VWS SERIES - 100 WATT

DESCRIPTION

VWS DC/DC converters are direct replacement converters for industry-standard full bricks. 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. VWS converters use 100% surface-mount construction, along with planar magnetics, and are fully compatible with production board-washing processes.

FEATURES

- 100W Full Brick
- Industry Standard Footprint
- Fixed Frequency
- 85°C Case Operation
- 6-Sided Shielding
- Superior Transient Response
- 1500V Isolation
- Optional Booster Module



TECHNICAL SPECIFICATIONS

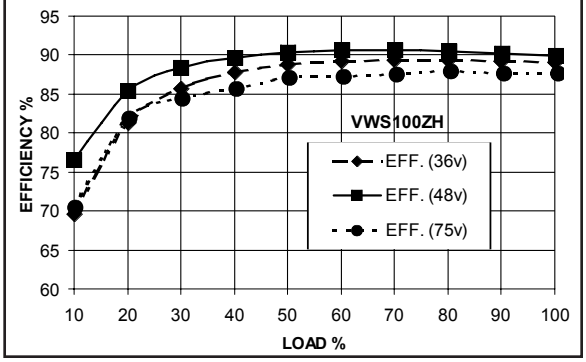
Input	
Voltage Range	
24 VDC Nominal	18 - 36 VDC
48 VDC Nominal	36 - 72 VDC
Input Reflected Ripple Current	50 mA Pk-Pk
Undervoltage Lockout - Turn On / Turn Off	35 VDC / 32 VDC

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 µs
Voltage Trim Range	±10%
Current Limit Type	Hiccup
Current Limit Threshold Range, % of I_{out} Rated	110 - 140%
Short Circuit Threshold Range, % of I_{out} Rated	200%
OVP Trip Range	120 - 140% V_{out} Nom.
OVP/UVP type	Self-Recovering

General	
Turn-On Time	10 mS
Remote Shutdown	Positive Or Negative Logic
Remote Shutdown Reference	V_{in} Negative
Switching Frequency	300 kHz
Isolation, Input - Output	1500 VDC
Isolation, Input - Case	1050 VDC
Isolation, Output - Case	500 VDC
Temperature Coefficient	0.2%/°C
Case Temperature	
Operating Range	-25 To +85°C
Storage Range	-55 To +115°C
Thermal Shutdown Range	90 To 100°C
Vibration, 3 Axes, 5 Min Each	5 g, 10 - 55 Hz
MTBF† (Bellcore TR-NWT-000332)	2.1 x 10^6 hrs
Safety	UL, cUL, TUV
Weight (approx.)	6.0 oz

REV. 07/01

Efficiency vs. Load (48V Input)



Notes

† MTBF predictions may vary slightly from model to model.

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.

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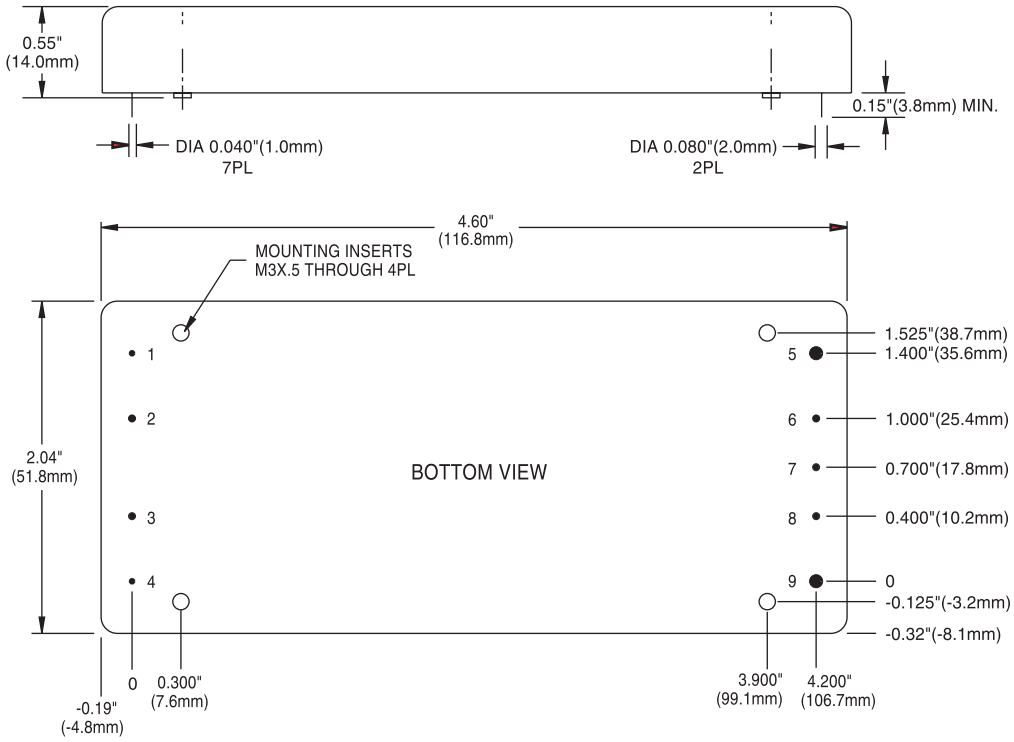
MODELS - (See the last page of section for options.)

SINGLE OUTPUT MODEL SELECTION CHART

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**
VWS100YG Δ	24	18-36	7.0	5	20.0	50	82%
VWS100YH Δ	24	18-36	7.0	12	8.3	120	84%
VWS100YJ	24	18-36	7.0	15	6.7	150	85%
VWS100YK	24	18-36	7.0	24	4.2	200	87%
VWS100Y28 Δ	24	18-36	7.0	28	3.6	200	90%
VWS100YL Δ	24	18-36	7.0	48	2.1	200	90%
VWS100ZG Δ	48	36-72	3.5	5	20.0	50	84%
VWS100ZH	48	36-72	3.5	12	8.3	120	89%
VWS100ZJ Δ	48	36-72	3.5	15	6.7	150	89%
VWS100ZK	48	36-72	3.5	24	4.2	200	88%
VWS100Z28 Δ	48	36-72	3.5	28	3.6	200	90%

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	5.5 °C/W
100 LFM	4.6 °C/W
200 LFM	3.6 °C/W
300 LFM	2.4 °C/W
400 LFM	2.0 °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 ± 0.020	.X ± 0.5
.XXX ± 0.010	.XX ± 0.25
Pin:	
± 0.002	± 0.05

(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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