

TOP MICROSYSTEMS

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ENGINEERING SPECIFICATION

MODEL NO : P6450W A12

450WATTS

DOCUMENT NO : EG-C-2X-01-0X

DESCRIPTION : 450W Switching Power Supply

UL,CSA,TUV,CE,CB,FCC

REVERSION : A

ISSUE DATE : 03/28/2003

TOP MICROSYSTEMS	PREPARE BY :	CHECK BY :	APPROVAL BY :

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DESCRIPTION : 450W Switching Power	ISSUE	03/28/03 REV : A

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1. SCOPE

This specification describes the performance characteristics of a grounded, single phase, 450 watts, 6 output level power supply with ATX Form Factor, remote control, +3.3V, +5V, +12V, -5V,-12V and +5Vsb. In addition, it defines a worldwide safety requirement and electromagnetic compatibility requirement of ATX power supply.

2. INPUT REQUIREMENTS (AUTO RANGE)

2.1 INPUT VOLTAGE

	Minimum---Maximum	(Nominal)
Low Range	95 VAC ---132 VAC	(115VAC)
High Range	190 VAC---264 VAC	(230VAC)

2.2 FREQUENCY

	Minimum---Maximum	(Nominal)
SINGLE PHASE	47HZ --- 63HZ	50/60HZ

2.3 VOLTAGE SELECTION

With Auto Range function.

2.4 INPUT CURRENT

- 10 Amps maximum at 115 VAC input voltage
- 5 Amps maximum at 230 VAC input voltage

2.5 INRUSH CURRENT

- 65 Amps peak max. for one half cycle of AC 115V (cold start)
- 130 Amps peak max. for one half cycle of AC 230V (cold start)

2.6 POWER SUPPLY EFFICIENCY

The power supply efficiency should not be less than 70% at the Maximum load of paragraph 3.1 with the AC input at any nominal low range of high range voltage specific in paragraph 2.1

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3. OUTPUT REQUIREMENTS

3.1 STATIC DC LOAD

NOMINAL VOLTAGE(DC)	LOAD CURRENT		REGULATION (%)
	MIN.	MAX.	
+3.3 V	0.0 A	28 A	+/- 5
+5 V	2.0 A	40 A	+/- 5
-5 V	0.0 A	0.5 A	+/- 5
+12 V	0.5 A	17 A	+/- 5
-12 V	0.0 A	1.5 A	+/- 10
+5 Vsb	0.0 A	1.5 A	+/- 5

- The total output of 3.3V & 5V should not exceed 225 watts and the total output should be 450 watts the max.

3.2 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 : 3.5-5.25V Logic low level : 0-0.5V

3.3 AC OUTPUT CONNECTOR(Optional)

	Minimum---Maximum	Output Current Maximum
Low Range	95 VAC ---132 VAC	1 Amps
High Range	190 VAC ---264 VAC	0.5 Amps

3.4 RIPPLE AND NOISE

The ripple and noise of the outputs should be measured at the full load

Output Voltage(DC)	Ripple & Noise(p-p)
+3.3 V	50 mV
+5 V	60 mV
-5 V	60 mV
+12 V	120 mV
-12 V	120 mV
+5 Vsb	100 mV

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NOTE : 20MHz bandwidth ripple & noise is measured by using 0.1uF C.C.
& 47uF/50V E.C. bypassed at the output connector.

3.5 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 115 VAC (or 230 VAC input) with 75% loading.

3.6 OPERATION AT NO LOAD

The power supply shall be capable of being operated with no load on any or all outputs without damage. For no load on +3.3V & +5V, the output shall not Exceed +4.5 & +6.5VDC and the power supply may shutdown and require by Remote-control or remove AC power restart.

4. OVERSHOOT

Any overshoots during turning-on or turning-off should be less than +/-5% of the nominal output voltage values. All outputs shall fail within the regulation limit of paragraph 3.1 before the power good signal is issued.

5. TEMPERATURE COEFFICIENT

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

6. PROTECTION

6.1 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	4.0	4.5
+5	5.6	6.5
+12	13.5	15.5

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

6.2 SHORT CIRCUIT PROTECTION

Any short circuit occurred on any DC output should not cause any damage to the power supply or 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.

6.3 OVERLOAD PROTECTION

An over load protection will be effected when either of the loadings : +5V combine With +3.3V and +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.

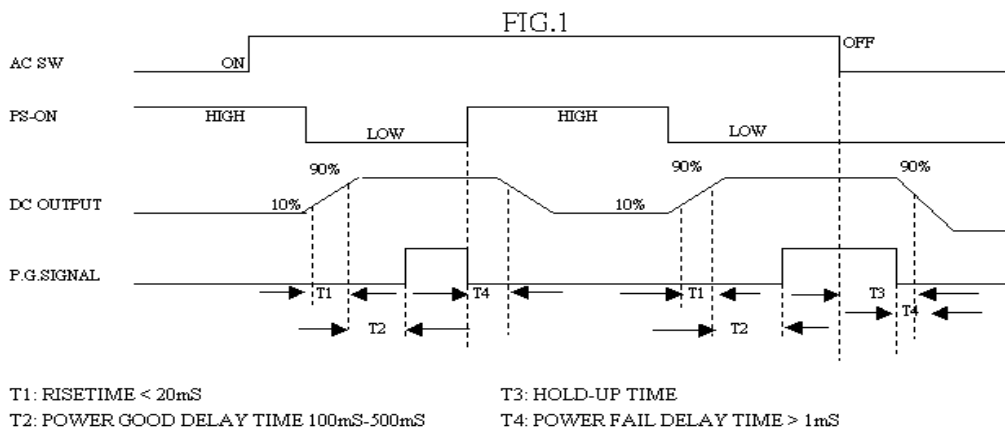
7. TURN-ON DELAY

After turning on, at least 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.

8. POWER GOOD SIGNAL (POWER-ON TIME)

After power-on with nominal AC input, there might be a turn-on delay (between 100mS 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



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9. SAFETY PROVIDED

- UL - UL1950, 3rd Edition
- CSA - CSA22.2 No.950
- TUV - EN60950
- CB - IEC950
- FCC - Class “ B “
- CE - EN55022 class “ B “
 - EN61000-4-2
 - EN61000-4-3
 - EN61000-4-4
 - EN61000-4-5

9.1 DIELECTRIC WITHSTAND

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

9.2 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.

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. DIMENSION

Case dimension : 150(L) X 140(W) X 86(H)mm

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12. PIN ASSIGNMENT

12.1 Standard Pin Assignment.

12.1.1 P1 : 20 Pin & Wire

ATX Main Power Supply Connector

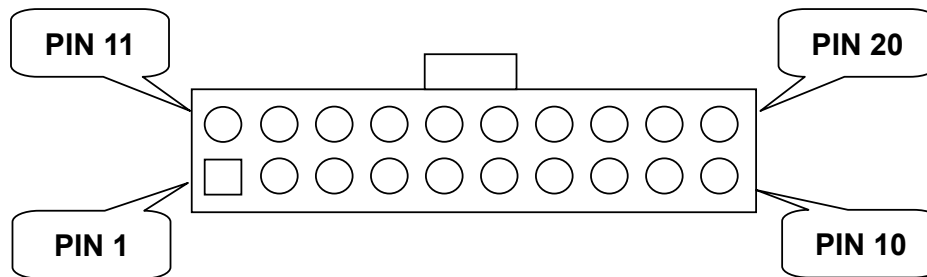


FIG.2

Pin	Signal	Wire		Pin	Signal	Wire	
1	+3.3 VDC	Orange	18AWG	11	+3.3 VDC	Orange	18AWG
				11	+3.3 V sense	Brown	22AWG
2	+3.3 VDC	Orange	18AWG	12	-12 VDC	Blue	18AWG
3	COM	Black	18AWG	13	COM	Black	18AWG
4	+5 VDC	Red	18AWG	14	PS-ON	Green	18AWG
5	COM	Black	18AWG	15	COM	Black	18AWG
6	+5 VDC	Red	18AWG	16	COM	Black	18AWG
7	COM	Black	18AWG	17	COM	Black	18AWG
8	POK	Gray	18AWG	18	-5 VDC	White	18AWG
9	+5 V _{SB}	Purple	18AWG	19	+5 VDC	Red	18AWG
10	+12 VDC	Yellow	18AWG	20	+5 VDC	Red	18AWG

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