

# Top Microsystems Corp.

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## ENGINEERING SPECIFICATION

**MODEL NO :** P5120W

Flex ATX TYPE

**DOCUMENT NO :** EG-C-21-03-04

**DESCRIPTION :** 120W Switching Power Supply  
UL,CSA,TUV,CE,FCC

**REVISION :** A

**ISSUE DATE :** 03/07/2003

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### 1. SCOPE

This specification describes the performance characteristics of a grounded, single phase, 120 watts, 5 output level power supply, with ATX form factor.

In addition, it defines a worldwide safety requirement and electromagnetic compatibility requirement for ATX Power Supply.

### 2. INPUT REQUIREMENTS

Description	Min	Typical	Max.	Condition
Input Voltage	95VAC	115/230V	264VAC	Auto Range ; 50/60Hz
Input Current	-	-	4A	115 VAC 50Hz
Line Frequency	47Hz	50/60Hz	63Hz	-
Inrush Current	-	-	60A	230VAC Cold Start
Efficiency	-	65%	-	115VAC at full load

### 3. OUTPUT CHARACTERISTICS

#### 3.1 STATIC DC LOAD , RIPPLE & NOISE

NOMINAL VOLTAGE (DC)	OUTPUT CURRENT		REGULATION (%)	RIPPLE & NOISE
	MIN.	MAX.		
+3.3Volt	0.5A	3A	+/-5	50mV
+5Volt	1A	10A	+/-5	60mV
+12Volt	0.5A	6A	+/-5	120mV
-12Volt	0A	0.2A	+/-10	120mV
+5Vsb	0A	1.5A	+/-5	100mV

NOTE : □ 20MHz bandwidth ripple & noise is measured by using 0.1uF C.C. & 10uF/50V E.C. bypassed at the output connector.

□ Regulation shows the percentage of absolute value of nominal output voltage.

The total output of 3.3V & 5V should not exceed 50 watts and the total output should be 120 watts the max.

#### 3.2 HOLD UP TIME

The power supply unit should maintain its proper output voltage within voltage specifications for at least 16.7 milliseconds after losing input power under the condition of typical input with 80% full loading.

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### 3.3 OVERSHOOT AT TURN-ON/TURN-OFF

Any overshoots during turn-on/turn-off should be less than +/-5% of the voltage regulation tolerance. No voltage of opposite polarity shall be present on any output during turn-on or turn-off.

### 3.4. TEMPERATURE COEFFICIENT

The temperature coefficient of all outputs is +/-0.05% per degree C maximum.

## 4. PROTECTION

### 4.1 OVER VOLTAGE PROTECTION

If any over voltage fault occur, the power supply should latch off before any output exceeds its limit below.

NOMINAL VOLTAGE ( V )	OVERVOLTAGE RANGE ( V )	
	FROM	TO
+3.3	3.7	4.1
+5	5.6	6.5
+12	13.3	14.3

The power supply will not be automatically recovered after the over voltage fault being removed. A manual power reset is necessary.

### 4.2 SHORT CIRCUIT PROTECTION

Any short circuit occurred on any DC output should not cause any damage to the power supply, but will shut down the power supply. The power supply will not be automatically recovered after the short circuit being removed. A manual power reset is necessary.

### 4.3 OVERLOAD PROTECTION

An over load protection will be effected when either of the loadings : +5V, +3.3V & +12V exceeds +110% to 160%. The power supply won't be automatically recovered after the overload being removed. It needs to do the input power reset.

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**5. REMOTE ON/OFF CONTROL**

As logic level is LOW : Output voltage is enabled.  
 As logic level is HIGH or floating : Output voltage is disabled.  
 Note: Logic high level: 3.5-5.25 V, Logic low level: 0-0.5 V

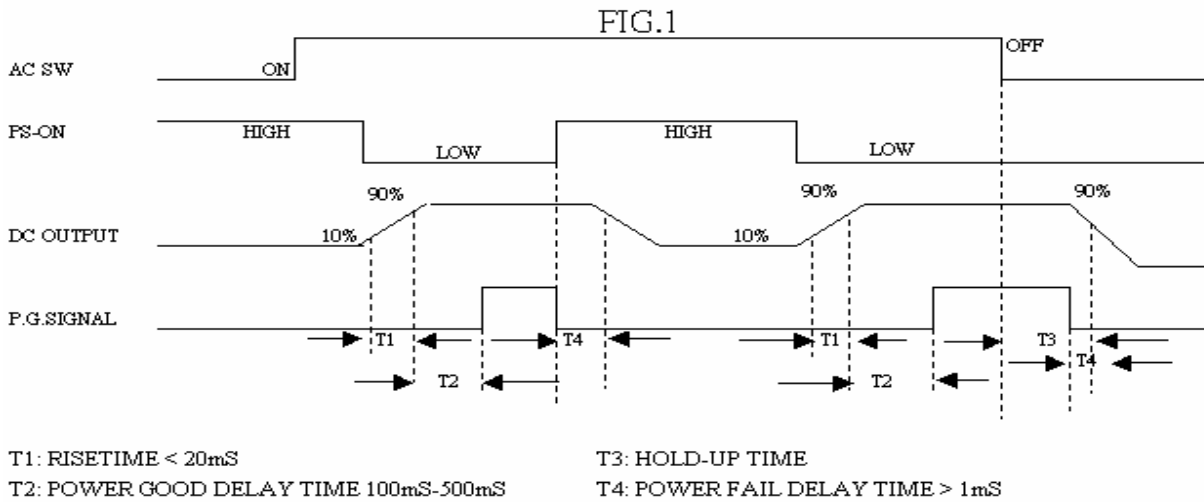
**6. RISE TIME**

After turning on, less than 20 mS will be needed for the rise of +5V output voltage (measured from 10% point to 95% point on the waveform) to reach its peak.

**7. POWER GOOD SIGNAL**

After power-on with nominal AC input, there might be a turn-on delay ( between 100 mS to 500mS ) before the Power Good Signal is issued, which occurs before +5V output reaches its minimum sense level of +4.75V.

When turn-off, the Power Good Signal shall go to a lower level for at least 1 mS before +5V falls under the regulation limit described in paragraph 3.1



**8. SAFETY PROVIDED**

- UL - UL1950, Third Edition
- CSA - CSA22.2
- TUV - EN60950
- CB - IEC950

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8.1 DIELECTRIC WITHSTAND

- Primary to Secondary : 3000 VAC for 60 Sec.
- Primary to Frame Ground : 1500 VAC for 60 Sec.

8.2 INSULATION RESISTANCE

- Primary to Secondary : 20 Meg. Ohms Min. 500 VDC.
- Primary to Frame Ground : 20 Meg. Ohms Min. 500 VDC.
- Secondary to Frame Ground : 10 Meg. Ohms Min. 500 VDC.

9. ELECTROMAGNETIC COMPABILITY

Tests for conformance to this requirements will be performed with host system.

9.1 FCC Requirements

The adapter shall comply with the FCC rules and regulations Part 15, Subpart J, "Class B" limits.

9.2 CE Requirements

The adapter shall confirm to the "Class B" requirements of EN55022.

10. ENVIRONMENT

10.1 OPERATING

- Temperature : 0 to 40 degree centigrade
- Relative Humidity : 10 to 90 percent, non-condensing

10.2 SHIPPING AND STORAGE

- Temperature : -40 to +70 degree centigrade
- Relative Humidity : 5 to 95 percent, non-condensing

11. RELIABILITY : WARRANTY ONE YEAR

MTBF : 80,000 hours min. at max. load for 25 degree centigrade ambient temperature.

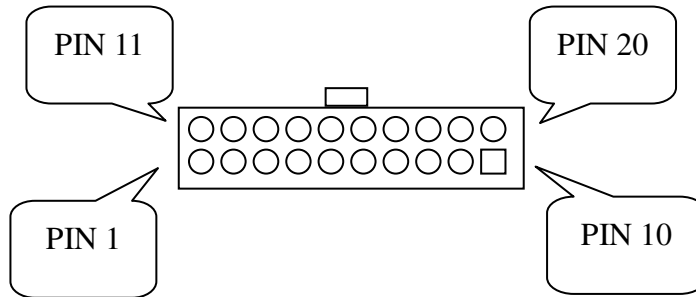
12. BURN-IN TEST : 100% burn-in tested at max. load under 40 +/-5 degree centigrade.

13. MECHANICAL DIMENSION

13.1 Case dimension : 120(L) X 82(W) X 41.5(H)mm

14. OUTPUT CONNECTOR

**Flex ATX Main Power Supply Connector**



Pin	Signal	18AWG Wire
1	+3.3 VDC	Orange
2	+3.3 VDC	Orange
3	COM	Black
4	+5 VDC	Red
5	COM	Black
6	+5 VDC	Red
7	COM	Black
8	POK	Gray
9	+5 V <sub>SB</sub>	Purple
10	+12 VDC	Yellow
Pin	Signal	18AWG Wire
11	3.3V VDC	Orange
12	-12 VDC	Blue
13	COM	Black
14	PS-ON	Green
15	COM	Black
16	COM	Black
17	COM	Black
18	NC	-
19	+5 VDC	Red
20	+5 VDC	Red