



HIGH POWER ELECTRONIC CO., LTD

Part Name:

Model No: HPE-450-A12S

Document Version: A0

PRODUCT SPECIFICATION

Release Date: 2013/8/19

Approved by : 	Checked by : 	Prepared by :
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Switching Power Supply Specifications

Subject: Change History of Specification

日期	版本	修訂 頁面	變 更 內 容	REF NO.
2013/8/19	A0	--	initial	---



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Switching Power Supply Specifications

1. INPUT:

1.1 VOLTAGE

MINIMUM	NOMINAL	MAXIMUM	UNITS
207	230	253	Vrms

1.2 FREQUENCY

47Hz ~ 63Hz

1.3 CURRENT

230Vac / 4.0A max.

1.4 INRUSH CURRENT

100A max. when AC input 230Vac and 25°C cold start.

1.5 POWER EFFICIENCY

72% minimum under the load conditions defined in below table and 230Vac input.

Loading Table for Efficiency Measurements

450W(loading shown in Amps)						
Loading	+12V ₁	+12V ₂	+5V	+3.3V	-12V	+5Vsb
Full	14.65	12.56	12.05	14.73	0.27	2.27

1.6 LEAKAGE CURRENT

3.5mA max.

1.7 POWER FACTOR

PF > 0.9 at 230Vac input

1.8 ErP REQUIREMENT

Meet ErP 2010 requirement



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2. OUTPUT:

Voltage	+5V	+3.3V	+12V ₁	+12V ₂	-12V	+5Vsb
* (1) Max load	18.0A	22.0A	21.0A	18.0A	0.3A	2.5A
Min load	0.5A	0.3A	0.5A	0.5A	0.0A	0.0A
Peak load	--	--	24.0A	21.0A	--	3.0A
* (1) Combined power	120W		360W		--	--
* (3) Regulation	+5,-5%	+5,-5%	+5,-5%	+5,-5%	+10,-10%	+5,-5%
* (2) Ripple & Noise	50mV	50mV	120mV	120mV	120mV	50mV

* (1) The continuous total output power is 450W max.

- The combined power of +5V and +3.3V is 120W max.
- The combined power of +12V₁ and +12V₂ is 360W max.
- Peak currents may last up to 12 seconds with not more than one occurrence per minute.

* (2) Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.

* (3) LOAD REGULATION TEST TABLE:

	+3.3V	+5V	+12V ₁	+12V ₂	-12V	+5Vsb
LOAD1	0.3A	0.5A	0.5A	0.5A	0A	0A
LOAD2	7.0A	6.5A	7.0A	6.0A	0.15A	1.0A
LOAD3	9.0A	18.0A	15.0A	11.2A	0.3A	2.5A
LOAD4	22.0A	9.5A	15.0A	11.2A	0.3A	2.5A
LOAD5	7.0A	10.0A	17.0A	13.0A	0.3A	2.5A

2.1 REMOTE ON/OFF

TTL High/PS-OFF; TTL Low/PS-ON

$V_{IL} = 0.8V_{max}$, $I_{IL} = -1.6mA_{max}$ @ $V_{in} = 0.4V$

$V_{IH} = 2.0V_{min}$ @ $I_{in} = -200uA$, $V_{IH} = 5.25V_{max}$ @ open ckt.



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2.2 HOLD-UP TIME

13msec (minimum) at 80% of full load at 230Vac input.

2.3 POWER GOOD DELAY

100-500 msec.

2.4 POWER FAIL DELAY

>1 msec.

2.5 TURN-ON DELAY TIME

2000 msec max. At Nominal Line Full Load.

2.6 TRANSIENT OVERTHOOT

DC output transient step sizes as below table:

Output voltage	+5V	+3.3V	+12V ₁	+12V ₂
Max. step size	30%	30%	40%	40%

Load-changing repetition rate of 10m seconds.

Load slew rated 1.0A/uS and capacitive load as below :

+5V	+3.3V	+12V ₁	+12V ₂	-12V	+5Vsb
6000uF	6000uF	5000uF	3000uF	470uF	470uF

2.7 RISE TIME

20ms max at full load.

3. PROTECTION:

When OVP, OPP or short protection is triggered, the main outputs will be latched off. The main outputs can be reset by cycling the DC remote on/off or AC power. +5Vsb output is auto recovery when fault condition removed.

3.1 OVER VOLTAGE PROTECTION

+3.3V output 4.5 Vmax.
 +5.0V output 7.0 Vmax.
 +12.0V output 15.6 Vmax.



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3.2 SHORT PROTECTION

All output to GND.

3.3 OVER POWER PROTECTION

Foldback at 110%~150% over peak load.

4. ENVIRONMENT:

4.1 OPERATING TEMP. 0°C to +40°C

4.2 STORAGE TEMP. -20°C to +70°C

4.3 OPERATING HUMIDITY 20% to 90%, non-condensing

4.4 STORAGE HUMIDITY 5% to 95%, non-condensing

4.5 OPERATING ALTITUDE 0 to 10,000 feet

4.6 STORAGE ALTITUDE 0 to 50,000 feet

5. HI-POT:

5.1 PRIMARY TO SECONDRY

1800Vac for 1 minute

6. SAFETY AND EMC REQUIREMENTS

6.1 CONDUCTED EMI

CE

7. MTBF at 25°C (demonstrated)

80K hrs minimum

8. DIMENSIONS

WxLxH=150x140x86mm