



## FEATURES

- ◆ RoHS compliant
- ◆ Efficiency up to 86%
- ◆ 1"X1" DIP Package
- ◆ Wide temperature performance at full 20 Watt load, -40°C to 85°C
- ◆ UL 94V-0 package material
- ◆ No heat sink required
- ◆ Low ripple and good EMC Features
- ◆ Industry standard pin out
- ◆ Regulated Single Output
- ◆ 1500 VDC I/O Isolation
- ◆ Short Circuit Protection (automatic recovery)
- ◆ Metal case package
- ◆ MTBF > 1000000 hours

## MODEL SELECTION

**WRB<sup>①</sup>24<sup>②</sup>05<sup>③</sup>Y<sup>④</sup>MD<sup>⑤</sup>-20W(4000)<sup>⑥</sup>**

- ① Product Series
- ② Input Voltage
- ③ Output Voltage
- ④ Wide (2:1) Input Range
- ⑤ package style
- ⑥ Rated Power (Output current)

## DESCRIPTION

The WRB\_YMD-20W 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 ≤ 1500VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.



## SELECTION GUIDE

order	Watt	Input Voltage	Output Voltage	Output Current Full Load	Efficiency	Capacitor Load
	(Output)	(VDC)	(VDC)	(mA)	(%)	(uF)
WRB1203YMD-4500	14.85	9-18	3.3	4500	85	2000
WRB1205YMD-20W	20	9-18	5	4000	89	2000
WRB1212YMD-20W	20	9-18	12	1660	88	470
WRB1215YMD-20W	20	9-18	15	1330	88	330
WRB2403YMD-4500	14.85	18-36	3.3	4500	86	2000
WRB2405YMD-20W	20	18-36	5	4000	89	2000
WRB2412YMD-20W	20	18-36	12	1660	89	470
WRB2415YMD-20W	20	18-36	15	1330	89	330
WRB4803YMD-4500	14.85	36-72	3.3	4500	84	2000
WRB4805YMD-20W	20	36-72	5	4000	88	2000
WRB4812YMD-20W	20	36-72	12	1660	89	470
WRB4815YMD-20W	20	36-72	15	1330	89	330

### Input Specifications

Voltage Range	2:1 Wide Input (See Table)
Input Filter	L-C Type

### Output Specifications

Voltage Accuracy	± 2 %
Short Circuit Protection	Current Limit (Automatic Recovery)
Over Power Protection	Over 120% of Rating (Automatic Recovery)
Over Voltage Protection	Zener Diode Clamp
Line Regulation (LL-HL)	± 0.5 %, typ.
Load Regulation (10% - 100%)	± 1 %, typ.
Ripple	75 - 100 mV pk-pk, max.
Noise	100 - 125 mV, max.
Temperature Coefficient	± 0.02% / °C, max.

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1500 VDC
I/O Isolation Resistance	10 <sup>8</sup> Ohms
Switching Frequency	300 - 450 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 0.8 Mhrs

### Physical Specifications

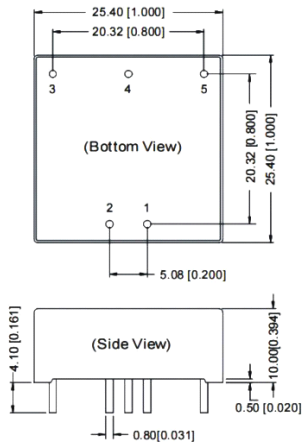
Case Material	Six-side shielded Alu (non conductive Base)
Weight	~ 15 g, typ.

### Environment Specifications

Operating Temperature	-40 to +50 ° C (for 100% - See Derating Graph)
Maximum Case Temperature	105°C
Storage Temperature	-55 to +105°C
Cooling	Free Air Convection (10mm distance required)
RoHS Conform	Soldering 260°C, max. (1.5mm from case 10s.)

### Package / Pinning / Derating

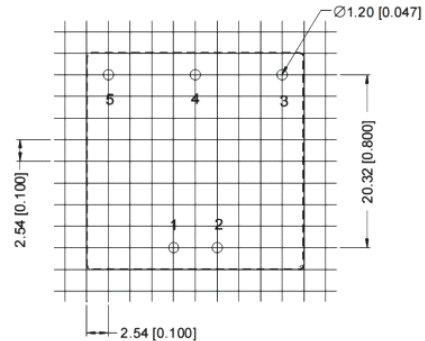
#### MECHANICAL DIMENSIONS



Note:  
 Unit:mm[inch]  
 Pin section tolerances:±0.10mm[±0.004inch]  
 General tolerances:±0.25mm[±0.010inch]

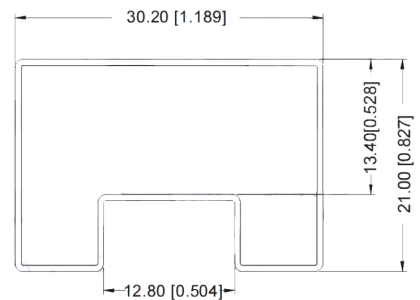
#### RECOMMENDED FOOTPRINT

Single Output



RECOMMENDED FOOTPRINT  
 Top view,grid:2.54mm(0.1inch)  
 diameter:1.00mm(0.039inch)

#### TUBE OUTLINE DIMENSIONS



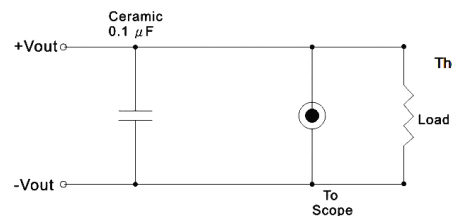
Note:  
 Unit :mm[inch]  
 General tolerances: ±0.50mm[±0.020inch]  
 L=530mm[20.866inch] Tube Quantity: 19pcs  
 L=220mm[8.661inch] Tube Quantity: 7pcs

When the environment temperature is higher than 71°C, the product output over should be less then 60% of the rated power.

No parallel connection or plug and play.

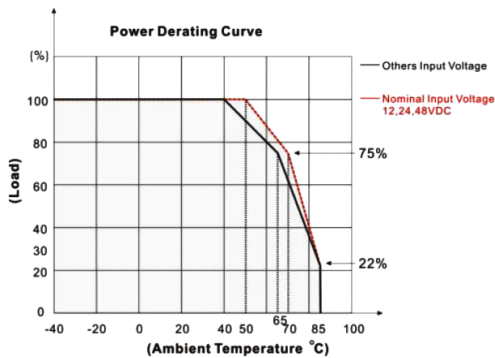
Use dual output simultaneously, forbid opening output pin (0V) to use as single output.

Output Noise:



The output noise is measured with 0.1µF tantalum capacitor.

#### Temperature derating curve



#### PIN CONNECTION

#	SINGLE
1	GND
2	+ Vin
3	+Vout
4	NC
5	0V

#### 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.