

PSGE25 SERIES

88~264VAC (125~373VDC) Input Voltage Range
Single Outputs
Up to 27.4 Watts Output Power
AC/DC Switching Power Supplies



FEATURES

- Single Outputs
- RoHS Compliant
- Universal AC Input / Full Range
- High Efficiency, Long Life, and High Reliability
- $\pm 10\%$ Output Voltage Adjustability
- Green Design, No-load Power Consumption $< 0.5W$
- Energy Star Compliant
- Power ON with LED Indicator
- All Using 105°C Long Life Electrolytic Capacitors
- High Operating Temperature: $-25^{\circ}C$ to $+70^{\circ}C$
- 100% Full Load Burn-In Tested
- Withstand 5G Vibration Test
- Brown-out (Low AC Input Voltage) Protection
- Over Voltage, Over Load, and Short Circuit Protection

DESCRIPTION

The PSGE25 series of AC/DC switching power supplies offers up to 27.4 Watts of output power in a 3.10" x 2.03" x 1.11" enclosed case. This series has a universal input voltage range of 88~264VAC (125~373VDC) and single outputs of 3.3, 5, 12, 15, 24, and 48VDC. Some features include high efficiency up to 88%, $\pm 10\%$ output adjustability, no-load power consumption $< 0.5W$, and a high operating temperature range of $-25^{\circ}C$ to $+70^{\circ}C$. This series also has over voltage, short circuit, over load, and brown-out (low AC input voltage) protection. All models have been 100% full load burn-in tested and are RoHS and Energy Star compliant. This series also has UL 60950-1, TUV EN60950-1, and CE safety approvals.

| SPECIFICATIONS: PSGE25 SERIES | | | | | | |
|---|---|---|---|-------|-------|------|
| All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted. We reserve the right to change specifications based on technological advances. | | | | | | |
| SPECIFICATION | TEST CONDITIONS | | Min | Nom | Max | Unit |
| INPUT SPECIFICATIONS | | | | | | |
| Operating Voltage Range | Withstand 300VAC surge for 5 seconds without damage | | 88 | | 264 | VAC |
| | | | 125 | | 373 | VDC |
| Input Frequency | | | | 50/60 | | Hz |
| Input Current | Full Load and 115VAC | | | 0.7 | | A |
| | Full Load and 230VAC | | | 0.35 | | |
| Inrush Current | Full Load, 25°C, Cold Start, Vin = 230VAC | | | | 30 | A |
| No Load Power Consumption | No Load and 230VAC | | | | 0.5 | W |
| OUTPUT SPECIFICATIONS | | | | | | |
| Output Voltage | | | See Table | | | |
| Voltage Tolerance | 3.3VDC Model | Includes set up tolerance, line regulation, and load regulation | -3 | | +3 | % |
| | 5VDC Model | | -2 | | +2 | |
| | 12-48VDC Models | | -1 | | +1 | |
| Output Voltage Adjustability | | | -10 | | +10 | % |
| Line Regulation | Measured from low line to high line at full load | | | 0.5 | | % |
| Load Regulation | Measured from 0% to 100% full load | | See Table | | | |
| Output Power | | | See Table | | | |
| Output Current | | | See Table | | | |
| Ripple & Noise | Measured at 20MHz bandwidth and using a 12" twisted pair-wire terminated with a 0.1µF capacitor and a 47µF capacitor in parallel. | | See Table | | | |
| Hold-Up Time | Full Load and 115VAC | | 10 | | | ms |
| | Full Load and 230VAC | | 32 | | | |
| Setup Time | Full Load and 115VAC | Measured at first cold start; turning the power supply on and off very quickly may lead to an increase in the setup time. | | 1000 | | ms |
| | Full Load and 230VAC | | | 800 | | |
| Rise Time | Full Load and 115VAC | | | 80 | | ms |
| | Full Load and 230VAC | | | 80 | | |
| Temperature Coefficient | 0 ~ 50°C | | -0.03 | | +0.03 | %/°C |
| PROTECTION | | | | | | |
| Over Voltage Protection | latch-off mode | | 115 | | 150 | %Vo |
| Over Load Protection | hiccup mode; auto-recovery after fault condition is removed | | 110 | | | % |
| Short Circuit Protection | | | yes | | | |
| Brown-out Protection (Low AC I/P Voltage) | | | yes | | | |
| GENERAL SPECIFICATIONS | | | | | | |
| Efficiency | | | See Table | | | |
| Withstand Voltage | Input to Output | For 1 minute | 3000VAC (4242VDC) | | | |
| | Input to FG | | 1500VAC (2121VDC) | | | |
| | Output to FG | | 500VAC (707VDC) | | | |
| Isolation Resistance | Input to Output | Test Voltage = 500VDC | 100 | | | MΩ |
| | Input to FG | | 100 | | | |
| | Output to FG | | 100 | | | |
| Leakage Current | 240VAC | | | | 2 | mA |
| ENVIRONMENTAL SPECIFICATIONS | | | | | | |
| Operating Temperature (<i>see derating curve</i>) | Derate linearly from 100% Load at 50°C to 50% load at 70°C | | -25 | | +70 | °C |
| Storage Temperature | | | -40 | | +85 | °C |
| Operating Humidity | Non-condensing | | 10 | | 90 | % RH |
| Storage Humidity | | | 0 | | 95 | % RH |
| Vibration | 10~500Hz, 5G 10min/1cycle, period for 60 minutes each along X,Y,Z axes | | | | | |
| Cooling | Free air convection | | | | | |
| MTBF (<i>See page 3</i>) | Calculated per MIL-HDBK-217F | | 620,300 hours | | | |
| PHYSICAL SPECIFICATIONS | | | | | | |
| Weight | | | Approx. 6.35oz (180g) | | | |
| Dimensions (L x W x H) | | | 3.10 x 2.03 x 1.11 inches (78.50 x 51.50 x 28.25 mm) | | | |
| SAFETY & EMC (<i>The power supply is considered a component which will be installed into final equipment. The final equipment must be re-confirmed that it still meets EMC directives</i>) | | | | | | |
| Safety Standards | UL60950-1, 2 nd Edition, TUV EN60950-1: 2006+A11 Approved | | | | | |
| EMI Conduction & Radiation | EN55022: 1998+A1: 2000+A2: 2003 Class B | | | | | |
| Harmonic Current | EN61000-3-2: 2000+A2:2005 Class A, EN61000-3-3: 1995+A1: 2001 | | | | | |
| EMS Immunity | EN61204-3: 2000, EN55024: 1998+A1: 2001+A2: 2003 light industry level, criteria A | | | | | |

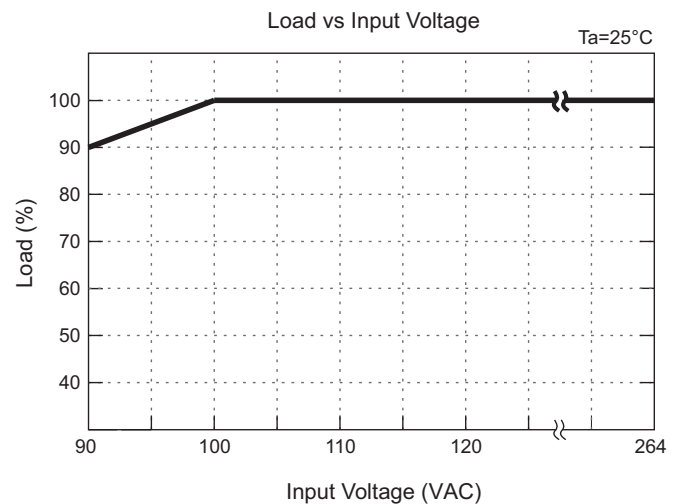
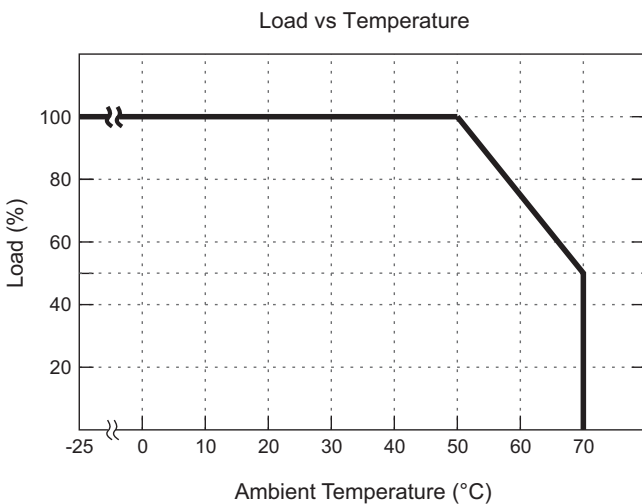
MODEL SELECTION TABLE

| Model Number | Input Voltage | Output Voltage | Output Current | Load ⁽²⁾ Regulation | Ripple & Noise ⁽¹⁾ | Output Power | Efficiency |
|--------------|------------------------------|----------------|----------------|--------------------------------|-------------------------------|--------------|------------|
| PSGE-25-3.3 | 88 ~264 VAC (125~373 VDC) | 3.3 VDC | 6A | ±2.0% | 100mVp-p | 19.8W | 74% |
| PSGE-25-5 | | 5 VDC | 5A | ±1.0% | 100mVp-p | 25W | 83% |
| PSGE-25-12 | | 12 VDC | 2.1A | ±0.5% | 120mVp-p | 25.2W | 85% |
| PSGE-25-15 | | 15 VDC | 1.7A | ±0.5% | 120mVp-p | 25.5W | 86% |
| PSGE-25-24 | | 24 VDC | 1.1A | ±0.5% | 120mVp-p | 26.4W | 87% |
| PSGE-25-48 | | 48 VDC | 0.57A | ±0.5% | 200mVp-p | 27.36W | 88% |

NOTES

1. Ripple & Noise is measured at 20MHz BW and using 12" twisted pair-wire terminated with 0.1µF and 47µF capacitors in parallel.
2. Load Regulation is measured from 0% to 100% full load.

CHARACTERISTICS



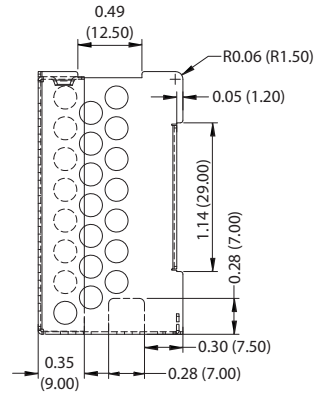
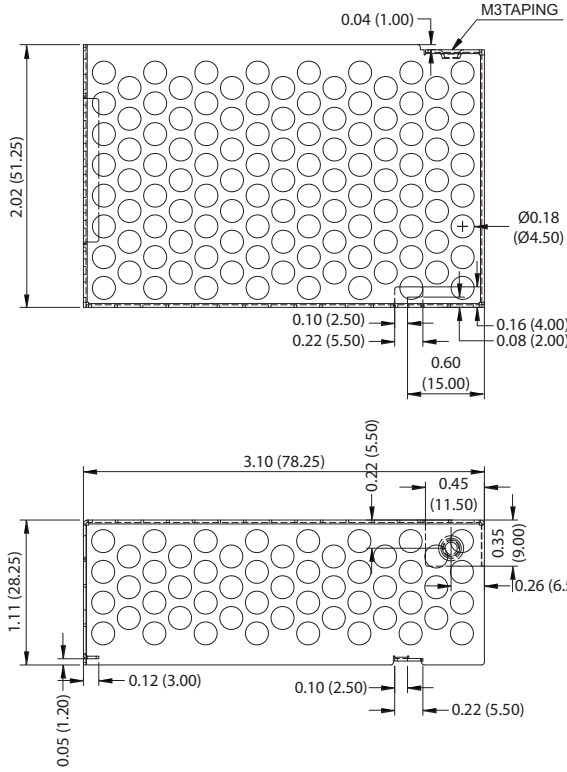
MTBF CALCULATION FOR PSGE-25-5 MODEL

| MTBF (λP) Total of all Components | | | | |
|-----------------------------------|--------------|--|--------------------|---|
| No. | Part Value | Formula | λP | MIL Spec Type |
| 1.1 | OPTO-IC | $\lambda P = \lambda b \pi T \pi Q \pi E$ | 0.942481 | 6-11 electronics, detectors, isolators, emitters |
| 1.2 | Fuse | $\lambda P = \lambda b \pi E$ | 0.01 | 22-1 fuses |
| 1.4 | Transformers | $\lambda P = \lambda b \pi T \pi Q \pi E$ | 0.109574 | 11-1 inductive devices, transformers |
| 1.5 | Fixed Coil | $\lambda P = \lambda b \pi T \pi Q \pi E$ | 0.001487627 | 11-2 inductive devices, coils |
| 1.6 | PCB | $\lambda P = \lambda b \pi E$ | 0.00044 | 17-1 connections |
| 1.7 | Connectors | $\lambda P = \lambda b \pi T \pi k \pi Q \pi E$ | 0.002013724 | 15-1 connectors, general |
| 1.9 | Solder | $\lambda P = \lambda b (N1 \pi C + N2 (\pi C + 13)) \pi Q \pi E$ | 0.020638 | 16-1 Interconnection assemblies with plated through holes |
| 2.0 | IC | $\lambda P = (C1 \pi T + C2 \pi E) \pi Q \pi L$ | 0.384000 | 5-1 Microcircuits, gate/logic arrays and microprocessors |
| 2.1 | Transistors | $\lambda P = \lambda b \pi T \pi A \pi Q \pi E$ | 0.107511 | 6-4 transistors, low frequency, SI FET |
| 2.2 | Diodes | $\lambda P = \lambda b \pi T \pi S \pi C \pi Q \pi E$ | 0.060138 | 6-1 diodes, low frequency |
| 2.3 | Capacitors | $\lambda P = \lambda b \pi T \pi C \pi V \pi Q \pi E$ | 0.238539 | 10-1 capacitors |
| 2.4 | Resistors | $\lambda P = \lambda b \pi T \pi p \pi S \pi Q \pi E$ | 0.121931 | 9-1 resistors |
| | | Total of all Components | 1.998753415 | Failures/10 ⁶ hours |
| | MTBF | 1 / λP (total of all components) | 500311.8407 | Hours |

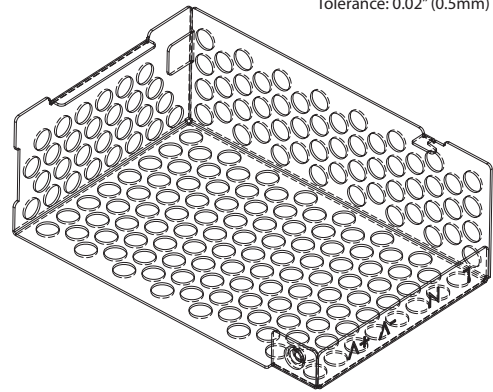
MECHANICAL DRAWINGS

TOP OF CASE

Unit: inches (mm)

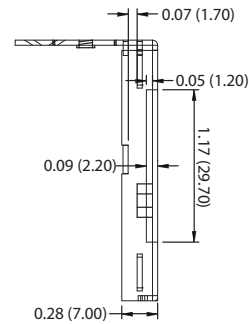
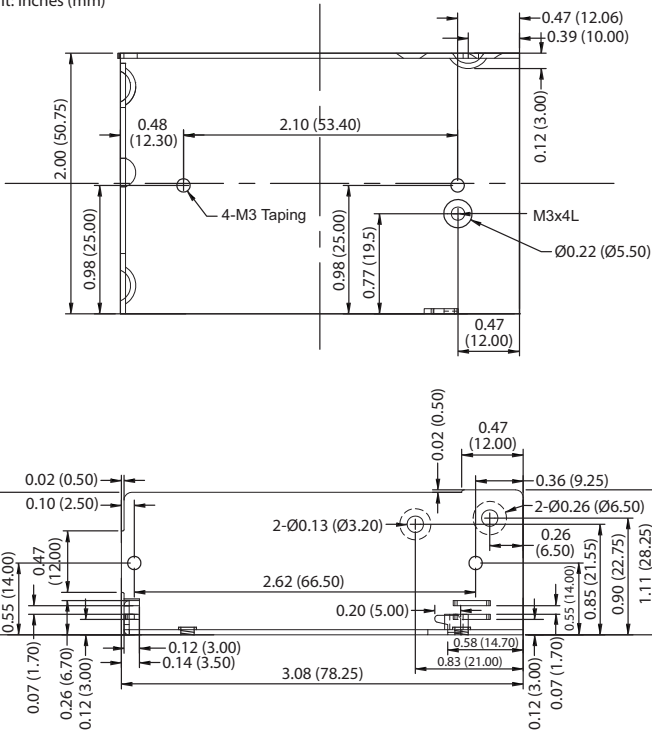


Tolerance: 0.02" (0.5mm)

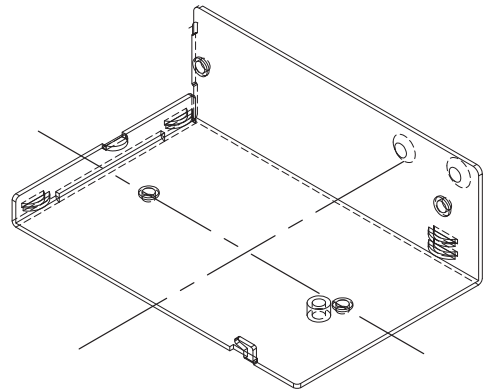


BOTTOM OF CASE

Unit: inches (mm)

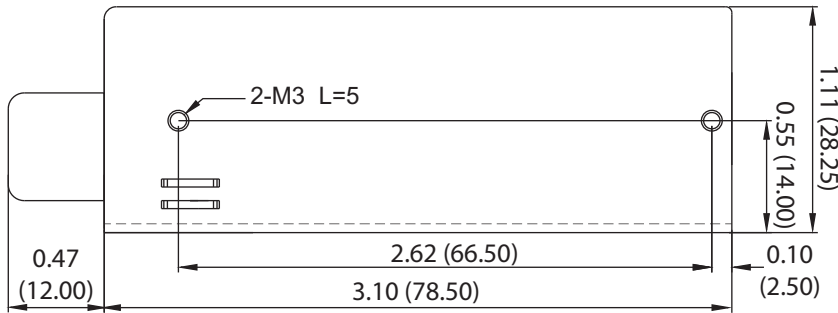
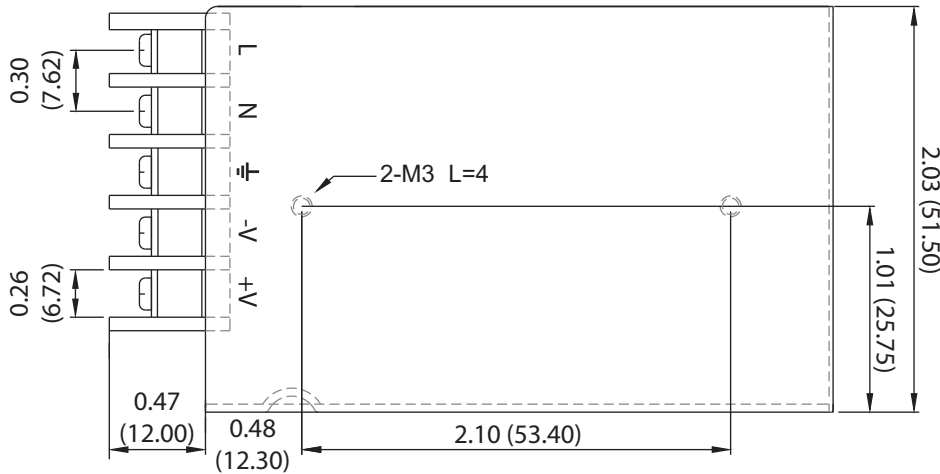


Tolerance: 0.02" (0.5mm)



MECHANICAL DRAWING

Unit: inches (mm)



Tolerance: 0.02" (0.5mm)

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 ISO9001-2008 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)587-9255
 Fax: ☎ (603)778-9797
 E-mail: sales@wallindustries.com
 Web: www.wallindustries.com
 Address: 5 Watson Brook Rd.
 Exeter, NH 03833