

# 規格書


## SPECIFICATION

品名  
STYLE NAME : SWITCHING POWER SUPPLY

型號  
MODEL NO. : P1H-5557V

料號  
PART NO. :

版次  
REVISION : A3

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POWER DIVISION

## Revision

Rev.	Page	Item	Date	Description
A2	5	2.4	JUN.26.2009	Modity inrush current
A3	5	3.1	SEP-14-2017	DC load requirements Min. load

# MODEL NO. P1H-5557V

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## 1.0 Scope

This specification defines the performance characteristics of a grounded, AC input, 550 watts, 5 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) : 100~240 VAC full range (With  $\pm 10\%$  tolerance).

### 2.2 Frequency

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

### 2.3 Steady-state current

8A/4A at any low/high range input voltage.

### 2.4 Inrush current

20/40Amps @ 115/230 VAC (at 25 degrees ambient cold start )

### 2.5 Power factor correction

The power supply shall incorporate universal power input with active power factor correction, which shall reduce line harmonics in accordance with the EN61000-3-2 standards.

PFC can reach the target of 95% @115/230VAC, Full load.

## 3.0 Output requirements

### 3.1 DC load requirements

Normal Output voltage	Load current(A)		Regulation tolerance	
	Min.	Max.	Max.	Min.
+5V	0A	25A	+5%	-5%
+12V	0A	40A	+5%	-5%
-12V	0A	0.8A	+5%	-5%
+3.3V	0A	25A	+5%	-5%
+5Vsb	0A	3.5A	+5%	-5%

\* The output current of +5V and +3.3V not exceed 35A \*\*\*

\*\*\* Total power: 550W

Note: For dynamic voltage regulation requirements +12V min Loading is 1A.

### 3.2 Regulation

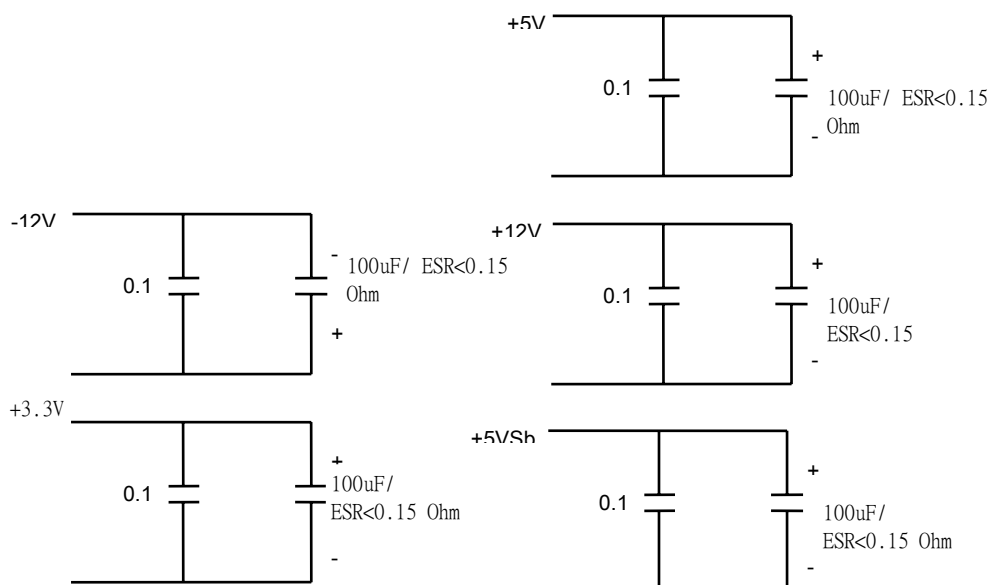
Output DC voltage	Line regulation
+5V	±50mV
+12V	±120mV
-12V	±120mV
+3.3V	±50mV
+5Vsb	±50mV

### 3.3 Ripple and noise

#### 3.3.1 Specification

Parameter	Ripple	Ripple+Noise
+5V	50mV (P-P)	60mV (P-P)
+12V	120mV (P-P)	120mV (P-P)
-12V	120mV (P-P)	120mV (P-P)
+3.3V	50mV (P-P)	60mV (P-P)
+5Vsb	50mV (P-P)	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 10% 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 >80% at 115V FULL LOAD

## 3.6 Typical Distribution of Efficiency

20% Max load, Efficiency test condition @ Ambient temperature 30 degrees							
Voltage	+12V	+5V	-12V	+3.3V	+5VSB	AC INPUT Voltage	
						115V	230V
Load	6.16A	3.85A	0.12A	3.85A	0.54A	>80%	>80%
50% Max load, Efficiency test condition @ Ambient temperature 30 degrees							
Voltage	+12V	+5V	-12V	+3.3V	+5VSB	AC INPUT Voltage	
						115V	230V
Load	15.39A	9.62A	0.31A	9.62A	1.35A	>82%	>84%
80% Max load, Efficiency test condition @ Ambient temperature 30 degrees							
Voltage	+12V	+5V	-12V	+3.3V	+5VSB	AC INPUT Voltage	
						115V	230V
Load	24.63A	15.39A	0.49A	15.39A	2.16A	>80%	>82%
100% Max load, Efficiency test condition @ Ambient temperature 30 degrees							
Voltage	+12V	+5V	-12V	+3.3V	+5VSB	AC INPUT Voltage	
						115V	230V
Load	30.79A	19.24A	0.62A	19.24A	2.69A	>80%	>82%

## NOTE:

(The different harness conditions and/or the accuracy of measurement instruments affect the test result of output voltage and efficiency. Harness conditions are such as cable length, wire gauge, the connector types, total harness amounts.)

## 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. 160%.

## 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	3.6V	4.1V	4.3V
+5V	5.6V	6.1V	6.5V
+12V	13.2V	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	27.5A	32.5A	37.5A
+5V	27.5A	32.5A	37.5A
+12V	44A	52A	60A

#### 4.2.4 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 ,-12Voutput.

C: The power supply shall be auto-recovered in case any short circuit is taken place at +5VSB.

### 5.0 Power supply sequencing

#### 5.1 Power on (see Fig.1)

#### 5.2 Hold up time

When AC source shutdown DC output must be maintain 16msec in regulation limit at. normal input voltage (AC115V)

#### 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 Temperature

Operating temperature: 0 to 50 degrees centigrade(90~264 VAC)

Non-Operating temperature: -20 to 80 degrees centigrade



## 7.2 Humidity

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

## 7.3 Insulation resistance

Primary to secondary	: 100 meg. Ohm min. 500 VDC
Primary to FG	: 100 meg. Ohm min. 500VDC

## 7.4 Dielectric withstanding voltage

Primary to secondary	: 3000 VAC for 60 sec.
Primary to FG	: 1500 VAC for 60 sec.
For production purpose:	
Primary to FG	:1500VAC for 1 sec.

## 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 C22.2 No. 60950.

### 8.3 TUV

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

### 8.4 CCC Standards

The power supply shall be designed to meet GB9254-2008, GB4943.1-2011, GB17625.1-2012.

## 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

### 10.1 Physical dimension : 225mm (D) x 100mm (W) x 40.5mm (H)

## 11.0 Output voltage Timing

Item	Description	MIN	MAX	UNITS
Tsb_on_delay	Delay from AC being applied to 5VSB being within regulation.		1500	ms
Tac_on_delay	Delay from AC being applied to all output voltages being within regulation.		2500	ms
Tvout_holdup	Time all output voltages stay within regulation after loss of AC.	16		ms
Tpwok_holdup	Delay from loss of AC to deassertion of PWOK.	15		ms
Tpson_on_delay	Delay from PSON# active to output voltages within regulation limits.	5	400	ms
Tpson_pwok	Delay from PSON# deactive to PWOK being deasserted.		50	ms
Tpwok_on	Delay from output voltages within regulation limits to PWOK asserted at turn on.	100	500	ms
Tpwok_off	Delay from PWOK deasserted to output voltages (3.3V, 5V, 12V, -12V) dropping out of regulation limits.	1		ms
Tsb_vout	Delay from 5VSB being in regulation to O/Ps being in regulation at AC turn on.	5	1000	ms
Tsb_holdup	Time 5VSB output voltage stays within regulation after loss of AC.	70		ms
Tvout_rise	Output voltage rise time from each main output.	5	20	ms

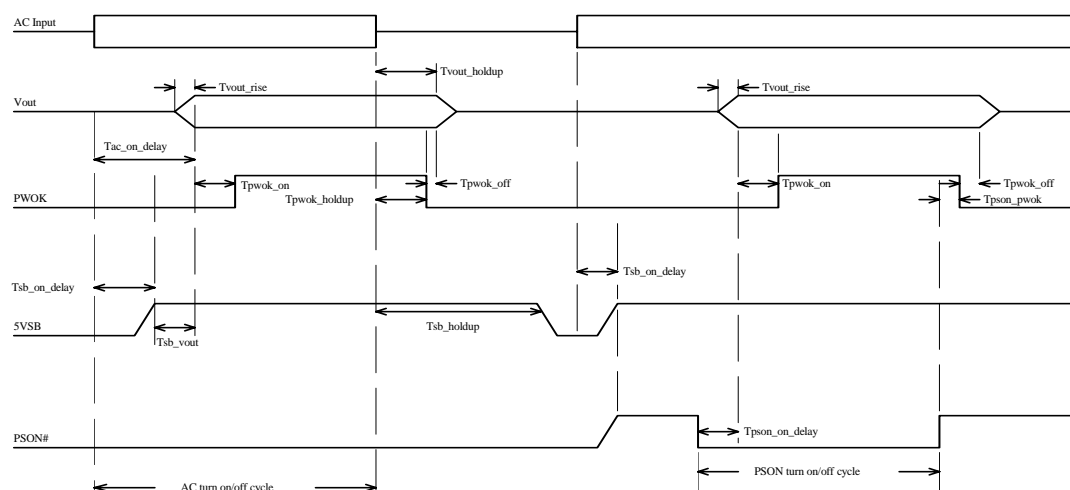


Fig.1