IA/IE-1W~2W Series

Features

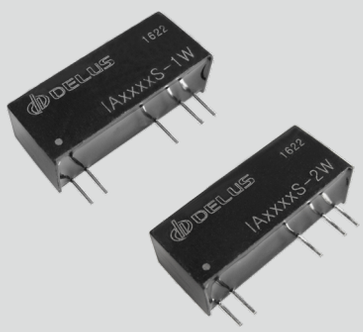
- Operating temperature: -40 to +85℃
- ±5/±9/±12/±15Vdc multiple voltage output
- International standard pin-out
- 100% burn-in
- No external component required
- UL94V-0 package
- RoHS/CE compliance
- With 3 year warranty

General Description

IA-1W/2W series dc/dc converters are specially designed for the application of the power supply which is isolated from the input source in the distributed power supply system on the circuit board. Small size, high power density, can save valuable board space.

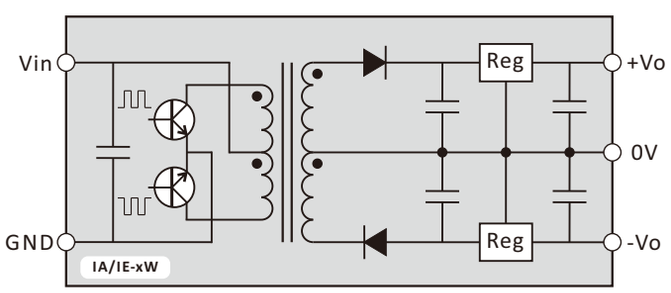
The chip ceramic capacitors and SMT are used in all series. These converters have characteristics of long life, excellent performance, stability and reliability.

Applied to the input power supply voltage is relatively stable, input and output requirements for isolation, voltage stability requirements are relatively high, the ripple noise sensitive applications.



EMI | 1500 Vdc | 3000 Vdc | High Power Density

Fuctional Diagram



EMC Solution-Recommended Circuit

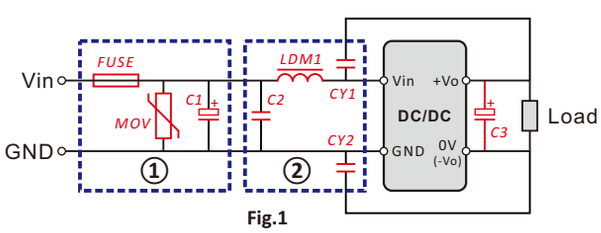


Fig.1

Note: Part ① is the recommended external circuit for EMS test and Part ② for EMI filtering. Choose according to requirements.

Parameter Description			
Vin	5V/9V	12V/15V/24V	48V
C2	4.7uF/50V		2.2uF/100V
LDM1	6.8uH		
CY1	–		
CY2	1nF/2kV or 4.5kV		
C3	Choose according fig.3		
If there is no recommended parameters, no external component is required.			

IA/IE-1W～2W Series

1w/2w, fixed input, isolated & regulated dual output dc-dc converter

Input Specifications

Item	Test Conditions	Min	Typ	Max	Units
Input Surge Voltage (1 sec max)	3.3V input	-0.7		5	Vdc
	5V input	-0.7		7	
	9V input	-0.7		15	
	12V input	-0.7		15	
	15V input	-0.7		20	
	24V input	-0.7		30	
	48V input	-0.7		60	
Input Filter		"C" filter			
Reverse Polarity Input Current		no support			
Hot Plug		no support			

Output Specifications

Item		Test Conditions	Min	Typ	Max	Units
Output Power	1W model	Ta=-40～+85℃	0.1		1	W
	2W model		0.2		2	
Output Voltage Accuracy		Nominal, 100% load			±3	%
Line Regulation		For vin change of ±5%			±0.5	
Load Regulation		Nominal, 10%-100% load		±1	±2	
Ripple		DC-20MHz bandwidth		20	30	mVp-p
Noise				50	200	
Temperature Drift		Nominal, 100% load			±0.03	%/℃
Short Circuit Protection					1	s

Isolation Specifications

Item		Test Conditions	Min	Typ	Max	Units
Isolation Voltage	IA	Tested for 60S and 1mA max	1500			Vdc
	IE		3000			
Insulation Resistance		Test at 500Vdc	1000			MΩ
Isolation Capacitance		IN-OUT, 100kHz @ 0.1Vdc		20		pF

Common Specification

Item	Test Conditions	Min	Typ	Max	Units
Switching Frequency	100% load, input low to high		100		kHz
Operating Temperature		-40		+85	℃
Case Temp Rise	Ta=25℃		45		
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Temperature		-50		+130	
Storage Humidity				95	%
Weight			5.2		g
MTBF	Using MIL-HDBK 217 @ 25℃	1000			k hours
Case Material		Black Plastic (UL94V-0)			

EMC Specification

EMI	CE	EN55022:2010	Class B (See Fig.1)
	RE	EN55022:2010	Class B (See Fig.1)
EMS	ESD	EN55024:2010/EN61000-4-2	perf. Criterion B
	RS	EN55024:2010/EN61000-4-3	perf. Criterion A

Application Note

1. Requirement on Output Load

To ensure this DC/DC can operate efficiently and reliably, during operation, the minimum output load is not less than 10% of the full load, and that **this product should never be operated under no load!**

When the actual output power is very small, if in the selection phase, it is recommended to select a lower power level model, else please connect a resistor with proper resistance at the output end in parallel to increase the load.

2. Typical Application Circuit

General applications, the circuit according to Fig.2 Typical recommended. The value of each component will be selected according to the following recommended list.

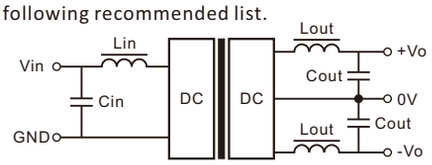


Fig.2

Capacitor and Inductor values Recommended

Cin	Cout		Lin, Lout
10～100uF	±5V	4.7uF	*not required, recommended values 4.7-22uH*
	±9V	2.2uF	
	±12V	1uF	
	±15V	0.47uF	

If using a filter inductor,It should be noted "LC" filtering network natural frequency should be staggered with the DC/DC operating frequency to avoid mutual interference.

3. Output overload protection & Input over-voltage protection

In general, the series product has no function of output overload protection and input over-voltage protection. The simplest method is for connecting a linear regulator with over-heat protection at the input (Fig.3).

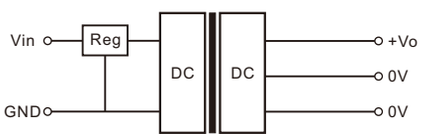


Fig.3

4. On derating

When the environmental temperature exceeds 70℃ the module must be derating used, please refer to derating curve (Fig.4).

Temperature Derating Curve

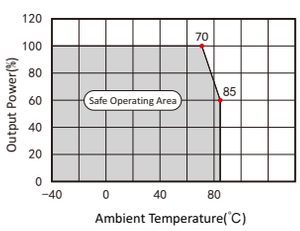


Fig.4

・All specifications are subject to change without notice

IA_S-1W & IA_S-2W Series

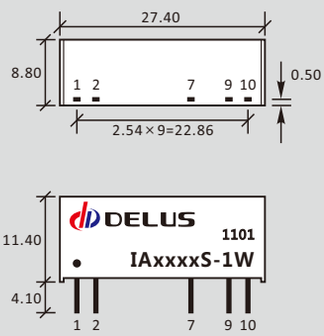
1w/2w, fixed input, 1500Vdc isolated & regulated dual output dc-dc converter

Product Program

Certificate	Model	Eff (%)	Input		Output		
			Voltage(Vdc)		Vdc	mA	Max Capacitive Load (uF)
			Nominal	Range	Nominal	Max	
CE/RoHS	**IA0505S-1W**	61	5	4.75-5.25	±5	±100	22
	IA0509S-1W	62			±9	±56	
	IA0512S-1W	66			±12	±42	
	IA0515S-1W	68			±15	±33	
CE/RoHS	**IA1205S-1W**	60	12	11.4-12.6	±5	±100	22
	IA1209S-1W	62			±9	±56	
	IA1212S-1W	71			±12	±42	
	IA1215S-1W	71			±15	±33	
CE/RoHS	**IA1505S-1W**	61	15	14.2-15.7	±5	±100	22
CE/RoHS	**IA1809S-1W**	62	18	17.1-18.9	±9	±56	22
CE/RoHS	**IA2405S-1W**	61	24	22.8-25.2	±5	±100	22
	IA2409S-1W	62			±9	±56	
	IA2412S-1W	62			±12	±42	
	IA2415S-1W	65			±15	±33	
CE/RoHS	**IA0505S-2W**	76	5	4.75-5.25	±5	±200	22
	IA0509S-2W	71			±9	±100	
	IA0512S-2W	71			±12	±83	
	IA0515S-2W	73			±15	±67	
CE/RoHS	**IA1205S-2W**	76	12	11.4-12.6	±5	±200	22
	IA1209S-2W	73			±9	±100	
	IA1212S-2W	82			±12	±83	
	IA1215S-2W	73			±15	±67	
CE/RoHS	**IA1515S-2W**	73	15	14.2-15.7	±15	±67	22
CE/RoHS	**IA2405S-2W**	78	24	22.8-25.2	±5	±200	22
	IA2409S-2W	73			±9	±100	
	IA2412S-2W	78			±12	±83	
	IA2415S-2W	77			±15	±67	

Dimensions

First Angle Proj



脚位	IA_S-1W/2W
1	**Vin**
2	**GND**
7	**+Vo**
9	**-Vo**
10	**0V**

Note:
All size units **mm**,
Diameter of all terminal 0.5mm,
Distance between all adjacent terminal 2.54mm
Isolation: 1500Vdc
Weight: 5.2g

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IE_S-1W & IE_S-2W Series

1w/2w, fixed input, 3000Vdc isolated & regulated dual output dc-dc converter

Product Program

Certificate	Model	Eff (%)	Input		Output		
			Voltage(Vdc)		Vdc	mA	Max Capacitive Load (uF)
			Nominal	Range	Nominal	Max	
CE/RoHS	**IE0505S-1W**	61	5	4.75-5.25	±5	±100	22
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	IE1209S-1W	62			±9	±56	
	IE1212S-1W	71			±12	±42	
	IE1215S-1W	71			±15	±33	
CE/RoHS	**IE2405S-1W**	61	24	22.8-25.2	±5	±100	22
	IE2409S-1W	62			±9	±56	
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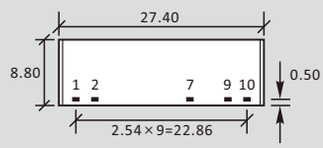
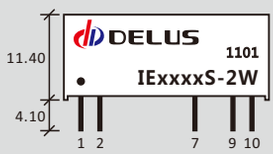
Dimensions First Angle Proj





脚位	IE_S-1W/2W
1	**Vin**
2	**GND**
7	**+Vo**
9	**-Vo**
10	**0V**

Note:
All size units **mm**,
Diameter of all terminal 0.5mm,
Distance between all adjacent terminal 2.54mm
Isolation: 3000Vdc
Weight: 5.2g

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File Release Notes

DBN-202 Technical Data Sheet Version

No.	Version	Date	Description
1	V0	2011/11/01	First release
2	A/0	2016/07/01	Change document version definition
3			
4			
5			

1. All data in addition to particular things, are Ta = 25℃, humidity<75%, nominal input voltage and output measured at rated load;
2. Non-standard models with some of the following indicators may be different from the specific circumstances of the Secretary to direct contact with me;
3. In the use of this manual, if some of them do not quite understand terms please refer to our <<DC/DC Converter Application Guide>>;
4. The Company focused on technological improvements, product specifications and parameter updates without notice, to pay attention to the latest information on website.

All Delus Corporation's products are manufactured, assembled and tested utilizing ISO9001 quality systems.
For information regarding Delus Corporation and its products please see website: www.delus-power.com

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