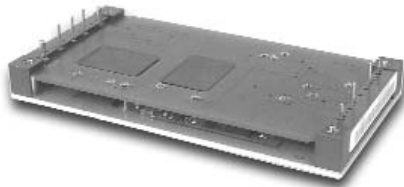


VWS SERIES - 150 WATT

DESCRIPTION

VWS DC/DC converters are direct replacement converters for the industry standard, full brick. Featuring a fixed-frequency design, the VWS offers excellent transient response and predictable EMI performance. The VWS can be combined with VWB booster modules to provide increased power. The VWS converters use 100% surface-mount construction, along with planar magnetics, and are fully compatible with production board-washing processes.



FEATURES

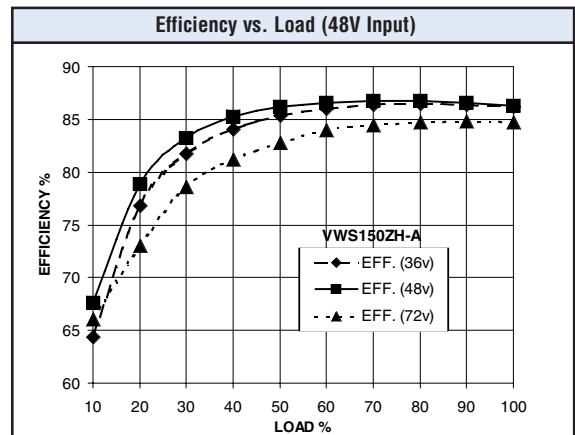
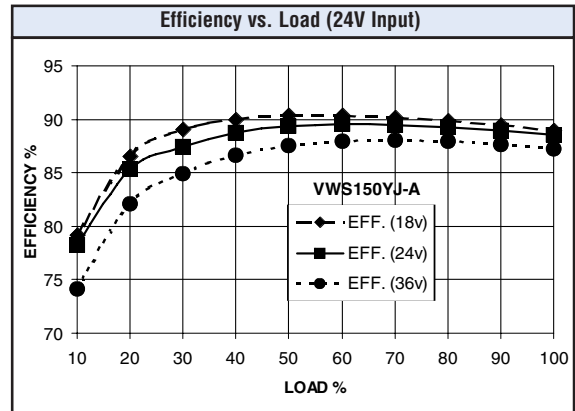
- 150W Standard Full Brick
- Industry Standard Footprint
- Open-Frame Packaging
- 100°C Baseplate Operation
- Planar Magnetics
- Superior Transient Response
- 1500V Isolation
- VWB Booster Modules Available

TECHNICAL SPECIFICATIONS

| Input | |
|---|------------------------------|
| Voltage Range | 18 - 36 VDC |
| 24 VDC Nominal | 18 - 36 VDC |
| 48 VDC Nominal | 36 - 72 VDC |
| Input Reflected Ripple Current | 500 mA Pk-Pk |
| Undervoltage Lockout - Turn ON / Turn OFF | 17 VDC/15 VDC, 35 VDC/32 VDC |

| Output | |
|--|---------------------|
| Setpoint Accuracy | ±1% |
| Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated | 0.2% V_{out} |
| Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom. | 0.5% V_{out} |
| Remote Sense Headroom | 0.5 VDC |
| Minimum Output Current | 10% I_{out} Rated |
| Dynamic Regulation, Loadstep | 25% I_{out} |
| Pk Deviation | 8% V_{out} |
| Settling Time | 500 ms |
| Voltage Trim Range | ±10% |
| Current Limit threshold Range, % of I_{out} Rated | 110 - 140% |

| Notes | |
|--|---|
| † | MTBF predictions may vary slightly from model to model. |
| †† | Industrial temp range available |
| Specifications typically at 25°C, normal line, and full load, unless otherwise stated. | |
| Soldering Conditions: I/O pins, 260°C, ten seconds; fully compatible with commercial wave-soldering equipment. | |
| Safety: Agency approvals may vary from model to model. Please consult factory for specific model information. | |
| Units are water-washable and fully compatible with commercial spray or immersion post wave-solder washing equipment. | |



| General | |
|--------------------------------|-------------------|
| Turn-On Time | 10 ms |
| Remote Shutdown | Positive Logic |
| Remote Shutdown Reference | V_{in} Negative |
| Switching Frequency | 500 kHz |
| Isolation | |
| Input - Output | 1500 VDC |
| Input - Case | 1050 VDC |
| Output - Case | 500 VDC |
| Temperature Coefficient | 0.03 %/°C |
| Case Temperature | |
| Operating Range | -40°C To +100°C |
| Storage Range | -40°C To +125°C |
| Thermal Shutdown Range | 105°C - 115°C |
| Vibration, 3 Axes, 5 Min Each | 5 g, 10 - 55 Hz |
| MTBF† (Bellcore TR-NWT-000332) | Consult Factory |
| Safety | UL, cUL, TUV |
| Weight (Approx.) | 6.0 oz |

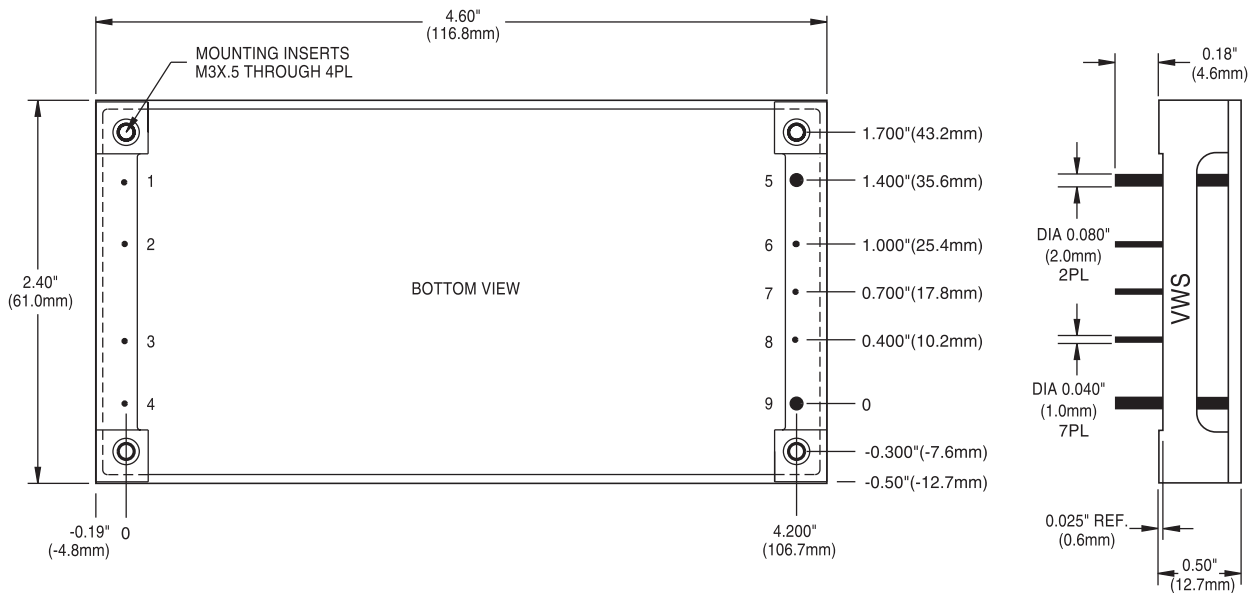
VWS SERIES - 150 WATT

MODELS - (See the last page of section for options.)

| MODEL | INPUT VOLTAGE (VOLTS) | INPUT VOLTAGE RANGE (VOLTS) | MAXIMUM INPUT CURRENT (AMPS)* | OUTPUT VOLTAGE (VOLTS) | RATED OUTPUT CURRENT (AMPS) | RIPPLE & NOISE pk-pk (mV) | TYPICAL EFFICIENCY** |
|---------------------|-----------------------|-----------------------------|-------------------------------|------------------------|-----------------------------|---------------------------|----------------------|
| VWS150YG-A Δ | 24 | 18-36 | 11.0 | 5 | 30.0 | 50 | 81% |
| VWS150YH-A Δ | 24 | 18-36 | 11.0 | 12 | 12.5 | 120 | 85% |
| VWS150YJ-A | 24 | 18-36 | 11.0 | 15 | 10.0 | 150 | 88% |
| VWS150YK-A | 24 | 18-36 | 11.0 | 24 | 6.25 | 200 | 88% |
| VWS150ZG-A | 48 | 36-72 | 5.5 | 5 | 30.0 | 50 | 79% |
| VWS150ZH-A | 48 | 36-72 | 5.5 | 12 | 12.5 | 120 | 85% |
| VWS150ZJ-A Δ | 48 | 36-72 | 5.5 | 15 | 10.0 | 150 | 85% |
| VWS150ZK-A | 48 | 36-72 | 5.5 | 24 | 6.25 | 200 | 86% |

NOTES: Δ Advanced product release- consult factory.
 * Maximum input current at minimum input voltage, maximum rated output power.
 ** At nominal V_{in} , rated output.

MECHANICAL DRAWING



| Thermal Impedance | |
|--------------------|----------|
| Natural Convection | 5.4 °C/W |
| 100 LFM | 3.8 °C/W |
| 200 LFM | 2.5 °C/W |
| 300 LFM | 1.7 °C/W |
| 400 LFM | 1.6 °C/W |

Note:
 Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

| Pin | Function |
|-----|-------------|
| 1 | - V_{in} |
| 2 | Gate Out |
| 3 | Gate In |
| 4 | + V_{in} |
| 5 | - V_{out} |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | + V_{out} |

| Tolerances | |
|--|---------------|
| Inches: | (Millimeters) |
| .XX ± .020 | .X ± 0.5 |
| .XXX ± .010 | .XX ± .25 |
| Pin: | |
| ± .002 | ± .05 |
| (Dimensions as listed unless otherwise specified.) | |

OPTIONS

When ordering equipment options, use the following suffix information. Select the option(s) that you prefer and add them to the model number. Example ordering options are located below the options table.

| OPTION | SUFFIX | APPLICABLE SERIES | REMARKS |
|--|--------|---|--|
| Negative Logic | N | HAS, HBD, HBS, HES, HLS, LES, QBS, QES, QLS, TES, TQD | TTL "Low" Turns Module ON TTL "High" Turns Module OFF |
| Lucent-Compatible Trim | T | HAS, HBD, HBS, HES, HLS, QBS, QES, QLS | |
| Terminal Strip | TS | XWS, XWD, XWT | |
| Trim | 1 | IAS, LES | |
| Enable | 2 | IAD, IAS, LES, SMS | |
| Trim and Enable | 3 | IAS, LES | |
| Current Share | 4 | SMS | |
| Headerless | Y | Encapsulated EWS, IWS, OWS | |
| PIN LENGTH AND HEATSINK OPTIONS | | | Standard Pin Length is 0.180" (4.6mm) |
| 0.110" (2.8mm) Pin Length | 8 | All Units (Except SMS) | |
| 0.150" (3.8mm) Pin Length | 9 | All Units (Except SMS) | |
| 0.24" (6.1mm) Horizontal Heatsink | 1H | All Units (Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.24" (6.1mm) Vertical Heatsink | 1V | All Units (Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.45" (11.4mm) Horizontal Heatsink | 2H | All Units (Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.45" (11.4mm) Vertical Heatsink | 2V | All Units (Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.95" (24.1mm) Horizontal Heatsink | 3H | All Units (Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.95" (24.1mm) Vertical Heatsink | 3V | All Units (Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages) | Includes Thermal Pad |

Example Options:

HBS050ZG-ANT3V = HBS050ZG-A with negative logic, Lucent-compatible trim, and 0.95" vertical heatsink.

LES015YJ-3N = LES015YJ with optional trim and enable, negative logic.

QBS066ZG-AT8 = QBS066ZG-A with Lucent compatible trim and 0.110" pin length.

NUCLEAR AND MEDICAL APPLICATIONS Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the President of Power-One, Inc.

TECHNICAL REVISIONS The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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