IAB01 Series

XP Power

1W

DC-DC CONVERTER

The dual output IAB01 series is an ideal solution for isolating voltage rails in a distributed power supply architecture such as analog, digital, data and relay circuits. This product family offers a compact, long-lasting design with high efficiency, 1.5kV functional isolation, short circuit protection and high operating temperature.

Features

- Unregulated dual outputs
- ±10% input range
- Dual outputs ±3.3 to ±24VDC
- SIP7 package
- 1.5kVDC functional isolation
- Short circuit protection
- Class B conducted & radiated emissions
- -40˚C to +105˚C operation
- Full load to 100˚C ambient
- 3 year warranty

Applications

Industrial Electronics | Instrumentation | Robotics | Technology

Dimensions

0.77” x 0.24” x 0.40” (19.6 x 6.0 x 10.1mm)

Models & Ratings

Model Number	Input Voltage	Output Voltage	Output Current	Efficiency at Vin Nominal with Full Load (1)	Maximum Capacitive Load
IAB0105D3V3	5V (4.5-5.5V)	±3.3V	±152mA	74%	1200µF
IAB0105D05		±5V	±100mA	82%	1200µF
IAB0105D09		±9V	±56mA	83%	470µF
IAB0105D12		±12V	±42mA	83%	220µF
IAB0105D15		±15V	±34mA	83%	220µF
IAB0105D24		±24V	±21mA	85%	100µF
IAB0112D3V3	12V (10.8-13.2V)	±3.3V	±152mA	75%	1200µF
IAB0112D05		±5V	±100mA	80%	1200µF
IAB0112D12		±12V	±42mA	81%	220µF
IAB0112D15		±15V	±34mA	81%	220µF
IAB0112D24		±24V	±21mA	80%	100µF
IAB0115D05	15V (13.5-16.5V)	±5V	±100mA	80%	1200µF
IAB0115D12		±12V	±42mA	80%	220µF
IAB0115D15		±15V	±34mA	81%	220µF
IAB0124D05	24V (21.6-26.4V)	±5V	±100mA	80%	1200µF
IAB0124D12		±12V	±42mA	81%	220µF
IAB0124D15		±15V	±34mA	79%	220µF
IAB0124D24		±24V	±21mA	80%	100µF

Notes:

1. Maximum capacitive load is per output.
2. Measured at nominal input voltage and full load.
3. Pack size 25pcs per tube

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	4.5		5.5	VDC	5V nominal
	10.8		13.2		12V nominal
	13.5		16.5		15V nominal
	21.6		26.4		24V nominal
Input Filter	Capacitor				
Input Reflected Ripple		15		mA pk-pk	Measured through 4.7µH inductor and 220µF capacitor
Input Surge	-0.7		9	VDC	5V models, 1s
	-0.7		18		12V models, 1s
	-0.7		21		15V models, 1s
	-0.7		30		24V models, 1s

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		48	VDC	See Models & Ratings table
Initial Set Accuracy				%	See regulation curves
Minimum Load	10			%	Minimum load required to meet specification. Operation at no load will not cause damage
Line Regulation			±1.2	%	Per 1% change of input voltage
			±1.5		3.3V output models, per 1% change of input voltage
Load Regulation				%	From 10% to full load. See regulation curves
Cross Regulation			5	%	When one load is varied between 25% and 100% and other is fixed at 100%
Ripple & Noise			75	mV pk-pk	Measured using parallel cable, 20MHz bandwidth and 10µF ceramic capacitor
			100		24V output models, measured using parallel cable, 20MHz bandwidth and 10µF ceramic capacitor
Short Circuit Protection	Continuous, with autorecovery				
Maximum Capacitive Load	See Models & Ratings table				
Temperature Coefficient			±0.02	%/ °C	100% load

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		80		%	See models & ratings table
Isolation: Input to Output	1500			VDC	60s test, functional isolation
Isolation Resistance	10^9			Ω	
Isolation Capacitance		20		pF	
Switching Frequency		260		kHz	100% load
Power Density			14	W/in³	
Mean Time Between Failure	3.5			Mhrs	MIL-HDBK-217F, +25°C GB
Weight		0.004 (2.1)		lb (g)	
Case Material	Black plastic, flame retardant UL94V-0				
Pin Material	Phosphor bronze, solder coated				
Solder Profile			300	°C	1.5mm from case 10s max
Water Wash	Use deionized water. Dry thoroughly				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+105	°C	IAB0105: derate from 100% load at +85°C to 80% load at +105°C Others: derate from 100% load at +100°C to 80% at +105°C
Storage Temperature	-55		+125	°C	
Humidity			95	%RH	Non-condensing
Cooling	Natural convection				

Safety Approvals

Safety Agency	Standard	Notes & Conditions
UL	UL/cUL62368-1	ITE
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

EMC: Emissions

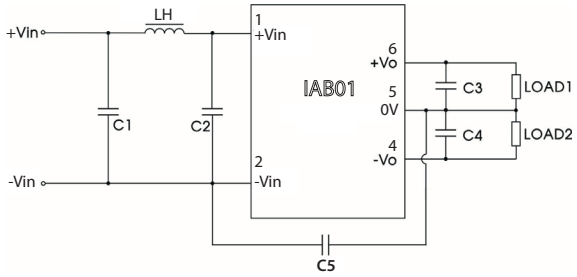
Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	See application notes
Radiated	EN55032	Class B	See application notes

EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	B	Air ±8kV, Contact ±6kV
Radiated Immunity	EN61000-4-3	3	A	10V/m

Application Notes

EMC (Class B) Compliance Circuit - Dual



Model Number	Dual Vout (V)	C1	C2	C3	C4	C5	LH
IAB0105	±3.3	4.7µF/25V	4.7µF/25V	4.7µF/16V	4.7µF/16V	Not fitted	6.8µH
	±5						
	±9			1.0µF/25V	1.0µF/25V		
	±12					1nF/2kV	
	±15			0.47µF/50V	0.47µF/50V		
	±24						
IAB0112, 15, 24	±3.3	4.7µF/50V	4.7µF/50V	4.7µF/16V	4.7µF/16V	270pF/2kV	6.8µH
	±5						
	±12			1.0µF/25V	1.0µF/25V		
	±15			0.47µF/25V	0.47µF/25V		
	±24			0.47µF/50V	0.47µF/50V		

Typical Performance Curves

Fig 1.
3.3VDC Output

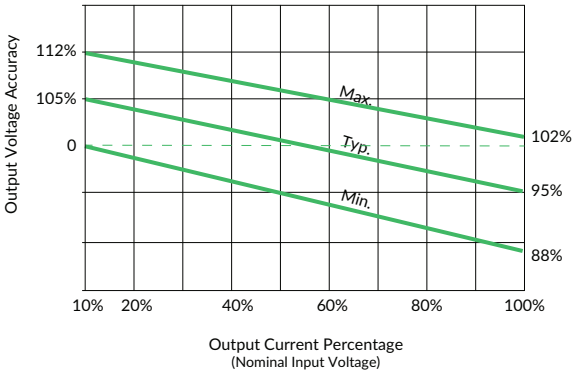


Fig 2.
5/9/12/15/24VDC Output applies to IAB0105

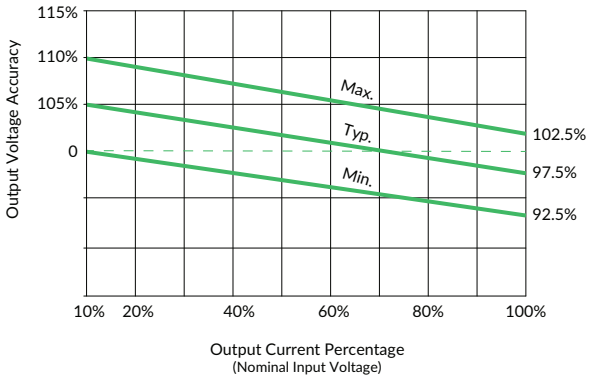


Fig 3.
5/12/15/24VDC Output

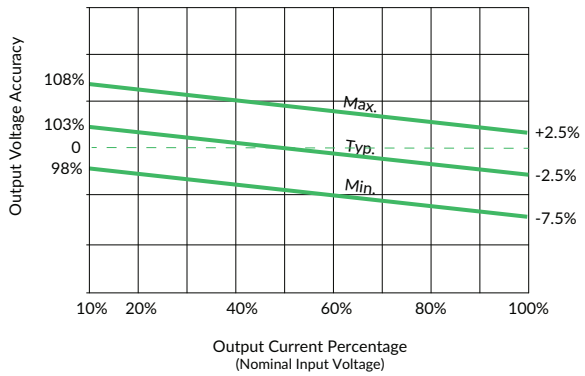
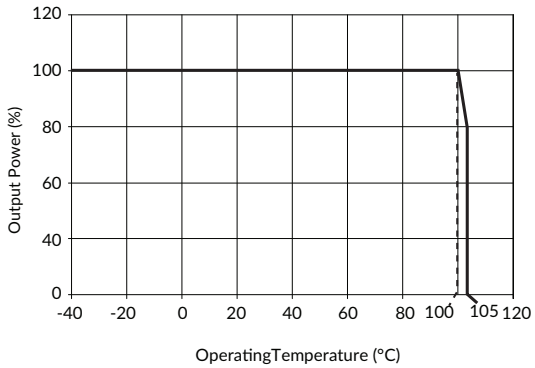
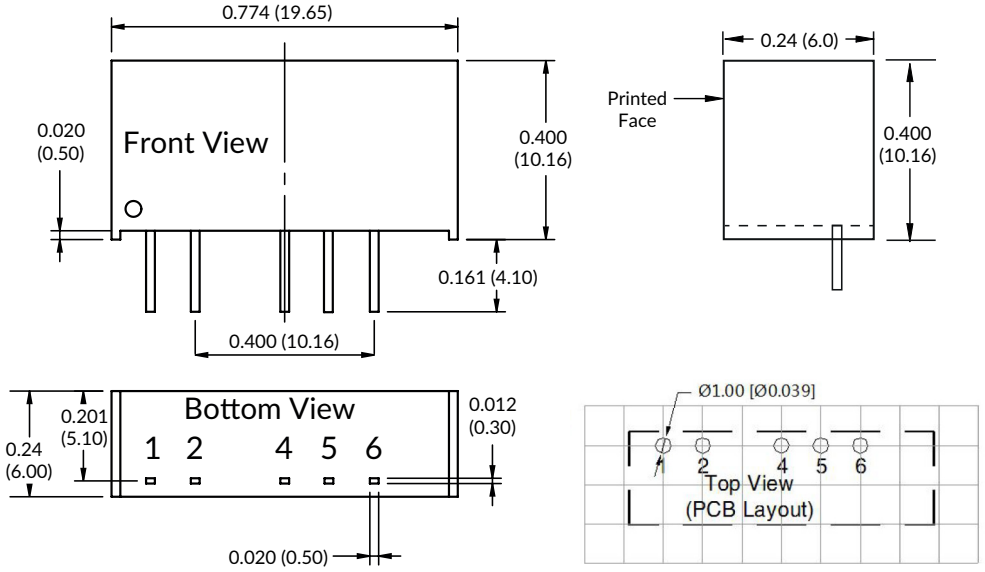


Fig 4.
Temperature Derating Curve



Mechanical Details



Pin Connections	
Pin	**Function**
1	+Vin
2	-Vin
3	No pin
4	-Vout
5	Common
6	+Vout
7	No pin

Notes:

1. All dimensions are in inches (mm)
2. Weight: 0.004lbs (2.1g) approx.
3. Pin diameter: 0.02±0.002 (0.5±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

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