



WRB_T-3W Series

WIDE INPUT ISOLATED & REGULATED 3W SINGLE OUTPUT DC/DC CONVERTER

FEATURES

- Efficiency up to 81%
- Operating Temperature: -40°C~+85°C
- 1500VDC Isolation
- UL94-V0 Package
- No External Component Required
- Industry Standard Pinout
- MTBF>1,000,000 hours

APPLICATIONS

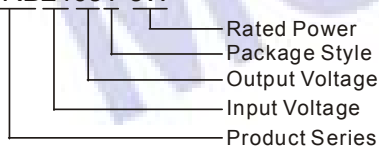
The WRB_T-3W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

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 $\leq 1500\text{VDC}$);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

MODEL SELECTION

WRB2405T-3W



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PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)
	Voltage (VDC)			Current (mA)		Voltage (VDC)	
	Nominal	Range	Max	Max	Min		
WRB0503T-2W	5	4.5~9	11	600	60	3.3	66
WRB0505T-3W				600	60	5	68
WRB0509T-3W				330	33	9	70
WRB0512T-3W				250	25	12	70
WRB0515T-3W				200	20	15	71
WRB1203T-2W	12	9~18	22	600	60	3.3	72
WRB1205T-3W				600	60	5	75
WRB1209T-3W				330	33	9	77
WRB1212T-3W				250	25	12	78
WRB1215T-3W				200	20	15	79
WRB2403T-3W	24	18~36	40	900	90	3.3	73
WRB2405T-3W				600	60	5	76
WRB2409T-3W				330	33	9	78
WRB2412T-3W				250	25	12	80
WRB2415T-3W				200	20	15	80
WRB4803T-3W	48	36~72	80	900	90	3.3	73
WRB4805T-3W				600	60	5	77
WRB4809T-3W				330	33	9	78
WRB4812T-3W				250	25	12	80
WRB4815T-3W				200	20	15	81

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Flash tested for 60 seconds and 1mA	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation Capacitance	Input/Output		100		PF

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	See Below Products Program	0.3		3	W
Output Voltage Accuracy	Refer To Recommended Circuit		±1	±3	%
Load Regulation	From 10% To 100% Load		±0.1	±1	
Voltage Regulation	Input Voltage From Low To High		±0.2	±0.5	
Temperature Drift(Vout)	Refer To Recommended Circuit			0.03	%/°C
Ripple	20MHz Bandwidth		30	50	mVp-p
Noise	20MHz Bandwidth		50	100	
Switching Frequency	100% Load, Nominal Input Voltage	300(PFM)			KHZ

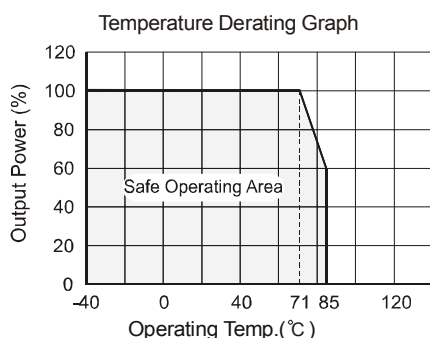
Note:

- 1.All specifications measured at $T_A=25^\circ\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

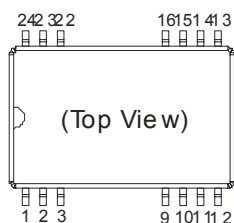
COMMON SPECIFICATIONS

Output Short Circuit Protection	Continuous ,Automatic Recovery
Temperature Rise at Full Load	15°C (TYP) 35°C(max)
Cooling	Free Air Convection
Operating Temperature Range	-40°C~+85°C
Storage Temperature Range	-50°C ~+125°C
Lead Temperature***	245°C Max. (10sec)
Storage Humidity Range	≤ 95%
MTBF	>1,000,000 hours
Note: 217°C (70 sec)	

TYPICAL CHARECTERISTICS

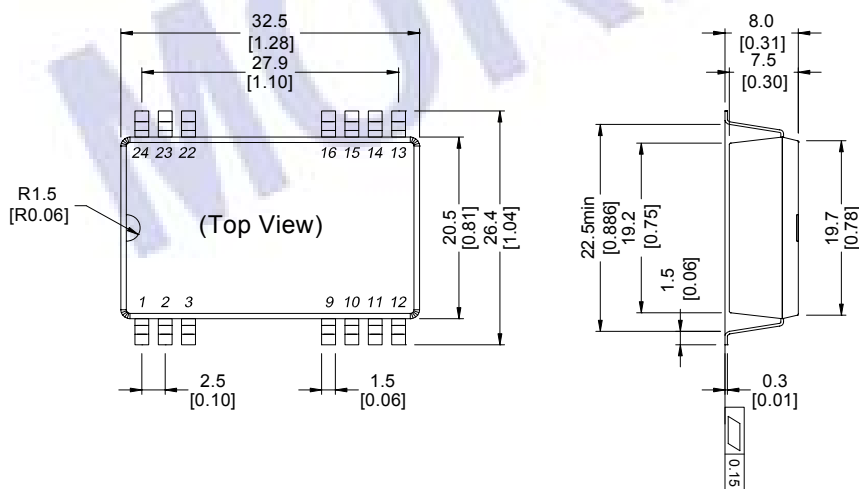


FOOTPRINT DETAILS



Pin	Function
22,23	Vin
2,3	GND
14	+Vo
16	0V
Others	NC

OUTLINE DIMENSIONS



Note: Unit: mm(inch); Tolerance: ±0.25mm.

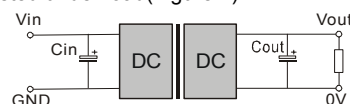
APPLICATION NOTE

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% full load**. If the actual load is less than the specified minimum load, the output ripple may increase sharply. 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 WRB_T-3W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load (Figure 1).



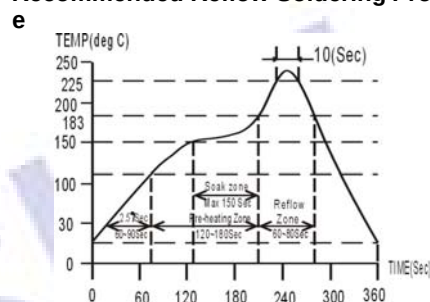
(Figure 1)

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 (Table 1)

External Capacitor Table (Table 1)

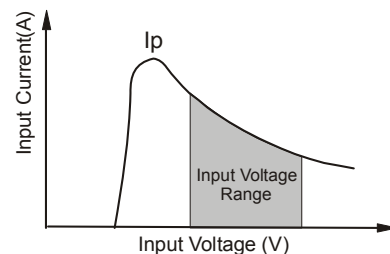
Vin	Cin	Cout (0~70°C)	Cout (-40~85°C)
5V&12V	100uF	100uF (electrolytic capacitor)	47uF (tantalum capacitor)
24V&48V	22uF		

Recommended Reflow Soldering Profile



Input Current

Nominal input voltage range. The input current of the power supply must be sufficient to the startup current (Ip) of the DC/DC module (Figure 2)



(Figure 2)

No parallel connection or plug and play.