



SILVERSTONE[®]
Designing Inspiration

STRIDER GOLD S SERIES

ST1500-GS

World's smallest, full-modular ATX power supplies

High efficiency with 80 PLUS Gold certification

100% modular cables

24/7 continuous power output with 40°C operating temperature

1600W peak power

Strict $\pm 3\%$ voltage regulation and low ripple & noise

Silent running 135mm fan with 18dBA minimum

Eight PCI-E 8/2pin connectors support

Compact design with a depth of 180mm for easy integration

Installation and system optimization guide:

The following manual and guides were carefully prepared by the SilverStone engineering team to help you maximize the potential of your SilverStone product. Please keep this manual for future reference when upgrading or performing maintenance on your system. A copy of this manual can also be downloaded from our website at:

<http://www.silverstonetek.com>

● Specification	-----	P.1
● AC Input	-----	P.1
● DC Output	-----	P.2
● Protection	-----	P.4
● Timing	-----	P.5
● Environment	-----	P.6
● Safety	-----	P.6
● Electromagnetic compatibility (EMC)	-----	P.6
● MTBF	-----	P.7
● Mechanical	-----	P.7

SPECIFICATION

SilverStone Strider Gold S ST1500-GS ATX12V / EPS 12V Switching Power Supply With Active PFC 80 PLUS Gold PS/2

To meet the requirements of current and future desktop computers, SilverStone created the Strider Gold S series power supplies. The Strider Gold S models are all new designs engineered to be the smallest, full-modular ATX power supplies at any wattage levels.

The Strider Gold S series includes wattage range from 550W to 1500W for a great variety of applications. With short depth designs, all models in the series are among the world's smallest full-modular ATX PSUs. In addition to 80 PLUS Gold level efficiency, the Strider Gold S PSUs are built to meet very high standards in electrical performance with $\pm 3\%$ voltage regulation, $\pm 3\%$ ripple & noise, and high amperage single +12V rail. Other notable features included are 24/7 40°C continuous output capability, low-noise fan, and multiple sets of PCI-E cables. For users looking for a power supply with faultless combination of compact size, performance, efficiency, and quality, the Strider Gold S Series is the only choice.

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
Iin		18-----9		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).

World's smallest, full-modular ATX power supplies

2. DC OUTPUT**2.1 DC voltage regulation**

Parameter	Range	Min	Nom.	Max	Unit
+3.3V	+/-3%	+3.20	+3.30	+3.40	Volts
+5V	+/-3%	+4.85	+5.00	+5.15	Volts
+12V1	+/-3%	+11.64	+12.00	+12.36	Volts
+12V2	+/-3%	+11.64	+12.00	+12.36	Volts
-12V	+/-10%	-13.20	-12.00	-10.80	Volts
+5VSB	+/-5%	+4.75	+5.00	+5.25	Volts

2.2 Load ranges

Parameter	Min(optional)	Nom.	Max	Unit
+3.3V	0.2	-	25	Amps
+5V	0.2	-	25	Amps
+12V1	0.2	-	70	Amps
+12V2	0.2	-	70	Amps
-12V	0	-	0.3	Amps
+5VSB	0	-	3.5	Amps

1. Maximum combined load on +3.3V and +5V outputs shall not exceed 150W.
2. Maximum combined load on +12V outputs shall not exceed 120A(1440W).
3. Maximum continuous total DC output power should not exceed 1500W.
4. Peak total DC output power should not exceed 1600W.
5. Peak power and current loading shall be supported for 12 second.

2.3 Output Ripple**2.3.1 Ripple regulation**

Parameter	Ripple&Noise	Unit
+3.3V	50	mVp-p
+5V	50	mVp-p
+12V1	120	mVp-p
+12V2	120	mVp-p
-12V	120	mVp-p
+5VSB	50	mVp-p

World's smallest, full-modular ATX power supplies

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

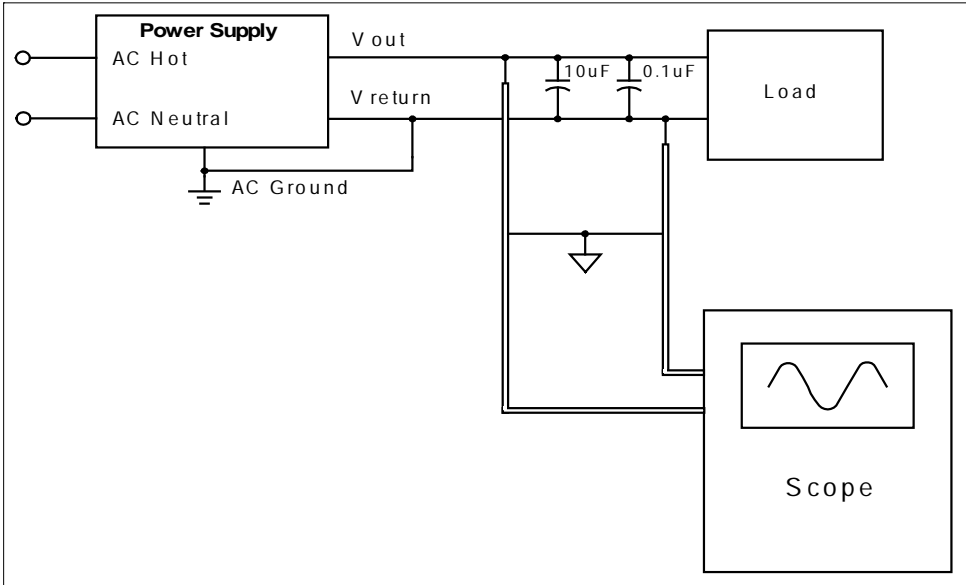


Figure 1. Ripple voltage test circuit

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 4.0.

2.5 Efficiency

Power supply efficiency 20% Loading / 87% · 50% Loading / 90% · 100% Loading / 87% at normal AC main voltage (AC input 115V or 230V).

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.

World's smallest, full-modular ATX power supplies

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.

Voltage	Over Current Limit (Iout limit)
+3.3V	30A minimum; 48A maximum
+5V	30A minimum; 48A maximum
+12V1	75A minimum; 100A maximum
+12V2	75A minimum; 100A 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 specifide 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.

Voltage	Minimum	Nominal	Maximum	Unit
+3.3V	3.90	4.20	4.50	Volts
+5V	5.70	6.30	7.00	Volts
+12V	13.3	15.0	16.5	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 of withstanding 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.

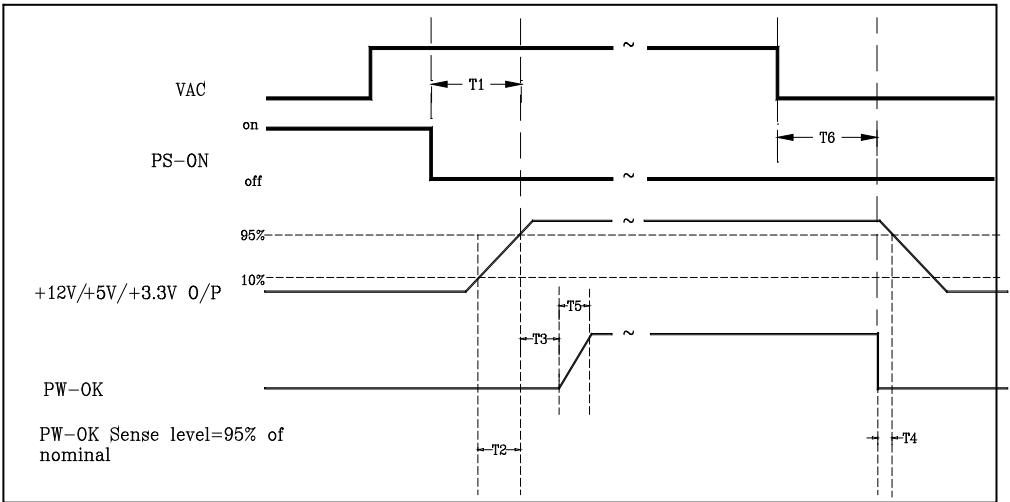


Figure 2. PS-OK Timing Sequence

- 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 (0.1~20ms)
- (4) T6: Hold up time (17ms min, Tested at 75% Loading)

4.2 Hold up time

When the power loss its input power, it shall maintain 17ms in regulation limit at normal input voltage. (Tested at 75% of maximum load and 100-240VAC input).

World's smallest, full-modular ATX power supplies

5. ENVIRONMENT

5.1 Operation

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

5.2 Shipping and Storage

Temperature	-10 to 50°C
Relative Humidity	5 to 95%, non-condensing

5.3 Altitude

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

6. SAFETY

6.1 Underwriters Laboratory (UL) recognition.

The power supply designed to meet UL 1950.

6.2 The power supply must bear the German Bauart Mark from TUV.

7. ELECTROMAGNETIC COMPATIBILITY (EMC)

7.1 IEC 61000-4-2 ESD LEVEL X20KV4.

7.2 IEC 61000-4-3 radiated electrical field requirement.

7.3 IEC 61000-4-4 BURST.

7.4 IEC 61000-4-5 surge Voltages.

World's smallest, full-modular ATX power supplies

7.5 EN61000-3-2 harmonic current emissions.

If applicable to sales in Japan or Europe, the power supply shall meet the requirements of EN 61000-3-2 class D and the guidelines for the suppression of harmonics in appliances and general use equipment class D for harmonic line current content at full-rated power.

7.6 EN55024 class B radio interference (CISPR 22)

7.7 FCC part 15, subpart J class B 115VAC operation.

8. MTBF

8.1 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.

9. MECHANICAL

9.1 Physical Dimension

150 mm (W) × 86 mm (H) × 180mm (D)

SilverStone Technology Co., Ltd.

www.silverstonetek.com

support@silverstonetek.com

NO: G11221380