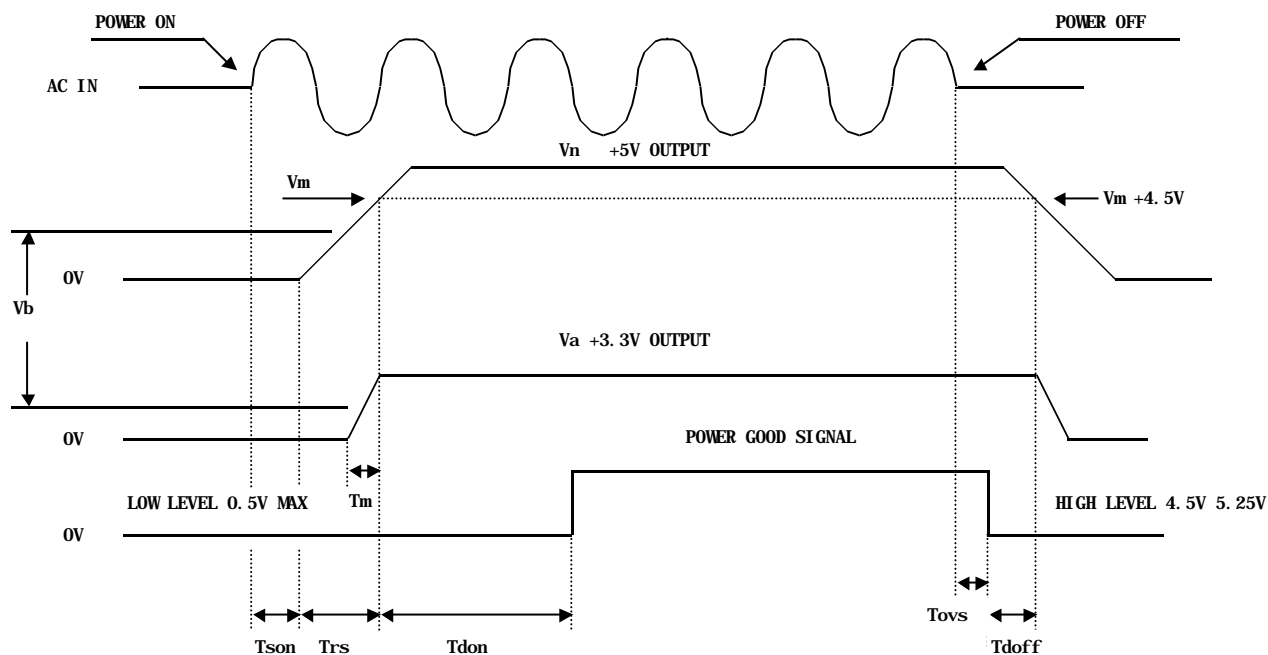
### 9.1 Burn in

All products shipped to customer must be burn in. The burn in shall be performed at high line voltage.

## 10.0 Mechanical requirements

10.1 Physical dimension : 190 mm(L) \* 100 mm(W) \* 40.5 mm(H)

10.2 Connector power input (SUPERCOM SC-8) or equivalent.



- $V_n$  Nominal voltages +5V
- $V_m$  Minimum voltages +4.5V
- $V_a$  Nominal voltages +3.3V
- $V_b$  +2.0V max
- $T_{son}$  Switch on time (500 ms. max.)
- $T_{rs}$  +5V rise time (100ms. max.)
- $T_{don}$  Delay turn-on (100ms. <  $T_{don}$  < 500ms.)
- $T_{doff}$  Delay turn-off (1 ms. min.)
- $T_{off}$  Hold up time (16ms. min.)
- $T_m$  Delay time of +3.3V (1ms. min)

Figure 1