文號：SP- 430067

規格書
SPECIFICATION

品名 STYLE NAME ： SWITCHING POWER SUPPLY

型號 MODEL NO. ： HP2-6500P

料號 PART NO. ：

版次 REVISION ： A5

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Revision

Rev.	Page	Item	Date	Description
A2	7	7.3 11.0	SEP-13-2001	Update the Hi-pot voltage Update output power derating drawing
A3	4	3.1	SEP-19-2001	Update +5V & +12V Min load
A4	4 6	3.1 4.2.3	MAR-21-2003	Update +12V rating Update +12V Over Voltage Protection
A5	4	2.5	MAR-14-2005	Add Power factor correction description

MODEL NO. HP2-6500P

1.0 Scope

This specification defines the performance characteristics of a grounded, Ac input,500 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) : 100～264 VAC full range.

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

2.3 Steady-state current
8.0/4.0A at any low/high range input voltage.

2.4 Inrush current
65/125 Amps @ 110/220 VAC

2.5 Power factor correction
The power supply modules shall incorporate universal power input with active power factor correction, which shall reduce the line harmonics in accordance with the IEC61000-3-2 standards.
PFC:up to the target of 95% @230V,full load.

3.0 Output requirements

3.1 DC load requirements

Normal	Load current(A)		Regulation tolerance	
Output voltage	Min.	Max.	Min.	Max.
+5V	2.5	40	-5%	+5%
+12V	1.0	32	-5%	+5%
-5V	0	0.8	-5%	+5%
-12V	0	1A	-5%	+5%
+3.3V	1.0	30	-5%	+5%
+5Vsb	0.1	2.0	-5%	+5%

Total power : 500W (Max)
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 90% max. of its spec., and the lower output channels at 20% max. of theirs.

3.2 Regulation and protection

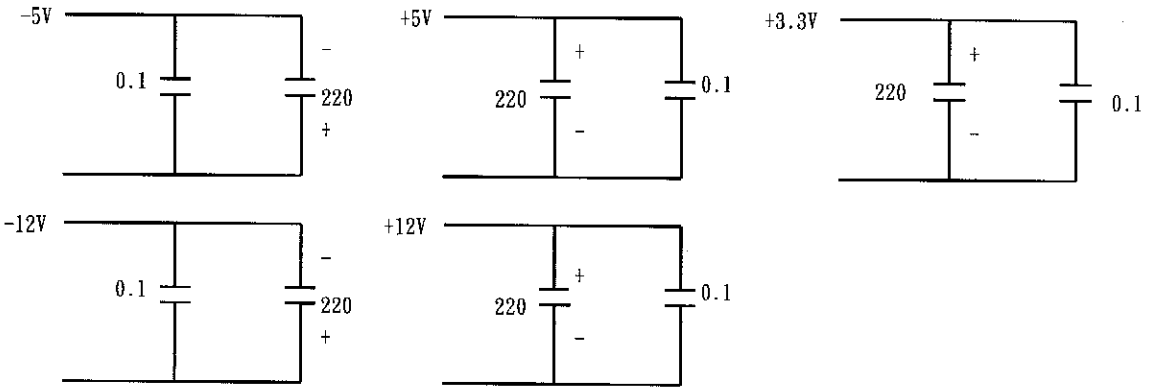
Output DC voltage	Line regulation	Load regulation	Cross regulaion
+5V	±50mV	±250mV	±250mV
-5V	±50mV	±250mV	±250mV
+12V	±50mV	±600mV	±600mV
-12V	±50mV	±600mV	±600mV
+3.3V	±50mV	±165mV	±165mV
+5Vsb	±50mV	±250mV	±250mV

3.3 Ripple and noise

3.3.1 Specification

+5V	60mV (P-P)
+12V	100mV (P-P)
-5V	100mV (P-P)
-12V	100mV (P-P)
+3.3V	60mV (P-P)
+5Vsb	60mV (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 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 70% at 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. 110% , max. 150%.

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	3.9V	4.1V	4.3V
+5V	5.7V	6.1V	6.5V
+12V	13.6V	14.3V	15.0V

4.2.3 Over current protection
If an over current fault occurs , the power supply will latch all DC output into a shutdown state.

	Min	Typical	Max
+3.3V	33A	39A	45A
+5V	44A	52A	60A
+12V	35.2A	41.6A	48A

4.2.4 Short circuit
A short circuit placed on +5V,+3.3V,+12V,-5V,-12V 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 full load under 90VAC 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.
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.

7.0 Environment

7.1 Operation

Temperature	0 to 40 degrees centigrade

7.2 Humidity

Operating humidity	20% to 80%
Non-operating humidity	10% to 90%

7.3 Insulation resistance

Primary to secondary	: 30 meg. Ohm min. 500 VDC
Primary to FG	: 30 meg. Ohm min. 500VDC

7.4 Dielectric withstanding voltage

Primary to secondary	: 1800 VAC for 60 Second.
Primary to FG	: 1800 VAC for 60 Second.

7.5 Leakage current

3.5 mA max. at nominal voltage VAC

8.0 Safety

8.1 Underwriters laboratory (UL).

The power supply designed to meet UL 60950.

8.2 Canadian standards association (CUL)

The power supply designed to meet CSA 1402C & CSA 950.

8.3 TUV

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

9.0 Reliability

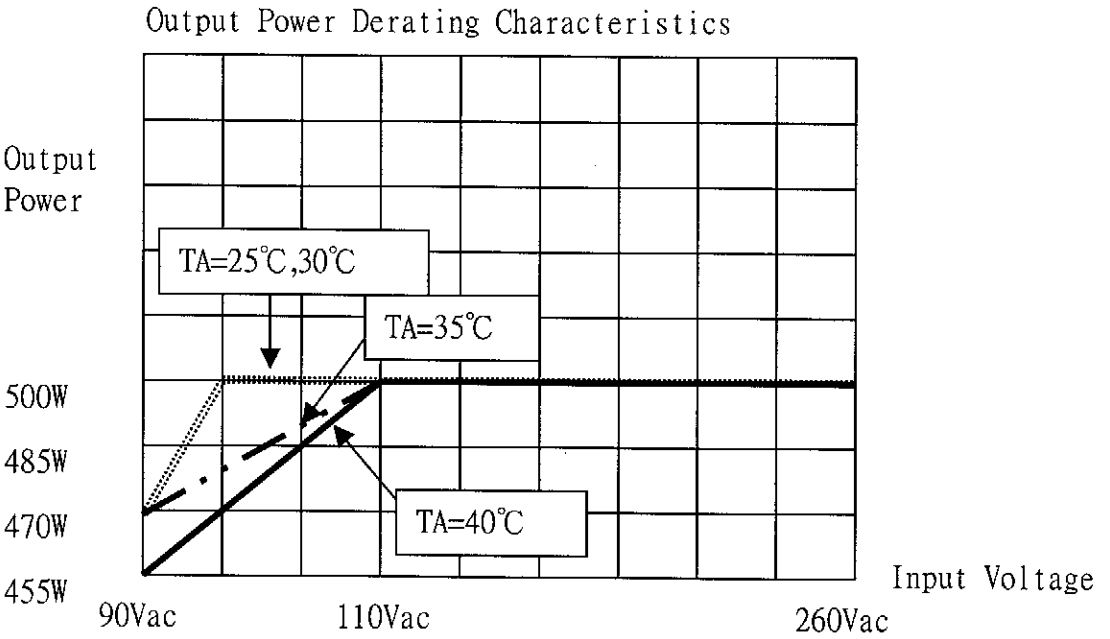
9.1 Burn in

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

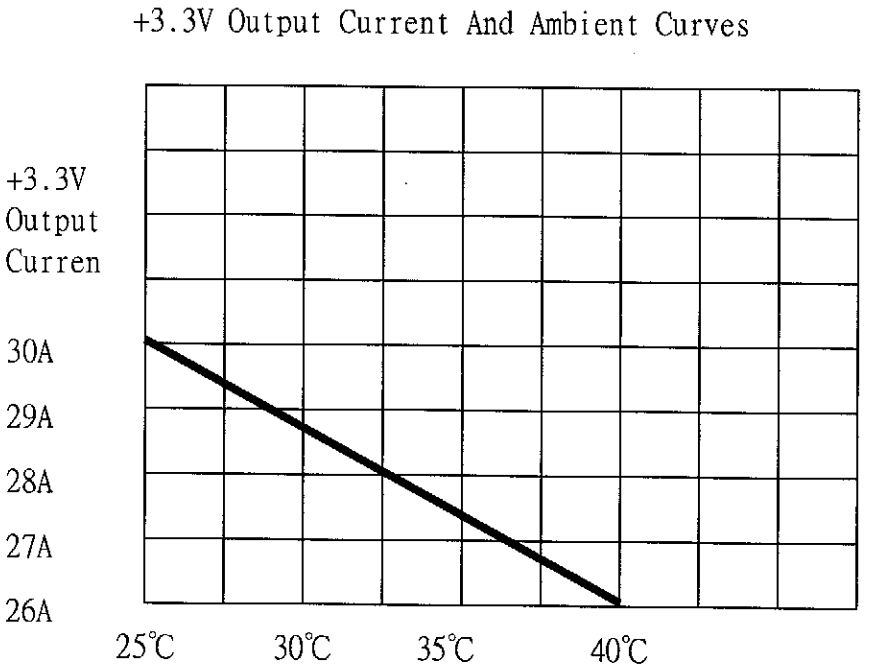
10.0 Mechanical requirements

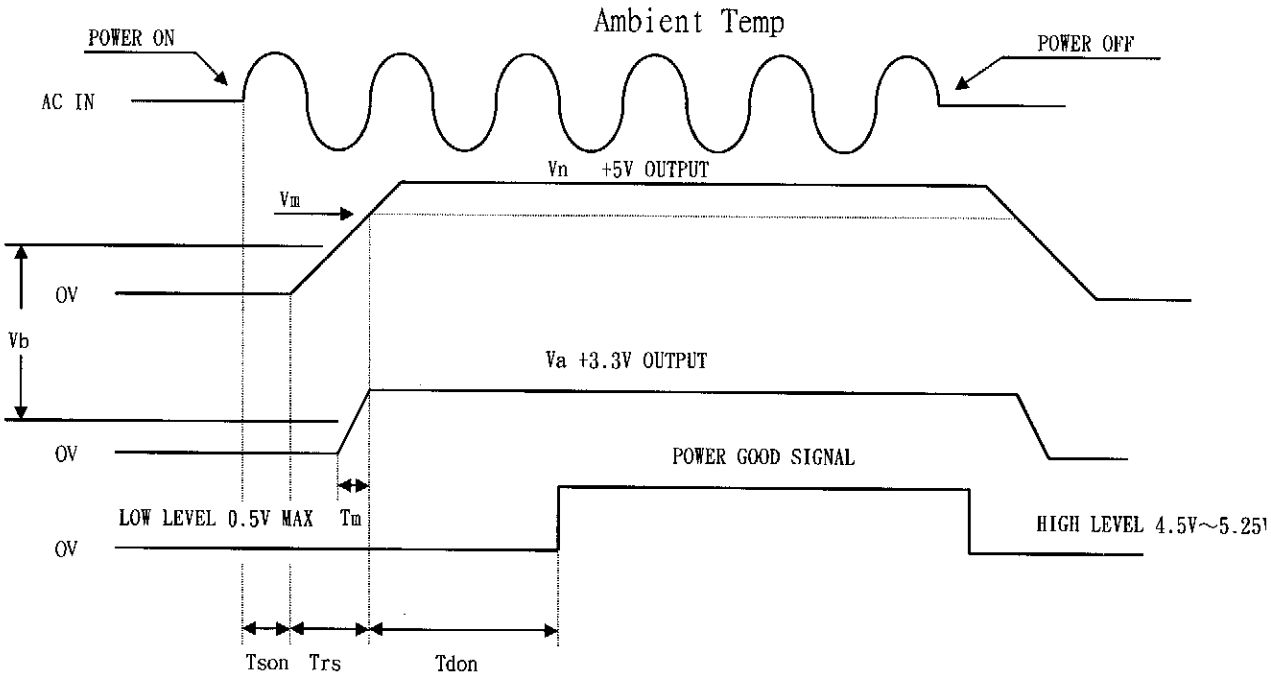
10.1 Physical dimension : 150 mm(D) * 140 mm(W) * 86 mm(H)

11.0 Output power derating characteristics



12.0 +3.3v output current and ambient temp curves





Vn	Nominal voltages +5V
Vm	Minimum voltages +4.5V
Va	Nominal voltages +3.3V
Vb	+2.0V max
Tson	Switch on time (1000 ms. max.)
Trs	+5V rise time (40ms. max.)
Tdon	Delay turn-on (100ms. < Tdon < 500ms.)
Tdoff	Delay turn-off (1 ms. min.)

《Figure 1》