



WRA_D-10W & WRB_D-10W Series
10W, 2:1 WIDE INPUT ISOLATED & REGULATED
DUAL/SINGLE OUTPUT DC-DC CONVERTER

multi-country patent protection **RoHS**

FEATURES

- Wide (2:1) Input Range
- DIP package
- Efficiency up to 86%
- 1.5KVDC Input/Output Isolation
- Short Circuit Protection(automatic recovery)
- Operating Temperature: -40°C to +85°C
- Metal Shielding Package
- No Heat Sink Required
- Industry Standard Pinout
- MTBF>1,000,000 hours
- RoHS Compliance

APPLICATIONS

The WRA_D-10W & WRB_D-10W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage ranges \leq 2:1);
- 2) Where isolation is necessary between input and output(Isolation Voltage \leq 1500VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)			
	Voltage (VDC)			Voltage (VDC)	Current (mA)					
	Nominal	Range	Max**		Max	Min				
WRA0505D-10W *	5	4.5-9	11	±5	±1000	±100	78			
WRA0512D-10W *				±12	±420	±42	80			
WRA0515D-10W				±15	±334	±33	82			
WRB0505D-10W				5	2000	200	78			
WRB0512D-10W				12	830	83	80			
WRB0515D-10W				15	660	66	82			
WRA1205D-10W *				12	9-18	20	±5	±1000	±100	80
WRA1212D-10W *	±12	±420	±42				82			
WRA1215D-10W *	±15	±333	±33				84			
WRB1203D-10W *	3.3	3000	300				78			
WRB1205D-10W *	5	2000	200				80			
WRB1212D-10W *	12	830	83				82			
WRB1215D-10W *	15	660	66				84			
WRB1224D-10W *	24	420	42				85			
WRA2405D-10W *	24	18-36	40				±5	±1000	±100	82
WRA2412D-10W *							±12	±420	±42	84
WRA2415D-10W *				±15	±330	±33	86			
WRB2403D-10W *				3.3	3000	300	80			
WRB2405D-10W				5	2000	200	82			
WRB2412D-10W *				12	830	83	84			
WRB2415D-10W *				15	660	66	85			
WRB2424D-10W *				24	420	42	86			
WRA4805D-10W *				48	36-72	80	±5	±1000	±100	82
WRA4812D-10W *							±12	±420	±42	84
WRA4815D-10W *	±15	±330	±33				85			
WRB4803D-10W *	3.3	3000	300				80			
WRB4805D-10W *	5	2000	200				82			
WRB4812D-10W *	12	830	83				83			
WRB4815D-10W *	15	660	66				85			
WRB4824D-10W *	24	420	42				86			

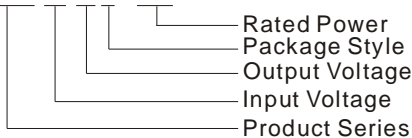
* Designing.

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

Note: The load shouldn't be less than 10%, otherwise ripple will increase dramatically.

MODEL SELECTION

WRA0515D-10W



OUTPUT SPECIFICATION

Item	Test conditions	Min	Typ	Max	Units
Output Power	See below products program	1		10	W
Positive Voltage Accuracy	Refer to recommended circuit		±1	±3	%
Negative Voltage Accuracy	Refer to recommended circuit		±3	±5	
Load Regulation	From 10% To 100% load		±0.5	±1	
Line Regulation(at full load)	Input voltage from low to high		±0.2	±0.5	
Temperature Drift(Vout)	Refer to recommended circuit		0.02		%/°C
Ripple*	20MHz bandwidth		20	50	mVp-p
Noise*	20MHz bandwidth		85	150	
Switching Frequency	100% load, Input voltage range		300		KHz

*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

Note: 1. All specifications measured at T_A=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.

2. Only typical models listed. If you need other model, please confirm the power, input voltage and output voltage. then phone us.

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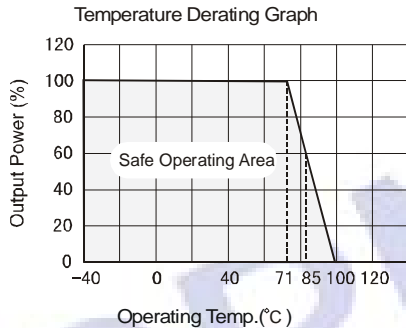
ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1 mA max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output		1000		PF

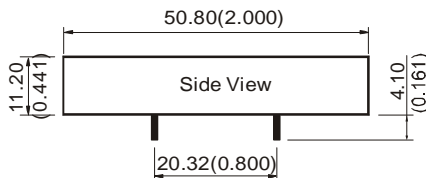
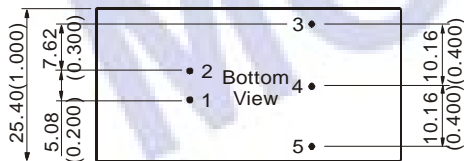
COMMON SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Storage Humidity				95	%
Operating Temperature		-40		85	°C
Storage Temperature		-55		125	
Temp. Rise at Full Load			40		
Lead Temperature	1.5mm from case for 10 seconds			300	
No-load power consumption			500		mW
Cooling		Free Air Convection			
Short Circuit Protection		Continuous, automatic recovery			
Case Material		Aluminium alloy			
MTBF		1000			K hours
Weight			23.5		g

TYPICAL CHARECTERISTICS



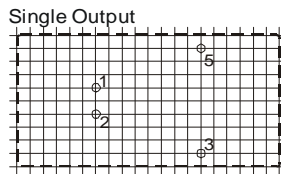
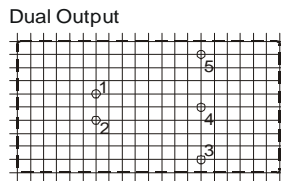
OUTLINE DIMENSIONS & FOOTPRINT DETAILS



Note:
 Unit:mm(inch)
 Pin diameter:0.80mm(0.031inch)
 Pin diameter tolerances:±0.10mm(±0.004inch)
 General tolerances:±0.25mm(±0.010inch)

First Angle Projection

RECOMMENDED FOOTPRINT
 Top view,grid:2.54mm(0.1inch),
 diameter:1.20mm(0.047inch)



FOOTPRINT DETAILS

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	COM
5	0V	-Vo

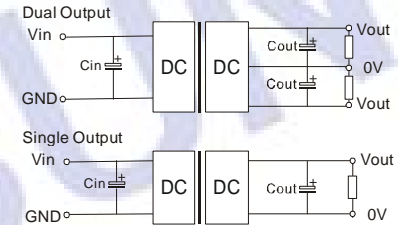
APPLICATION NOTE

Requirement on Output Load

In order to ensure the product operate efficiently and reliably, in addition to a max load (namely full load), a minimum load is specified for this kind of DC/DC converter. Make sure the specified range of input voltage is not exceeded, the minimum output load no less than 10% load. If the actual load is less than the specified minimum load, the output ripple may increase sharply while its efficiency and reliability will reduce greatly. If the actual output power is very small, please add an appropriate resistor as extra loading, or contact our company for other lower output power products.

Recommended Circuit

All the WRA_D-10W & WRB_D-10W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. Never be tested under no load (see Figure 1).



(Figure 1)

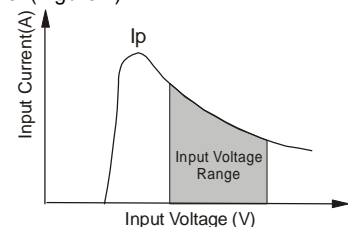
If you want to further decrease the output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high (Table 1).

External Capacitor Table(Table 1)

Vin (VDC)	Cin (uF)	single Vout (VDC)	Cout (uF)	Dual Vout (VDC)	Cout (uF)
5	100	3.3	2200	±5	680
12	100	5	1000	±12	330
24	100	12	470	±15	220
48	100	15	330	-	-
-	-	24	220	-	-

Input Current

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. (Figure 2)



(Figure 2)

No parallel connection or plug and play.