



## VRA\_LD-15W & VRB\_LD-15W Series

15W, WIDE INPUT ,ISOLATED & REGULATED  
SINGLE/DUAL OUTPUT DC-DC CONVERTER

multi-country patent protection **RoHS**

### FEATURES

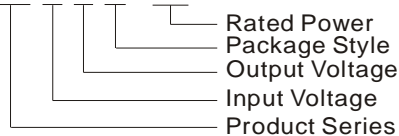
Efficiency up to 87%  
Wide (2:1) Input Range  
1.5KVDC Input/Output Isolation  
Short Circuit Protection(automatic recovery)  
Operating Temperature: -40°C to +85°C  
Internal SMD construction  
Metal Shielding Package  
Industry Standard Pin out  
MTBF>1,000,000 hours  
RoHS Compliance

### Application

The VRA\_LD-15W & VRB\_LD-15W series offer 15W of output, the VRA\_LD-15W & VRB\_LD-15W series with 2:1 wide input voltage of 9-18,18-36 and 36-75VDC and features 1500VDC isolation, short-circuit and over current protection, as well as six sided shielding. All models are particularly suited to tele-communications, industrial, test equipments power.

### MODEL SELECTION

VRA2412LD-15W



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### PRODUCT PROGRAM

Part Number	Input		Output		Efficiency (%)	Capacitor Load Max
	Voltage (VDC)		Voltage (VDC)	Current (mA)		
	Nominal	Range				
VRA1205LD-15W	12	9 - 18	±5	±1500	82	±1020
VRA1212LD-15W			±12	±625	85	±495
VRA1215LD-15W			±15	±500	85	±165
VRB1205LD-15W			5	3000	82	4020
VRB1212LD-15W			12	1250	85	1035
VRB1215LD-15W			15	1000	84	705
VRA2405LD-15W			24	18 - 36	±5	±1500
VRA2412LD-15W	±12	±625			86	±495
VRA2415LD-15W	±15	±500			86	±165
VRB2405LD-15W	5	3000			83	4020
VRB2412LD-15W	12	1250			85	1035
VRB2415LD-15W	15	1000			85	705
VRA4805LD-15W	48	36-75			±5	±1500
VRA4812LD-15W			±12	±625	87	±495
VRA4815LD-15W			±15	±500	87	±165
VRB4805LD-15W			5	3000	83	4020
VRB4812LD-15W			12	1250	86	1035
VRB4815LD-15W			15	1000	86	705

### INPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Start-up voltage	12 Vin models	8.6	8.8	9	VDC
	36 Vin models	17.5	17.8	18	
	48 Vin models	34	35	36	
Input filter		L-C			
Start-up time			10		mS
Ctrl	On	3.5 - 40VDC or open			
	Off	0-1.2VDC			

### OUTPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Output voltage accuracy	Refer to recommended circuit		±1	±3	%
Load regulation	From 10% to 100% load		±0.5	±1	
Line regulation	Input voltage from low to high		±0.2	±0.5	
Cross regulation(Dual)				±5	
Ripple and noise	tested under 20MHz band	55	75	150	mV
Transient recovery time	25% load step change		200	300	uS
Transient peak deviation		±2	±3	±5	%Vo
Over current protection	Input voltage range	120	130	150	%
Output Short Circuit		Hiccup, automatics recovery			
Trim			±10%Vo		VDC
Temperature drift (Vout)	Refer to recommended circuit		±0.01	±0.03	%/°C

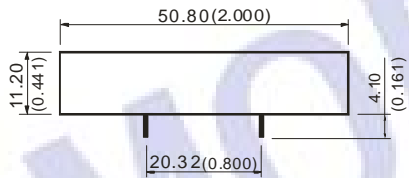
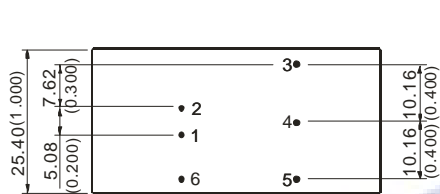
## GENERAL SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Operating Temperature		-40		+85	°C
Storage Temperature		-55		+125	
Storage Humidity				95	%
Cooling	Free Air Convection				
Temp. Rise at Full Load			50		°C
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		500		MΩ
Isolation capacitance	100KHz /0.1V		1000		pF
Switching Frequency	Nominal, full load		500		KHz
MTBF			1000		K hours
Case material	Nickel- coated copper				
Weight			30		g

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 control 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 & FOOTPRINT DETAILS

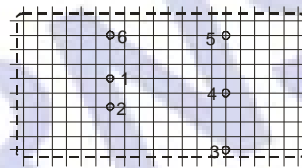


Note:

- Unit:mm (inch)  
 Pin diameter: 1.00mm (0.039inch)  
 Pin diameter tolerances: ±0.05mm (±0.002inch)  
 General tolerances: ±0.25mm (±0.010inch)

First Angle Projection

RECOMMENDED FOOTPRINT  
 Top view, grid: 2.54mm (0.10inch),  
 diameter: 1.50mm (0.059inch)



FOOTPRINT DETAILS

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	Trim	0V
5	0V	-Vo
6	Ctrl	Ctrl

## RECOMMENDED CIRCUIT

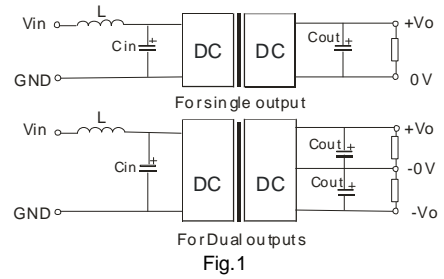
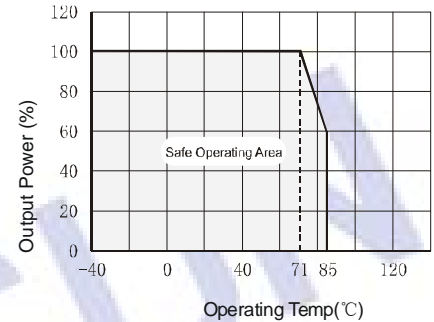


Fig.1

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

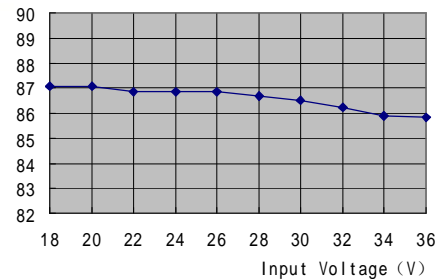
### ① Temperature derating curve



### ② Efficiency Vs Input voltage

VRA2412LD-15W

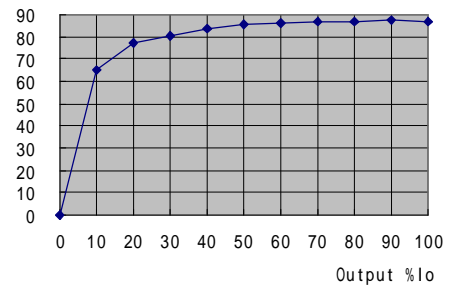
Eff% Efficiency Vs Input Voltage



### ③ Efficiency Vs Output Power

VRA2412LD-15W

Eff% Efficiency VS Output load



## OUTPUT VOLTAGE TRIM UP/DOWN

