

Features

- ◆ Operating temperature: -40 to +85°C
- ◆ 9-18/18-36/36-75Vdc input
- ◆ 5V/9V/12V/15V/24V/±5V/±9V/±12V/±15V output
- ◆ Low ripple & noise
- ◆ Efficiency up to 86%
- ◆ 100% burn-in
- ◆ Continuous short circuit protection
- ◆ Six-sided continuous shield

General Description

VA_D-20W & VB_D-20W series high power density, can help you save valuable board space. Wide input voltage range, low starting current, good load characteristics, and minimum ripple & noise characteristics.

The products used in all ceramic capacitors, all SMT processing technology, excellent performance, stable and reliable.



EMI

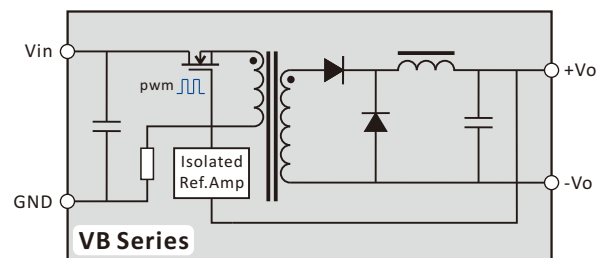
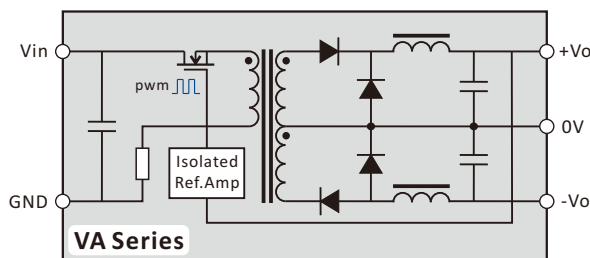
1500
Vdc

High
Power
Density

OVP

2:1
4:1

Functional Diagram



Selection Guide

VB1205D-20W

Product Series	Input Voltage	Output Voltage	Package Style	Rated Power
VA: wide input isolated 1.5kVdc dual output VB: wide input isolated 1.5kVdc single output	12 = 9-18 Vdc Range 24 = 18-36 Vdc Range 48 = 36-75 Vdc Range 1A = 72-144 Vdc Range	05 = 5Vdc ±5Vdc 09 = 9Vdc ±9Vdc 12 = 12Vdc ±12Vdc 15 = 15Vdc ±15Vdc 24 = 24Vdc ±24Vdc ↑ VB ↑ VA	D(Matel): 50.8×40.6×10.2	20W = 20Watts

VA_D-20W & VB_D-20W Series

20w, wide input, isolated & regulated dual & single output dc-dc converter



Input Specifications

Item	Test Conditions	Min	Typ	Max	Units
Start Voltage	12V input models		8.8	9	V
	24V input models		17.8	18	
	48V input models		35	36	
Start Up Time	Nominal, 100% load		100		mS
Input Filter		L-C			
CTRL (Reference point: GND)	Models on	open circuit			
	Models off	0-1.2Vdc			

Output Specifications

Item	Test Conditions	Min	Typ	Max	Units
Output Power	Ta=-40-+60°C	2		20	W
Line Regulation	100% load, input low to high		±0.1	±0.3	%
Load Regulation	Nominal, 10%-100% load		±0.3	±0.8	
Output Voltage Accuracy	100% load	Positive	±1	±3	
		Negative	±3	±5	
Temperature Drift	100% load			0.03	%/°C
Ripple & Noise	DC-20MHz bandwidth		80	150	mVp-p
Switching Frequency	Nominal, 100% load			500	KHz
Short Circuit Protection		Continuous, Automatic Recovery			

Isolation Specifications

Item	Test Conditions	Min	Typ	Max	Units
Isolation Resistance	Test at 500Vdc	500			MΩ
Isolation Voltage	Tested for 1S and 1mA max	1500			Vdc
Isolation Capacitance	100kHz/0.1Vdc		1000		pF

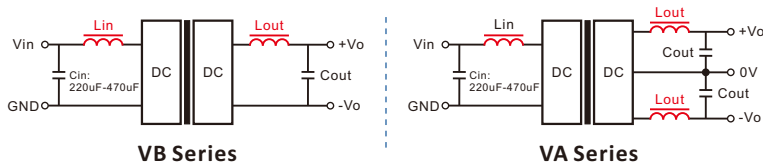
Common Specification

Item	Test Conditions	Min	Typ	Max	Units
Operating Temperature	Ta>60°C Derating	-45		+85	°C
Maximum Case Temp.			70		
Storage Temperature		-50		+130	
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Humidity				95	%
Weight			40		g
Case Material		Aluminium Alloy			

Absolute Maximum

Input Voltage Maximun	12V input models	0~20Vdc
	24V input models	0~40Vdc
	48V input models	0~80Vdc

Recommended Circuit



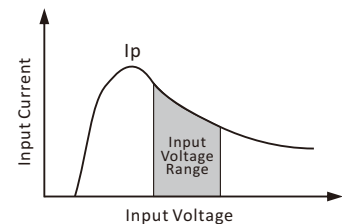
Input and output inductors are not required, if use, the recommended values 4.7-10uH

Application Note

1. The power requirements

When it is used in unregulated power supply, be sure that the fluctuating range of the power supply and the rippled voltage do not exceed the module standard. Input current of power supply should afford the startup current of this kind of DC/DC module.

General: $I_p < 1.6I_{in-max}$.



2. Input polarity protection

The series product no positive & negative reverse polarity protection, solution is the input series in a diode.

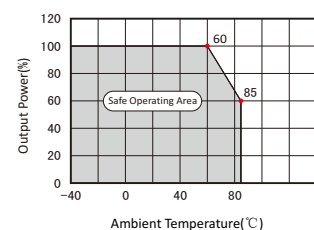
3. Plus capacitance

In order to ensure that at full load conditions can still maintain a good work in the best state, the need for external capacitors. However, excessive capacity and low ESR values may lead to instability in module, or result in lower current-limiting point. Recommended output capacitor value is 100uF/A (here refers to the current rated output current).

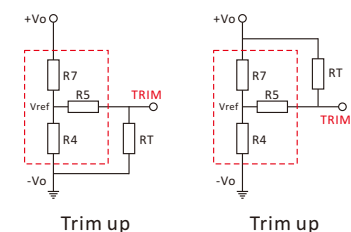
4. On derating

When the environmental temperature exceeds 60°C the module must be derating use, please refer to derating curve.

Temperature Derating Curve



5. Application circuit for TRIM



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

VA_D-20W & VB_D-20W Series

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Product Program										
Model	Input		Output				Eff (%)	Certificate	Pin-Out Config.	Order Status
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Ripple (mVp-p)				
	Nominal	Range		Nominal	Max					
VA1205D-20W	12	9-18	±5	±2000	±200		82		Fig.1	ok
VA1209D-20W			±9	±1111	±111		83		Fig.1	ok
VA1212D-20W			±12	±833	±84		84		Fig.1	ok
VA1215D-20W			±15	±667	±67		84		Fig.1	ok
VA1224D-20W			±24							
PVA2405D-20W	24	18-36 (9-36)	±5	±2000	±200		83		Fig.1	ok
PVA2409D-20W			±9	±1111	±111		85		Fig.1	ok
PVA2412D-20W			±12	±833	±84		85		Fig.1	ok
PVA2415D-20W			±15	±667	±67		85		Fig.1	ok
PVA2424D-20W			±24							
PVA4805D-20W	48	36-75 (18-75)	±5	±2000	±200		83		Fig.1	ok
PVA4809D-20W			±9	±1111	±111		86		Fig.1	ok
PVA4812D-20W			±12	±833	±84		86		Fig.1	ok
PVA4815D-20W			±15	±667	±67		86		Fig.1	ok
PVA4824D-20W			±24							
VA1A05D-20W	110	72-144	±5							no
VA1A09D-20W			±9							no
VA1A12D-20W			±12							no
VA1A15D-20W			±15							no
VA1A24D-20W			±24							no

VB1205D-20W	12	9-18	5	4000	400		80		Fig.1	ok
VB1209D-20W			9	2222	222		82		Fig.1	ok
VB1212D-20W			12	1667	167		83		Fig.1	ok
VB1215D-20W			15	1333	133		83		Fig.1	ok
VB1224D-20W			24	833	84		85		Fig.1	ok
PVB2405D-20W	24	18-36 (9-36)	5	4000	400		83		Fig.1	ok
PVB2409D-20W			9	2222	222		83		Fig.1	ok
PVB2412D-20W			12	1667	167		85		Fig.1	ok
PVB2415D-20W			15	1333	133		85		Fig.1	ok
PVB2424D-20W			24	833	84		85		Fig.1	ok
PVB4805D-20W	48	36-75 (18-75)	5	4000	400		83		Fig.1	ok
PVB4809D-20W			9	2222	222		86		Fig.1	ok
PVB4812D-20W			12	1667	167		86		Fig.1	ok
PVB4815D-20W			15	1333	133		86		Fig.1	ok
PVB4824D-20W			24	833	84		86		Fig.1	ok
VB1A05D-20W	110	72-144	5							no
VB1A09D-20W			9							no
VB1A12D-20W			12							no
VB1A15D-20W			15							no
VB1A24D-20W			24							no

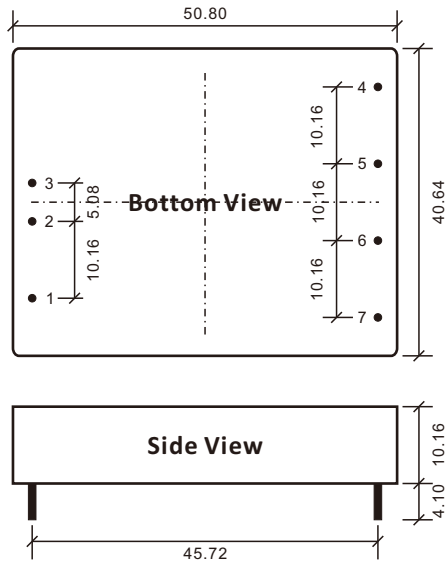
Note: The prefix "P" for 4:1 input range

VA_D-20W & VB_D-20W Series

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Outline Dimensions

Fig.1



First Angle Projection 

Pin	VB	VA
1	CTRL	CTRL
2	GND	GND
3	Vin	Vin
4	No Pin	+Vo
5	+Vo	0V
6	-Vo	-Vo
7	TRIM	TRIM

Note: all size units mm
diameter of all terminal 1 mm

File Release Notes

DBN-407 Technical Data Sheet Version



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

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

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