

 SWITCHING POWER SUPPLY	<b>PRODUCT SPECIFICATION</b>	File: EF-200SU-01-12
	Model:SS-200SU Active PFC Full Range      Revision: 1.2	Date: Dec. 7, 2007
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**1. SCOPE**

This specification defines electrical performance and characteristic of “SS-200SU Active PFC” Full Range Series power supplies.

**2. AC INPUT and AC OUTPUT:**

Limits	RANGE(100-240VAC)		Unit
	Minimum	Maximum	
AC Input voltage	100	264	Vac
AC Input frequency	47	63	Hz
AC Input Current		4	Amp(rms)
Inrush current <sup>2</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 protected by the AC fuse.			
2. Measured at 25 Deg C Ambient.			

**3. DC OUTPUT REQUIREMENTS:**

**3.1 DC OUTPUT CURRENT RATINGS**

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	6A	9A
+12V2	1A	12A	15A
+5V	0.5A	17A	X
+3.3V	0A	14A	X
-12V	0A	0.8A	X
+5Vsb	0A	2A	2.5A

1. Maximum continuous total DC output power should not exceed 200 W
2. Maximum continuous combined load on +3.3 VDC and +5 VDC outputs should not exceed 110 W.
3. Max. continuous combined load on +12 V1DC and +12V2DC outputs should not exceed 168 W/14A.
4. Maximum peak total DC output power should be approximate 220 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 Figure 1

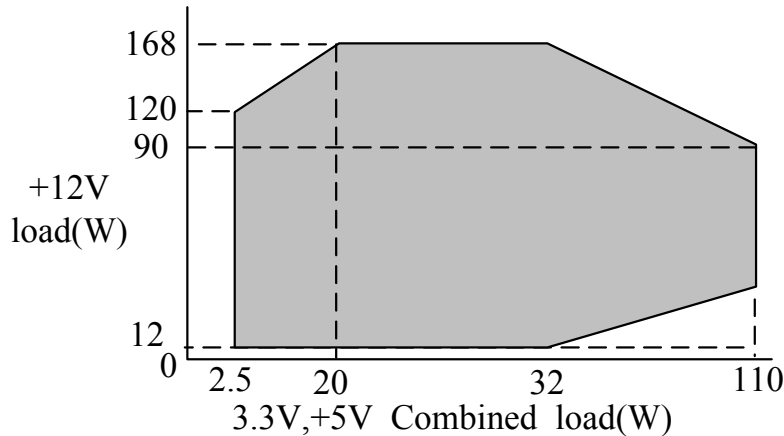


Figure 1 +5V&+3.3V , +12V Output Cross Load Combinations

### 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.

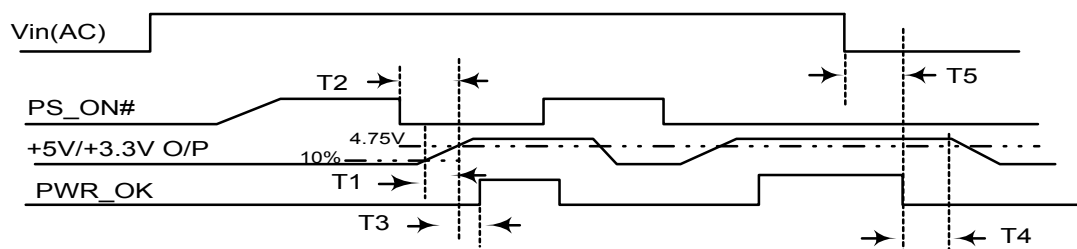
+3.3V	+5V	+12V	-12V	+5Vsb
50mV	50mV	120mV	120mV	50mV

### 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
T1	+5V RISE TIME	20 mS	
T2	+5V TURN-ON DELAY TIME	100 mS	

T3	PWR_OK DELAY TIME	500 mS	100 mS
T4	DC SAVE TIME		1 mS
T5	HOLD-ON TIME (AT NOMINAL AC INPUT)		12 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	ACTIVE RANGE		RESULT
	Min.	Max.	
+3.3V	3.76V	4.8V	Shutdown&Latch OFF The Group 1 DC Output
+5V	5.7V	7.0V	
+12V		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 sourcing 200 uA.

#### 6. EFFICIENCY:

##### 6.1 AT FULL LOAD:

Over 72% at normal input voltage.

74% at AC 100v 60Hz ; 76% at AC 230v 50Hz (typical)

##### 6.2 ENERGY STAR MODE

Over 50% at 30W max power consumption with 15W load 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

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**7. COOLING OF PSU**

A DC FAN was equipped to cooling the power supply and system load , the FAN will draw in air from system into PSU directly, and exhaust air through vent hole in 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 ; 220Vac input >0.98(typical) under full load.

**9. ENVIRONMENT**

**9.1 OPERATING**

Temperature: 0 to 40 °C. (The rated power will derate from 100% to 80% from 30°C to 40 °C Linearly)

Relative Humidity: 20% to 85%

**9.2 SHIPPING / STORAGE**

Temperature: -40 to 85 Deg C

Relative Humidity: 10% to 95%

**10 MTBF**

Over 100,000 hours at 75% Load and 25 °C ambient conditions and 115V~ or 230V~ input voltage, excluding the DC Fan.

**11 EMC**

Comply to(CE) EN55022:1998/A1: 2000/A2: 2003 CLASS B

EN55024:1998/A1: 2001/A2: 2003 ; EN 61000-3-2:2000 CLASS D

EN 61000-3-3:1995/A1:2001

(FCC) FCC Part 15 & Part 2 (CISPR 22 CLASS B)

(C-TICK) AS/NZS CISPR 22:2002 CLASS B

**12 SAFETY:**

Conform to (CUL) UL 60950-1 & CSA C22.2 NO. 60950-1; (TUV) EN 60950-1  
 (CB) IEC 60950-1

**13 MECHANICAL DRAWING:**

Dimension : L150\*W81.5\*H40.5 mm