



Zecks Power Co., Ltd.

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Specification of ATX Switching Power Supply

With Auto Switch

Model No. ZKS-450SX
【Total Wattage 450W】

| Prepared By | Designed By | Approved By | Issued By |
|-------------|-------------|-------------|-----------|
| | | | |

1. INPUT :

- 1.1 AC Input Range : Auto Switching (47Hz ~ 63Hz)
90V~135V (Input 115VAC)
180V~260V (Input 230VAC)
- 1.2 AC Input Current : 10A (RMS) / 115VAC
(@ without AC Outlet) 5.5A (RMS) / 230VAC
- 1.3 Brown Out Voltage : 95VAC max. @ 60Hz.
- 1.4 Inrush Current : 70A max. (cold start)

2. DC OUTPUT :

| ◆◆◆◆◆◆ | V1 | V2 | V3 | V4 | V5 | V6 |
|-----------------|-----------------|----------|-------|-------|-------|-------|
| Output Voltage | +3.3V | +5V | +12V | -5V | -12V | +5Vsb |
| Max. Current | 30A (I1) | 45A (I2) | 15A | 1A | 1A | 3A |
| Min. Current | 0A | 1.0A | 1.0A | 0A | 0A | 0.3A |
| Load Regulation | 5% | 5% | 5% | 10% | 10% | 5% |
| Line Regulation | 1% | 1% | 1% | 2% | 2% | 1% |
| Ripple & Noise | 50mv | 50mv | 50mv | 100mv | 120mv | 50mv |
| * * * * * | Total 245W Max. | | * * * | * * * | * * * | * * * |
| | | | * | * | * | * |

$$(V1 \cdot I1) + (V2 \cdot I2) < 245W$$

Note : A low pass filter shall be added to outputs during measurement. (EXP. : 0.47uF Tan-cap. & 0.1uF Ceramic-cap.)

3. OVERALL PERFORMANCE

- 3.1 Total Output Power : 450W
- 3.2 Efficiency : 78% min. at full load (AC input 230V)
- 3.3 Power Up Time : <20ms for +5V output voltage.
- 3.4 Hold Up Time : 16 ms min.
- 3.5 Power Good Time : The PWR-GOOD signal will not be higher than 100 - 500 ms after the +5V output stabilizes at its operating value when the unit is turn on.
- 3.6 Power Fail Signal : The TTL compatible signal will go down at least 1 ms before +5V below 4.75V
- 3.7 Switching Frequency : 30KHz Typical.
- 3.8 Temperature coefficient : +0.05% per°C
- 3.9 PS on Signal : TTL compatible signal (active low)

4. PROTECTION FEATURES

4.1 Over Voltage Protection :

DC +3.3V output from 3.8V ~ 4.3V

DC +5V output from 5.7V ~ 7.0V

DC +12V output from 13.4V ~ 15.6V

4.2 Over Load Protection : Total output 120% Min. ~ 160% Max.

4.3 Short Circuit : Latch off

5. ENVIRONMENTAL

5.1 Operation Temperature : 0°C ~ 50°C (at 75% load, input 230V)

5.2 Cooling : Forced air ventilation by DC fan.

5.3 Fan type : Ball Bearing FAN

5.4 Fan status monitoring : Optional.

5.5 Humidity : 10% ~ 90% RH

5.6 Storage Temperature : -20°C ~ 80°C

5.7 Storage Humidity : 5% ~ 90% RH

5.8 Altitude : 10,000 ft max.

6. SAFETY APPROVAL

a. UL 1950 / cUL 1950 D3

b. TUV EN60950

c. Nemko 60950

d. CB IEC 60950

e. CE Test Report

7. ELECTROMAGNETIC COMPATIBILITY :

7.1 Electromagnetic Interference (EMS) :

FCC Part 15, subjecting, class B ; CISPR-22, class B

7.2 Electrostatic Discharge (ESD) : Comply with IEC801-2.

7.3 Radiated Susceptibility (RS) : Comply with IEC801-2.

7.4 Power Factor (Harmonics) : Comply with IEC1000-3-2, IEC1000-3-3

『 Active Power Factor Correction 』

Active Power Factor Correction (the advance technology most used in high power SMPS) used a per-regulator before the main PWM convert circuit, the current feedback technology. Regulated current drawing flow AC sinusoidal wave. Therefore, the THD less than 5%, and

the power factor increase to applied 0.99 or higher. This method of PFC knows as Active Power Factor Correction because applied active components and circuit inside. It can provide high power factor (up to 0.97 ~ 1), can operate in world wide input range (100V ~ 240VAC). An intelligent solution for high regulation, high power density power designs

8. DIELECTRIC WITHSTAND (HI-POT) TEST

8.1 Primary to Secondary : 1800VAC -- 3 Sec. (5mA cut - off)

8.2 Primary to Ground : 1800VAC -- 3 Sec. (5mA cut - Off)

8.3 Leakage Current < 3.5mA at INPUT 230V~ 60Hz

8.4 Ground Continuity : 100m Ω max. when the test current is at 25A

9. INSULATION RESISTANCE

9.1 Input to output : 20M Ω min.

9.2 Input to Ground : 20M Ω min.

10. RELIABILITY : MTBF 200,000 hours @ 25 $^{\circ}$ C ambient.

11. SHOCK AND VIBRATION

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

Storage –40G, 11mSec. half-sine wave pulse in both directions on three mutually perpendicular axes.

Operating –10G, 11mSec. half-sine wave pulse in both directions on three mutually perpendicular axes.

Vibration Operation-Sine wave excited, 0.25G maximum acceleration, 10 - 250Hz swept at one octave/mine. Fifteen-minute dwell at all frequencies at which the device under test experience excursions two times large than non-resonant excursions.

12. MECHANICAL : L150 * W140 * H86 mm

(See drawing ZKS-450SX-A.pdf)