



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

MODEL SELECTION

WRB^①24^②05^③Y^④MD^⑤-15W(3000)^⑥

- ① Product Series
- ② Input Voltage
- ③ Output Voltage
- ④ Wide (2:1) Input Range
- ⑤ Metal Shield
- ⑥ 2"x1" DIP Package
- ⑦ Rated Power(Output current)

APPLICATIONS

The WRA_YMD-15W&WRB_YMD-15W series offer 15W of output, this series with 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC&72-144VDC 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.



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SELECTION GUIDE

Order code	Input			Output		Efficiency (%)	Capacitor Load Max
	Voltage(VDC)			Voltage (VDC)	Current (mA)		
	Nominal	Range	Max.*				
WRA1205YMD-15W	12	9-18	20	±5	±1500	82	±1020
WRA1212YMD-15W	12	9-18	20	±12	±625	85	±495
WRA1215YMD-15W	12	9-18	20	±15	±500	85	±165
WRB1203YMD-4000	12	9-18	20	3.3	4000	79	10500
WRB1205YMD-15W	12	9-18	20	5	3000	82	4020
WRB1212YMD-15W	12	9-18	20	12	1250	85	1035
WRB1215YMD-15W	12	9-18	20	15	1000	84	705
WRA2405YMD-15W	24	18-36	40	±5	±1500	84	±1020
WRA2412YMD-15W	24	18-36	40	±12	±625	86	±495
WRA2415YMD-15W	24	18-36	40	±15	±500	86	±165
WRB2403YMD-4000	24	18-36	40	3.3	4000	80	10500
WRB2405YMD-15W	24	18-36	40	5	3000	83	4020
WRB2412YMD-15W	24	18-36	40	12	1250	85	1035
WRB2415YMD-15W	24	18-36	40	15	1000	85	705
WRA4805YMD-15W	48	36-75	80	±5	±1500	85	±1020
WRA4812YMD-15W	48	36-75	80	±12	±625	87	±495
WRA4815YMD-15W	48	36-75	80	±15	±500	87	±165
WRA4824YMD-15W	48	36-75	80	±24	±313	88	±150
WRB4803YMD-4000	48	36-75	80	3.3	4000	81	10500
WRB4805YMD-15W	48	36-75	80	5	3000	83	4020
WRB4812YMD-15W	48	36-75	80	12	1250	86	1035
WRB4815YMD-15W	48	36-75	80	15	1000	86	705
WRB4824YMD-15W	48	36-75	80	24	625	86	600
WRA11005YMD-15W	110	72-144	155	±5	±1500	85	±1020
WRB11005YMD-15W	110	72-144	155	5	3000	84	4020

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

INPUT SPECIFICATIONS

Parameter	Test conditions	Min.	Typ.	Max.	Units
Start-up voltage	12 Vin models	9		18	VDC
	24 Vin models	17.8		36	
	48 Vin models	35.8		72	
	110 Vin models	72		144	
Input filter		L-C			
Start-up time			10		mS

OUTPUT SPECIFICATIONS

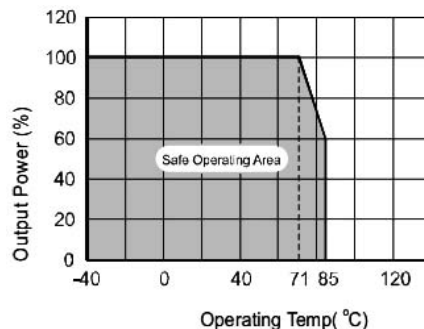
Parameter	Test conditions	Min.	Typ.	Max.	Units
Output voltage accuracy	Refer to recommended circuit		±1	±3	%
Load regulation	From 10% to 100% load		±0.5	±1	%
Line regulation	Input voltage from low to high		±0.2	±0.5	%
Cross regulation(Dual)				±5	%
Ripple and noise	20MHz Bandwidth		75	150	mV
Transient recovery time	25% load step change		200	300	uS
Transient peak deviation			±3	±5	%Vo
Over current protection	Input voltage range	120	130	150	%
Output Short Circuit	Input voltage range	Hiccup, automatic recovery			
Trim			±10%Vo		VDC
Temperature drift (Vout)			±0.02	±0.03	%/°C

COMMON SPECIFICATIONS

Parameter	Test conditions	Min.	Typ.	Max	Units
Storage Humidity				95	%
Operating Temperature		-40		85	°C
Storage Temperature		-55		105	°C
Temp. Rise at Full Load	Case surface		50		°C
Lead Temperature	1.5mm from case for 10seconds			300	°C
Isolation voltage	Tested for 1 minute and 1mA max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	100KHz / 0.1V		1000		pF
Switching Frequency	Nominal, full load		500		KHz
MTBF		1000			K hours
Cooling		Free Air Convection			
Case material		Nickel-coated copper			
Weight			30		g

DERATING & EFFICIENCY CURVE

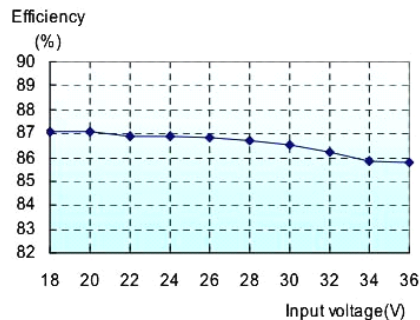
1. Temperature derating curve



2. Efficiency Vs Input voltage

WRA2412YMD-15W

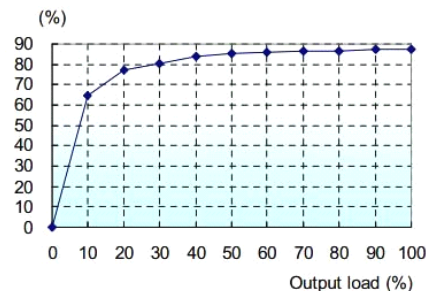
Efficiency VS Input voltage



3. Efficiency Vs Output Power

WRA2412YMD-15W

Efficiency VS Output load

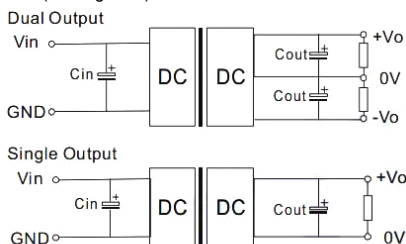


APPLICATION NOTE

Recommended circuit

All the WRA_YMD-15W&WRB_YMD-15W 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)

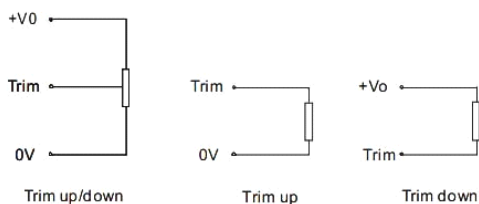
If you want to further decrease the output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance can't exceed the maximum capacitor load in the list.

Recommended capacitance

To ensure these series can operate efficiently and reliably, the recommended capacitance of input and output sees the below table.

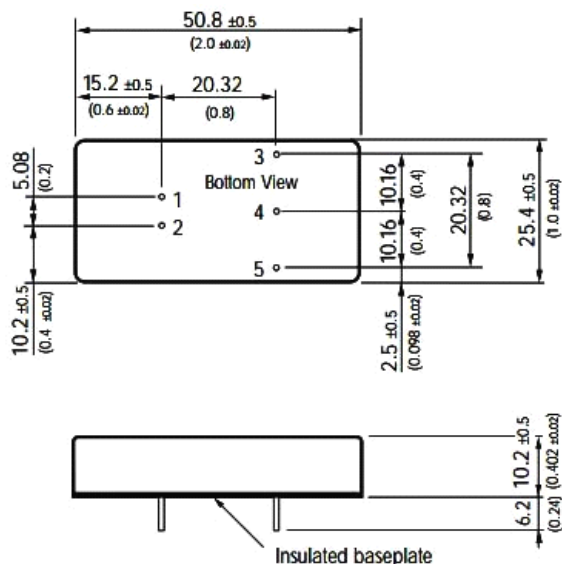
Capacitance		Cout	Cin (12V,24V,48V Input)
Output Voltage	3.3V,5V	220uF	100uF
	12V,15V	100uF	
Single	±5V	±220uF	
	±12V,±15V	±100uF	

OUTPUT VOLTAGE TRIM UP/DOWN



OUTLINE DIMENSIONS& FOOTPRINT DETAILS

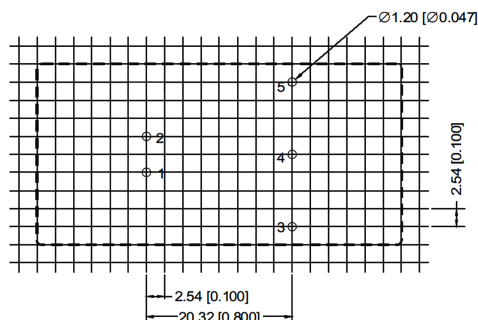
MECHANICAL DIMENSIONS



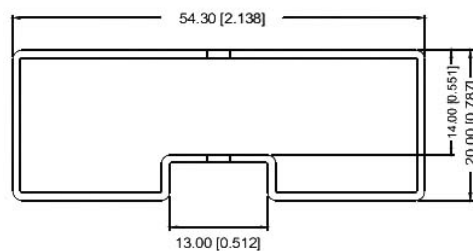
Note:
Unit : mm[inch]
Pin diameter tolerances: $\pm 0.10\text{mm}[\pm 0.004 \text{ inch}]$
General tolerances: $\pm 0.25\text{mm}[\pm 0.010 \text{ inch}]$

Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
3	+Vout	+Vout
4	No pin	Common
5	-Vout	-Vout

RECOMMENDED FOOTPRINT



TUBE OUTLINE DIMENSIONS



Note:
Unit : mm[inch]
General tolerances: $\pm 0.50\text{mm}[\pm 0.020 \text{ inch}]$
L=230mm[9.055inch] Tube Quantity: 7pcs

Note:

- All specifications are measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- In this data sheet, all the test methods of indications are based on corporate standards.
- Only typical model listed. Non-standard models will be different from the above, please contact us for more details.
- The products cannot be used in parallel and in plug and play.
- The CTRL control pin voltage is referenced to GND.
- Capacitor or MAX load tested at nominal input voltage and constant resistive load.
- Refer to the diagram of Output Voltage trim up/ down for trim applications.



RoHS COMPLIANT INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. The pin termination finish on the SIP package type is Tin Plate, Hot Dipped over Matte Tin with Nickel Preplate. The DIP types are Matte Tin over Nickel Preplate. Both types in this series are backward compatible with Sn/Pb soldering systems.



REACH COMPLIANT INFORMATION

This series has proven that this product does not contain harmful chemicals, it also has harmful chemical substances through the registration, inspection and approval.