WRAP-3W Series

WIDE INPUT ISOLATED & REGULATED
3W OUTPUT
DUAL OUTPUT
MINIATURE DIP PACKAGE

FEATURES

- Wide (2:1) Input Range
- Efficiency to 82%
- Operating Temperature: -40°C~+85°C
- 1KVDC Isolation
- Dual Output
- UL94-V0 Package
- No Heat sink Required
- Industry Standard Pin out
- MTBF>1,000,000 hours
- Custom Service Available

APPLICATIONS

The WRAP-3W 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 range: 2:1);
2) Where isolation is necessary between input and output
(isolation voltage =1000VDC);
3) Where the regulation of the output voltage and the output ripple noise are demanding.
These products don't apply to:
1) Where the input voltage t is required to be more than 2:1;
2) Where the isolation voltage between input and output is required to be >1000VDC;
3) The output load's actual power consumption is less than 1W, otherwise our company's WRAP-1W/0.5W series are recommended.

MODEL SELECTION

WRA0505P-3W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (%, Typ)	Package Style
	Voltage (VDC)			Voltage (VDC)	Current (mA)			
	Nominal	Range	Max*		Max	Min		
WRA0505P-3W	5	4.5~9VDC	11	±5	300	30	65	DIP
WRA0509P-3W	5	4.5~9VDC	11	±9	165	16	67	DIP
WRA0512P-3W	5	4.5~9VDC	11	±12	125	12	70	DIP
WRA0515P-3W	5	4.5~9VDC	11	±15	100	10	72	DIP
WRA1205P-3W	12	9~18VDC	22	±5	300	30	72	DIP
WRA1209P-3W	12	9~18VDC	22	±9	165	16	73	DIP
WRA1212P-3W	12	9~18VDC	22	±12	125	12	77	DIP
WRA1215P-3W	12	9~18VDC	22	±15	100	10	79	DIP
WRA1505P-3W	15	12~24VDC	30	±5	300	30	75	DIP
WRA1509P-3W	15	12~24VDC	30	±9	165	16	79	DIP
WRA1512P-3W	15	12~24VDC	30	±12	125	12	80	DIP
WRA1515P-3W	15	12~24VDC	30	±15	100	10	81	DIP
WRA2405P-3W	24	18~36VDC	40	±5	300	30	78	DIP
WRA2409P-3W	24	18~36VDC	40	±9	165	16	80	DIP
WRA2412P-3W	24	18~36VDC	40	±12	125	12	81	DIP
WRA2415P-3W	24	18~36VDC	40	±15	100	10	82	DIP
WRA4805P-3W	48	36~72VDC	80	±5	300	30	76	DIP
WRA4809P-3W	48	36~72VDC	80	±9	165	16	81	DIP
WRA4812P-3W	48	36~72VDC	80	±12	125	12	81	DIP
WRA4815P-3W	48	36~72VDC	80	±15	100	10	82	DIP

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Flash tested for 60 seconds	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

OUTPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
3W output power	See below products program	0.3		3	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		±0.1	±0.2	
Line regulation	Input Voltage From Low to High		±0.2	±0.5	
Temperature drift (Vout)	Refer to recommended circuit			0.03	%/°C
Ripple	20Hz-300KHz bandwidth		30	60	mVp-p
Noise	DC-20MHz bandwidth		80	150	
Switching frequency	100% load，nominal input voltage	80		200	KHz
	10% load，nominal input voltage	250		600	

Note:
1.All specifications measured at T_A=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2.See below recommended circuits for more details.

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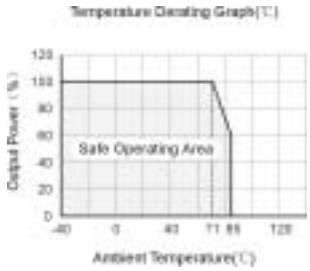
COMMON SPECIFICATION

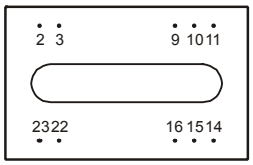
Output Short Circuit Protection	Continuous
Temperature Rise at Full Load	30°C (TYP)
Cooling	Free Air Convection
No-load Power Consumption	100mW (typical)
Operating Temperature Range	-40°C~+85°C
Storage Temperature Range	-55°C ~+125°C
Lead Temperature***	300°C (1.5mm from case for 10 seconds)
Storage Humidity Range	≤ 95%
Case Material	Plastic (UL94-V0)
MTBF	>1,000,000 hours
***Lead Temperature 1.5mm from case for 10 seconds.	

TYPICAL CHARECTERISTICS



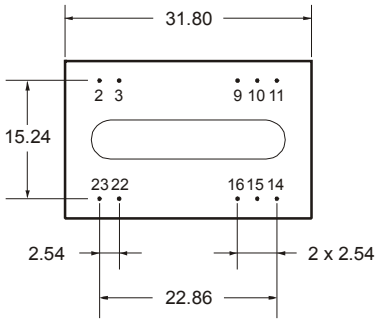
FOOTPRINT DETAILS

Bottom View

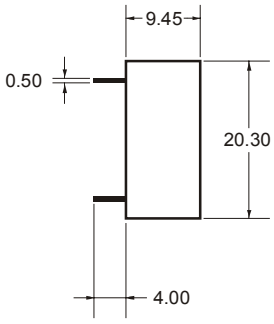


Pin	WRAP Series
2,3	GND
10,15	NC
14	+Vo
11	-Vo
9,16	0V
22,23	Vin

OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT



(Bottom View)



(Side View)

Note: All Pins on a 2.54mm pitch; All Pin diameters are 0.50 mm(Tolerance:±0.25); All dimensions in mm. The dimensions of the WRAP series are correspondent with the WRBP series.

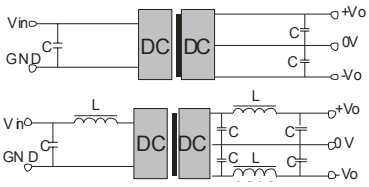
APPLICATION NOTE

Recommended Circuit

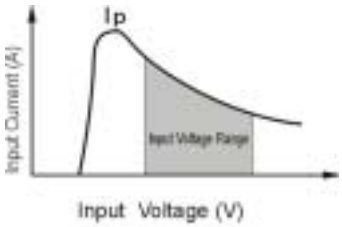
All the WRA-3W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. Never be tested under no load (See Figure 1 & 2). If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high.(See table 1).If you want to use the products in high EMI, please choose our metal packaged products.

Input Current

When it is used in unregulated power supply，be sure that the fluctuating range of the power



(Figure 1)



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. (See figure 2)

External Capacitor

Although this series of DC/DC converter can work without external capacitor, in order to keep an optimum performance, however, it needs external capacitor. (See Table 1)

Requirement on Output Load

To ensure this module operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum out put load is not less than **10%** Of the full load, and that this product **should never be operated under no load!!!** If the actual load is less below the specified minimum load，the output ripple of this type of DC/DC converter will increase drastically and at the same time efficiency & reliability of the circuit will decrease deeply .If the actual output power from the load in your circuit is very small，please connect a resistor with proper resistance at the output end to in parallel to increase the load, or use our company's other products with a lower rated output power.

The products cannot be used in parallel and in plug and play.

External Capacitor Table(Table 1)

Vin	C_{in}	C_{out} (0+70°C)	C_{out} (-40+85°C)
5V & 12V	100uF	100uF (electrolytic capacitor)	47uF (tantalum capacitor)
24V & 48V	10uF		

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