

## Features

- ◆ Operating temperature: -40 to +85°C
- ◆ 1.5kVdc isolation
- ◆ 100% burn-in
- ◆ No external component required
- ◆ UL94V-0 package
- ◆ RoHS compliance

## Typical Applications

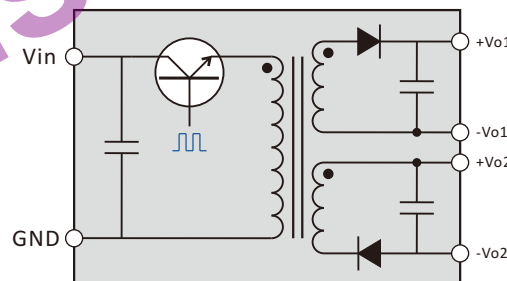
- ◆ Intelligent control, power monitoring equipment, security facilities, radio and television appliances power isolation & transform
- ◆ RS485/232, CAN bus interface, power supply isolation and other digital communication circuit
- ◆ Power ground circulation & interference suppression

## General Description

D-1W is unregulated single output series, in use can be simply understood as a common frequency transformer (see functional diagram), the only difference is that it can achieve the DC to DC voltage conversion. The family offers a variety of standard voltage combinations, isolation voltage 1.5kVdc.



## Functional Diagram



## Selection Guide

**D 05 05 S - 1W**

Product Series	Input Voltage	Output Voltage	Package Style	Rated Power
D: isolated 1.5kVdc twin	05 = 5Vdc 12 = 12Vdc 24 = 24Vdc 48 = 48Vdc	05 = 5/5Vdc 09 = 9/9Vdc 12 = 12/12Vdc 15 = 15/15Vdc 24 = 24/24Vdc	S: single in-line D: dual in-line	1W = 1Watt

# D\_S-1W & D\_D-1W Series

1w, fixed input, isolated & unregulated twin output dc-dc converter



## Input Specifications

Item	Min	Typ	Max	Units
Input Surge Voltage (1 sec max)	5V input	-0.7	7	Vdc
	12V input	-0.7	15	
	24V input	-0.7	28	
	48V input	-0.7	54	
Reverse Polarity Input Current			0.4	A
Internal Power Dissipation			0.45	W
Input Filter	"C" filter			

## Output Specifications

Item	Test Conditions	Min	Typ	Max	Units
Output Power	Ta=-40-+85°C	0.1		1	W
Line Regulation	For vin change of ±1%			±1.2	%/%
Load Regulation	Nominal 10%-100% load		10.5	15	%
		5V output	8.3	15	
		9V output	6.8	15	
		12V output	6.3	15	
Output Voltage Accuracy		See Tolerance Envelope Graph			
Temperature Drift	Nominal, 100% load			0.03	%/°C
Ripple & Noise	DC-20MHz bandwidth		100	200	mVp-p
Switching Frequency	Nominal, 100% load	80	100	130	KHz
Short Circuit Protection				1	S

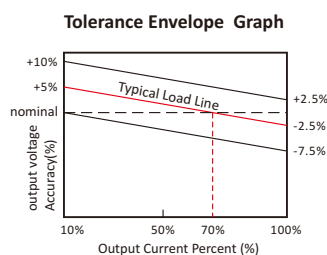
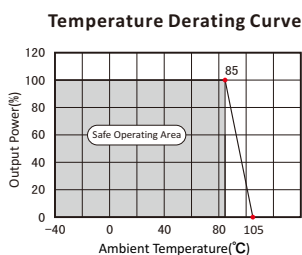
## Isolation Specifications

Item	Test Conditions	Min	Typ	Max	Units
Isolation Resistance	Test at 500Vdc	1000			MΩ
Isolation Voltage	Tested for 1S and 1mA max	1500			Vdc

## Common Specification

Item	Test Conditions	Min	Typ	Max	Units
Operating Temperature		-45		+85	°C
Maximum Case Temp.			50		
Storage Temperature		-50		+130	
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Humidity				95	%
Case Material		Black Plastic (UL94V-0)			

## Typical Characteristic Curve



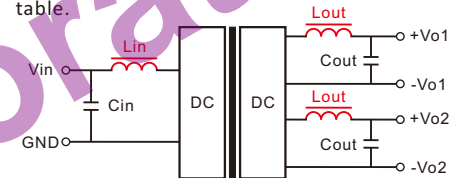
## Application Note

### 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!** If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

### 2. Output filter

The DC/DC without any external filter components in the case that can be stable and reliable work. If you want to further reduce ripple and improve the EMC, please connect a external filter circuit at the inputs and outputs (see figure). General, recommended values 10-100uF with input capacitor, and recommended values with output capacitor see the following table.



"Lin, Lout" not required, recommended values 4.7-22uH

Table 1

Cin	Cout		
10~100uF	5/5V	4.7uF	
	9/9V	2.2uF	
	12/12V	1uF	
	15/15V	0.47uF	

It's not recommended to connect any external capacitor in the application field with less than 0.5 watt output.

If the maximum external output capacitor still does not meet your requirements of ripple may be required connect the filter inductor (see figure), Lout values recommended 4.7-100uH. It should be noted "LC" filtering network natural frequency should be staggered with the DC/DC operating frequency to avoid mutual interference.

4. This product cannot be used in parallel, can not hot-swappable.

# D\_S-1W & D\_D-1W Series

1w, fixed input, isolated & unregulated twin output dc-dc converter



## Product Program

Model	Input		Output			Ripple (mVp-p)	Eff (%)	Certificate	Mechanical Dimensions First Angle Projection	
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)						
	Nominal	Range	Nominal	Max	Min					
D0505S-1W	5	4.5~5.5	5/5	100/100	10/10		72			
D0509S-1W			9/9	56/56	6/6		77			
D0512S-1W			12/12	42/42	5/5		78			
D0515S-1W			15/15	33/33	4/4		80			
D1205S-1W	12	10.8~13.2	5/5	100/100	10/10		72			
D1209S-1W			9/9	56/56	6/6		77			
D1212S-1W			12/12	42/42	5/5		78			
D1215S-1W			15/15	33/33	4/4		80			
D2405S-1W	24	21.6~26.4	5/5	100/100	10/10		72			
D2409S-1W			9/9	56/56	6/6		77			
D2412S-1W			12/12	42/42	5/5		78			
D2415S-1W			15/15	33/33	4/4		80			

Weight: 2.2g

Isolation: 1500Vdc  
 Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm  
 input or output voltage >= 24V, T=7.55mm

Pin	1	2	4	5	6	7
Function	Vin	GND	-Vo1	+Vo1	-Vo2	+Vo2

D0505D-1W	5	4.5~5.5	5/5	100/100	10/10		72		
D0509D-1W			9/9	56/56	6/6		77		
D0512D-1W			12/12	42/42	5/5		78		
D0515D-1W			15/15	33/33	4/4		80		
D1205D-1W	12	10.8~13.2	5/5	100/100	10/10		72		
D1209D-1W			9/9	56/56	6/6		77		
D1212D-1W			12/12	42/42	5/5		78		
D1215D-1W			15/15	33/33	4/4		80		
D2405D-1W	24	21.6~26.4	5/5	100/100	10/10		72		
D2409D-1W			9/9	56/56	6/6		77		
D2412D-1W			12/12	42/42	5/5		78		
D2415D-1W			15/15	33/33	4/4		80		

Weight: 2.5g

Isolation: 1500Vdc  
 Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm

Pin	1	8	9	10	11	7	14
Function	GND	+Vo2	-Vo2	+Vo1	-Vo1	NC	Vin

# File Release Notes

DBN-105 Technical Data Sheet Version



No.	Version	Data	Description
1	V0	2011/11/01	First release
2			
3			
4			
5			

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1. All data in addition to particular things, are Ta = 25°C, 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: [www.delus.cn](http://www.delus.cn)

All Delus Corporation's products are manufactured, assembled and tested utilizing ISO9001 quality systems.  
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