SPECIFICATION

P/N: P6401S 1F8

400W 1U
Universal AC Input

Industrial Grade
Power Supply with Active PFC

*** Specification Approval ***

This specification (total 7 pages including drawings) is approved in entirety by:

Company Name	Print Name	Signature	Date

Specification subject to change without prior notice.

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1. SCOPE

This specification defines electrical performance and characteristic of P6401S 1F8**Active PFC** Full Range Power supplies which comply with Intel EPS1U v2.1 and ATX12V v2.2 Requirements.

2. AC INPUT :

	RANGE[1.]		
Limits	Minimum	Maximum	Unit
AC Input voltage	90	264	Vac
AC Input frequency	47	63	Hz
AC Input Current		7	Amp(rms)
Inrush current[2.] (cold start)		100	Amp(peak)
Inrush current (warm start)	NO COMPONENT OVER STRESSED.		
	NO FUSE BLOW NO DAMAGE TO THE POWER SUPPLY.		
NOTE: 1. The AC input is 90~264 Vac full range. No selectable hard switch is provided. 2. Measured at 25 Deg C Ambient			

3. DC OUTPUT :

3.1 VOLTAGE and CURRENT LOAD RANGES

DC OUPTUT		Tolerance
Group1	+3.3VDC	+5%/-5%
	+5VDC	+5%/-5%
	+12VDC	+5%/-5%
	-12VDC	+10%/-10%
Group2	+5Vsb	+5%/-5%

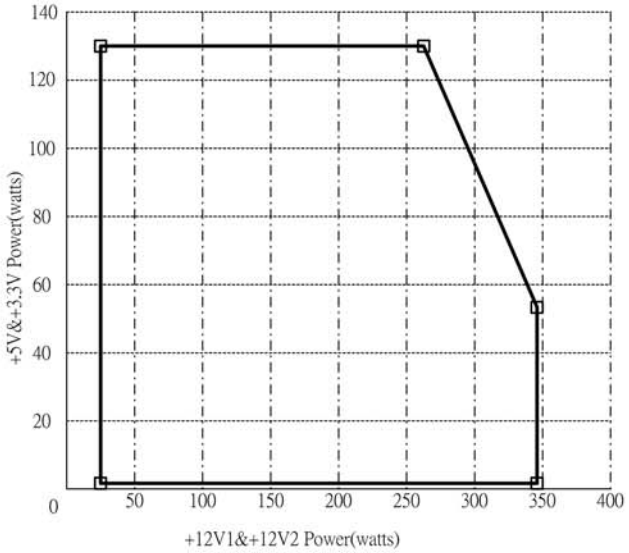
Load Range

Output	Minimum Load	Maximum Load	Peak Load
+12V1	1A	16A	19A
+12V2	1A	17A	20A
+5V	0.3A	21A	X
+3.3V	0A	20A	X
-12V	0A	0.8A	X
+5Vsb	0A	2.5A	3.0A

1. Maximum continuous total DC output power should not exceed 400 W
2. Maximum continuous combined load on +3.3 VDC and +5 VDC outputs should not exceed 130 W
3. Maximum continuous combined load on +12V1 and +12V2 outputs should not exceed 29A(348W)
4. Maximum peak total DC output power should not exceed 440 W
5. Peak power and current loading should be supported for a minimum of 1 second

3.2 CROSS REGULATION

The +5V & +3.3V combined load and +12VDC load shall remain within the regulation Defined in section 3.1 over cross load combinations shown as following figure:



3.3 OUTPUT RIPPLE and NOISE

Measurement is made with an oscilloscope with 20 MHz bandwidth. Output should be bypassed at the connector with a 0.1uF ceramic disk capacitor and a 10uF electrolytic capacitor to simulate system load. The length of ground wire on probe should not longer than 40mm, if a Non - differential type of scope was used.

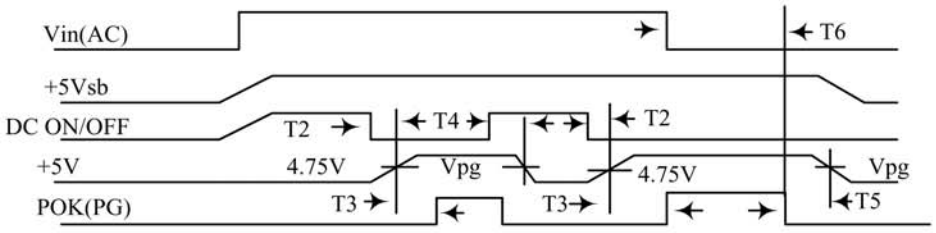
+3.3V	+5V	+12V	-12V	+5Vsb
50Mv	50mV	120mV	120mV	50 mV

3.4 DYNAMIC DC OUTPUT CHARACTERISTICS

+/-10% Max. (tested with capacitors added at output) Excursion for 30% max. load change with return to regulation in 0.5 mS.

3.5 DC OUTPUT ON/OFF CONTROL

A low active PS-ON (DC ON/OFF) input signal is equipped, which provide the interface to **ENABLE** or to **DISABLE** the **GROUP1** of DC output. This signal is electrically compatible to interface with **TTL,OPEN COLLECTOR** and the **HARD SWITCH.**



SIGNAL NAME		MAXIMUM	MINIMUM
T2	+5V TURN-ON DELAY	3 S	
T3	RESET TIME	500 mS	100 mS
T4	DC SAVE TIME		1 mS

T5	SAVE TIME	Vpg= 4.75V		1 mS
T6	HOLD-ON TIME (AT NOMINAL AC INPUT)			12 mS

4. **OUTPUT PROTECTION**

4.1 TOTAL POWE[illegible] removed and

cled off/on with **A MINIMUM OFF TIME OF 20mS.** (PS-ON)

the power switch has been c

, TTL compatible.

4 mA.

5. POWER GOOD SIGNAL:

Signal Type: open collector +5D

Logic Level: <0.4V while sinkin

VOLTAGE	Min.	Max.	
+3.3V	3.76V	4.3V	Shut down & Latch OFF
+5V	5.74V	7.0V	The Group 1 DC Output
12V	13.4V	15.6V	

4.3 SHORT CIRCUIT PROTECTION: (SCP)

The short between any output of group 1 will shut down all group1.

The short at group 2 will Shut down both group 1 and group 2.

4.4 RESET AFTER SHUTDOWN

Whenever the power supply latches into shutdown state due to fault condition on its output.

The power supply will return to normal operation only after the fault has been removed and

the power switch has been cycled off/on with **A MINIMUM OFF TIME OF 20mS.** (PS-ON)

5. POWER GOOD SIGNAL:

Signal Type: open collector +5DC, TTL compatible.

Logic Level: +0.4V while sinking 4 mA.

Logic Level High: between 2.4VDC and +5V output while souring 200 uA.

6. EFFICIENCY:

6.1 80PLUS Specification:

Over 80% at normal input voltage(AC 115V 60Hz or AC 230V 50Hz) when 20%,50%,100% loading.

6.2 *ENERGY STAR MODE*

Over 50% at 30W max power consumption with 15W or more delivered to DC power output

6.3 *STANDBY MODE*

During measurement of the "**STANDBY MODE**" condition, the main converter is off (PS_ON High), +5Vsb converter is working and standby input power is measured.

true RMS input power (standby) +5Vsb 0.5A; input voltage: 230VAC 50HZ	+5W
true RMS input power (standby) +5Vsb 0A; input voltage: 230VAC 50HZ	+1.5W

7. **COOLING OF PSU**

A DC FAN was equipped to Cooling The Power Supply and system Load , The FAN will draw in AIR Through The vent Holes in DC Output Cable Side , and Exhaust it in The AC Receptacle Side.

Fan parameters

Rated Voltage	12VDC
Dimension	38*38*28(mm) x2
Air flow	28CFM
Noise	<40db(A)

8. ACTIVE POWER FACTOR CORRECTION (PFC):

8.1 Harmonic current meets IEC1000-3-2 / EN61000-3-2 standards.

8.2 PFC >0.95 at full load.

≒0.99 at AC 110v 60Hz(typical)

≒0.98 at AC 220v 50Hz(typical)

9. **ENVIRONMENT**

9.1 OPERATING

Temperature: 0 to 50 °C. (The rated power will derate from 100% to 80% from 40°C to 50 °C Linearly)

Relative Humidity: 20% to 80%

9.2 SHIPPING / STORAGE

Temperature: -40 to 85 Deg C

Relative Humidity: 10% to 95%

10. **MTBF**

Over 100,000 hours at 25 Deg C. excluding the DC Fan.

11. **EMC**

Comply to EN61204-3:2000, & FCC Part 15 & Part 2 (CISPR 22 CLASS B)

GB9254-1998，GB17625.1-2003 standards

12. SAFETY:

Conform to IEC60950-1:2000，EN60950-1:2001，UL60950-1 1st ，GB4943-2001 standards： CB, TUV,NODIC,CUL (LEVEL 3),CCC

13. MECHANICAL DRAWING:

Dimension: H40 x W100 x L235 mm