



WRA_LT-3W & WRB_LT-3W Series

**3W, WIDE INPUT, ISOLATED & REGULATED
SINGLE/DUAL OUTPUT DC/DC CONVERTER
MINIATURE SMD PACKAGE**

multi-country patent protection **RoHS**

FEATURES

Wide (2:1) Input Range
Operating Temperature: -40°C to +85°C
1500VDC Isolation
No Heat Sink Required
MTBF>1,000,000 hours
Continuous Short-Circuit Protection
RoHS Compliance

APPLICATIONS

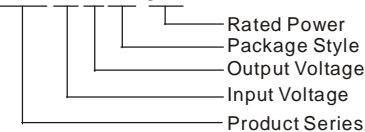
The WTA_LT-3W & WRB_LT-3W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

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

MODEL SELECTION

WRB2412LT-3W



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PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)			
	Voltage (VDC)			Voltage (VDC)	Current (mA)					
	Nominal	Range	Max**		Max	Min				
WRA1205LT-3W *	12	9-18	22	±5	±300	±30	78			
WRA1209LT-3W *				±9	±167	±17	79			
WRA1212LT-3W *				±12	±125	±13	80			
WRA1215LT-3W *				±15	±100	±10	81			
WRB1203LT-3W *				3.3	909	90	76			
WRB1205LT-3W *				5	600	60	78			
WRB1209LT-3W *				9	333	33	79			
WRB1212LT-3W *				12	250	25	80			
WRB1215LT-3W *				15	200	20	81			
WRA2405LT-3W				24	18-36	40	±5	±300	±30	78
WRA2409LT-3W *							±9	±167	±17	79
WRA2412LT-3W *							±12	±125	±13	80
WRA2415LT-3W *	±15	±100	±10				81			
WRB2403LT-3W *	3.3	909	90				76			
WRB2405LT-3W *	5	600	60				78			
WRB2409LT-3W *	9	333	33				79			
WRB2412LT-3W *	12	250	25				80			
WRB2415LT-3W *	15	200	20				81			
WRA4805LT-3W *	48	36-72	80				±5	±300	±30	78
WRA4809LT-3W *							±9	±167	±17	79
WRA4812LT-3W *							±12	±125	±13	80
WRA4815LT-3W *				±15	±100	±10	81			
WRB4803LT-3W *				3.3	909	90	76			
WRB4805LT-3W *				5	600	60	78			
WRB4809LT-3W *				9	333	33	79			
WRB4812LT-3W *				12	250	25	80			
WRB4815LT-3W *				15	200	20	81			

*Designing.

**Input voltage over it may cause permanent damage to the device.

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		±0.5	±1	
Line Regulation	Input Voltage From Low To High		±0.2	±0.5	
Temperature Drift (Vout)	Refer To Recommended Circuit			0.03	%/°C
Output ripple & Noise*	20MHz Bandwidth		35	75	mVp-p
Switching Frequency	100% Load, Nominal Input Voltage		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 TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

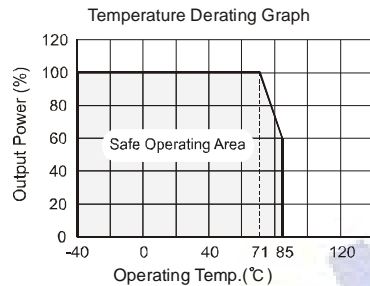
ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA Max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation Capacitance	Input/Output		85		PF

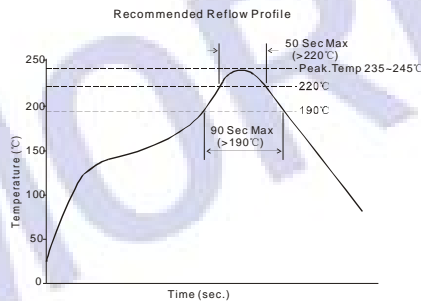
COMMON SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Storage humidity range				95	%
Operating Temp. range		-40		85	°C
Storage Temp. range		-55		125	
Short circuit protection		Continuous, automatics recovery			
Cooling		Free air convection			
Temp. rise at full load			15	35	°C
Lead temperature	1.5mm from case for 10 seconds			245	
MTBF		1000			K hours
Weight			5.2		g

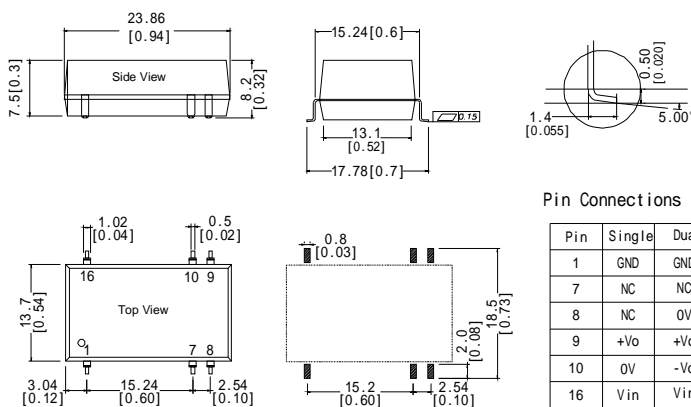
TYPICAL TEMPERATURE CUTVE



RECOMMENDED REFLOW SOLDERING PROFILE



OUTLINE AND SOLDER PAD DIMENSIONS

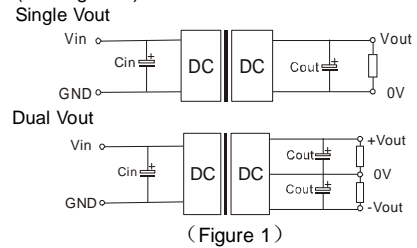


Note: Unit: mm[inch]; Tolerance: ±0.25mm; All Pins on a 2.54mm .

APPLICATION NOTE

Recommended Circuit

All the WRA_LT-3W & WRB_LT-3W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. (see Figure 1).



(Figure 1)

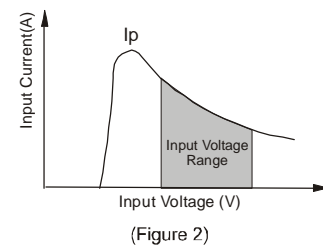
If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high. (Table 1)

External Capacitor Table (Table 1)

Vin (VDC)	Cin (uF)	Single Vout (VDC)	Cout (uF)	Dual Vout (VDC)	Cout (uF)
12	100	3.3	2200	±5	560
24	10-47	5	1000	±9	470
48	10-47	9	680	±12	330
-	-	12	470	±15	220
-	-	15	330	-	-

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 flash startup current of this kind of DC/DC module. (Figure 2) Generally: $I_p \leq 1.4 \cdot I_{in-max}$



(Figure 2)

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.

No parallel connection or plug and play.