



VRB_D-40W Series

40W, WIDE INPUT, ISOLATED & REGULATED SINGLE OUTPUT DC-DC CONVERTER

multi-country patent protection RoHS

FEATURES

- Efficiency up to 90%
- Wide (2:1) Input Range
- 1.5KVDC Input/Output Isolation
- Over Current Protection
- Over Temperature Protection
- Short Circuit Protection
- Over Voltage Protection
- Under Voltage Protection
- Remote Voltage Compensate
- Operating temperature: -40°C to +85°C
- MTBF>1,000,000 hours
- Internal SMD cConstruction
- Metal Shielding Package 2"×2"×0.42"
- Industry Standard Pinout

PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ) ***
	Voltage (VDC)			Voltage (VDC)	Current (mA)	Capacitance (Max, uF) **	
	Nominal	Range	Max*				
VRB1203D-40W	12	9-18	20	3.3	8000	21000	86
VRB1205D-40W				5	8000	13600	86
VRB1212D-40W				12	3300	2360	86
VRB1215D-40W				15	2666	1510	87
VRB2403D-40W	24	18-36	40	3.3	8000	21000	87
VRB2405D-40W				5	8000	13600	89
VRB2412D-40W				12	3300	2360	88
VRB2415D-40W				15	2666	1510	89
VRB4803D-40W	48	36-75	80	3.3	8000	21000	88
VRB4805D-40W				5	8000	13600	90
VRB4812D-40W				12	3300	2360	90
VRB4815D-40W				15	2666	1510	90

* Input voltage can't exceed this value, or will cause the permanent damage.

** Test Conditions: Nominal input voltage, constant resistive load.

***Nominal input, full load.

APPLICATIONS

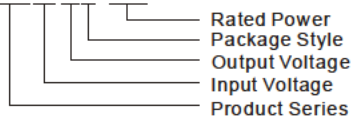
The VRB-D-40W series are particularly suited to data transfer equipments, battery operated equipments, tele-communication equipments, distributing power system, mix analog/digital system, remote control system, industrial robot system and other wide input voltage application fields.

INPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Under Voltage protection	Nominal input (12V)	DC-DC Module ON	9		VDC
		DC-DC Module OFF	8		
	Nominal input (24V)	DC-DC Module ON	17.8		
		DC-DC Module OFF	16		
	Nominal input (48V)	DC-DC Module ON	36		
		DC-DC Module OFF	33		
Start-up time	Nominal input, constant resistive load		25		mS
CTRL	DC-DC Module ON	Open or 3.5V<Vc<12V			
	DC-DC Module OFF	Short 0V<Vc<1.2V			
		Input current<1mA			

MODEL SELECTION

VRB4805D-40W



Rated Power
Package Style
Output Voltage
Input Voltage
Product Series

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	Refer to Product Program		40		W
Output Voltage Accuracy	Refer to recommended circuit		1		%
Load Regulation	10% to 100% load		0.5		%
Voltage regulation	Input voltage from low to high		0.2		%
Temperature Drift(Vout)	Refer to recommended circuit		0.02		%/°C
Ripple& Noise	20MHz Bandwidth		75	150	mV
Transient response time	25% load change		200		us
Over current protection	Input voltage range	120-150%Po			
Over voltage protection	Input voltage range	110-130%Vo			
Over temp. protection	Input voltage range		115		°C
Short circuit protection	Input voltage range	Hiccup, automatics recovery			

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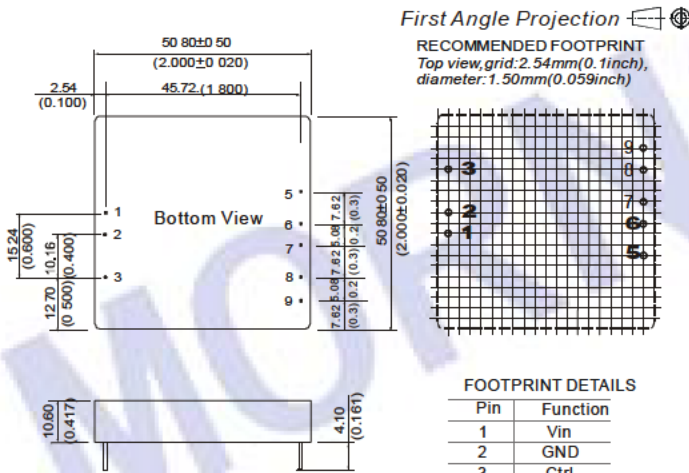
COMMON SPECIFICATION

Item	Test Conditions	Min	Typ	Max	Units
Storage Humidity		5		95	%
Operating Temperature		-40		+85	°C
Storage Temperature		-55		+125	
Temp. Rise at Full Load			70		
Lead Temperature	1.5mm from case for 10 seconds			300	
Isolation voltage	Test for 1 minute and 1 mA max		1500		VDC
Isolation resistance	Test at 500VDC		1000		MΩ
Isolation capacitance	100KHz /0.1V		2000		pF
Switching Frequency	Nominal, full load		300		KHz
MTBF	MIL-HDBK-217F	1000			K hours
Weight			60		g
Cooling	Free Air Convection				
Case material	Nickel- coated copper(six-sided shield)				

Note:

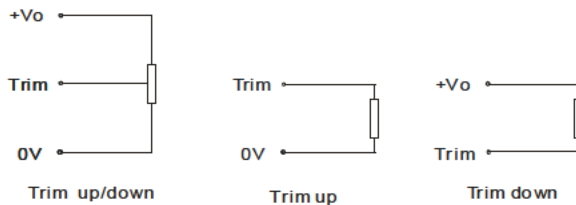
- All specifications are measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- The products cannot be used in parallel and in plug and play.
- The CTRL pin voltage is referenced to GND.
- Typical Eff value at nominal input voltage and full load.
- Capacitor MAX load tested at nominal input voltage and constant resistive load.
- Refer to the diagram of Output Voltage trim up/down for trim applications.

OUTLINE DIMENSIONS & PIN CONNECTIONS



Note:
Unit: mm(inch)
Pin diameter: 1.00mm(.039inch)
Pin diameter tolerances: ±0.05mm(±0.002inch)
General tolerances: ±0.25mm(±0.010inch)

OUTPUT VOLTAGE TRIM UP/DOWN



RECOMMENDED CIRCUIT

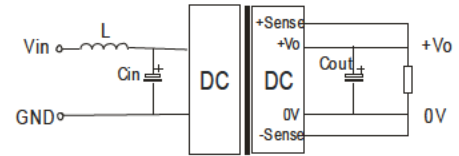
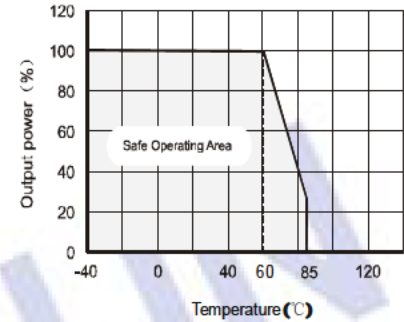


Fig.1

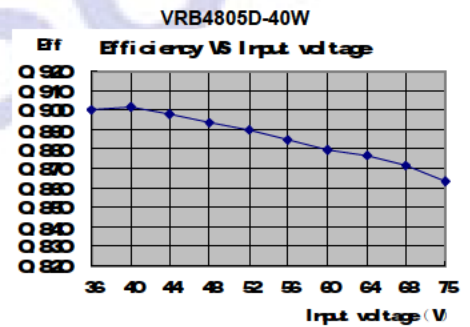
In order to obtain better performance for the DC/DC models, it's recommended that use input and output filters as Fig.1 shown.

DERATING & EFFICIENCY CURVE

① Temperature derating curve



② Efficiency Vs Input voltage



③ Efficiency Vs Load

