



SILVERSTONE[®]
Designing Inspiration

STRIDER ESSENTIAL SERIES

ST50F-ES230/ST40F-ES230/ST30F-ES230

Power for everything you need

High efficiency with 80 PLUS certification
24/7 continuous power output with 40°C operating temperature
Class-leading single +12V rail
Active PFC Circuitry
PCI-E 8pin and PCI-E 6pin connector support
Silent running 120mm fan with 18dBA

SPECIFICATION

SilverStone Strider Essential

ST50F-ES230

ST40F-ES230

ST30F-ES230

**ATX12V Switching Power Supply
With Active PFC
PS/2**

1. INPUT:

1.1 VOLTAGE

MINIMUM	NOMINAL	MAXIMUM	UNITS
180	200-240	264	Vrms

1.2 FREQUENCY

47Hz ~ 63Hz

1.3 CURRENT

4.0A max.(ST50F-ES230), 3.0A max.(ST40F-ES230, ST30F-ES230),

1.4 INRUSH CURRENT

150A max. when ac input 230Vac and 25 °C cold start.

1.5 POWER EFFICIENCY

ST50F-ES230

Loading	+12V	+5V	+3.3V	-12V	+5Vsb	Efficiency
20%	6.53A	2.22A	2.36A	0.05A	0.43A	82%
50%	16.32A	5.56A	5.89A	0.13A	1.07A	85%
100%	32.64A	11.12A	11.78A	0.26A	2.15A	82%

ST40F-ES230

Loading	+12V	+5V	+3.3V	-12V	+5Vsb	Efficiency
20%	5.04A	1.98A	2.10A	0.05A	0.42A	82%
50%	12.60A	4.94A	5.25A	0.13A	1.05A	85%
100%	25.20A	9.88A	10.49A	0.25A	2.10A	82%

ST30F-ES230

Loading	+12V	+5V	+3.3V	-12V	+5Vsb	Efficiency
20%	3.57A	1.71A	1.83A	0.05A	0.41A	82%
50%	8.92A	4.28A	4.57A	0.12A	1.01A	85%
100%	17.83A	8.56A	9.13A	0.24A	2.03A	82%

1.6 LEAKAGE CURRENT

3.5mA max.

1.7 POWER FACTOR

PF > 0.95 at 230Vac input and full load

2. OUTPUT:

ST50F-ES230

Voltage	+5V	+3.3V	+12V	-12V	+5Vsb
Max load*	17.0A	18.0A	38.0A	0.3A	2.5A
Min load	0.5A	0.3A	1.0A	0.0A	0.0A
Peak load	--	--	--	--	3.0A
Combined power*	110W		--	--	--
Regulation***	+5,-5%	+5,-5%	+5,-5%	+10,-10%	+5,-5%
Ripple & Noise**	50mV	50mV	120mV	120mV	50mV

- * · The continuous total output power is 500W max.
- The combined power of +5V and +3.3V is 110W max.
- When +5V load is over 15A, +12V min load is 4A.
- When +12V load is over 30A, +5V min load is 4A.
- Peak currents may last up to 12 seconds with not more than one occurrence per minute.

** Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.

*** LOAD REGULATION TEST TABLE:

	+5V	+12V	+3.3V	-12V	+5Vsb
LOAD1	0.5A	1.0A	0.3A	0.0A	0.0A
LOAD2	5.0A	1.0A	5.0A	0.0A	0.1A
LOAD3	8.0A	5.0A	8.0A	0.1A	0.5A
LOAD4	14.0A	28.0A	7.5A	0.2A	1.0A
LOAD5	10.0A	17.0A	18.0A	0.2A	1.5A
LOAD6	5.0A	34.0A	10.0A	0.3A	2.5A
LOAD7	7.0A	36.0A	0.3A	0.3A	0.5A
LOAD8	0.5A	2.0A	0.3A	0.0A	0.0A

ST40F-ES230

Voltage	+5V	+3.3V	+12V	-12V	+5Vsb
Max load*	16.0A	17.0A	30.0A	0.3A	2.5A
Min load	0.5A	0.3A	1.0A	0.0A	0.0A
Peak load	--	--	--	--	3.0A
Combined power*	100W		--	--	--
Regulation***	+5,-5%	+5,-5%	+5,-5%	+10,-10%	+5,-5%
Ripple & Noise**	50mV	50mV	120mV	120mV	50mV

- * · The continuous total output power is 400W max.
- The combined power of +5V and +3.3V is 100W max.
- When +5V load is over 15A, +12V min load is 10A.
- When +12V load is over 30A, +5V min load is 2A.
- Peak currents may last up to 12 seconds with not more than one occurrence per minute.

** Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.

*** LOAD REGULATION TEST TABLE:

	+5V	+12V	+3.3V	-12V	+5Vsb
LOAD1	0.5A	1.0A	0.3A	0.0A	0.0A
LOAD2	5.0A	1.0A	5.0A	0.0A	0.1A
LOAD3	8.0A	5.0A	8.0A	0.1A	0.5A
LOAD4	14.0A	22.0A	6.0A	0.2A	1.0A
LOAD5	8.5A	13.0A	17.0A	0.2A	1.5A
LOAD6	5.0A	26.0A	10.0A	0.3A	2.5A
LOAD7	5.5A	28.0A	0.3A	0.3A	0.5A
LOAD8	0.5A	2.0A	0.3A	0.0A	0.0A

ST30F-ES230

Voltage	+5V	+3.3V	+12V	-12V	+5Vsb
Max load*	15.0A	16.0A	22.0A	0.3A	2.5A
Min load	0.5A	0.3A	1.0A	0.0A	0.0A
Peak load	--	--	--	--	3.0A
Combined power*	90W		--	--	--
Regulation***	+5,-5%	+5,-5%	+5,-5%	+10,-10%	+5,-5%
Ripple & Noise**	50mV	50mV	120mV	120mV	50mV

- * · The continuous total output power is 300W max.
- The combined power of +5V and +3.3V is 90W max.
- When +5V load is over 15A, +12V min load is 6A.
- When +12V load is over 22A, +5V min load is 2A.
- Peak currents may last up to 12 seconds with not more than one occurrence per minute.

** Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.

*** LOAD REGULATION TEST TABLE:

	+5V	+12V	+3.3V	-12V	+5Vsb
LOAD1	0.5A	1.0A	0.3A	0.0A	0.0A
LOAD2	3.0A	1.0A	3.0A	0.0A	0.1A
LOAD3	6.0A	4.0A	6.0A	0.1A	0.5A
LOAD4	12.0A	14.0A	6.0A	0.2A	1.0A
LOAD5	7.5A	9.0A	16.0A	0.2A	1.5A
LOAD6	4.0A	18.0A	6.0A	0.3A	2.5A
LOAD7	5.0A	20.0A	0.3A	0.3A	0.5A
LOAD8	0.5A	2.0A	0.3A	0.0A	0.0A

2.1 REMOTE ON/OFF

TTL High/PS-OFF; TTL Low/PS-ON

VIL=0.8Vmax, IIL=-1.6mAmax @ Vin=0.4V

VIH=2.0Vmin @ Iin=-200uA, VIH=5.25Vmax @open ckt.

2.2 HOLD-UP TIME

10msec (minimum) at 80% of full load at 230Vac input.

2.3 POWER GOOD DELAY

100-500 msec.

2.4 POWER FAIL DELAY

> 1 msec.

2.5 TURN-ON DELAY TIME

2000 msec max. At Nominal Line Full Load.

2.6 TRANSIENT OVERSHOOT

DC output transient step sizes as below table:

Output voltage	+5V	+3.3V	+12V
Max. step size	30%	30%	30%

Load-changing repetition rate of 10m seconds.

At dynamic loading, regulation at the +5V, +3.3V, +12V outputs can go to -8%+5%

Load slew rated 1.0A/uS and capacitive load as below :

+5V	+3.3V	+12V	-12V	+5Vsb
10000uF	10000uF	10000uF	470uF	10000uF

2.7 RISE TIME

20ms max at full load.

3. PROTECTION:

When OVP, OPP or short protection is triggered, the main outputs will be latched off. The main outputs can be reset by cycling the DC remote on/off or AC power. +5Vsb output is auto recovery when fault condition removed.

3.1 OVER VOLTAGE PROTECTION

+3.3V output 4.5 Vmax.
+5.0V output 7.0 Vmax.
+12.0V output 15.6 Vmax.

3.2 SHORT PROTECTION

All output to GND.

3.3 OVER POWER PROTECTION

Foldback at 110%~150% over peak load

4. ENVIRONMENT:

- 4.1 OPERATING TEMP 0 °C to + 40 °C
4.2 STORAGE TEMP -20 °C to + 70 °C
4.3 OPERATING HUMIDITY 20% to 90%, non-condensing
4.4 STORAGE HUMIDITY 5% to 95%, non-condensing

4.5 OPERATING ALTITUDE 0 to 10,000 feet

4.6 STORAGE ALTITUDE 0 to 50,000 feet

5. HI-POT:

5.1 PRIMARY TO SECONDARY

1800Vac for 1 minute

6. SAFETY AND EMC REQUIREMENTS

6.1 CONDUCTED EMI

1. MEET CISPR 22 : Class B

6.2 SAFETY STANDARDS

1. MEET TUV (EN60950)
2. MEET CB (IEC 950)
3. MEET CE
4. MEET CCC

6.3 HARMONIC

MEET IEC61000-3-2,Class D

7. MTBF at 25 °C(demonstrated)

100K hrs minimum

8. DIMENSIONS

150 mm (W) × 86 mm (H) × 140mm (D)

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