



SILVERSTONE[®]
Designing Inspiration

SFX Form Factor

SST-ST30SF

The reference SFX power supply

Support standard SFX form factor and ATX via included bracket
300W continuous power output at 50°C operating temperature rated for 24/7 operation
80 PLUS Bronze level efficiency (82%~85% efficiency at 20%~100% loading)
Class-leading single +12V rail with 22A
Intelligent semi-fanless operation
Silent running 80mm fan with 18dBA minimum
Single PCI-E 6pin connectors support
Active PFC

SPECIFICATION

SFX Form Factor SST-ST30SF 300W Switching Power Supply Active PFC Circuit Full Range Input

1. GENERAL DESCRIPTION AND SCOPE

This is the specification of Model SST-ST30SF; AC-line powered switching power supply with active PFC (Power Factor Correction) circuit, meet EN61000-3-2. Also, 5Vsb power is less than 0.5Winput at power off mode (PS_ON input at high state) which is comply with ErP Lot 6 year 2013 requirement.

The specification below is intended to describe as detailedly as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1. EMI REGULATORY

FCC: FCC Part 15, Subpart B, Class B
-CISPR 22: 1997, Class B
-ICES-003: 2004, Class B
-ANSI C63.4-2003

EMC: EN55022: 2006+A1: 2007, Class B
EN 61000-3-2: 2007, Class D
EN 61000-3-3: 2008
CISPR 22: 2005+A1: 2005, Class B
AS/NZS CISPR 22: 2006, Class B

2.2. SAFETY

CB: IEC 60950~1:2005(2nd Edition) and/or EN 60950~1:2006 +A11:2009

UL: UL 60951-1 , 2nd Edition, 2007-03-27

TUV: EN 60950-1:2006+All

3. INPUT ELECTRICAL SPECIFICATIONS

3.1. AC INPUT

Parameter	Min.	Nom. ⁽¹⁾	Max.	Unit
Vin (115VAC)	90	115	132	VAC rms
Vin (230VAC)	180	230	264	VAC rms
Vin Frequency	47	--	63	HZ

◆ Nominal voltages for test purposes are considered to be within $\pm 1.0V$ of nominal.

3.2. INRUSH CURRENT

Maximum inrush current from power-on (with power on at any point on the AC sine) and including, but not limited to, three line cycles, shall be limited to a level below the surge rating of the input line cord, AC switch if present, bridge rectifier, fuse, and EMI filter components. Repetitive ON/OFF cycling of the AC input voltage should not damage the power supply or cause the input fuse to blow.

3.3. INPUT LINE CURRENT & POWER FACTOR (P.F.)

(At Full load)

AC input	Input line current	P.F.@ Full Load	P.F.@ Pin=75W
115V	< 3.5 Amps – rms	> 0.95	> 0.8
230V	< 2.0 Amps – rms	> 0.9	> 0.65

3.4. EFFICIENCY

3.4.1 General

Under the load conditions defined in Table 1. and Table 2. The loading condition for testing efficiency shown in Table 1 represents a fully loaded system. ~ 50% (typical) loaded system. and ~ 20% (light) loaded system.

Table 1. Loading Table for Efficiency

Measurements

300W(loading shown in Amps)					
Loading	+12V	+5V	+3.3V	-12V	+5Vsb
Full	18.7	7.58	7.96	0.31	1.56
Typical	9.3	3.79	3.98	0.16	0.78
Light	3.7	1.52	1.59	0.06	0.31

Table 2. Minimum Efficiency Vs Load

Loading	Voltage	Full load	Typical load	Light load
Required Minimum Efficiency	115V	>82%	>85%	>82%
Required Minimum Efficiency	230V	>85%	>87%	>85%

◆ Minimum Efficiency for test purposes are considered to be within $\pm 1.0\%$ of nominal.

3.4.2 Standby Power Consumption (+5Vsb):

Input Power < 0.5W @+ 5Vsb/45mA & 230Vac input

PS_ON input signal @ High State

4 . OUTPUT ELECTRICAL REQUIREMENTS

4.1. OUTPUT VOLTAGE AND CURRENT RATING

Output	MINIMUM LOAD	NORMAL LOAD	MAXIMUM LOAD	PEAK LOAD	LOAD REG	LINE REG	RIPPLE & NOISE
+3.3V	0.1A	10.5A	21A		±5%	±1%	50mV P-P
+5V	0.2A	10A	20A		±5%	±1%	50mV P-P
+12V	0.5A	8A	22A		±5%	±1%	120mV P-P
-12V	0A	0.25A	0.5A		±10%	±1%	120mV P-P
+5VSB	0A	1.25A	2.5A	3A	±5%	±1%	50mV P-P

(1) +3.3V & 5V total output not exceed 103W.

(2) Total output continuous shall not exceed 300W watts.

(3)+5Vsb peak current is 3A(less then 500m sec.) , minimum voltage during peak is > 4.5Vdc.

(4)Voltages and ripple are measured at the load side of mating connectors with a 0.1 uF monolithic ceramic capacitor paralleled by a 10 uF electrolytic capacitor across the measuring terminals.

4.2. LOAD CAPACITY SPECIFICATIONS

The cross regulation defined as follows, the voltage regulation limits DC include DC Output ripple & noise.

LOAD	+3.3V	+5V	+12V	-12V	+5VSB
condition_1	X	X	X	X	2.5A
condition_2	0.1A	1.5A	0.6A	0A	0A
condition_3	1.5A	0.2A	0.6A	0.5A	0A
condition_4	1A	10A	16A	0.1A	0.1A
condition_5	1A	14A	4A	0.1A	0.1A
condition_6	0.9A	20A	15.7A	0.3A	1A
condition_7	18A	2A	2A	0A	0.1A
condition_8	21A	6.74A	15.7A	0.3A	1A
CL-Test-1	12.4A	12.4A	1A	0.1A	0.1A
CL-Test-2	12.4A	12A	0.8A	0.1A	0.1A
CL-Test-3	1A	1A	22A	0.1A	0.1A
CL-Test-4	0.6A	0.6A	22A	0.1A	0.1A

4.7. SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.

In the event of an output short circuit condition on +3.3V, +5V, +12V or -12V output, the power supply will shutdown and latch off without damage to the power supply. The power supply shall return to normal operation after the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

4.8. POWER SIGNAL

POWER GOOD @115/230V, FULL LOAD	100 –500m sec.
POWER FAIL @115/230V, FULL LOAD	1m sec. minimum

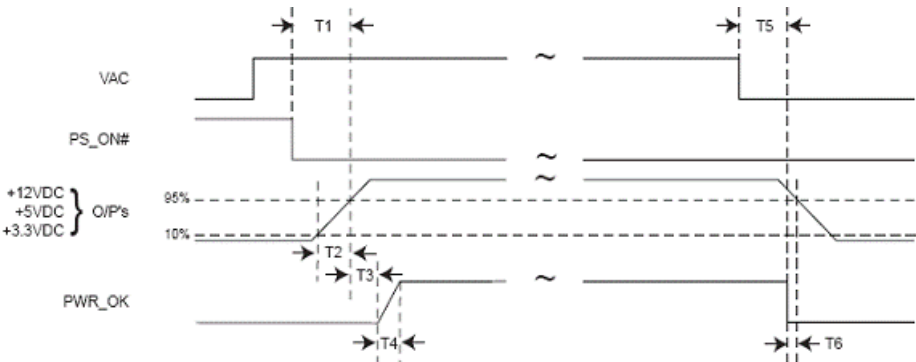


Figure:

T1: Power-on time shall be less than 500 ms ($T1 < 500 \text{ ms}$).

T2: Rise time : 0.1 ms to 20 ms ($0.1 \text{ ms} \leq T2 \leq 20 \text{ ms}$).

T3: Power-ok delay time: $100 \text{ ms} < T3 < 500 \text{ ms}$

T4: Power-ok rise time: $T4 \leq 10 \text{ ms}$

T5 + T6: AC loss to output hold-up time : $T5 + T6 \geq 17 \text{ ms}$

4.9. The main power supply shall be off when the PS_ON pin is floating (open collector). The ON/STBY pin of P1 must remain off state for 5 Sec (maximum) prior to switching to the ON state

5. FAN NOISE REQUIREMENTS

5.1. The subject power supply is cooled by a self-contained, 80mm×15mm, 12VDC fan.

6. ENVIRONMENTAL REQUIREMENTS

The power supply will be compliant with each item in this specification for the following Environmental conditions.

6.1. TEMPERATURE RANGE

Operating	+10 to +50 deg. C
Storage	-20 to +80 deg. C

6.2. HUMIDITY

Operating	5 –95% RH, Non-condensing
Storage	5 –95% RH, Non-condensing

6.3. VIBRATION

The subject power supply will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.

Vibration Operating – Sine wave excited, 0.25 G maximum acceleration, 10-250 Hz swept at one octave / min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.

Plane of vibration to be along three mutually perpendicular axes.

6.4. GROUND LEAKAGE CURRENT

The power supply ground leakage current shall be less than 3.5 mA.

6.5. RELIABILITY

The power supply reliability, when calculated by MIL-HDBK-217;latest revision, are exceed 100,000 hours with all output at Typical load and an ambient temperature of 25°C.

6.6. DIELECTRIC STRENGTH

Primary to Frame Ground : 1800 Vac for 1 sec.

Primary to Secondary : 1800Vac for 1 sec

6.7. INSULATION RESISTANCE

Primary to Frame Ground : 20 Meg.ohms Minimum

Primary to Secondary : 20 Meg.ohms Minimum

7. MECHANICAL REQUIREMENTS

7.1 Physical Dimension

125 mm (W) × 63.5 mm (H) × 100mm (D)

7.2 Connectors

M/B 24PIN connector

	Signal	Pin	Pin	Signal	
Orange	+3.3V	13	1	+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	10	+12V	Yellow
Red	+5VDC	23	11	+12V	Yellow
Black	COM	24	12	+3.3V	Black

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

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

Cautions:

1. Please turn off your system and switch to "O" mode on the power supply before attaching or detaching power connectors.
2. All power connectors are keyed to prevent incorrect connections. If you cannot connect them easily, please double check to ensure the connector's direction and type before attempting to connect again. Do not attach the connector by force; incorrect connection will damage power supply or devices in your system.
3. The converting wire (picture 5.10) can only be attached with EPS 8-pin connector to convert into ATX 4-pin connector. Incorrect connection will damage power supply or devices in your system.

The connectors shown above may differ depending on the model of your power supply

Warranty Information**Warranty terms & conditions**

1. Product component defects or damages resulted from defective production is covered under warranty. Defects or damages with the following conditions will be fixed or replaced under SilverStone Technology's jurisdiction.

- a) Usage in accordance with instructions provided in this manual, with no misuse, overuse, or other inappropriate actions.
- b) Damage not caused by natural disaster (thunder, fire, earthquake, flood, salt, wind, insect, animals, etc...)
- c) Product is not disassembled, modified, or fixed. Components not disassembled or replaced.
- d) Warranty mark/stickers are not removed or broken.

Loss or damages resulted from conditions other than ones listed above are not covered under warranty.

2. Under warranty, SilverStone Technology's maximum liability is limited to the current market value for the product (depreciated value, excluding shipping, handling, and other fees). SilverStone Technology is not responsible for other damages or loss associated with the use of product.
3. Under warranty, SilverStone Technology is obligated to repair or replace its defective products. Under no circumstances will SilverStone Technology be liable for damages in connection with the sale, purchase, or use including but not limited to loss of data, loss of business, loss of profits, loss of use of the product or incidental or consequential damage whether or not foreseeable and whether or not based on breach of warranty, contract or negligence, even if SilverStone Technology has been advised of the possibility of such damages.
4. Warranty covers only the original purchaser through authorized SilverStone distributors and resellers and is not transferable to a second hand purchaser
5. You must provide sales receipt or invoice with clear indication of purchase date to determine warranty eligibility.
6. If a problem develops during the warranty period, please contact your retailer/reseller/SilverStone authorized distributors or SilverStone <http://www.silverstonetek.com>

Please note that: (i) You must provide proof of original purchase of the product by a dated itemized receipt; (ii) You shall bear the cost of shipping (or otherwise transporting) the product to SilverStone authorized distributors. SilverStone authorized distributors will bear the cost of shipping (or otherwise transporting) the product back to you after completing the warranty service; (iii) Before you send the product, you must be issued a Return Merchandise Authorization ("RMA") number from SilverStone. Updated warranty information will be posted on SilverStone's official website. Please visit <http://www.silverstonetek.com> for the latest updates.

Additional info & contacts

For North America (usasupport@silverstonetek.com)

SilverStone Technology in North America may repair or replace defective product with refurbished product that is not new but has been functionally tested. Replacement product will be warranted for remainder of the warranty period or thirty days, whichever is longer. All power supplies should be sent back to the place of purchase if it is within 30 days of purchase, after 30 days, customers need to initiate RMA procedure with SilverStone Technology in USA by first downloading the "USA RMA form for end-users" form from the below link and follow its instructions.

For Australia only (support@silverstonetek.com)

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Please refer to above "Warranty terms & conditions" for further warranty details.

For Europe (support.eu@silverstonetek.de)

For all other regions (support@silverstonetek.com)

Warranty length**For North America and Australia**

All SilverStone retail PSU have from the date of purchase, 3 years limited warranty (some PSU carry a 1 or 5 year warranty)

For further information please visit: <http://www.silverstonetek.com>

For Europe

All SilverStone retail PSU have from the date of purchase, 3 years limited warranty (some PSU carry a 2 or 5 year warranty)

For further information please visit: <http://www.silverstonetek.com>

For all other regions

Please contact your local SilverStone authorized dealer or distributors for more information.

Note

SilverStone reserve the right to alter the above warranty information. Please visit <http://www.silverstonetek.com> for the latest update of the warranty information

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