Size: 5in x 3in x 1.69in
(127mm x 76.2mm x 43mm)

## FEATURES

- Universal 90~264VAC (127~370VDC) Input Range
- Built-In Active PFC Function
- PG Signal and Remote Sensing Function
- 5VDC Standby Output, 5VDC Fan Supply
- High Efficiency
- Operating altitude up to 5000m
- Base Plate with Conformal Coating
- 450W with Air Cooling, 750W with 25CFM
- Output Short Circuit, Over Current, Over Voltage, and Over Temperature Protection
- Designed to Meet Medical Approvals and Suitable for BF Applications
- RoHS Compliant
- Safety Class I/Class II

## DESCRIPTION

The PSSW750 series of open frame switching power supplies offers up to 750 watts of output power in a very compact 5” x 3” x 1.69” package. This series consists of single output models with a universal input range of 90~264VAC (127~370VDC). Each model features built-in active PFC, PG signal, remote sensing function, and base plate with conformal coating. It is also protected against short circuit, over current, over voltage, and over temperature conditions and is RoHS compliant. The design of PSSW750 refers to IEC/EN62368, ES/EN60601, EN60335, and GB4943 safety approvals.

## MODEL SELECTION TABLE

| Model Number | Cooling Method | Input Voltage Range | Nominal Output Voltage | Nominal Output Current | Output Power(1) | Output Adjustable Range | Ripple & Noise | Efficiency(2) | Maximum Capacitive Load |
|---|---|---|---|---|---|---|---|---|---|
| PSSW750-12S | Air Cooling | Full Voltage Range | 12V | 33.3A | 399.6W | 11.4-12.6V | 200mV | 92% | 5000μF |
| | 25CFM | | 12V | 58.3A | 699.6W | | | | |
| PSSW750-15S | Air Cooling | Full Voltage Range | 15V | 26.7A | 400.5W | 14.25-15.75V | 200mV | 92% | 5000μF |
| | 25CFM | | 15V | 46.7A | 700.5W | | | | |
| PSSW750-24S | Air Cooling | 115VAC | 24V | 16.7A | 400.8W | 22.8-25.2V | 200mV | 94% | 3000μF |
| | | 230VAC | 24V | 18.8A | 451.2W | | | | |
| | 25CFM | Full Voltage Range | 24V | 31.2A | 748.8W | | | | |
| PSSW750-27S | Air Cooling | 115VAC | 27V | 14.8A | 399.6W | 25.65-28.35V | 200mV | 94% | 3000μF |
| | | 230VAC | 27V | 16.7A | 450.9W | | | | |
| | 25CFM | Full Voltage Range | 27V | 27.8A | 750.6W | | | | |
| PSSW750-36S | Air Cooling | 115VAC | 36V | 11.1A | 399.6W | 34.2-37.8V | 200mV | 94.5% | 2000μF |
| | | 230VAC | 36V | 12.5A | 450W | | | | |
| | 25CFM | Full Voltage Range | 36V | 20.8A | 748.8W | | | | |
| PSSW750-48S | Air Cooling | 115VAC | 48V | 8.3A | 398.4W | 45.6-50.4V | 200mV | 95% | 2000μF |
| | | 230VAC | 48V | 9.4A | 451.2W | | | | |
| | 25CFM | Full Voltage Range | 48V | 15.6A | 748.8W | | | | |
| PSSW750-54S | Air Cooling | 115VAC | 54V | 7.4A | 399.6W | 51.3-56.7V | 200mV | 95% | 1000μF |
| | | 230VAC | 54V | 8.33A | 449.8W | | | | |
| | 25CFM | Full Voltage Range | 54V | 13.89A | 750W | | | | |

## SPECIFICATIONS

All specifications are based on Ta=25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATION | TEST CONDITIONS | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **INPUT SPECIFICATIONS** | | | | | | |
| Input Voltage Range | AC Input | | 90 | | 264 | VAC |
| | DC Input | | 127 | | 370 | VDC |
| Input Voltage Frequency | | | 47 | | 63 | Hz |
| Input Current | 115VAC | | | | 8 | A |
| | 230VAC | | | | 4 | |
| Inrush Current | 115VAC, Cold Start | | | 50 | | A |
| | 230VAC, Cold Start | | | 80 | | |
| Power Factor | 115VAC, Full Load | | 0.98 | | | |
| | 230VAC, Full Load | | 0.95 | | | |
| Leakage Current | Contact Leakage Current, 264VAC | | <0.1mA | | | |
| | Earth Leakage Current, 264VAC | | <0.5mA | | | |
| Hot Plug | | | Unavailable | | | |
| **OUTPUT SPECIFICATIONS** | | | | | | |
| Output Voltage | | | See Table | | | |
| Voltage Accuracy[3] | Full Load Range | 12V/15V/18V/24V/27V | | ±2 | | % |
| | | 36V/48V/54V | | ±1 | | |
| Line Regulation | Rated Load | | | ±0.5 | | % |
| Load Regulation | 0%-100% Load | | | ±1 | | % |
| Output Power | | | See Table | | | |
| Fan Power[6] | | | The 5Vsb serves as the standby power supply and also supplies power to the fan, the maximum output current of the fan and 5Vsb is 2A | | | |
| Output Current | | | See Table | | | |
| Minimum Load | | | 0 | | | % |
| Maximum Capacitive Load | | | See Table | | | |
| Ripple & Noise[5] | 20MHz Bandwidth (peak-to-peak value) | | | | 200 | mV |
| Hold Up Time | 25°C, 115/230VAC Input | | 10 | | | ms |
| Stand By Power Consumption | Room Temperature, 230VAC Input, (PS_ON Low and 5Vsb without load (including fan)) | | | | 0.5 | W |
| Temperature Coefficient | | | | ±0.03 | | %/°C |
| PS_ON Input Signal[7] | Power On | PS_ON High | 2 | | 5 | V |
| | Power Off | PS_ON Low | 0 | | 0.6 | |
| PG Signal[8] | Power On | The PG signal goes high with 10ms to 500ms delay after power set up | 10 | | 500 | ms |
| | Power Off/Power Fail | The TTL signal goes low at least 1ms before output below 90% of rated value | 1 | | | |
| | High Level | High | 2 | | 6 | V |
| | Low Level | Low | 0 | | 0.6 | |
| Remote Sense | When RS+ and RS- are connected to the system, with function of remote voltage compensation, if not needed, left RS+ and RS- open | | | | | |
| 5V Standby | 5Vsb: The load capacity is 1A without fan; the load capacity is 2A with fan 25CFM, tolerance 2%, ripple: 120mVp-p (max). | | | | | |
| **PROTECTION** | | | | | | |
| Short Circuit Protection | Recovery time <5s after the short circuit disappears | | Hiccup, Continuous, Self-Recover | | | |
| Over Current Protection | Hiccup, Self-Recover | | | ≥105 | | %Io |
| Over Voltage Protection | Output voltage turn off, re-power on for recover | 12V | | ≤15.6 | | V |
| | | 15V | | ≤19.5 | | |
| | | 24V | | ≤31.2 | | |
| | | 27V | | ≤35.1 | | |
| | | 36V | | ≤46.8 | | |
| | | 48V | | ≤60 | | |
| | | 54V | | ≤64 | | |
| Over Temperature Protection | Protection when over temperature occurs, recovers automatically after temperature drops. | | | | | |

## SPECIFICATIONS

All specifications are based on Ta=25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATION | TEST CONDITIONS | | | | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|
| **ENVIRONMENTAL SPECIFICATIONS** | | | | | | | | | |
| Operating Temperature | | | | | | -40 | | +70 | °C |
| Storage Temperature | | | | | | -40 | | +85 | °C |
| Storage Humidity | Non-Condensing | | | | | 10 | | 95 | %RH |
| Operating Humidity | Non-Condensing | | | | | 20 | | 90 | %RH |
| Power Derating | Operating Temperature Derating | 25CFM | 12V/15V (700W) | | +50°C to +70°C | 2.0 | | | %/°C |
| | | | 24V/27V/36V/48V/54V (750W) | | +50°C to +70°C | 2.0 | | | |
| | | Air Cooling | 12V/15V (400W) | | +45°C to +70°C | 7.9 | | | W/°C |
| | | | 24V/27V/36V/48V/54V (450W) | 90-175VAC (400W) | +45°C to +70°C | 7.0 | | | |
| | | | | 176-264VAC (450W) | +45°C to +70°C | 9.0 | | | |
| | Input Voltage Derating | | | 90VAC-115VAC | | 0.8 | | | %/VAC |
| | | | | 127VDC-162VDC | | 0.57 | | | %/VDC |
| Operating Altitude | | | | | | | | 5000 | m |
| MTBF | MIL-HDBK-217F@25°C | | | | | 200,000 | | | h |
| **GENERAL SPECIFICATIONS** | | | | | | | | | |
| Typ. Efficiency | @230VAC | | | | | See Table | | | |
| Isolation Test | Electric Strength Test for 1min.<br>Leakage Current <10mA | | | | Input – Output | 4000 | | | VAC |
| | | | | | Input - ⏚ | 2000 | | | |
| | | | | | Output -⏚ | 1500 | | | |
| Insulation Resistance | Environment Temperature: 25±5°C<br>Relative Humidity: <95%RH, non-condensing<br>Testing Voltage: 500VDC | | | | Input – Output | 100 | | | MΩ |
| | | | | | Input - ⏚ | 100 | | | |
| | | | | | Output -⏚ | 100 | | | |
| Isolation Level | Input – Output | | | | | 2 x MOPP | | | |
| | Input - ⏚ | | | | | 1 x MOPP | | | |
| | Output -⏚ | | | | | 1 x MOPP | | | |
| **PHYSICAL SPECIFICATIONS** | | | | | | | | | |
| Weight | | | | | | 22.05oz (625g) | | | |
| Dimensions (L x W x H) | | | | | | 5in x 3in x 1.69in<br>(127mm x 76.2mm x 43mm) | | | |
| Cooling Method[8] | Air Cooling | | | | | 400W/450W | | | |
| | 25CFM | | | | | 700W/750W | | | |
| Case Material | | | | | | Open Frame | | | |
| **SAFETY CHARACTERISTICS** | | | | | | | | | |
| Safety Standard[10] | | | | | Design Refers To[11] | IEC/EN62368-1, ES/EN60601-1, EN60335-1, GB4943.1 | | | |
| Safety Class | | | | | | Class I/Class II | | | |
| EMC | Emissions | CE | | | CISPR32/EN55032 | Class B | | | |
| | | RE | | | CISPR32/EN55032 | Class B | | | |
| | | Harmonic Current | | | IEC/EN61000-3-2 | Class A and Class D | | | |
| | Immunity | ESD | IEC/EN61000-4-2 | | Contact ±8KV/<br>Air ±15KV | Perf. Criteria A | | | |
| | | RS | IEC/EN61000-4-3 | | 10V/m | Perf. Criteria A | | | |
| | | EFT | IEC/EN61000-4-4 | | ±2KV | Perf. Criteria A | | | |
| | | Surge | IEC/EN61000-4-5 | | Line to Line ±2KV/<br>Line to Ground ±4KV | Perf. Criteria A | | | |
| | | CS | IEC/EN61000-4-6 | | 10 Vr.m.s | Perf. Criteria A | | | |
| | | Voltage Dips, Short Interruptions and Voltage Variations Immunity | IEC/EN61000-4-11 | | 0%, 70% | Perf. Criteria B | | | |

## NOTES

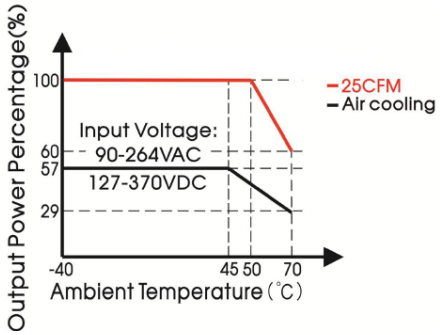
1. Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current.
2. When measuring the full load efficiency, the fan should be connected to an external power supply. Fan loss is not included in the input power.
3. Output voltage accuracy: including setting error, line regulation, load regulation.
4. For fan power connection method, refer to 5,6 in the external dimension drawing.
5. The “tip and barrel method” is used for ripple and noise test, output parallel 47uF electrolytic capacitor (Low ESR) and a 0.1uF ceramic capacitor. Please contact factory for more information.
6. For fan power supply, refer to CN5 in external dimension drawing.
7. For PS_ON, 5V standby connection method, refer to CN6 in the external dimension drawing.
8. For PG standby connection method, please refer to CN2 in the external dimension drawing.
9. Refer to the product characteristic curves for cooling method and power derating.
10. This product is Listed to applicable standards and requirements by UL.
11. Models are designed to meet these standards, but have not reached approval at this time.
12. In order to improve efficiency, there will be audible noise generated when working at light load, but it does not affect product performance and reliability.
13. Product customization is available. Please contact factory for more information.
14. Products should be classified according to ISO14001 and related environmental laws and regulations and should be handled by qualified units.
15. The power supply is considered a component which will be installed into terminal equipment. All EMC tests should be confirmed with the final equipment. Contact factory for more information.
16. Customization is available, contact factory for more information.

CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.

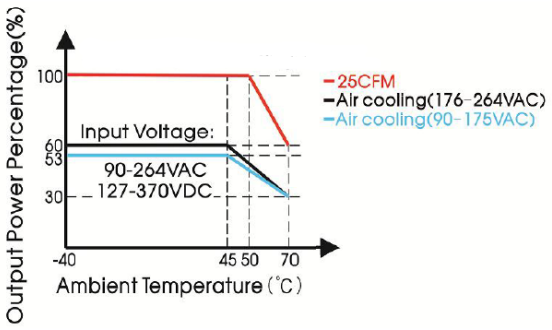
**Due to advances in technology, specifications subject to change without notice.*

## CHARACTERISTIC CURVES

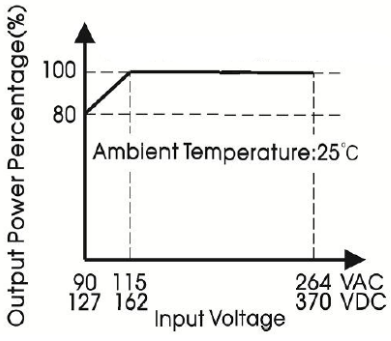
Temperature Derating Curve
12V/15V (Full Load 700W with 25CFM)




Temperature Derating Curve
24V/27V/36V/48V/54V (Full Load 750W with 25CFM)



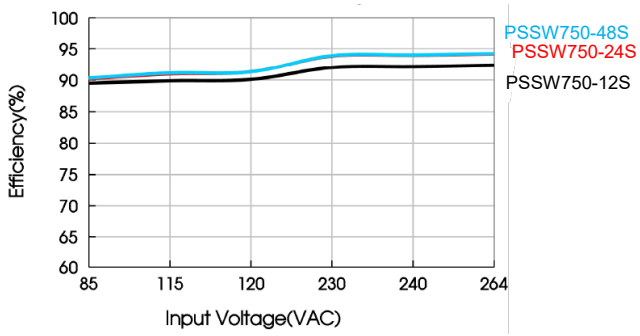

Input Voltage Derating Curve



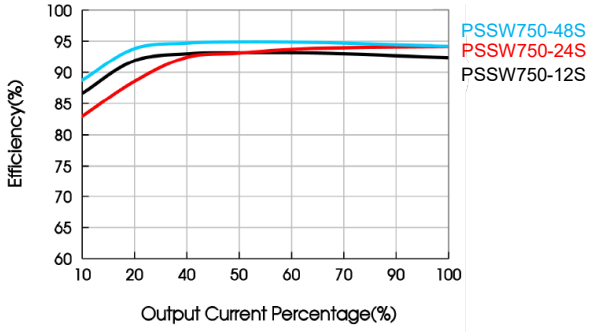

Note: With an AC input voltage between 90 – 115VAC and a DC input between 127-162VDC the output power must be derated as per the temperature derating curves.

## CHARACTERISTIC CURVES

Efficiency vs. Input Voltage (Full Load)

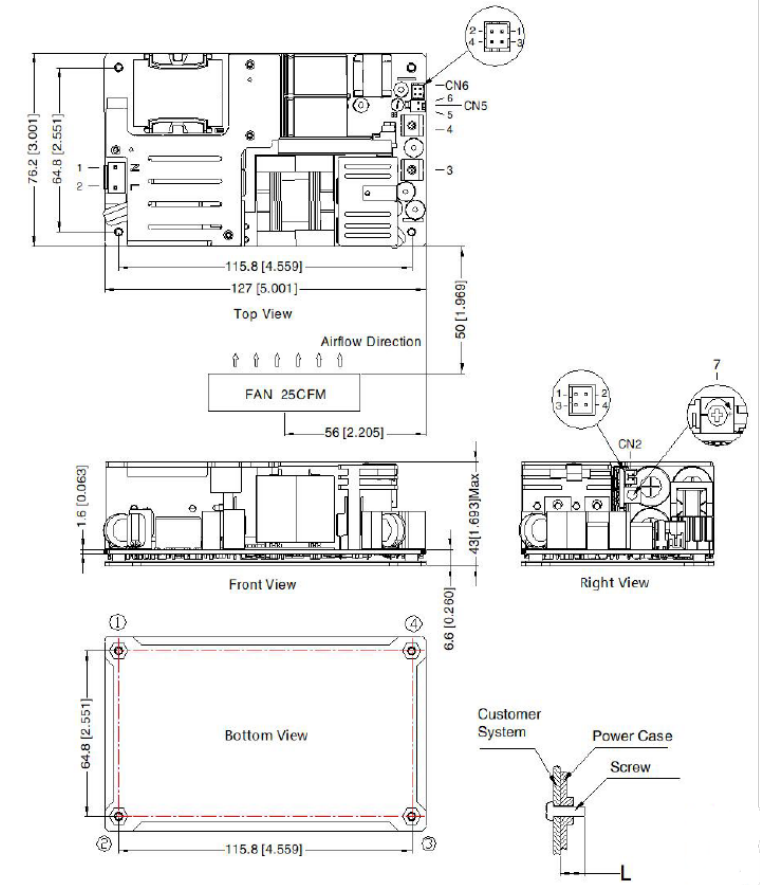



Efficiency vs. Output Load (Vin=230VAC)




## MECHANICAL DRAWINGS

THIRD ANGLE PROJECTION




| Pin-Out | | Customer Connector |
|---|---|---|
| Pin | Function | Housing: JST VHR or equivalent<br>Contact: JST SVH-21T-P1.1 or equivalent |
| 1 | AC(N) | |
| 2 | AC(L) | |
| 3 | +Vo | |
| 4 | -Vo | |
| 5 | FAN+ | CN5: Fan Power Output Port<br>Housing: TKP 2502 or Molex0511910200 or equivalent<br>Contact: TKP 54T or Molex0508028100 or equivalent |
| 6 | FAN- | |
| 7 | ADJ Output Adjustable Resistor | |

CN6: PS_ON signal input port (3-4)
5VDC Standby Output (1-2)

| Pin-Out | | Customer Connector |
|---|---|---|
| Pin | Mark | Housing: TKP DH2-4P or HRS DF11-4DS-2C or equivalent<br>Contact: TKP DHT or HRS DF11-22SC or equivalent |
| 1 | +5V | |
| 2 | GND | |
| 3 | PS-ON | |
| 4 | GND | |

CN2: Remote Sensing Signal Input Port (1-2)
PG Signal (3-4)

| Pin Out | | Customer Connector |
|---|---|---|
| Pin | Function | Housing: TKP DH2-4P or HRS DF11-4DS-2C or equivalent<br>Contact: TKP DHT or HRS DF11-22SC or equivalent |
| 1 | RS- | |
| 2 | RS+ | |
| 3 | GND | |
| 4 | PG | |

Note:
1. Unit: mm [inch]
2. Pin3,4 connector tightening torque: M4, 1.2N·m (max)
3. General tolerances: ±1.00 [±0.039]
4. Layout of device is for reference only, please refer to the actual product.
5. It is recommended 10mm distance between the PCB and other components for safety purpose.
6. Class 1 system①②④ positions must be connected to earth (⏚)

## COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

Phone: ☎(603)778-2300
Toll Free: ☎(888)597-9255
Fax: ☎(603)778-9797
E-mail: sales@wallindustries.com
Web: www.wallindustries.com
Address: 37 Industrial Drive
Exeter, NH 03833