

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 90%
- ◆ 100% burn-in
- ◆ Continuous short circuit protection
- ◆ Six-sided continuous shield

General Description

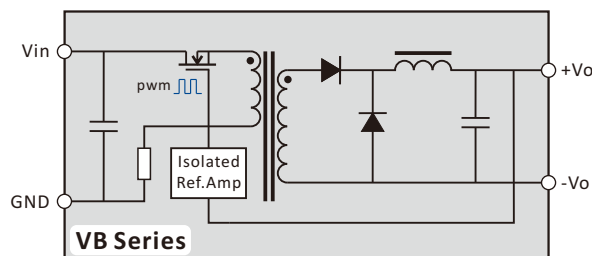
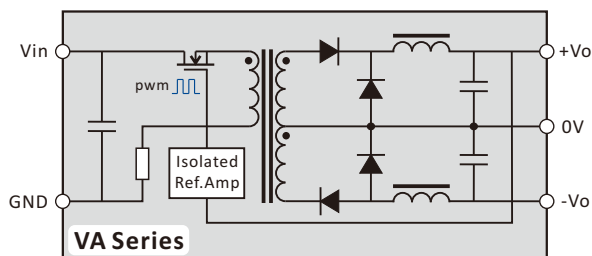
VA(B)_D-50W~150W series DC/DC power modules provide 150 Watts maximum rated output power, the series of product safety isolation voltage reaches 1500Vdc, the vast majority of the circuit can meet the basic requirements.

The series is our high-power products, mainly for railway locomotives, telecommunications room applications, power control systems.

The product has many excellent features such as wide voltage input, under voltage protection, output remote adjustment, remote shutdown, using the products together with our W series and A(B) series, you will be able to easily build complete power system.



Functional Diagram



Selection Guide

VB1205D-50W

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(Matl): 88.9×63.5×17.2 127.0×88.9×17.2	50W = 50Watts

VA_D-50~150W & VB_D-50~W Series

50~150w, 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~+55°C			150	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	160	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

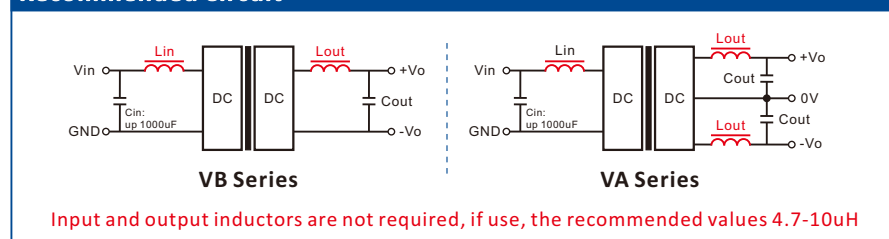
Common Specification

Item	Test Conditions	Min	Typ	Max	Units
Operating Temperature	Ta>60°C Derating	-45		+85	°C
Maximum Case Temp.				90	
Storage Temperature		-50		+130	
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Humidity				95	%
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

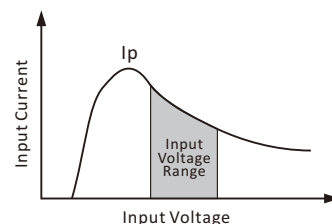


Application Note

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.

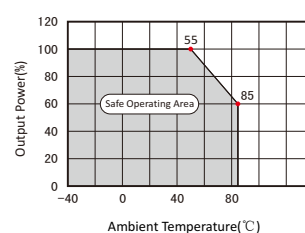
3. Plus capacitance

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).

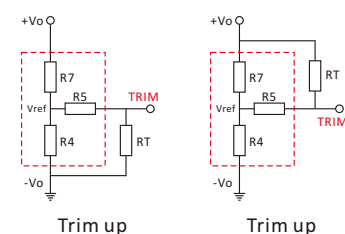
4. On derating

When the environmental temperature exceeds 55°C the module must be derating use, please refer to derating curve.

Temperature Derating Curve



5. Application circuit for TRIM



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

VA_D-50W & VB_D-50W Series

50w, wide input, isolated & regulated dual & single output dc-dc converter



Product Program										
Model	Input		Output				Eff (%)	Certificate	Pin-Out Config.	Order Status
	Voltage(Vdc)		Voltage(Vdc)	Current(A)		Ripple (mVp-p)				
	Nominal	Range	Nominal	Max	Min					
VB1205D-50W	12	9-18	5	10	1		86		Fig.1	ok
VB1209D-50W			9							no
VB1212D-50W			12	4.2	0.4		86		Fig.1	ok
VB1215D-50W			15	3.3	0.3		88		Fig.1	ok
VB1224D-50W			24	2.1	0.2		88		Fig.1	ok
VB2405D-50W	24	18-36	5	10	1		89		Fig.1	ok
VB2409D-50W			9							no
VB2412D-50W			12	4.2	0.4		89		Fig.1	ok
VB2415D-50W			15	3.3	0.3		90		Fig.1	ok
VB2424D-50W			24	2.1	0.2		90		Fig.1	ok
VB4805D-50W	48	36-75	5	10	1		88		Fig.1	ok
VB4809D-50W			9							no
VB4812D-50W			12	4.2	0.4		90		Fig.1	ok
VB4815D-50W			15	3.3	0.3		90		Fig.1	ok
VB4824D-50W			24	2.1	0.2		89		Fig.1	ok
VB1A05D-50W	110	72-144	5							no
VB1A09D-50W			9							no
VB1A12D-50W			12							no
VB1A15D-50W			15							no
VB1A24D-50W			24							no

VA1205D-50W	12	9-18	±5	±5	±0.5		86		Fig.2	ok
VA1209D-50W			±9							no
VA1212D-50W			±12	±2.1	±0.2		88		Fig.2	ok
VA1215D-50W			±15	±1.7	±0.1		88		Fig.2	ok
VA1224D-50W			±24							no
VA2405D-50W	24	18-36	±5	±5	±0.5		88		Fig.2	ok
VA2409D-50W			±9							no
VA2412D-50W			±12	±2.1	±0.2		88		Fig.2	ok
VA2415D-50W			±15	±1.7	±0.1		88		Fig.2	ok
VA2424D-50W			±24							no
VA4805D-50W	48	36-75	±5	±5	±0.5		88		Fig.2	ok
VA4809D-50W			±9							no
VA4812D-50W			±12	±2.1	±0.2		88		Fig.2	ok
VA4815D-50W			±15	±1.7	±0.1		88		Fig.2	ok
VA4824D-50W			±24							no
VA1A05D-50W	110	72-144	±5							no
VA1A09D-50W			±9							no
VA1A12D-50W			±12							no
VA1A15D-50W			±15							no
VA1A24D-50W			±24							no

VA_D-75W & VB_D-75W Series

75w, wide input, isolated & regulated dual & single output dc-dc converter



Product Program										
Model	Input		Output				Eff (%)	Certificate	Pin-Out Config.	Order Status
	Voltage(Vdc)		Voltage(Vdc)	Current(A)		Ripple (mVp-p)				
	Nominal	Range	Nominal	Max	Min					
VB1205D-75W	12	9-18	5	15	1.5		89		Fig.1	ok
VB1209D-75W			9							no
VB1212D-75W			12	6.30	0.6		89		Fig.1	ok
VB1215D-75W			15	5	0.5		89		Fig.1	ok
VB1224D-75W			24	3.1	0.3		89		Fig.1	ok
VB2405D-75W	24	18-36	5	15	1.5		89		Fig.1	ok
VB2409D-75W			9							no
VB2412D-75W			12	6.30	0.6		90		Fig.1	ok
VB2415D-75W			15	5	0.5		90		Fig.1	ok
VB2424D-75W			24	3.1	0.3		90		Fig.1	ok
VB4805D-75W	48	36-75	5	15	1.5		90		Fig.1	ok
VB4809D-75W			9							no
VB4812D-75W			12	6.30	0.6		90		Fig.1	ok
VB4815D-75W			15	5	0.5		90		Fig.1	ok
VB4824D-75W			24	3.1	0.3		89		Fig.1	ok
VB1A05D-75W	110	72-144	5							no
VB1A09D-75W			9							no
VB1A12D-75W			12							no
VB1A15D-75W			15							no
VB1A24D-75W			24							no

VA1205D-75W	12	9-18	±5	±7.5	±0.7		89		Fig.2	ok
VA1209D-75W			±9							no
VA1212D-75W			±12	±3.1	±0.3		90		Fig.2	ok
VA1215D-75W			±15	±2.5	±0.2		90		Fig.2	ok
VA1224D-75W			±24							no
VA2405D-75W	24	18-36	±5	±7.5	±0.7		89		Fig.2	ok
VA2409D-75W			±9							no
VA2412D-75W			±12	±3.1	±0.3		90		Fig.2	ok
VA2415D-75W			±15	±2.5	±0.2		90		Fig.2	ok
VA2424D-75W			±24							no
VA4805D-75W	48	36-75	±5	±7.5	±0.7		90		Fig.2	ok
VA4809D-75W			±9							no
VA4812D-75W			±12	±3.1	±0.3		91		Fig.2	ok
VA4815D-75W			±15	±2.5	±0.2		91		Fig.2	ok
VA4824D-75W			±24							no
VA1A05D-75W	110	72-144	±5							no
VA1A09D-75W			±9							no
VA1A12D-75W			±12							no
VA1A15D-75W			±15							no
VA1A24D-75W			±24							no

VA_D-100W & VB_D-100W Series

100w, wide input, isolated & regulated dual & single output dc-dc converter



Product Program										
Model	Input		Output				Eff (%)	Certificate	Pin-Out Config.	Order Status
	Voltage(Vdc)		Voltage(Vdc)	Current(A)		Ripple (mVp-p)				
	Nominal	Range	Nominal	Max	Min					
VB1205D-100W	12	9-18	5	20	2		90		Fig.2	ok
VB1209D-100W			9							no
VB1212D-100W			12	8.3	0.8		90		Fig.2	ok
VB1215D-100W			15	6.7	0.7		90		Fig.2	ok
VB1224D-100W			24	4.2	0.4		90		Fig.2	ok
VB2405D-100W	24	18-36	5	20	2				Fig.2	ok
VB2409D-100W			9							no
VB2412D-100W			12	8.3	0.8		91		Fig.2	ok
VB2415D-100W			15	6.7	0.7		92		Fig.2	ok
VB2424D-100W			24	4.2	0.4		90		Fig.2	ok
VB4805D-100W	48	36-75	5	20	2		90		Fig.2	ok
VB4809D-100W			9							no
VB4812D-100W			12	8.3	0.8		90		Fig.2	ok
VB4815D-100W			15	6.7	0.7		90		Fig.2	ok
VB4824D-100W			24	4.2	0.4		89		Fig.2	ok
VB1A05D-100W	110	72-144	5							no
VB1A09D-100W			9							no
VB1A12D-100W			12							no
VB1A15D-100W			15							no
VB1A24D-100W			24							no

VA1205D-100W	12	9-18	±5	±10	±1		90		Fig.2	ok
VA1209D-100W			±9							no
VA1212D-100W			±12	±4.2	±0.4		90		Fig.2	ok
VA1215D-100W			±15	±3.3	±0.3		90		Fig.2	ok
VA1224D-100W			±24							no
VA2405D-100W	24	18-36	±5	±10	±1		90		Fig.2	ok
VA2409D-100W			±9							no
VA2412D-100W			±12	±4.2	±0.4		90		Fig.2	ok
VA2415D-100W			±15	±3.3	±0.3		90		Fig.2	ok
VA2424D-100W			±24							no
VA4805D-100W	48	36-75	±5	±10	±1		90		Fig.2	ok
VA4809D-100W			±9							no
VA4812D-100W			±12	±4.2	±0.4		91		Fig.2	ok
VA4815D-100W			±15	±3.3	±0.3		91		Fig.2	ok
VA4824D-100W			±24							no
VA1A05D-100W	110	72-144	±5							no
VA1A09D-100W			±9							no
VA1A12D-100W			±12							no
VA1A15D-100W			±15							no
VA1A24D-100W			±24							no

VA_D-150W & VB_D-150W Series

150w, wide input, isolated & regulated dual & single output dc-dc converter



Product Program										
Model	Input		Output				Eff (%)	Certificate	Pin-Out Config.	Order Status
	Voltage(Vdc)		Voltage(Vdc)	Current(A)		Ripple (mVp-p)				
	Nominal	Range	Nominal	Max	Min					
VB1205D-150W	12	9-18	5	30	3.0		90		Fig.2	ok
VB1209D-150W			9							no
VB1212D-150W			12	12.5	1.3		90		Fig.2	ok
VB1215D-150W			15	10.0	1.0		90		Fig.2	ok
VB1224D-150W			24	6.3	0.6		90		Fig.2	ok
VB2405D-150W	24	18-36	5	30	3.0		90		Fig.2	ok
VB2409D-150W			9							no
VB2412D-150W			12	12.5	1.3		91		Fig.2	ok
VB2415D-150W			15	10.0	1.0		92		Fig.2	ok
VB2424D-150W			24	6.3	0.6		90		Fig.2	ok
VB4805D-150W	48	36-75	5	30	3.0		90		Fig.2	ok
VB4809D-150W			9							no
VB4812D-150W			12	12.5	1.3		90		Fig.2	ok
VB4815D-150W			15	10.0	1.0		90		Fig.2	ok
VB4824D-150W			24	6.3	0.6		89		Fig.2	ok
VB1A05D-150W	110	72-144	5							no
VB1A09D-150W			9							no
VB1A12D-150W			12							no
VB1A15D-150W			15							no
VB1A24D-150W			24							no

VA1205D-150W	12	9-18	±5	±15	±1.5		90		Fig.2	ok
VA1209D-150W			±9							no
VA1212D-150W			±12	±6.3	±0.6		90		Fig.2	ok
VA1215D-150W			±15	±5.0	±0.5		90		Fig.2	ok
VA1224D-150W			±24							no
VA2405D-150W	24	18-36	±5	±15	±1.5		90		Fig.2	ok
VA2409D-150W			±9							no
VA2412D-150W			±12	±6.3	±0.6		90		Fig.2	ok
VA2415D-150W			±15	±5.0	±0.5		90		Fig.2	ok
VA2424D-150W			±24							no
VA4805D-150W	48	36-75	±5	±15	±1.5		90		Fig.2	ok
VA4809D-150W			±9							no
VA4812D-150W			±12	±6.3	±0.6		91		Fig.2	ok
VA4815D-150W			±15	±5.0	±0.5		91		Fig.2	ok
VA4824D-150W			±24							no
VA1A05D-150W	110	72-144	±5							no
VA1A09D-150W			±9							no
VA1A12D-150W			±12							no
VA1A15D-150W			±15							no
VA1A24D-150W			±24							no

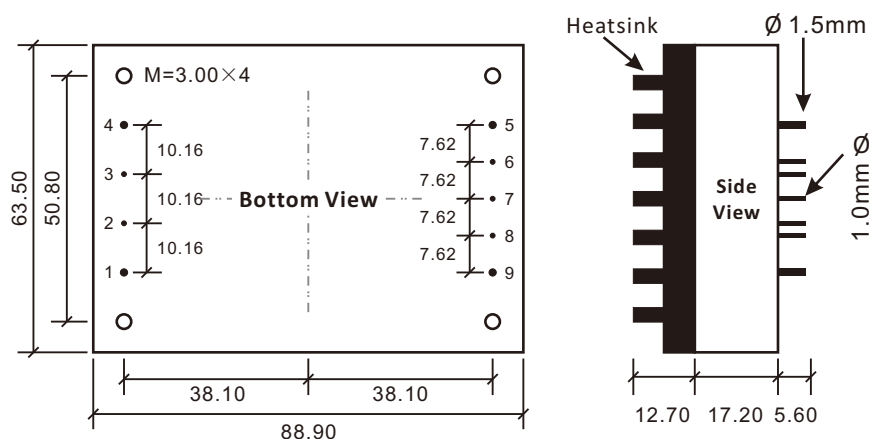
VA_D-50~150W & VB_D-50~150W Series

50~150w, wide input, isolated & regulated dual & single output dc-dc converter



Outline Dimensions

Fig.1



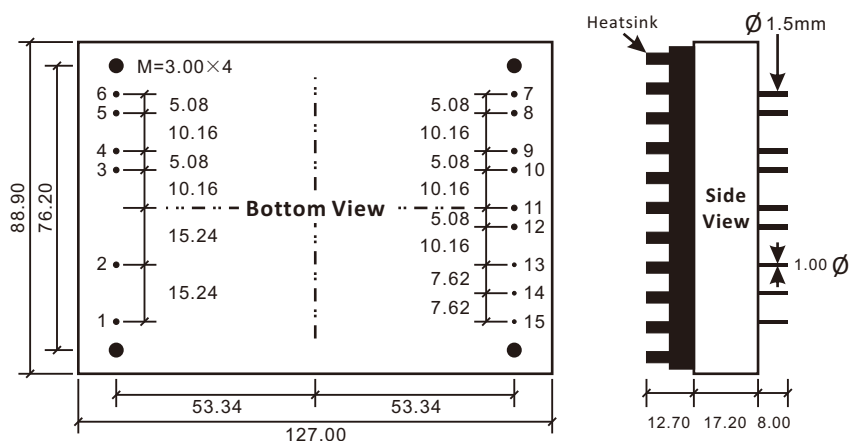
First Angle Projection

Pin	VB	
1	GND	
2	CTRL	
3	CASE	
4	Vin	
5	+Vo	
6	+S	
7	TRIM	
8	-S	
9	-Vo	

Note: all size units mm

Weight:200g

Fig.2



First Angle Projection

Pin	VB	VA
1	CTRL	CTRL
2	CASE	CASE
3,4	GND	GND
5,6	Vin	Vin
7,8	+Vo	+Vo
9,10	-Vo	0V
11,12	NC	-Vo
13	+S	+S
14	TRIM	TRIM
15	-S	-S

Note: all size units mm

Weight:300g

File Release Notes

DBN-410 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