	規格書 SPECIFICATION		
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Revision

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MODEL NO. P1A-6301P

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1.0 Scope

This specification defines the performance characteristics of a grounded, single-phase, 300 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)

Full range $100 \quad 240 \text{ VAC}$ (With $\pm 10\%$ tolerance)

- 2.2 Frequency The input frequency range will be 50Hz/60Hz(±3Hz).
- 2.3 Steady-state current
 6 3 amps maximum at any low/high range input voltage.
- 2.4 Inrush current 60/80 amps @110/220 VAC (at 25 degrees ambient cold start)
- 2.5 Power factor correction
 PFC can reach the target of 95% @110V,full load, following the standard of IEC 1000-3-2, class D.

3.0 Output requirements

3.1 DC load requirements

Normal	Load	current	Regulatio	on tolerance
Output voltage	Max.	Min	Max.	Min.
+5V	24A	3.0A	5.25V	4.75V
-5V	0.5A	0.0A	-5.5V	-4.5V
+12V	20A	2.0A	12.96V	11.04V
-12V	0.5A	0.0A	-13.2V	-10.8V
+3.3V	20A	1.0A	3.46V	3.14V
+5VSB	1.5A	0.1A	5.25V	4.75V

*** +5V and +3.3V total output max:170W ***

*** +5V,+3.3V and +12V total output max:284W ***

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% min. of theirs.

3.2 Regulation

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

3.3 Ripple and noise

3.3.1 Specification

Norminal	Ripple	Ripple+Noise
+5V	50mV	80mV
-5V	100mV	150mV
+12V	80mV	120mV
-12V	100mV	150mV
+3.3V	50mV	80mV
+5VSB	50mV	80mV

3.3.2 Ripple voltage test circuit



0.1 uf 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 than 15% of the nominal voltage value, all output shall be within the regulation limit of section 3.1 before issuing the power good signal of section 6.0.

3.5 Efficiency

Power supply efficiency typical 65% at 115V , full load.

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.

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% 160% 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 5.5 M = 6.5 M

+5V : 5.4V 6.5V

+3 3V	· 3 9V	4 4 V
13.5 V	• 5.7 •	т.т 🔻

+12V : 13.6V 15.6V

- 4.2.3 Short circuit
 - A: A short circuit placed on any DC output to DC return shall cause no damage.
 - B: The power supply shall be latched in case any short circuit is taken place at +5V,+3.3V,+12V output.
 - C: The power supply shall be auto-recovered in case any short circuit is taken place at -5V,-12V,+5VSB.
- 4.2.4 Over current protection

The power supply shall latch off if the +5V,+12V & +3.3Voutput currents are over it's limitation. The limited current is over $110 \sim 160\%$ for each output current. The power supply will back to normal condition after reset 5 seconds if the fault had been removed under rated specification.

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)

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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

Output	Minimum sense voltage
+5V	+4.50V
+3.3V	+2.50V

7.0 Environment

7.1 Temperature	
Operating temperature	0 to 40 degrees centigrade
Non-Operating temperature	-20 to 80 degrees centigrade
Safety regulation temperature	Applied at room temperature (25
Operating temperature from 0	should start from AC 100V
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 Frame Gnd	: 30 meg. ohm min. 500 VDC
7.4 Dielectric withstanding voltage	
For approval purpose :	
Primary to secondary	: 3KVAC for 1min.
Primary to Frame Gnd	: 1500 VAC for 1 min.
For production purpose: 100% tes	st
Primary to Frame Gnd	: 1500VAC for 1 sec
Cut off current	15mA
7.5 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. The power supply shall be designed to meet UL1950.
- 8.2 TUV Standards The power supply shall be designed to meet TUV EN-60950.
- 8.3 CB

The power supply shall be designed to meet IEC 950.

9.0 Reliability

9.1 Burn in

All products shipped to customer must be processed by burn-in. The burn- in shall be performed for 1 hour at full load.

10.0 Mechanical requirements

Physical dimension : 40.5 mm * 100 mm * 190 mm (H*W*D)



11.0 DC output cable drawing (see attached drawing)



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

[《]Figure 1》