



SWITCHING POWER SUPPLY

**PRODUCT SPECIFICATION**

Model: SS-250U1C Active PFC  
Full Range Revision: 1.0

File: EA-250U1C-10

Date: May, 25, 2005

Page: 1 of 5

<b>1. SCOPE</b>	2
<b>2. AC INPUT and AC OUTPUT</b>	2
<b>3. DC OUTPUT CURRENT LOAD RANGES</b>	2
3.1 DYNAMIC DC OUTPUT CHARACTERISTICS	2
3.2 DC OUTPUT ON/OFF CONTROL	2
3.3 OUTPUT RIPPLE and NOISE	3
<b>4. OUTPUT PROTECTION</b>	3
4.1 TOTAL POWER PROTECTION	3
4.2 OVER VOLTAGE PROTECTION	3
4.3 SHORT CIRCUIT PROTECTION	4
4.4 RESET AFTER SHUTDOWN	4
<b>5. POWER GOOD SIGNAL</b>	4
<b>6. EFFICIENCY</b>	4
6.1 AT FULL LOAD	4
6.2 ENERGY STAR MODE	4
6.3 STANDBY MODE	4
<b>7. COOLING OF PSU</b>	4
<b>8. ACTIVE POWER FACTOR CORRECTION (PFC)</b>	4
<b>9. ENVIRONMENT</b>	5
9.1 OPERATING	5
9.2 SHIPPING / STORAGE	5
<b>10. MTBF</b>	5
<b>11. EMC</b>	5
<b>12. SAFETY</b>	5
<b>13. MECHANICAL DRAWING</b>	5

## 1. SCOPE

This specification defines electrical performance and characteristic of “SS-250U1C Active PFC” Full Range series Power supplies which comply with Intel ATX12V v1.1, ATX2.03 & AMD Athlon requirements.

## 2. AC INPUT and AC OUTPUT:

Limits	RANGE <sup>1</sup>		Unit
	Minimum	Maximum	
AC Input voltage	90	264	Vac
AC Input frequency	47	63	Hz
AC Input Current <sup>2</sup>		4.5	Amp(rms)
Inrush current <sup>3</sup> (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. The value of the current is for the model with AC input.  
 3. Measured at 25 Deg C Ambient.

## 3. DC OUTPUT REQUIREMENTS:

### 3.1 DC OUTPUT CURRENT RATINGS

DC OUTPUT		Min.	Nom.	Max.	Peak	Tolerance
Group1	+3.3VDC	0.3A		20A		+5%/-5%
	+5VDC	0.1A		21A		+5%/-5%
	+12VDC	1.0A		13A	16A	+5%/-5%
	-12VDC	0.0A		0.8A		+10%/-10%
Group2	+5Vsb	0.0A		2A		+5%/-5%

Note: 1. Maximum continuous DC output power shall not exceed 250 Watts.

2. Combined load on +5VDC and +3.3VDC output shall not exceed 110 Watts or 30A.

### 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 Figure 1

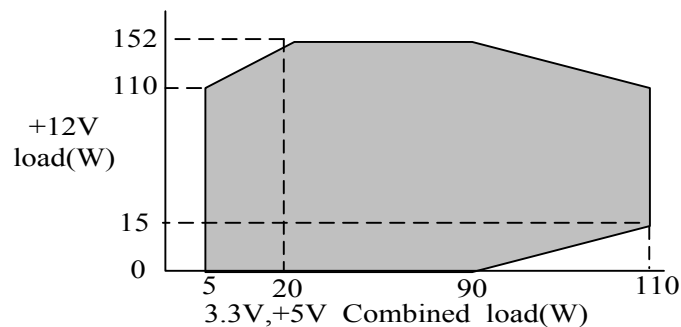


Figure 1 +5V & +3.3V combined,+12V Cross Load Combinations

### 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.

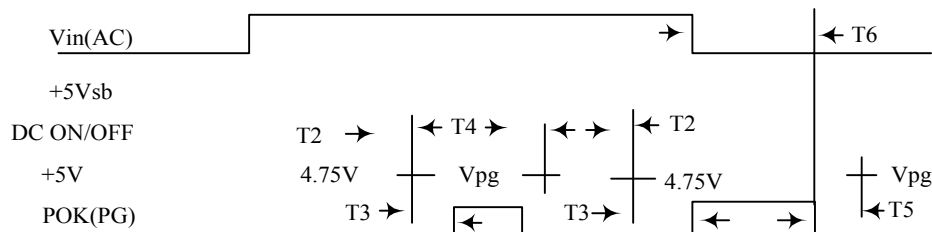
+3.3V	+5V	+12V	-5V	-12V	+5Vsb
50mV	50mV	120mV	50mV	150mV	50mV

### 3.4 DYNAMIC DC OUTPUT CHARACTERISTICS

+/-10% Max. Excursion for 50% to 100%, or 100% to 50% 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	20 mS	
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)		16 mS

## 4. OUTPUT PROTECTION

### 4.1 TOTAL POWER PROTECTION: ( OPP )

Total power 135% max with shut-down and latch off protection.

### 4.2 OVER VOLTAGE PROTECTION: ( OVP )

OVER VOLTAGE AT	ACTIVE RANGE		RESULT
	Min.	Max.	
+3.3V	3.76V	4.8V	Shut down & Latch OFF The Group 1 DC Output
+5V	5.7V	7.0V	
+12V		15.6V	

**4.3 SHORT CIRCUIT PROTECTION: ( OCP )**

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 sourcing 200 uA.

**6. EFFICIENCY:****6.1 AT FULL LOAD:**

Over 65% at normal input voltage.

**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**

Over 50% (PS-ON inactive)5W max power consumption with at least 500mA output on +5Vsb

**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
Dimensions	40*40*20 (mm)
Air flow	9.5 CFM min.
Noise	<45.5 dBA

**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.



SWITCHING POWER SUPPLY

**PRODUCT SPECIFICATION**

Model: SS-250U1C Active PFC  
Full Range Revision: 1.0

File: EA-250U1C-10

Date: May, 25, 2005

Page: 5 of 5

**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 CE EN50081-1(1992) , EN55024(1998), EN61000-3-2, EN61000-3-3 & FCC (B) regulation.

**12. SAFETY:**

Conform to IEC950 (EN60950) standards: CB, C-UL, TUV

**13. MECHANICAL DRAWING:**

Dimension: L190\*W100\*H40.5 mm