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IAS01 Series

DC-DC Converter

XP Power

1 Watt

- Dual unregulated output
- ±10% input range
- SMD DIP10 package
- 1.5kVDC isolation, 3kVDC option
- Industry standard pinout
- UL62368-1 safety approvals
- Continuous short circuit protection
- Tape & reel package available
- Operating temperature -40°C to +105°C
- Full load to +100°C
- 3 year warranty



Dimensions:

IAS01:
0.600 x 0.335 x 0.285" (15.24 x 8.50 x 7.25 mm)

The dual output IAS01 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 design with high efficiency, 1.5kV isolation with 3.0kV optional, short circuit protection and high operating temperature.

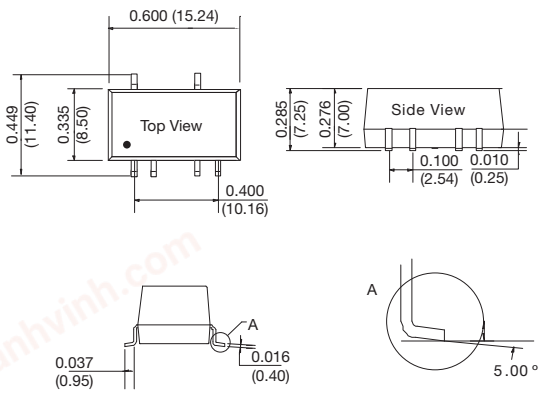
Models & Ratings

Input Voltage	Output Voltage	Output Current	Input Current[2]		Maximum Capacitive Load	Efficiency[3]	Model Number[1,5]
			No Load	Full Load			
5V (4.5-5.5 V)	±5 V	±100 mA	5 mA	244 mA	±1200 µF	82%	IAS0105D05
	±9 V	±56 mA	12 mA	241 mA	±470 µF	83%	IAS0105D09
	±12 V	±42 mA	12 mA	241 mA	±220 µF	83%	IAS0105D12
	±15 V	±34 mA	18 mA	241 mA	±220 µF	83%	IAS0105D15
	±24 V	±21 mA	18 mA	241 mA	±100 µF	85%	IAS0105D24-H

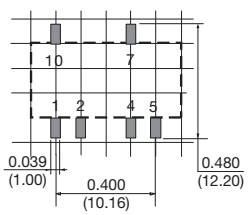
Notes

1. Optional 3kVDC isolation add suffix '-H'.
2. Input currents measured at nominal input voltage.
3. Typical value at full load.
4. Standard tube quantity = 32
5. For tape & reel option add suffix -TR. Reel quantity = 500
6. Dual 24V output model is 3kV isolation only.

Mechanical Details



Recommended Footprint
Top View grid: 0.1 x 0.1 in (2.54 x 2.54 mm)



PIN CONNECTIONS	
Pin	Function
1	-Vin
2	+Vin
4	0 Vout
5	-Vout
7	+Vout
10	No Connection[5]

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.0031lbs (1.45g) typical.
3. Pin pitch and length tolerance: ±0.004 (±0.10)
4. Case tolerance: ±0.02 (±0.5)
5. Pin 10 leave floating.

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	4.50		5.50	VDC	5 V nominal
Input Current					See Models and Ratings table
Input Reflected Ripple		15		mA pk-pk	Through 4.7µH inductor and 220µF capacitor
Input Surge	-0.7		9	VDC	5 V models, 1s max
Input Filter	Integrated capacitor				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	±5		±24	VDC	See models and ratings table
Initial Set Accuracy				%	See load regulatioin curve
Minimum Load	10			%	
Line Regulation			±1.2	%	Per ±1% change of input voltage
Load Regulation		8	15	%	10% to 100% load
Ripple and Noise		30 (50)	75 (100)	mV pk-pk	20 MHz bandwidth, measured using 0.1 µF capacitor, (±24 VDC output model)
Short Circuit Protection	Continuous, with auto recovery				
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient		±0.2		%/°C	Full load

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency					See Models and Ratings table
Isolation: Input to Output	1500/3000			VDC	For optional high isolation versions, 3k VDC input to output add suffix -H to model number. Functional
Switching Frequency		270		kHz	Full load, nominal input
Isolation Resistance	10^9			Ω	Input to output, tested at 500 VDC
Isolation Capacitance		20		pF	Input to output
Power Density			20	Win^3	
Mean Time Between Failure	3500			kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.0031 (1.4)		lb (g)	
Recommended Solder Profile	IPC/JEDEC J-STD-020D.1				
MSL	Level 1				
Case Material	Black plastic, flame retardant UL94V-0				
Pin Material	Phosphor bronze				
Water Wash	Non-soaking water wash with de-ionised water. Dry thoroughly.				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+105	°C	Derate from 100% load at +100 °C to 80% load at 105 °C
Storage Temperature	-55		+125	°C	
Case Temperature			+105	°C	
Case Temperature Rise		15		°C	Ambient 25°C
Operating Humidity			95	% RH	Non-condensing
Cooling	Natural convection				

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL62368-1	

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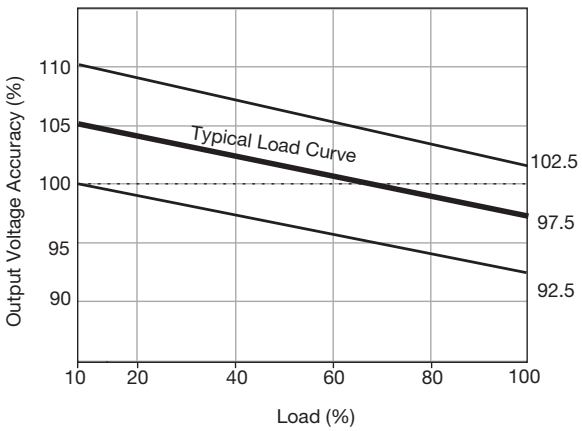
EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	See Application Note for Class B filter
Radiated	EN55032	Class B	See Application Note for Class B filter

EMC: Immunity

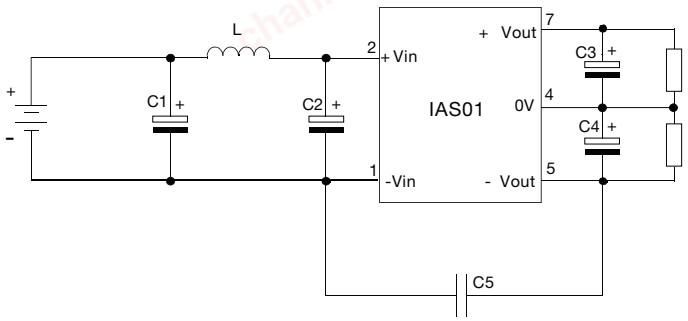
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	Air ±8kV, Contact ±4kV	B	

Load Regulation



Application Note

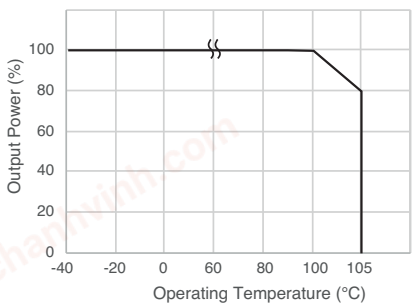
EMI Filter for Class B Emissions



Output Voltage	C1/C2	C3, C4	C5	L
5V	4.7µF/ 25V	4.7µF	Not Fitted	6.8µH
9V		2.2µF		
12V, 15V, 24V		1µF	1nF	

Note: C5, 4kVDC, ML Ceramic

Thermal Derating Curve



Efficiency vs Output Load (IAS0105D05)

