V_D-10W Series

Features

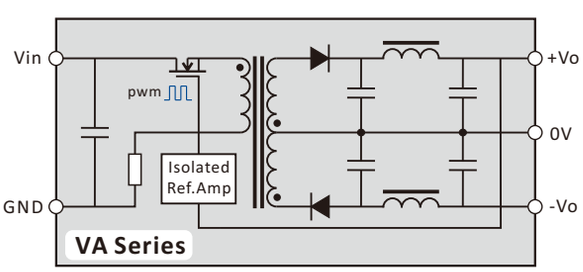
- Operating temperature: -40 to +85℃
- 9-18/18-36/36-75Vdc input
- 5/9/12/15/24/±5/±9/±12/±15Vdc output
- Efficiency up to 89%
- Ultra low noise & ripple
- EMC meet EN55022 Class B
- 100% burn-in
- Six-sided continuous shield
- Continuous short circuit protection
- RoHS/CE/ISO multiple compliance
- With 3 years warranty

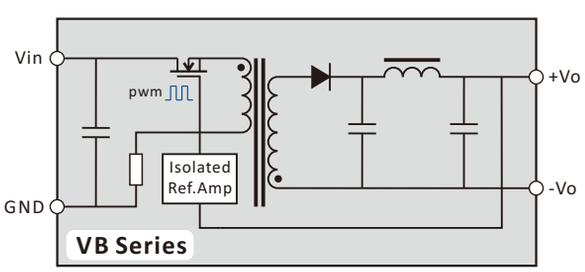
General Description

V_D-10W series has high power density can help user to save board space. The product has advantages of wide input voltage range, small start current, good load characteristic, and low ripple. Ceramic chip capacitors and SMT are used in the series. The product has characteristics of long lifetime, good performance and high reliability. The series product makes an ideal solution in industrial control system, data transmission device, communication device, battery driver, industrial robots, remote control system, Analog/digital hybrid system, etc.

EMI | 1500 Vdc | High Power Density | OCP | 4:1 2:1

Functional Diagram





EMC Solution-Recommended Circuit

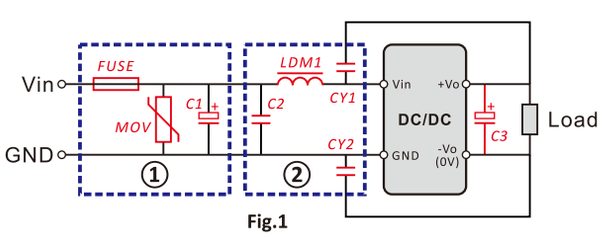


Fig.1

Notes:
Part ① in the Fig.1 is used for EMS test and part ② for EMI filtering; selected based on needs.

Parameter Description			
Model	Vin:12V	Vin:24V	Vin:48V
FUSE	Choose according to actual input current		
MOV	S14K17	S14K35	S14K60
C1	680uF/25V	470uF/50V	330uF/100V
C2	1uF/25V	1uF/50V	1uF/100V
LDM1	4.7uH		
CY1/CY2	1nF/2kV or 4.5kV		
C3	Refer to the Cout in Fig.3		

· All specifications are subject to change without notice

V_D-10W Series

10w, wide input, isolated & regulated dual & single output dc-dc converter

Input Specifications

Item		Min	Typ	Max	Units
Input Impulse Voltage (1 sec max)	12V input models	-0.7		20	Vdc
	24V input models	-0.7		40	
	48V input models	-0.7		80	
Startup Voltage	12V input models			9	
	24V input models			18	
	48V input models			36	
Startup Current @ 100% load, nominal input		<1.6 lin-max.			
Input Filter		"LC" filter			
Input Polarity Protection		Unavailable			

Output Specifications

Item		Test Conditions	Min	Typ	Max	Units
Output Power		Operating temp curve range	1		10	W
Line Regulation		100% load, input low to high		±0.05	±0.15	%
Load Regulation		10-100% load, nominal input		±0.1	±0.3	
Output Voltage Accuracy	Master	100% load, nominal input		±1	±3	
	Slave			±3	±5	
Balance of Vout		Dual output, balance load		±0.8	±2	
Ripple & Noise		DC-20MHz bandwidth		40	80	mVp-p
Temperature Drift		100% load, nominal input			±0.03	%/℃
Short Circuit Protection			Continuous, Self-Recovery			
Output Filter			"∏" filter			

Isolation Specifications

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

Common Specification

Item	Test Conditions	Min	Typ	Max	Units
Switching Frequency	100% load, input low to high		330		kHz
Operating Temperature	More see on derating cruve	-45		+85	℃
Case Temperature	100% load, nominal input			+105	
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Temperature		-50		+130	
Storage Humidity				95	%
MTBF	Using MIL-HDBK 217 @ 25℃	1000			k hours
Weight			21		g
Hot Plug		Unavailable			
Case Material		Aluminium Alloy			

EMC Specification

EMI	CE	EN55022:2010	Class A (Bare component) / Class B (see Fig.1)
	RE	EN55022:2010	Class A (Bare component) / 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. The power requirements

As the power module start, a impulse current will formed, so please ensure that the power supply is sufficient to cope with the current. In general, the impulse current will be 1.6 times typical input current in consideration.

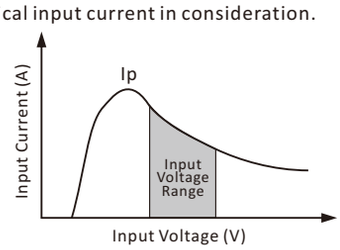
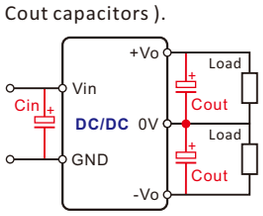


Fig.2

2. Typical Application Circuit

This series of products has tested according to Fig.3 before delivery (but no external Cin and Cout capacitors).



Vin	Cin
12V	220uF
24V	100uF
48V	10-47uF
Cout=10uF	

Fig.3

In general, the module satisfies performance requirement in this datasheet without the Cout.

Increased Cin and Cout appropriately or used lower ESR capacitors, if you want to further reduce the input and output ripple.

Note:

The Cout can not be exceed the maximum capacitive load on Model List to prevent startup failed.

3. EMC solution

The series products have a very good ripple and noise performance so that bare module meet the EN55022 Class A. Used the EMC solution shown in Fig.1 can meet the EN55022 Class B (see Fig.1).

4. On derating

When the environmental temperature exceeds a certain value, the module should be derating used according to the Fig.4.

Temperature Derating Curve

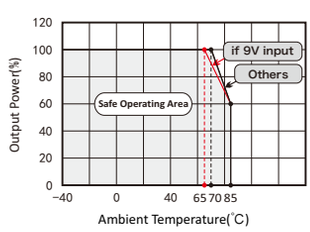


Fig.4

5. The series product cannot be used in parallel.

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VA_D-10W & VB_D-10W Series

10w, wide input, isolated & regulated dual & single output dc-dc converter

Product Program

Certificate	Model	Eff (%)	Input		Output				Drawing	Order Station
			Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Max Capacitive Load (uF)		
			Nominal	Range	Nominal	Max	Min			
RoHS	**VA1205D-10W**	82	12	9-18	±5	±1000	±100	680	Fig.5	ok
	VA1209D-10W	84			±9	±556	±56	470		ok
	VA1212D-10W	86			±12	±417	±42	220		ok
	VA1215D-10W	86			±15	±333	±33	100		ok
RoHS	**PVA2405D-10W**	82	24	18-36 (9-36)	±5	±1000	±100	680	Fig.5	ok
	PVA2409D-10W	84			±9	±556	±56	470		ok
	PVA2412D-10W	87			±12	±417	±42	220		ok
	PVA2415D-10W	88			±15	±333	±33	100		ok
RoHS	**PVA4805D-10W**	83	48	36-75 (18-75)	±5	±1000	±100	680	Fig.5	ok
	PVA4809D-10W	86			±9	±556	±56	470		ok
	PVA4812D-10W	89			±12	±417	±42	220		ok
	PVA4815D-10W	88			±15	±333	±33	100		ok
RoHS	**VB1205D-10W**	80	12	9-18	5	2000	200	2200	Fig.5	ok
	VB1209D-10W	83			9	1111	111	470		ok
	VB1212D-10W	86			12	833	84	470		ok
	VB1215D-10W	86			15	667	67	220		ok
	VB1224D-10W	85			24	417	42	100		ok
RoHS	**PVB2405D-10W**	81	24	18-36 (9-36)	5	2000	200	2200	Fig.5	ok
	PVB2409D-10W	83			9	1111	111	470		ok
	PVB2412D-10W	86			12	833	84	470		ok
	PVB2415D-10W	87			15	667	67	220		ok
	PVB2424D-10W	85			24	417	42	100		ok
RoHS	**PVB4805D-10W**	82	48	36-75 (18-75)	5	2000	200	2200	Fig.5	ok
	PVB4809D-10W	85			9	1111	111	470		ok
	PVB4812D-10W	89			12	833	84	470		ok
	PVB4815D-10W	88			15	667	67	220		ok
	PVB4824D-10W	86			24	417	42	100		ok

Note: The prefix "P" for 4:1 input range

Dimensions

First Angle Proj

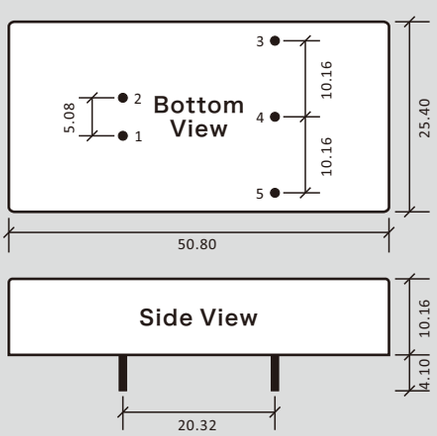

Fig.5

Pin	Single	Dual
1	**GND**	**GND**
2	**Vin**	**Vin**
3	**+Vo**	**+Vo**
4	**no Pin**	**0V**
5	**0V**	**-Vo**

Note:
All size units **mm**,
Diameter of all terminal 0.8mm;
Isolation: 1500Vdc
Weight: 25g

File Release Notes

DBN-405 Technical Data Sheet Version

No.	Version	Data	Description
1	V0	2011/11/01	First release
2	A/0	2016/07/01	Fixed some issue, and change datasheet document version
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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