
Specifications

480W AC/DC Power Supply

Model Name :

SSF-N480S12

Approved	Checked	Engineer

Specifications

SSF-N480S12

Scope:

The SSF-N480S series provides 300Watts output with convection cooling, 480Watts output with forced air cooling. All respective models offer universal AC input, ITE safety and EMC standards. Additional functions as 600 watts peak load, built-in remote sense, power fail signal, +12V/0.5A fan output, thermal shut-down and green LED indication output attached. Built-in MCU controlling on fan, OCP & peak load duration. And, optional functions as remote ON/OFF, +5Vsb/1.5A standby power, current sharing, ORing Mosfet.

I. Electrical Specification

1.1 Input Characteristics

1.1.1 Nominal Voltage

100 ~ 240Vac Nominal input AC voltage.

1.1.2 Input Voltage Range

90 ~ 264Vac operating input AC voltage.

1.1.3 Nominal Frequency

50Hz or 60Hz nominal input AC frequency

1.1.4 Input Frequency Range

47Hz to 63Hz. operating input AC frequency

1.1.5 Input Current

7A max at 100Vac input voltage and Max. current output.

1.1.6 Inrush Current

80A / 1mSec. (max. at 230Vac input and cold start)

1.1.7 Efficiency

1.1.7.1 91% typ. at nomal input voltage, rated load. (without optional function)
90% typ. at nomal input voltage, rated load.

1.1.7.2 Active Mode Efficiency

88% typ. of 25%,50%,75%,100% averaged efficiency at rated load,
115Vac/60Hz and 230Vac/50Hz after 30 minutes startup

1.1.7.3 10% Load Power Consumption

80% min. efficiency at 115Vac/60Hz and 230Vac/50Hz.

1.1.8 No Load Power Consumption

0.4W Max. no load input consumption at 115Vac/60Hz and 230Vac/50Hz.
(without optional function, fan and led indication)

When remoted on, 1.2W Max. no load consumption at 115Vac/60Hz and 230Vac/50Hz.

When remoted off, 0.6W Max. no load consumption at 115Vac/60Hz and 230Vac/50Hz.

1.1.9 Brown-out And Brown-Out Recovery

When the input voltage below 70Vac, this power supply shall not be damaged and shall be working as normal when input voltage returning to rated voltage.

1.1.10 Test Conduction

All function are defined and tested at nominal input voltage, max.rated load and 25°C ambient temperature.

1.2 Output Characteristics

1.2.1 Rated Voltage

12V ±5% rated output voltage

5Vsb ±5% rated output voltage

1.2.2 Factory adjustment

11.4~12.5Vdc output voltage range when the load is at 60%

1.2.3 Output Current

1.2.3.1 Main output

rated power : 12V/25A with convection cooling.

max. power : 12V/40A with forced air cooling.

peak power : 12V/50A max. at 100Vac input, peak output within 7 seconds without shut down, at averaged output <200watts. It needs over 10 seconds to re-start working.

1.2.3.2 Standby output (optional)

rated power : 5V/1A

max. power : 5V/1.5A with forced air cooling.

1.2.4 Output Ripple And Noise

120mV max. output ripple voltage at peak to peak.

Measured methods:

- 1.) Performed at 20M Hz bandwidth in oscilloscope.
- 2.) Applied 0.1uF high frequency capacitor and 47uF electrolytic capacitor at PCB output terminals
- 3.) Measured at the end of PCB board.
- 4.) 47Hz and 63Hz tested at 100Vac.

1.2.5 Turn On Delay Time

1.2 second max.

1.2.6 Hold-up Time

35ms max at 100Vac and 12V rated load

7ms max at 100Vac and 5Vsb rated load,

1.2.7 Rise Time

30ms max. 12V output rise time from 10% to 90% of output voltage at nominal input and max
35ms max. 5Vsb output rise time from 10% to 90% of output voltage at nominal input and max

1.2.8 Dynamic Load

Regulation to be at 11~12.5V output in applying a step load from 0% to 50% and 50% to 100% rated load at 0.5A/uS !slew rate and in 10mS time period and 50% duty cycle.

1.2.9 Capacitive load start-up capability

<30000uF at rated load

1.2.10 Output Total Regulation

±5% under all temperature, input voltage, output current ranges

1.3 Protection

1.3.1 Over Voltage Protection

12V Trip point : 14V to 16V at 60% rated load and 100Vac input voltage.
5Vsb Trip point : 6V to 7V at 60% rated load and 100Vac input voltage.
Protection mode : Latch-off

1.3.2 Over load Protection

12V Trip point : 120% - 150% of peak power
when max load over 10% over 7 seconds. Need 10 seconds before startup.
5V Trip point : 120% - 140% of max power

Protection mode : Auto-recovery.

1.3.3 Over Temperature Protection

Protection mode : Latch-off

1.3.4 Short Circuit Protection

When output shorted and start short circuit protection.
When fault removed, this power supply starts function normal as auto-recovery

1.4 Status and Control

1.4.1 Remote sense

Compensate 250mV max. to wire dissipation

1.4.2 Power Fail Signal

5ms typical before turn-off

1.4.3 12V Fan Output

0.5A current to cooling FAN
MCU controls fan, increasing volume by linear increasing load.

1.4.4 LED indicator

LED on when output load attached

1.4.5 Remote Control (optional)

To start by applying short to ground or Logic LOW; to turn off by open the circuit.

1.4.6 Oring Mosfet (optional)

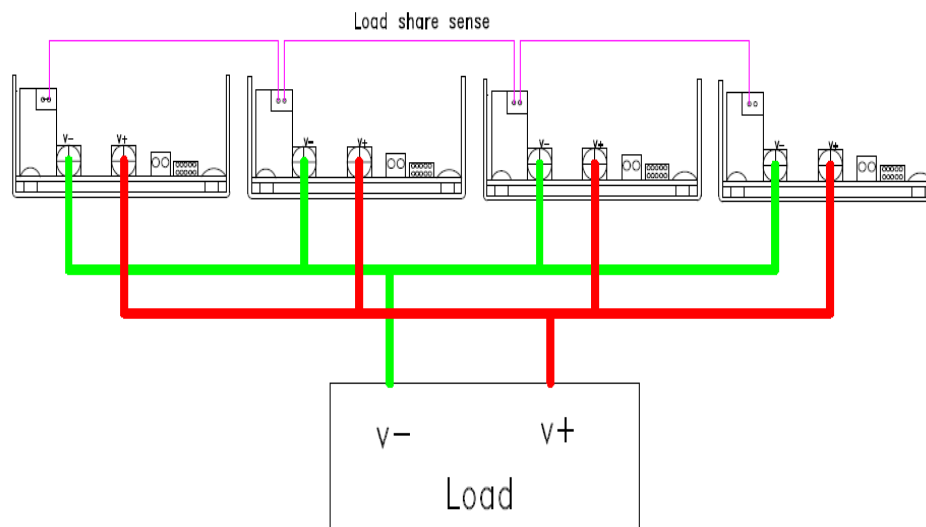
For hot swap without flash.

1.4.7 Current share (optional)

Up to 4 power supplies in parallel and output voltage can be within 2% to all units.
3% max. current sharing accuracy at full load.

Current sharing appliation

1. Output power cable can only correspond to single load or to be in uneven current distribution
2. TB7 Load share sense needs to connect each other.
3. Output wires need to be sufficient gauge. Parallel all units before attaching each unit.



2.3 Calculated Mean Time Between Failures (MTBF)

Power supply shall have a calculated MTBF of greater than >200K hours.
calculated utilizing SR 332 Issue with the following assumptions.
Input voltage : 115Vac / 60Hz
Output load : Rated load
Ambient temperature 25°C

2.4 Operating Altitude

0 ~ 5000M

3. Electromagnetic Compatibility

3.1 Electrostatic Discharge (ESD)

Follow EN61000-4-2

± 8KV air discharge no damage.

± 4KV contact discharge no damage.

3.2 Line Voltage Drop/ Missing Time

Follow the EN61000-4-11

95% Dips 10ms Criterion A

30% Dips 100ms Criterion B

60% Dips 100ms Criterion B

95% Dips 5000ms Criterion B

3.3 Lightning Surge Immunity

Follow the IEC-61000-4-5

Line - Line : ± 1KV, Criterion A

Line - Earth : ± 2KV, Criterion A

3.4 Electric Fast Transients

Follow the IEC-61000-4-4

±1KV, Criterion A

3.5 Radiated Susceptibility

Follow the EN61000-4-3

3V/M, 80% AM, Criterion A

3.6 Conducted Immunity

Follow the IEC-61000-4-6

3V/M, 80% AM, Criterion A

3.7 Harmonic current

Follow the IEC-61000-3-2

Input power > 75W, Class A

3.8 Electromagnetic Interference (EMI)

Conduction Emissions : EN55032 class B , FCC part 15-B , CISPR32-B

Radiated Emissions : EN55032 class B, FCC part 15-B , CISPR32-B

4. Safety (Label voltage : 100~240Vac)

4.1 UL/cUL 62368-1

4.2 CE / mark

4.3 Dielectric Strength (HI-POT)

The power supply shall withstand following Hi-pot test without breakdown.

Input to Output : 4000Vac

Input to P.E. : 2500Vac

Output to P.E. : 1000Vac

4.4 Leakage Current

Leakage current shall not exceed 100uA at input voltage 264Vac/50Hz.

4.5 Insulation Resistance

500Vdc is applied between primary to secondary for one minute. Impedance shall be more than 100M ohm at 25°C.

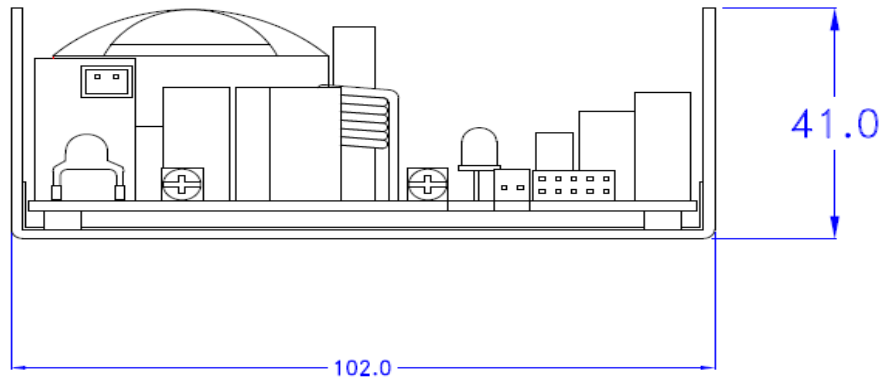
SSF-N480S12

5.1 Outline Dimension



Specifications

SSF-N480S12



5.2 Matching Connectors

TB1 -- Input Connector	
PIN 1	Line
PIN 2	Neutral
PIN 3	Earth
3-Pole Terminal blocks pitch : 8.25mm	
PIN 1,2	Line
PIN 4,5	Neutral
PIN 7	earth
JOINT TECH A3960WV-07P or equivalent, mates with	

Output Connector	
TB2A	+Vo
TB2B	+Vo
TB3A	GND
TB3B	GND
KANG YANG PCB-12(M4)	

TB6 -- Output Connector	
PIN 1	PG/PF
PIN 2	PG/PF GND
PIN 3	RS-
PIN 4	RS+
PIN 5	RM GMD
PIN 6	RM ON/OFF
PIN 7,8	+5VSB GND
PIN 9,10	+5VSB
ALEX 2028N-10 or equivalent, mated with CIVILUX CI0110P1HD0-NH	

MD1 TB7 -- share sense	
PIN 1,2	LS
ALEX 8822-02-K or equivalent, mated with JOINT TECH A2501WV-02P2	

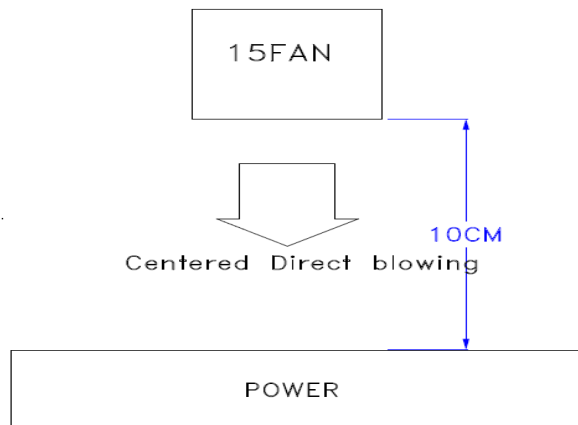
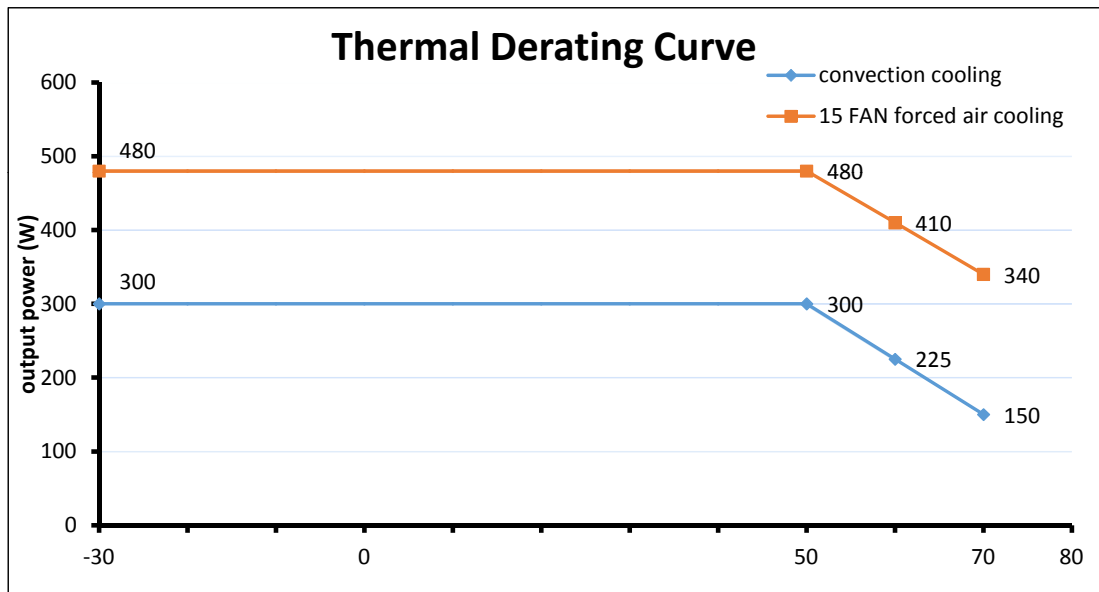
TB5 -- FAN output	
PIN 1	+12V
PIN 2	GND
JOINT TECH A2542WV-02P or equivalent, mated with JOINT TECH A2542H-2P or equivalent	
PIN 1	GND
PIN 2	+12V
ALEX 2513-02V2 or equivalent, mated with TKP P2510L-02 or	

2. Environmental Specification

2.1 Temperature

Storage: -20 ~ 85 °C / 90% RH.

Operation : -30°C to 50°C no derating, above 50°C , derate at 2.5% per degree from 50°C to 70°C



2.2 Humidity

Operation : 10% ~ 90% relative humidity, non-condensation.

Storage: 5% ~ 95% relative humidity, including condensation.