

750 Watts

- Low Profile for 1U Applications
- 900 W Peak Power Rating for 100 ms
- Universal 80 - 264 VAC Input
- IT & Medical Safety Approvals
- 1.0 W Standby Power
- -40° C to +70° C Operation
- Remote On/Off
- 5 V/3 A Standby Output
- 3 Year Warranty



The GSP750 has been designed to offer a full 750 W of output power in a very small mechanical footprint, whilst still providing peak power to 900 W, a 5 V standby output with 3 A of current capability and an input standby power draw of <1.0 W when the inhibit is activated.

Approved for both IT and medical applications the series has output versions from 12 V to 48 V. The cooling fans are intelligently controlled to provide the most optimised acoustic noise in the system and further more the GSP750 can provide up to 50 W without forced cooling, allowing their fans to be switched off during periods of lower system loading.

Dimensions:

GSP750:

10.0 x 4.0 x 1.65" (254.0 x 101.6 x 41.91 mm)

Models & Ratings

| Output Voltage | Output Current V1 | Standby Supply | | Max Output Power | | Model Number |
|----------------|-------------------|-----------------------|----------------------|------------------|---------------------|---------------|
| | | <50 W Load (fans off) | >50 W Load (fans on) | Nom | Peak ⁽¹⁾ | |
| 12.0 VDC | 62.5 A | 5 V/1 A | 5 V/3 A | 750 W | 900 W | GSP750PS12-EF |
| 24.0 VDC | 31.3 A | 5 V/1 A | 5 V/3 A | 750 W | 900 W | GSP750PS24-EF |
| 48.0 VDC | 15.6 A | 5 V/1 A | 5 V/3 A | 750 W | 900 W | GSP750PS48-EF |

Notes

1. Peak power available for 100 ms maximum with a 10% duty cycle. The average power in a period should be equal or less than the nominal power.

Input

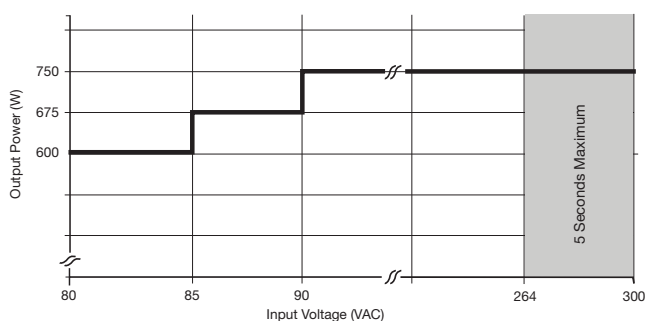
| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---------------------------------|-------------------------------------------|----------|---------|-------|--------------------------------------------|
| Input Voltage - Operating | 80 | 115/230 | 264 | VAC | Derate output power <90 VAC. See fig 1. |
| Input Voltage - Fault condition | | | 300 | VAC | 5 second max |
| Input Frequency | 47 | 50/60 | 63 | Hz | |
| Power Factor | | >0.9 | | | 230 VAC, 100% load |
| Input Current - Full Load | | 8.7/4.35 | | A | 115/230 VAC |
| Inrush Current | | 60 | | A | |
| No Load Input Power | | | 1 | W | All models, when inhibit activated |
| Earth Leakage Current | | 80/220 | 250 | µA | 115/230 VAC/50 Hz Typ., 264 VAC/60 Hz Max. |
| Input Protection | F16.0 A/250 V internal fuse in both lines | | | | |

Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|----------------------------|---------|---------|---------|---------|--------------------------------------------------------------------------|
| Output Voltage - V1 | 12 | | 48 | VDC | See Models and Ratings table |
| Initial Set Accuracy | | | ±1 | % | 50% load, 115/230 VAC |
| Output Voltage Adjustment | | | +1,-3 | % | |
| Minimum Load | 0 | | | A | No minimum load required |
| Start Up Delay | | 1.0 | 2.0 | s | 115/230 VAC full load from input AC turn on |
| Hold Up Time | 10 | | | ms | 100% load |
| Drift | | | ±0.5 | % | After 20 min warm up |
| Line Regulation | | | ±0.5 | % | 90-264 VAC |
| Load Regulation | | 0.2 | 1.0 | % | 0-100% load |
| Transient Response | | | 4 | % | Recovery within 1% in less than 500 µs for a 50-75% and 75-50% load step |
| Over/Undershoot | | | 5 | % | |
| Ripple & Noise | | 0.5 | 1.5 | % pk-pk | 20 MHz bandwidth |
| Overvoltage Protection | 115 | | 140 | % | Vnom DC. Output 1, recycle input to reset |
| Overload Protection | 110 | | 150 | % I nom | See fig. 2. Trip and Restart |
| Short Circuit Protection | | | | | Shutdown & auto recovery |
| Temperature Coefficient | | | 0.05 | %/°C | |
| Overtemperature Protection | | | | | Shutdown & auto recovery |

Input Voltage Derating Curve

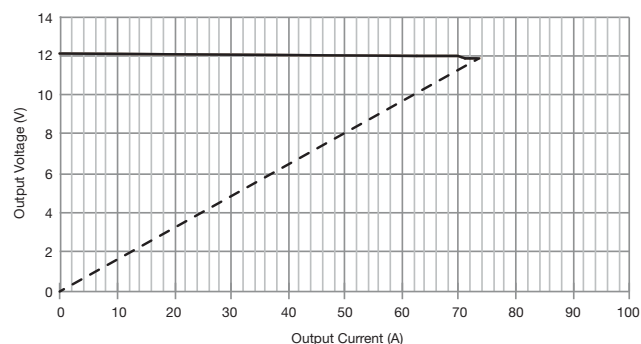
Figure 1



Output Overload Characteristic

Figure 2

GSP750PS12 example (others similar).



General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|-------------------------------------------------------------------|---------|-------------|---------|-------------------|-----------------------------------|
| Efficiency | | 90 | | % | 230 VAC Full load (see fig.3-5) |
| Isolation: Input to Output Input to Ground Output to Ground | 4000 | | | VAC | 2 x MOPP |
| | 1500 | | | VAC | 1 x MOPP |
| | 500 | | | VDC | 1 x MOPP at 48 VDC |
| Switching Frequency | | 65 | | kHz | PFC Converter |
| | 50 | 90 | 200 | | Main Converter |
| | | 100 | | | Standby Converter |
| Power Density | | | 11.7 | W/in ³ | |
| Mean Time Between Failure | | 186 | | kHrs | MIL-HDBK-217F, Notice 2 +25 °C GB |
| Weight | | 2.97 (1.35) | | lb (kg) | |

Efficiency Vs Load

Figure 3
12 V Models

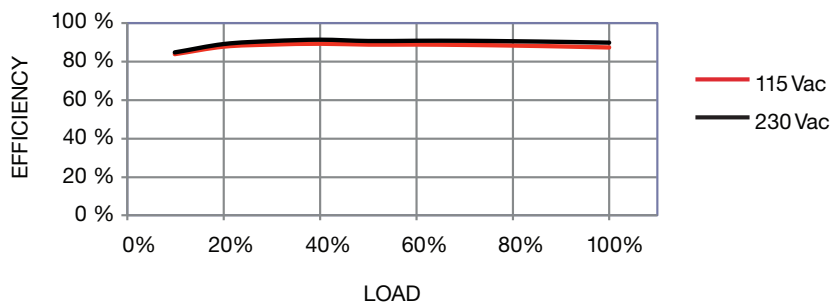


Figure 4
24 V Models

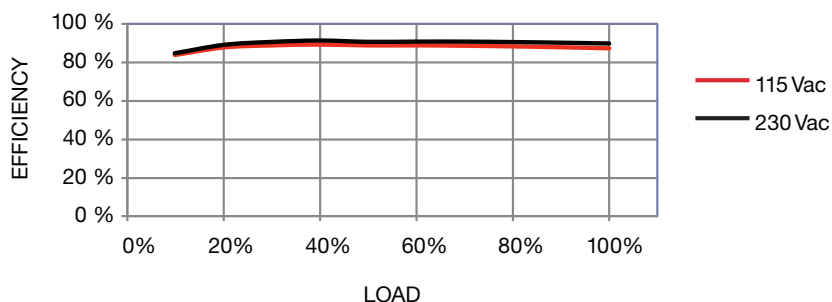
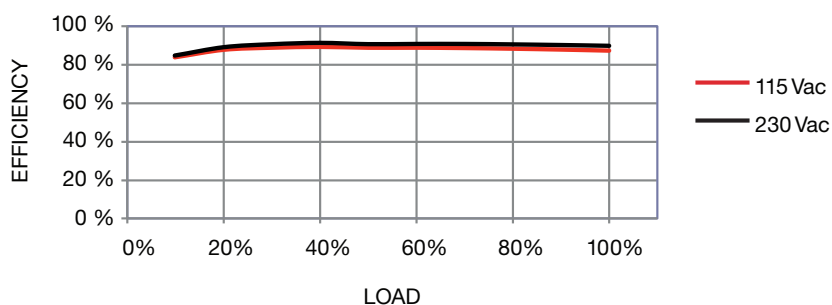


Figure 5
48 V Models

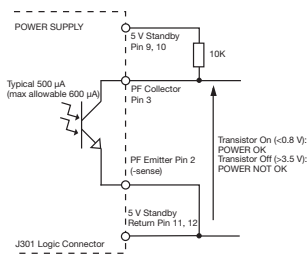


Signals & Controls

| Characteristic | Notes & Conditions |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Fail (PF) | Open collector referenced to negative sense, transistor normally on when power is good (see fig. 5); power is considered good when PFC bulk capacitor voltage is normal. PF: Provides ≥ 5 ms warning of loss of output from power failure. |
| Inhibit | Uncommitted isolated optocoupler diode, powered diode inhibits both V1 and fan supply (see fig. 6). During inhibit the standby supply and current should be limited to 1 A for thermal reasons. |
| Output Good | LED Indicator |
| Fan Speed Control | The fan speed is set to one of 4 states (high, mid, low or off) dependant on the internal power supply ambient temperature, input voltage and output load at any given time. |
| Standby Supply | 5V/3A Isolated supply present when AC applied. |
| Remote Sense | Compensates for 0.5 V total voltage drop. |
| Current Share | Connecting pins 5 or 6 on one unit to pins 5 or 6 on another like voltage unit will force the current to be shared within 10% between the two outputs. Up to three units can share current. (see fig. 7) |

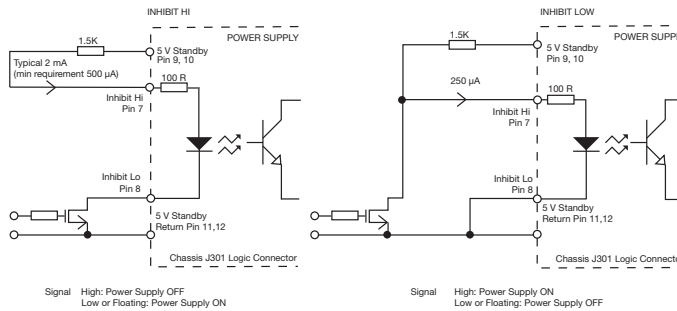
Power Fail (PF)

Figure 5



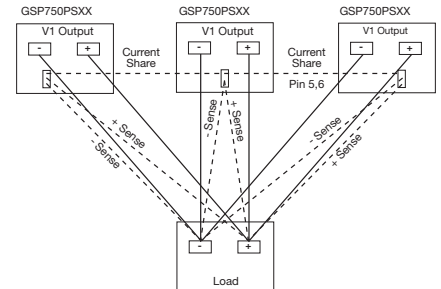
Remote On/Off (Inhibit)

Figure 6



Current Share

Figure 7

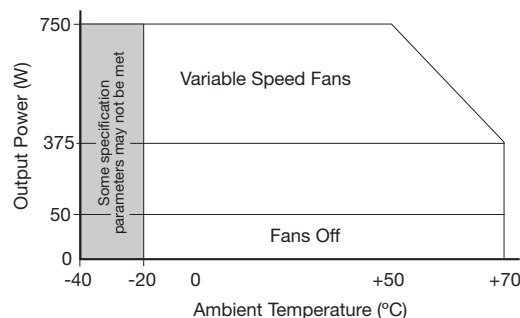


Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|--------------------------------------------|---------|---------|---------|----------|---------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | -40 | | +70 | °C | Start up at -40 °C. See derating curve, fig. 8 |
| Storage Temperature | -40 | | +85 | °C | |
| Humidity | 5 | | 95 | %RH | Non-condensing |
| Operating Altitude | | | 5000 | m | |
| Acoustic Fan Noise GSP750PSxx-EF Models | | 65.0 | | Lw db(A) | Full Speed |
| | | 56.0 | | Lw db(A) | Mid Speed |
| | | 42.0 | | Lw db(A) | Low Speed |
| Shock | | | | | $\pm 3 \times 30g$ shocks in each plane, total 18 shocks. 30g = 11ms (+/-0.5msec), half sine. Conforms to EN60068-2-27 & EN60068-2-47 |
| Vibration | | | | | Single axis 10 - 500 Hz at 2g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6 |

Thermal Derating Curve

Figure 8



EMC: Emissions

| Phenomenon | Standard | Test Level | Notes & Conditions |
|-----------------------|-------------|------------|----------------------------------------------------------------------------------------|
| Conducted | EN55011/32 | Class B | |
| Radiated | EN55011/32 | Class A | Class B with worth 742 712 22(S) on input cable and worth 742 715 4(S) on output cable |
| Harmonic Fluctuations | EN61000-3-3 | | |

EMC: Immunity

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|------------------------|-----------------------|--------------------------|----------|-------------------------------------------|
| Low Voltage PSU EMC | EN61204-3 | High severity level | as below | |
| Harmonic Current | EN61000-3-2 | Class A | | All models |
| | | Class C | | > 50 W |
| Radiated | EN61000-4-3 | 3 | A | |
| EFT | EN61000-4-4 | 3 | A | |
| Surges | EN61000-4-5 | Installation class 3 | A | |
| Conducted | EN61000-4-6 | 3 | A | |
| Dips and Interruptions | EN55024 (100 VAC) | Dip >95% (0 VAC), 8.3ms | A | |
| | | Dip 30% (70 VAC), 416ms | A | |
| | | Dip >95% (0 VAC), 4160ms | B | |
| | EN55024 (240 VAC) | Dip >95% (0 VAC), 10.0ms | A | |
| | | Dip 30% (168 VAC), 500ms | A | |
| | | Dip >95% (0 VAC), 5000ms | B | |
| | EN60601-1-2 (100 VAC) | Dip >95% (0 VAC), 10.0ms | A | |
| | | Dip >95% (0 VAC), 20.0ms | B | Derate Output Power to 70% for criteria A |
| | | Dip 60% (40 VAC), 100ms | A | Derate Output Power to 50% |
| | | Dip 30% (70 VAC), 500ms | A | |
| | | Dip >95% (0 VAC), 5000ms | B | |
| | EN60601-1-2 (240 VAC) | Dip >95% (0 VAC), 10.0ms | A | |
| | | Dip >95% (0 VAC), 20.0ms | B | Derate Output Power to 70% for criteria A |
| | | Dip 60% (96 VAC), 100ms | A | |
| | | Dip 30% (168 VAC), 500ms | A | |
| | | Dip >95% (0 VAC), 5000ms | B | |

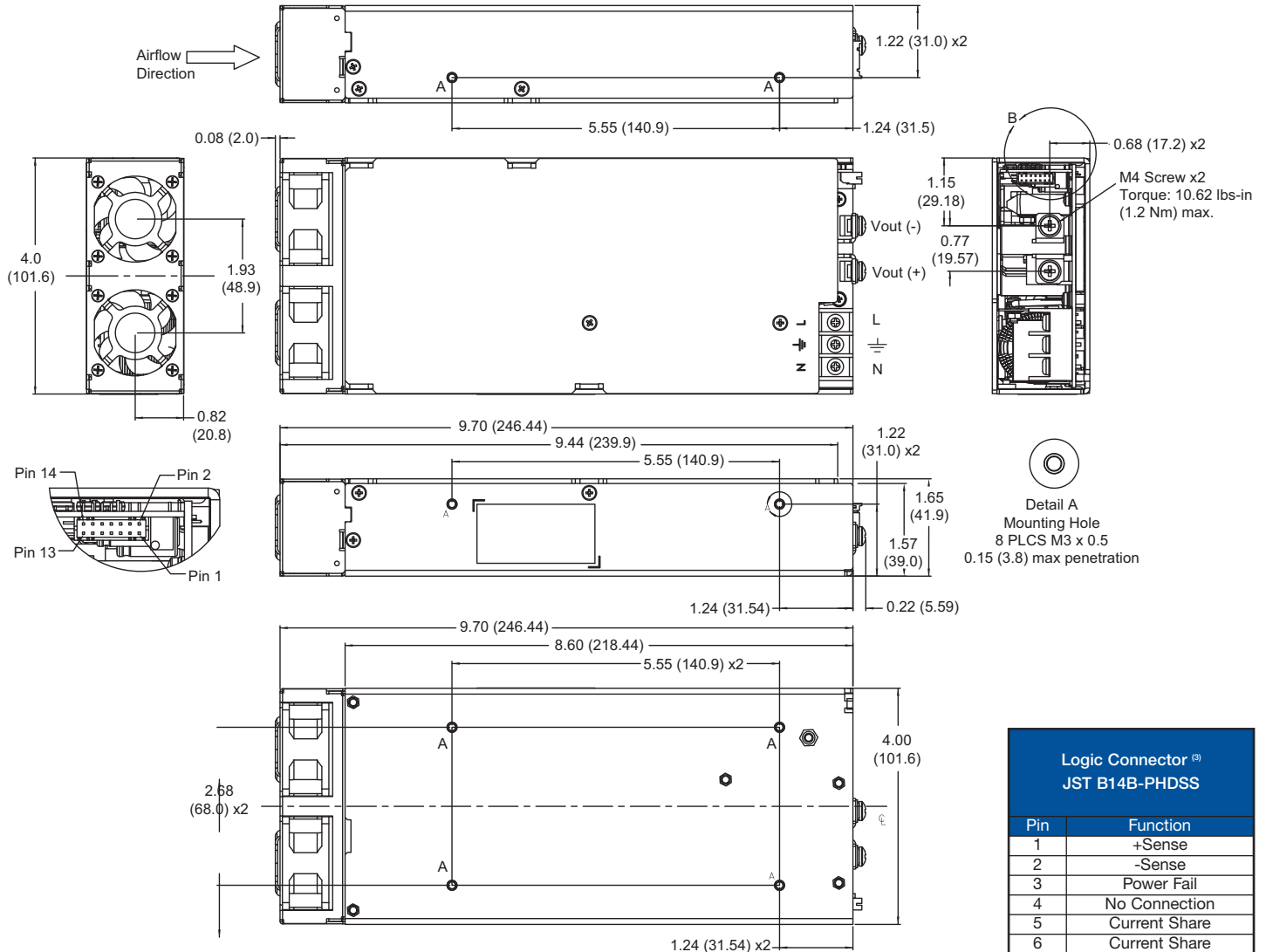
Safety Approvals

| Safety Agency | Safety Standard | Notes & Conditions |
|----------------------------|-----------------------------------------------------|-----------------------------------------------------------|
| CB Report | IEC60950-1:2005 Ed 2 | Information Technology |
| | IEC60601-1 Ed 3 Including Risk Management | Medical |
| UL | UL60950-1 (2007), CSA 22.2 No.60950-1-1:08 | Information Technology |
| | ANSI/AAMI ES60601-1:2005 & CSA C22.2, No.60601-1:08 | Medical |
| TUV | EN60950-1:2006 | Information Technology |
| | EN60601-1/A12:2006 | Medical |
| CE | LVD & RoHS | |
| Equipment Protection Class | Class I | See safety agency conditions of acceptability for details |

| Means of Protection | | Category |
|----------------------|----------------------------------------|-----------------|
| Primary to Secondary | 2 x MOPP (Means of Patient Protection) | IEC60601-1 Ed 3 |
| Primary to Earth | 1 x MOPP (Means of Patient Protection) | |
| Secondary to Earth | 1 x MOPP at 48 VDC | |

Mechanical Details

GSP750-EF



Notes

1. All dimensions in inches (mm).
2. Tolerance .xx = ± 0.02 (0.50); .xxx = ± 0.01 (0.25)
3. Logic connector J301 mates with JST housing PHDR-14VS and SPHD-001T-P0.5 crimp terminals.