



**SILVERSTONE**<sup>®</sup>  
Designing Inspiration

ESSENTIAL SERIES  
SST-ET650-B  
SST-ET550-B

Power for everything you need

High efficiency with 80 PLUS Bronze certification

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

Class-leading single +12V rail

Silent running 120mm fan with 18dBA

PCI-E 8pin and PCI-E 6pin connectors support

All flat cables

# SPECIFICATION

## SilverStone Essential ET650-B / ET550-B

ATX12V Switching Power Supply  
With Active PFC  
80Plus Bronze  
PS/2

### 1. INPUT:

#### 1.1 VOLTAGE

MINIMUM	NOMINAL	MAXIMUM	UNITS
103	115-230	254	Vrms

#### 1.2 FREQUENCY

47Hz ~ 63Hz

#### 1.3 CURRENT

115Vac/10.0A max. 230Vac/5.0A max

#### 1.4 INRUSH CURRENT

Power no damage at AC input 230Vac and 25°C cold start.

#### 1.5 POWER EFFICIENCY

Meet 80 Plus Bronze requirement at 115Vac input.

## ET650-B

Loading	+12V	+5V	+3.3V	-12V	+5Vsb	Required minimum efficiency
20%	8.83A	2.39A	2.81A	0.05A	0.44A	82%
50%	22.08A	5.96A	7.02A	0.13A	1.10A	85%
100%	44.15A	11.93A	14.03A	0.26A	2.21A	82%

## ET550-B

Loading	+12V	+5V	+3.3V	-12V	+5Vsb	Required minimum efficiency
20%	7.33A	2.20A	2.48A	0.05A	0.44A	82%
50%	18.33A	5.51A	6.20A	0.13A	1.09A	85%
100%	36.66A	11.02A	12.40A	0.26A	2.18A	82%

### 1.6 LEAKAGE CURRENT

3.5mA max.

### 1.7 POWER FACTOR

PF > 0.96 at 230Vac input and full load

### 1.8 NO LOAD CONSUMPTION

<0.7W

## 2. OUTPUT

### ET650-B

Voltage	+5V	+3.3V	+12V	-12V	+5Vsb
* ① <b>Max load</b>	17.0A	20.0A	54.0A	0.3A	2.5A
<b>Min load</b>	0.5A	0.3A	1.0A	0.0A	0.0A
<b>Peak load</b>	--	--	--	--	3.0A
* ① <b>Combined power</b>	120W		--	--	--
* ③ <b>Regulation</b>	+5,-5%	+5,-5%	+5,-5%	+10,-10%	+5,-5%
* ② <b>Ripple &amp; Noise</b>	50mV	50mV	120mV	120mV	50mV

- \* ① The continuous total output power is 650W max.
  - The combined power of +5V and +3.3V is 130W max.
  - Peak currents may last up to 12 seconds with not more than one occurrence per minute.
- \* ② Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.
- \* ③ LOAD REGULATION TEST TABLE:

	+5V	+12V	+3.3V	-12V	+5Vsb
LOAD1	0.5A	1.0A	0.3A	0.0A	0.0A
LOAD2	6.0A	2.0A	6.0A	0.0A	0.1A
LOAD3	13.0A	9.0A	12.0A	0.1A	0.5A
LOAD4	17.0A	20.0A	10.5A	0.2A	1.0A
LOAD5	11.0A	26.0A	20.0A	0.2A	1.5A
LOAD6	6.5A	46.0A	10.0A	0.3A	2.5A
LOAD7	8.5A	50.0A	0.3A	0.3A	0.5A
LOAD8	0.5A	2.0A	0.3A	0.0A	0.0A

#### ET550-B

Voltage	+5V	+3.3V	+12V	-12V	+5Vsb
* ① Max load	16.0A	18.0A	42.0A	0.3A	2.5A
Min load	0.5A	0.3A	1.0A	0.0A	0.0A
Peak load	--	--	--	--	3.0A
* ① Combined power	110W		--	--	--
* ③ Regulation	+5,-5%	+5,-5%	+5,-5%	+10,-10%	+5,-5%
* ② Ripple & Noise	50mV	50mV	120mV	120mV	50mV

- \* ① The continuous total output power is 550W max.
  - The combined power of +5V and +3.3V is 110W max.
  - Peak currents may last up to 12 seconds with not more than one occurrence per minute.
- \* ② Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.
- \* ③ LOAD REGULATION TEST TABLE:

	<b>+5V</b>	<b>+12V</b>	<b>+3.3V</b>	<b>-12V</b>	<b>+5Vsb</b>
LOAD1	0.5A	1.0A	0.3A	0.0A	0.0A
LOAD2	6.0A	2.0A	6.0A	0.0A	0.1A
LOAD3	12.0A	7.0A	11.0A	0.1A	0.5A
LOAD4	16.0A	16.0A	9.0A	0.2A	1.0A
LOAD5	10.0A	22.0A	18.0A	0.2A	1.5A
LOAD6	6.0A	38.0A	10.0A	0.3A	2.5A
LOAD7	8.0A	42.0A	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.

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

+5V	+3.3V	+12V	-12V	+5Vsb
10000uF	10000uF	10000uF	470uF	3300uF

## 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 FCC : Class B
- 2.MEET BSMI : Class B
- 3.MEET CISPR 22 : Class B

### 6.2 SAFETY STANDARDS

- 1.MEET CUL(UL60950)
- 2.MEET TUV (EN60950)
- 3.MEET CB (IEC 950 )
- 4.MEET CE
- 5.MEET CCC

### 6.3 HARMONIC

MEET IEC61000-3-2,Class D

7. MTBF at 25 °C(demonstrated)  
100K hrs minimum

8. DIMENSIONS

W x Lx H=150mm x 140mm x 86mm

*SilverStone Technology Co., Ltd.*

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