

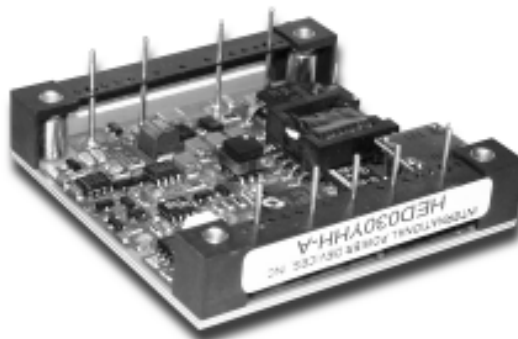
HED SERIES - DUAL OUTPUT, 30 WATT

DESCRIPTION

HED dual output DC/DC converters are fully isolated converters featuring high efficiency topology. The HED has fixed frequency design with excellent transient response and predictable EMI performance. The HED uses planar magnetics, and has open-frame packaging, 1500 VDC isolation, and an MTBF of over one million hours. HED's have overcurrent and overvoltage protection, as well as input undervoltage lockout.

FEATURES

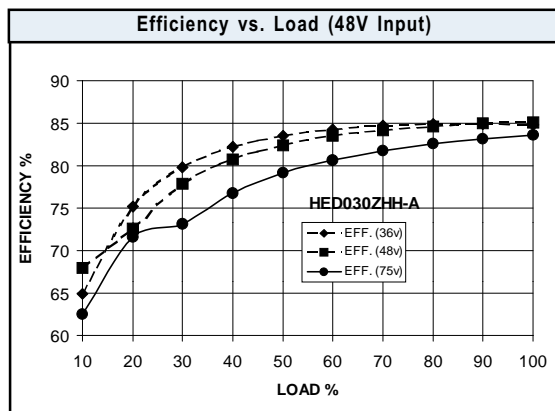
- 30W Dual Output
- OVP and Short Circuit Protection
- High Efficiency Topology
- Open-Frame Design
- Planar Magnetics
- Output Trim
- 1500V Isolation
- 100°C Baseplate Operation



TECHNICAL SPECIFICATIONS

Input	
Voltage Range	18 - 36 / 34 - 75 VDC
24 VDC / 48 VDC Nominal	
Reflected Ripple	25 mA
Input Reverse Voltage Protection	Shunt Diode
Input Transient Withstand	100V /100 ms
Inrush Current Limit	1A ² /s

Output	
Setpoint Accuracy, V _{out1} / V _{out2}	±1% / ±2%
Line Regulation V _{in} Min. - V _{in} Max., I _{out} Rated, V _{out1} / V _{out2}	1.0% / 2.0% V _{out}
Load Regulation I _{out} Min. - I _{out} Max., V _{in} Nom., V _{out1} / V _{out2}	1.0% / 5.0% V _{out}
Minimum Output Current	10% V _{out} Rated
Dynamic Regulation, Loadstep	25% I _{out}
Pk Deviation	4% V _{out}
Settling Time	500 μs
Voltage Trim Range	±10%
Power Limit Threshold Range, % of I _o Rated	110 - 140%
OVP Trip Range	115 - 140% V _{out} Nom.
OVP Type	Hiccup
OCP Type	Continuous



General	
Turn-On Time	10 ms
Remote Shutdown ¹	Positive Logic
Switching Frequency	300 kHz
Isolation	
Input - Output	1500 VDC
Input - Case	1050 VDC
Output - Case	500 VDC
Temperature Coefficient	0.03%/°C
Case Temperature	
Operating Range	-40 To +100°C
Storage Range	-40 To +125°C
Thermal Shutdown Range	105 To 115°C
Humidity, Max., Non-Condensing	95%
Vibration, 3 Axes, 5 Min Each	5 g, 10 - 55 Hz
MTBF [†] (Bellcore TR-NWT-000332)	1.3 X 10 ⁶ hrs
Safety	Consult Factory
Weight (Approx.)	1.4 oz

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 this file for options.)

Vin (Volts)	Vin Range (Volts)	Iin Max* (Amps)	Vout (Volts)	Iout Rated (Amps)	Ripple & Noise Pk-Pk (mV)	Efficiency Typ. **	Model
24	18 - 36	1.89	±12	±1.25	150	85%	HED030YH-A
24	18 - 36	1.96	±15	±1.00	150	86%	HED030YJJ-A †
48	34 - 75	0.97	±12	±1.25	150	85%	HED030ZH-A
48	34 - 75	0.96	±12	±1.00	150	88%	HED030ZJJ-A †

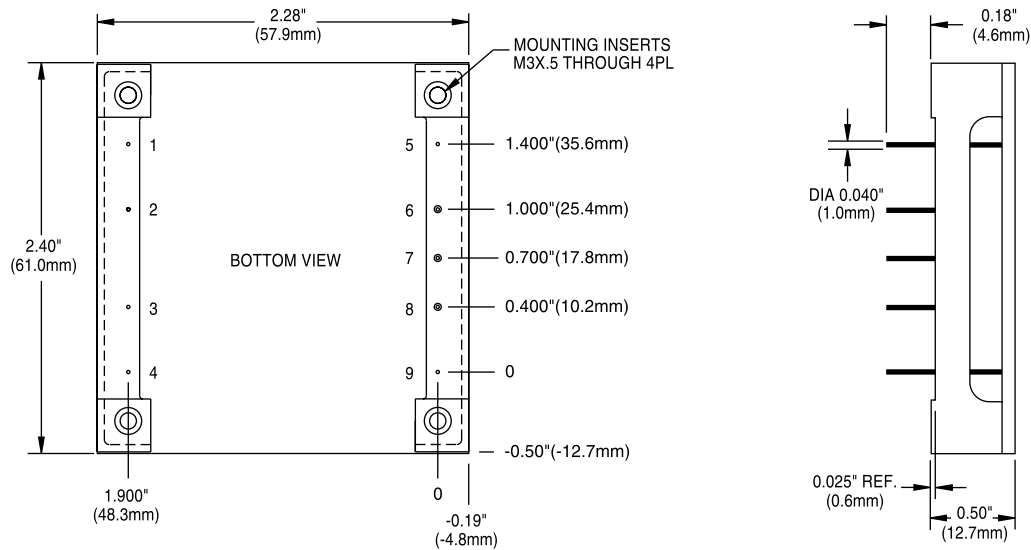
† Denotes advanced product release. Consult factory for product availability.

* Maximum input current at minimum input voltage, maximum rated output power.

** At nominal Vin, rated output.

Note: Current can be drawn from either output to its maximum value, or from both outputs to a combined total of 30 Watts.

MECHANICAL DRAWING



Thermal Impedance	
Natural Convection	6.6 °C/W
100 LFM	5.7 °C/W
200 LFM	4.2 °C/W
300 LFM	3.1 °C/W
400 LFM	2.6 °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	Case
3	On/Off
4	+V _{in}
5	No Pin
6	-V _{out 2}
7	Common
8	+V _{out 1}
9	Trim

Tolerances	
Inches:	(Millimeters)
.XX ± 0.020	.X ± 0.5
.XXX ± 0.010	.XX ± 0.25
Pin:	
± 0.002	± 0.05
Case:	
+ 0.04, - 0.00	+ 1.0, - 0.0

(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, LES, QBS, QES, TES, TQD	TTL "Low" Turns Module ON TTL "High" Turns Module OFF
Lucent Compatible Trim	T	HAS, HBD, HBS, HES, QBS, QES	
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, SIP, and SM Packages)	Includes Thermal Pad
0.24" (6.1mm) Vertical Heatsink	1V	All Units (Except DIP, SIP, and SM Packages)	Includes Thermal Pad
0.45" (11.4mm) Horizontal Heatsink	2H	All Units (Except DIP, SIP, and SM Packages)	Includes Thermal Pad
0.45" (11.4mm) Vertical Heatsink	2V	All Units (Except DIP, SIP, and SM Packages)	Includes Thermal Pad
0.95" (24.1mm) Horizontal Heatsink	3H	All Units (Except DIP, SIP, and SM Packages)	Includes Thermal Pad
0.95" (24.1mm) Vertical Heatsink	3V	All Units (Except DIP, SIP, and SM 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.