



Features

- Industry-standard package
- Industry-standard footprint
- Fixed-frequency design
- 85°C case operation
- Optional trim and enable
- Wide-range input
- 1500V isolation
- Short-circuit protection

Description

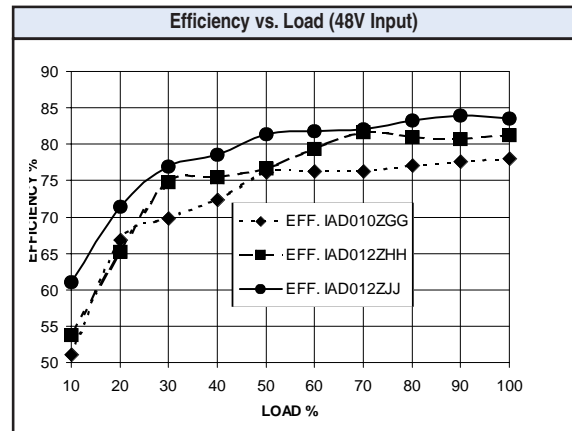
IAD dual-output DC/DC converters provide up to 12 watts of output power in an industry-standard package and footprint. With a maximum case temperature of 85°C, the IAD is well suited for the most demanding applications. The IAD features 1500 VDC isolation, short circuit, and overtemperature protection, as well as six-sided shielding. The IAD is available with optional enable and voltage trim pins. Please see the IAS series for single-output applications.

Technical Specifications

Input	
Voltage Range	18 - 36 VDC
24 VDC Nominal	48 VDC Nominal
48 VDC Nominal	34 - 75 VDC
Reflected Ripple	25 mA
Input Reverse Voltage Protection	Shunt Diode

Output	
Setpoint Accuracy	±1%
Auxillary Setpoint Accuracy	5 %
Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated	0.5% V_{out}
Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom.	1.0% V_{out}
Minimum Output Current	10 % I_{out} Rated
Dynamic Regulation, Loadstep	25% I_{out}
Pk Deviation	4% V_{out}
Settling Time	500 m s
Voltage Trim Range	±10%
Short Circuit / Overcurrent Protection	Hiccup
Power Limit Threshold Range	110 - 150%

General	
Turn-On Time	300 ms
Remote Shutdown	Positive Logic
Switching Frequency	400 kHz
Isolation	
Input - Output	1500 VDC
Output - Case (for 48 V_{in})	500 VDC
Input - Case (for 24 V_{in})	1050 VDC
Temperature Coefficient	±0.03%/°C
Case Temperature	
Operating Range	-40 To +85°C
Storage Range	-40 To +110°C
Humidity Max., Non-Condensing	95%
Vibration, 3 Axes, 5 Min Each	5 g, 10 - 55 Hz
MTBF [†] (Bellcore TR-NWT-000332)	1.8 X 10 ⁶ hrs
Safety	UL, cUL, VDE
Weight (Approx.)	1.2 oz



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.

Model Selection

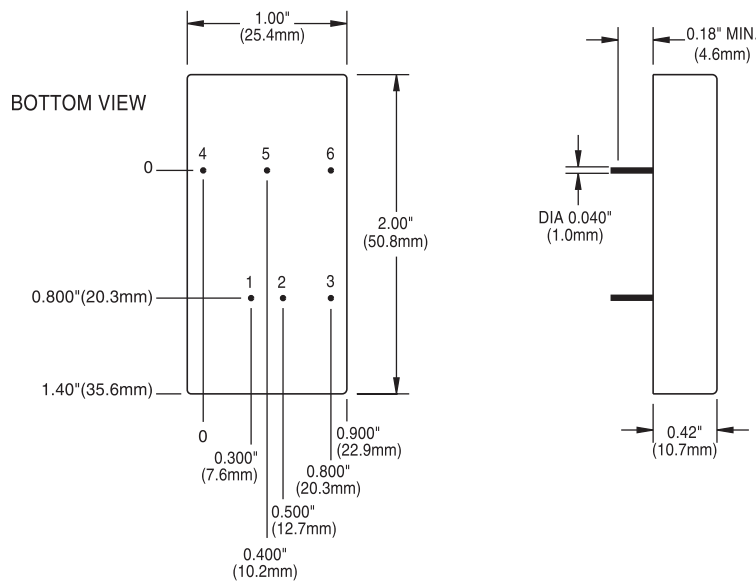
MODEL	INPUT VOLTAGE (VOLTS)	INPUT VOLTAGE RANGE (VOLTS)	MAXIMUM INPUT CURRENT (AMPS)*	OUTPUT VOLTAGE (VOLTS)	RATED OUTPUT CURRENT (AMPS)	RIPPLE & NOISE pk-pk (mV)	TYPICAL EFFICIENCY**
IAD012YHH	24	18-36	0.85	±12	±0.5	120	82%
IAD012YJJ	24	18-36	0.85	±15	±0.4	150	83%
IAD010ZGG	48	34-75	0.40	±5	±1.0	75	78%
IAD012ZHH	48	34-75	0.43	±12	±0.5	120	82%
IAD012ZJJ	48	34-75	0.42	±15	±0.4	150	83%

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

** At nominal V_{in} rated output.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

Mechanical Drawing



Thermal Impedance	
Natural Convection	15.4 °C/W
100 LFM	12.2 °C/W
200 LFM	9.3 °C/W
300 LFM	7.4 °C/W
400 LFM	6.4 °C/W

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

1	+V _{in}
2	-V _{in}
3	Optional Shutdown
4	+V _{out}
5	Common
6	-V _{out}

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

(Tolerances as listed unless otherwise specified.)

This page is offered as a reference. Consult factory for actual availability of options. When ordering equipment options, use the following suffix information. Select preferred option(s) and add the suffix to the model number. Ordering option examples are located below the options table.

OPTION	SUFFIX	APPLICABLE SERIES	REMARKS
Negative Logic	N	HAS, HBD, HBS, HES, HLS, HLD, 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	
Trim	1	IAS, LES	
Enable	2	IAD, IAS, LES, SMS	
Trim and Enable	3	IAS, LES	
Pin Length and Heatsink Options			Standard Pin Length is 0.180" (4.6mm)
0.110" (2.8mm) Pin Length	8	All Leaded Models	
0.150" (3.8mm) Pin Length	9	All Leaded Models	
0.24" (6.1mm) Horizontal Heatsink	1H	All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages)	Includes Thermal Pad
0.24" (6.1mm) Vertical Heatsink	1V	All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages)	Includes Thermal Pad
0.45" (11.4mm) Horizontal Heatsink	2H	All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages)	Includes Thermal Pad
0.45" (11.4mm) Vertical Heatsink	2V	All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages)	Includes Thermal Pad
0.95" (24.1mm) Horizontal Heatsink	3H	All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages)	Includes Thermal Pad
0.95" (24.1mm) Vertical Heatsink	3V	All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, 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 respective divisional president of Power-One, Inc.

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