



FEATURES

- ◆ Wide 2:1 DC input range
- ◆ In/out capacitance 1000pF
- ◆ Protections : Short circuit / Overload / Over voltage
- ◆ 1000VDC I/O isolation for D/D
- ◆ Cooling by free air convection
- ◆ Built-in remote ON-OFF control
- ◆ 100% full load burn-in test
- ◆ Fixed switching frequency at 225KHz
- ◆ Lost cost
- ◆ MTBF > 1000K hours
- ◆ High reliability
- ◆ 1 year warranty

MODEL SELECTION

WRB^①12^②12^③Y^④QD^⑤-30W^⑥

- ① Product Series ② Input Voltage
 ③ Output Voltage ④ Wide (2:1) Input Range
 ⑤ DIP Package Style ⑥ Rated Power

APPLICATIONS

The WRB-YQD-30W Series series of DC/DC converters has been designed for a wide range of applications including communications, industrial systems and battery powered mobile equipments. Key features are high power density (12W in a 2"x1"x 0.4" package) and ultrawide input ranges of 9 – 36 VDC and 18 – 75 VDC. Other features of this converter are internal filtering according to EN 55022, level A, safety approval to EN 60950 and UL 1950, wide operating temperature range and remote on/off (opt.).



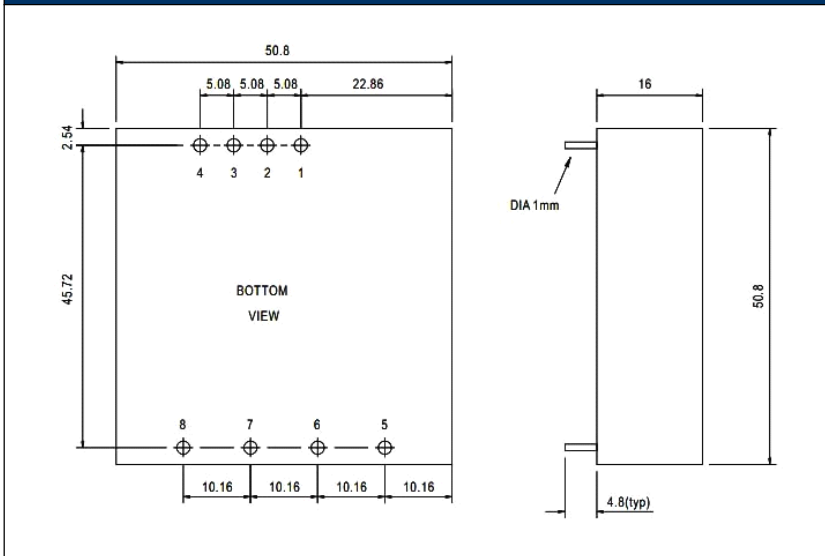
SELECTION GUIDE

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
WRB1203YQD-5000	9.2 ~ 18 VDC	3.3VDC	5000mA	77
WRB1205YQD-5000	9.2 ~ 18 VDC	5VDC	5000mA	77
WRB1212YQD-2100	9.2 ~ 18 VDC	12VDC	2100mA	80
WRB1215YQD-1700	9.2 ~ 18 VDC	15VDC	1700mA	80
WRB2403YQD-5000	18~ 36 VDC	3.3VDC	5000mA	79
WRB2405YQD-5000	18~ 36 VDC	5VDC	5000mA	79
WRB2412YQD-30W	18~ 36 VDC	12VDC	2500mA	82
WRB2415YQD-30W	18~ 36 VDC	15VDC	2000mA	83
WRB4803YQD-5000	36~ 72 VDC	3.3VDC	5000mA	80
WRB4805YQD-5000	36~ 72 VDC	5VDC	5000mA	80
WRB4812YQD-30W	36~ 72 VDC	12VDC	2500mA	84
WRB4815YQD-30W	36~ 72 VDC	15VDC	2000mA	85

SPECIFICATION

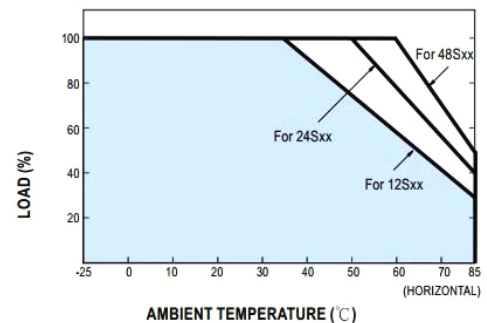
INPUT	DC CURRENT	12S:3.6A 24S:2A 48S:1A	
	IDLE CURRENT	12S:35mA 24S/48S:30mA	
PROTECTION	OVERLOAD	Above 105% rated output power Protection type : Over power limiting, recovers automatically after fault condition is removed	
	OVER VOLTAGE	WRBXX03:3.8 ~	WRBXX05:5.75 ~ 7.5V
		WRBXX12:13.8 ~ 18V	WRBXX15:17.25 ~ 22.5V
SHORT CIRCUIT	Protection type : Shut off o/p voltage, clamping by zener Protection type : Constant current limiting, recovers automatically after fault condition is removed		
FUNCTION	ON/OFF CONTROL	Logic "1" or open: power on	Logic "0" short to Vin:- power off
ENVIRONMENT	WORKING TEMP.	-25 ~ +85°C (Refer to output load derating curve)	
	STORAGE TEMP., HUMIDITY	-25 ~ +85°C, 0 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0~50°C)	
SAFETY & EMC (Note 6)	SAFETY STANDARDS	Design refer to LVD	
	ISOLATION VOLTAGE	I/P-O/P:1KVDC	
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms/500VDC	
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B	
OTHERS	EMS IMMUNITY	Compliance to EN61000-2,3,4,6,8; ENV50204, EN55024, light industry level, criteria A	
	MTBF	322.4K hrs min.	MIL-HDBK-217F (25°C)
	DIMENSION	50.8*50.8*16mm (2"*2"*0.63") (L*W*H)	
	PACKING	0.1Kg; 150pcs/15.8Kg/0.97CUFT	
NOTE	1. All parameters NOT specially mentioned are measured at 12,24,48VDC input, rated load and 25 of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Short circuit not more than 60 second. 5. DC source wires 5cm, an input external al capacitor 47 ~ 100uF is required. 6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.		

Mechanical Specification



TYPICAL CHARACTERISTICS

Temperature Derating Graph



APPLICATION NOTE

Requirement on 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.

Recommended Circuit

All the WRB_YQD-30W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load (see 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 of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (Table 1). General:

$$\begin{aligned} C_{in} &: 10\mu\text{F}-47\mu\text{F} \\ C_{out} &: 10\mu\text{F}/100\text{mA} \end{aligned}$$

CTRL Terminal

When open or high impedance, the converter work well; When this pin is 'high'; the converter shutdown; It should be note that the input current (I_c) should between 5-10mA, exceeding the maximum 20mA will cause permanence damage to the converter.

The value of R Can be derived as follows :

$$R = \frac{V_C - V_D - 1.0}{I_c}$$

Input current

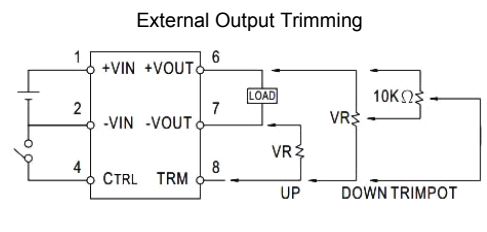
While using unstable power source, please ensure the output voltage and ripple voltage do not exceed indexes of the converter. The preceding power source must be able to provide for converter sufficient starting current I_p (Figure 2).

General: $I_p \leq 1.6 \cdot I_{in-max}$

No parallel connection or plug and play

RECOMMENDED CIRCUIT

Output Graph



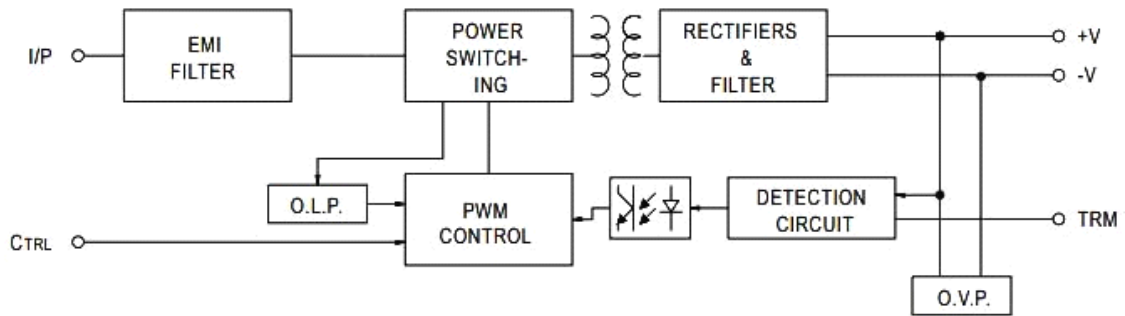
ON/OFF Control Pin

- CONTROL INPUT.....PIN4
- CONTROL COMMON.....PIN2
- LOGIC COMPATIBILITY.....CMOS OR OPEN COLLECTOR TTL
- CONTROL VOLTAGE
- ON.....+5.5VDC min OR OPEN CIRCUIT
- OFF.....+2.5VDC max. OR SHORT TO PIN2

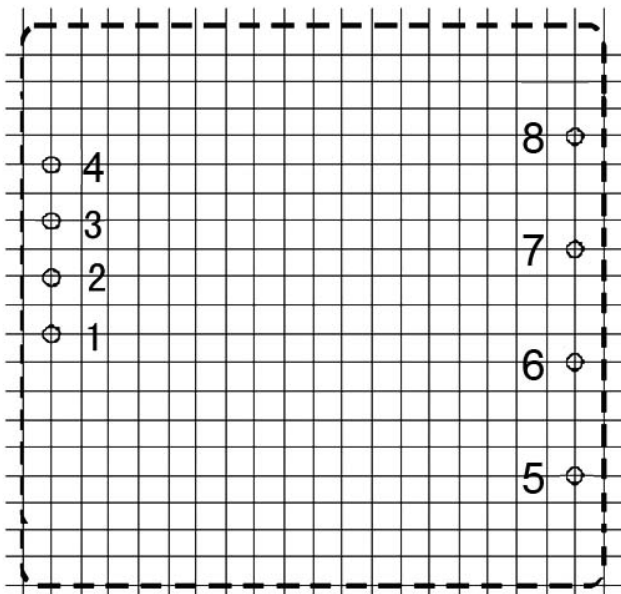
Pin No. Assignment

Pin No.	Assignme nt	Pin No.	Assignmen t
1	+Vin	6	+Vout
2	-Vin	7	-Vout
3,5	No pin	8	Trim
4	Control ON/OFF		

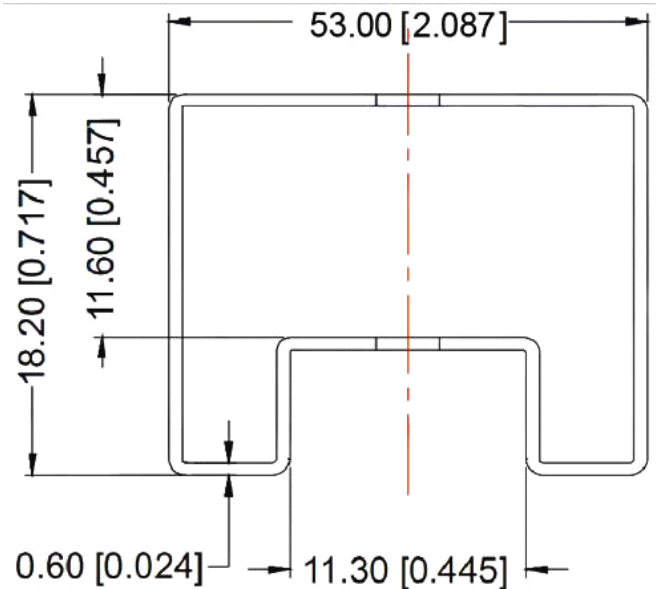
OUTLINE DIMENSIONS & FOOTPRINT DETAILS



RECOMMENDED FOOTPRINT



TUBE OUTLINE DIMENSIONS



Unit :mm[inch]

General tolerances:±0.50mm[±0.020inch]

L=230mm[9.055inch] Tube Quantity: 7pcs

MICRODC

Professional Power Module

Microdc Professional Power Module, Inc.
Tel:0086-20-86000646 E-mail:tech@microdc.cn
Website:<http://www.microdc.cn>



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.