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STRIDER PLUS

SST-ST1000-P / ST85F-P / ST75F-P

Unparalleled combination of power, efficiency, and flexibility

100% modular cables
24hour continuous power output with 40°C operating temperature
Efficiency 85%~88% at 20%~100% loading
Class-leading single +12V rail
Strict $\pm 3\%$ voltage regulation and low ripple & noise
Japanese main capacitors
Silent running 135mm fan
PCI-E 8pin and PCI-E 6pin connectors support
Support ATX 12V 2.3 & EPS 12V
Active PFC

SPECIFICATION

SilverStone Strider Plus

ST1000-P

ST85F-P

ST75F-P

ATX12V / EPS 12V Switching Power Supply With Active PFC PS/2

This specification describes the requirements of 750W,850W,1000Watts switching power supply with an stretch ATX form-factor and EPS12V, +5V standby voltage, remote on/off control, full range line input capability and forced air cooling characteristics.

1. AC INPUT

1.1 AC input requirements

The input voltage, current, and frequency requirements for continuous operation are stated below

Table 1 AC Input Line Requirements

Parameter	Min.	Nom.	Max.	Unit
Vin(Full range)	90	100---240	264	VACrms
Vin Frequency	47	60---50	63	Hz
lin(750W)		10---5		Arms
lin(850W)		11---5.5		Arms
lin(1000W)		12---6		Arms

Power factor correction (PF)>0.90 at full load.

The power supply must meet inrush requirements for any rated AC voltage, during turn on at any phase of AC voltage, during a single cycle AC dropout condition, during repetitive ON/OFF cycling of AC, and over the specified temperature range (Top). The peak inrush current shall be less than the ratings of its critical components (including input fuse, bulk rectifiers, and surge limiting device).

2. DC OUTPUT

2.1 DC voltage regulation

Parameter	Range	Min	Nom.	Max	Unit
+3.3V	+/-3%	+3.20	+3.3	+3.40	Volts
+5V	+/-3%	+4.85	+5.0	+5.15	Volts
+12V	+/-3%	+11.64	+12.0	+12.36	Volts
-12V	+/-10%	-13.20	-12.0	-10.80	Volts
+5VSB	+/-5%	+4.85	+5.0	+5.25	Volts

2.2 Load ranges

2.2.1: 750W(ST75F-P)

Load Range

Parameter	Min	Nom	Max	Peak	Unit
+3.3V	0		20		Amps
+5V	0.5		25		Amps
+12V	0.1		60	66	Amps
-12V	0		0.3		Amps
+5VSB	0.1		3.5		Amps

- 1.Maximum continuous total DC output power should not exceed 750W.
- 2.Maximum continuous combined load on +3.3 VDC and +5 VDC outputs shall not exceed 150W.
- 3.Maximum peak total DC output power should not exceed 800 W.
- 4.Peak power and current loading shall be supported for a minimum of 12 second.
- 5.Peak current for the combined 12V outputs shall be 66A.
- 6.When +12V is load to 28A , -12V minimum load is 0.02A.

2.2.2: 850W(ST85F-P)
Load Range

Parameter	Min	Nom	Max	Peak	Unit
+3.3V	0		20		Amps
+5V	0.5		25		Amps
+12V	0.1		67	72	Amps
-12V	0		0.3		Amps
+5VSB	0.1		3.5		Amps

1. Maximum continuous total DC output power should not exceed 850W.
2. Maximum continuous combined load on +3.3 VDC and +5 VDC outputs shall not exceed 180W.
3. Maximum peak total DC output power should not exceed 950 W.
4. Peak power and current loading shall be supported for a minimum of 12 second.
5. Peak current for the combined 12V outputs shall be 72A.
6. When +12V is load to 28A , -12V minimum load is 0.02A.

2.2.3: 1000W(ST1000-P)
Load Range

Parameter	Min	Nom	Max	Peak	Unit
+3.3V	0		30		Amps
+5V	0.5		30		Amps
+12V	0.1		80	85	Amps
-12V	0		0.3		Amps
+5VSB	0.1		3.5		Amps

1. Maximum continuous total DC output power should not exceed 1000W.
2. Maximum continuous combined load on +3.3 VDC and +5 VDC outputs shall not exceed 180W.
3. Maximum peak total DC output power should not exceed 1100 W.
4. Peak power and current loading shall be supported for a minimum of 12 second.
5. Peak current for the combined 12V outputs shall be 85A.
6. When +12V is load to 28A , -12V minimum load is 0.02A.

2.3 Output Ripple

2.3.1 Ripple regulation

Parameter	Ripple&Noise	Unit
+3.3V	50	mVp-p
+5V	50	mVp-p
+12V	120	mVp-p
-12V	120	mVp-p
+5VSB	50	mVp-p

2.3.2 Definition

The ripple voltage of the outputs shall be measured at the pins of the output connector when terminated in the load impedance specified in figure 1. Ripple and noise are measured at the connectors with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading. Ripple shall be measured under any condition of line voltage, output load, line frequency, operation temperature.

2.3.3 Ripple voltage test circuit

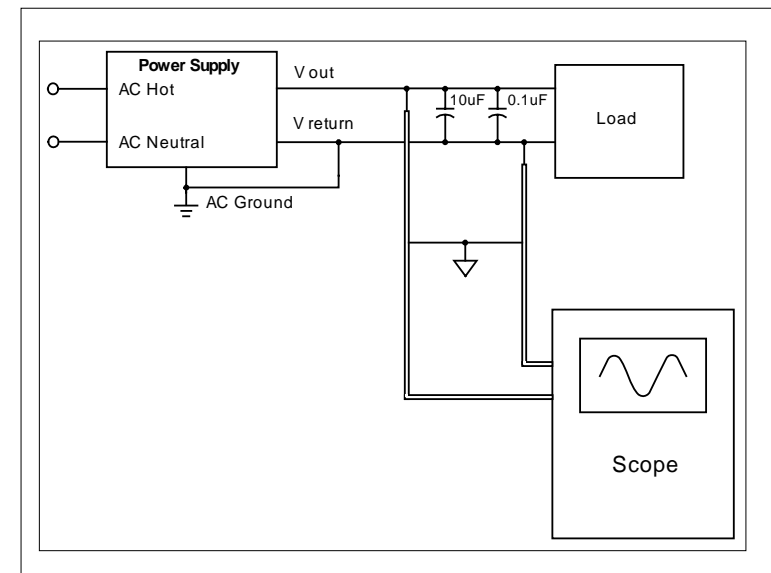


Figure 1. Ripple voltage test circuit

2.4 Overshoot

Any overshoot at turn on or turn off shall be less 10% of the nominal voltage value, all outputs shall be within the regulation limit of section 2.0 before issuing the power good signal of section 5.0.

2.5 Efficiency

Power supply efficiency typical 85% at 115Vac normal voltage.

2.6 Remote ON/OFF control

When the logic level "PS-ON" is low, the DC outputs are to be enabled.
When the logic level is high or open collector, the DC outputs are to be disabled.

3.0 PROTECTION

3.1 Over Current Protection

The power supply shall have current limit to prevent the +3.3V,+5V,and +12V outputs from exceeding the values shown in the following Table. If the current limits are exceeded the power supply shall shutdown and latch off.

750W(ST75F-P)

Voltage	Over Current Limit (Iout limit)
+12V	66A minimum; 90A maximum
+5V	30A minimum; 50A maximum
+3.3V	30A minimum; 50A maximum

850W(ST85F-P)

Voltage	Over Current Limit (Iout limit)
+12V	70A minimum; 100A maximum
+5V	30A minimum; 50A maximum
+3.3V	30A minimum; 50A maximum

1000W(ST1000-P)

Voltage	Over Current Limit (Iout limit)
+12V	88A minimum; 130A maximum
+5V	35A minimum; 50A maximum
+3.3V	35A minimum; 50A maximum

3.2 Over Temperature Protection

The power supply will be protected against over temperature conditions caused by loss of fan cooling or excessive ambient temperature. In an OTP condition the PSU will shutdown. When the power supply temperature drops to within specific limits, the power supply shall restore power automatically. The OTP circuit must have built in hysteresis such that the power supply will not oscillate on and off due to temperature recovering condition.

3.3 Over-Power Protection

The power supply will be shutdown and latch off when output power within 105~150% of rated DC output.

Note: Assurance machine can work at low voltage, full load won't damage machine.

3.4 Under Voltage Protection

In an under voltage fault occurs, the supply will latch all DC outputs into a shutdown state when +12V,+5V & +3.3V outputs under 85% of it's maximum value.

3.5 Over voltage protection

The over voltage sense circuitry and reference shall reside in packages that are separate and distinct from the regulator control circuitry and reference. No single point fault shall be able to cause a sustained over voltage condition on any or all outputs. The supply shall provide latch-mode over voltage protection as defined in Table.

Output	Minimum	Nominal	Maximum	Unit
+12VDC	13.3	15.0	15.6	Volts
+5VDC	5.70	6.30	7.00	Volts
+3.3VDC	3.90	4.20	4.50	Volts

3.6 Short circuit

An output short circuit is defined as any output impedance of less than 0.1 ohms. The power supply shall shut down and latch off for shorting the +3.3 VDC,+5 VDC or +12 VDC rails to return or any other rail. Shorts between main output rails and +5VSB shall not cause any damage to the power supply.

The power supply shall either shut down and latch off or fold back for shorting the negative rails.+5VSB must be capable of being shorted indefinitely, but when the short is removed, the power supply shall recover automatically or by cycling PS_ON#. The power supply shall be capable ofwithstanding a continuous short-circuit to the output without damage or overstress to the unit

3.7 No load operation

No damage or hazardous condition should occur with all the DC output connectors disconnected from the load. The power supply may latch into the shutdown state.

4. TIMING

4.1 Signal timing drawing

Figure 2. is a reference for signal timing for main power connector signals and rails.

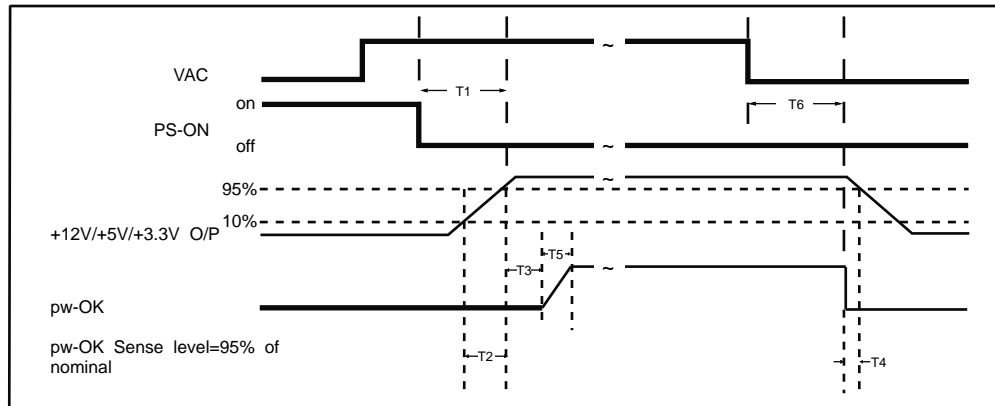


Figure 2. PS-OK Timing Sequence

- (1)T3: Power good signal turn on delay time (100ms~500ms)
- (2)T4: Power good signal turn off delay time (1ms min)
- (3)T2: Rise time (0.1~70ms)
- (4)T6: Hold up time (17ms min) Tested at 75% of maximum load and over 100-240VAC input.

4.2 Hold up time

When the power loss its input power, it shall maintain 17ms in regulation limit at normal input voltage. (AC:115V/60Hz or 230V/50Hz,at 75% of maximum load)

5. ENVIRONMENT

5.1 Operation

Temperature	0 to 40°C
Relative Humidity	10 to 90%, non-condensing

5.2 Shipping and Storage

Temperature	-20 to 60°C
Relative Humidity	5 to 95%, non-condensing

5.3 Altitude

Operating	10,000FT max
Storage	50,000FT max

6. MTBF

6.1 MTBF (mean time between failures) calculation

The demonstrated MTBF shall be 100,000 hours of continuous operation at 25°C, full load, and nominal line. The MTBF of the power supply be calculated in accordance with MIL-HDBK-217F. The DC FAN is not included.

7. MECHANICAL REQUIREMENTS

7.1 Physical Dimension

150 mm (W) x 86 mm (H) x 160mm (D)

7.2 Connectors

M/B 24PIN connector

	Signal	Pin	Pin	Signal	
Orange	+3.3V	13	1	+3.3V	Orange
Orange	+3.3Vsense	13		+3.3V	Orange
Blue	-12VDC	14	2	+3.3V	Orange
Black	COM	15	3	COM	Black
Green	PS-ON	16	4	+5VDC	Red
Black	COM	17	5	COM	Black
Black	COM	18	6	+5VDC	Red
Black	COM	19	7	COM	Black
White	N/C	20	8	PWRGOOD	Grey
Red	+5VDC	21	9	+5Vsb	Purple
Red	+5VDC	22		+12V	Yellow
Red	+5Vsense	22	10	+12V	Yellow
Red	+5VDC	23		+12V	Yellow
Black	COM	24	12	+3.3V	Orange

EPS 12V 8PIN Connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	5	1	COM	Black
Yellow	+12V	6	2	COM	Black
Yellow	+12V	7	3	COM	Black
Yellow	+12V	8	4	COM	Black

ATX 12V 4PIN (4+4PIN EPS 12V in split mode)

	Signal	Pin	Pin	Signal	
Black	GND	1	3	12V	Yellow
Black	GND	2	4	12V	Yellow

4PIN peripheral connector (HDD)

4PIN floppy connector (FDD)

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	1	+5VDC	Red
Black	COM	2	2	COM	Black
Black	COM	3	3	COM	Black
Red	+5VDC	4	4	+12V	Yellow

SATA connector

	Signal	Pin
Orange	+3.3V	5
Black	COM	4
Red	+5V	3
Black	COM	2
Yellow	+12V	1

8PIN PCI Express connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	5	COM	Black
Yellow	+12V	2	6	COM	Black
Yellow	+12V	3	7	COM	Black
Black sense1	COM	4	8	COM	Black

6PIN PCI Express connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	4	COM	Black
Yellow	+12V	2	5	COM	Black
Yellow	+12V	3	6	COM	Black



To be valid, this sheet must be filled out by
your salesperson at the time of purchase.

Store :

Purchaser :

Purchase date :

Model No. :

Serial No. :

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