



FEATURES

- ◆ Wide 2:1 DC input range
- ◆ In/out capacitance 1000pF
- ◆ Protections : Short circuit / Overload / Over voltage
- ◆ 1500VDC 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>1000Khours
- ◆ High reliability
- ◆ 2 year warranty

MODEL SELECTION

WRB^①24^②12^③Y^④QD^⑤-30W(2500)^⑥

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

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 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.).



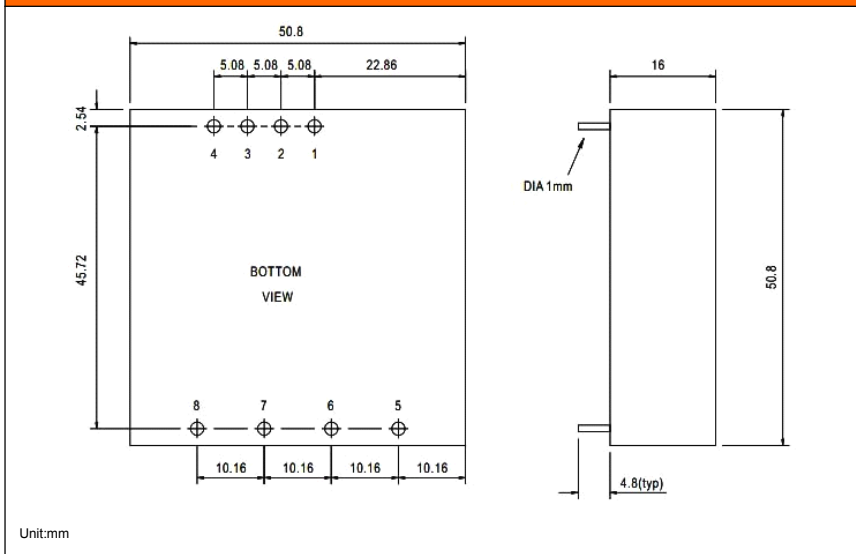
SELECTION GUIDE

Order code	Input voltage range (VDC)	Output voltage(VDC)	Output current max.(mA)	Efficiency typ.(%)
WRB1203YQD-5000	9~18	3.3	5000	77
WRB1205YQD-5000	9~18	5	5000	77
WRB1212YQD-2100	9~18	12	2100	80
WRB1215YQD-1700	9~18	15	1700	80
WRB1224YQD-30W	9~18	24	1250	78
WRB2403YQD-5000	18~36	3.3	5000	79
WRB2405YQD-5000	18~36	5	5000	79
WRB2412YQD-30W	18~36	12	2500	82
WRB2415YQD-30W	18~36	15	2000	83
WRB2424YQD-30W	18~36	24	1250	78
WRB4803YQD-5000	36~72	3.3	5000	80
WRB4805YQD-5000	36~72	5	5000	80
WRB4812YQD-30W	36~72	12	2500	84
WRB4815YQD-30W	36~72	15	2000	85
WRB4824YQD-30W	36~72	24	1250	78

SPECIFICATION

INPUT	DC CURRENT	WRB12XX:3.6A WRB24XX:2A WRB48XX:1A
	IDLE CURRENT	WRB12XX:35mA WRB24XX/WRB48XX:30mA
	OVERLOAD	Above 105% rated output power Protection type : Over power limiting, recovers automatically after fault condition is removed
		WRBXX03:3.8~4.95V WRBXX05:5.75 ~ 7.5V WRBXX12:13.8 ~ 18V WRBXX15:17.25 ~ 22.5V Protection type : Shut off o/p voltage, clamping by zener diode
	OVER VOLTAGE	WRBXX12:13.8 ~ 18V WRBXX15:17.25 ~ 22.5V Protection type : Shut off o/p voltage, clamping by zener diode
	SHORT CIRCUIT	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
	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 STANDARDS	Design refer to LVD
SAFETY & EMC (Note 6)	ISOLATION VOLTAGE	I/P-O/P:1.5KVDC
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms/500VDC
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B
	EMS IMMUNITY	Compliance to EN61000-2,3,4,6,8; ENV50204, EN55024, light industry level.criteria A
OTHERS	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	<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 12,24,48VDC input, rated load and 25 of ambient temperature. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. Tolerance : includes set up tolerance, line regulation and load regulation. Short circuit not more than 60 second. DC source wires 5cm, an input external al capacitor 47 ~ 100uF is required. 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. 	

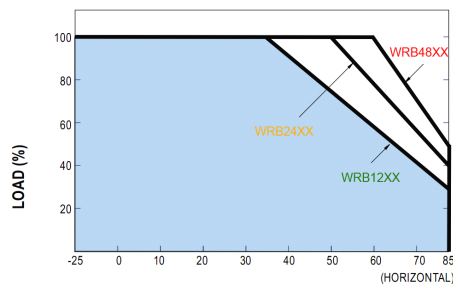
Mechanical Specification



Pin	Assignment	Pin	Assignment
1	+Vin	6	+Vout
2	-Vin	7	-Vout
3,5	No pin	8	Trim
4	Ctrl (ON/OFF)		

TYPICAL CHARACTERISTICS

Temperature Derating Graph



AMBIENT TEMPERATURE (°C)

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:

$$C_{in}: 10\mu F-47\mu F$$

$$C_{out}: 10\mu F/100mA$$

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 be 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

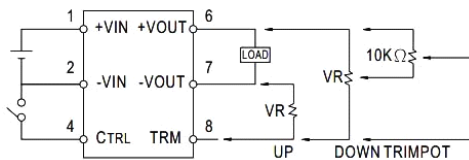
While using unstable power source, please ensure the output voltage and ripple voltage do not exceed indexes of the converter. The preceding power source must be able to provide for converter sufficient starting current I_p (Figure 2).

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

No parallel connection or plug and play

External Output Trimming

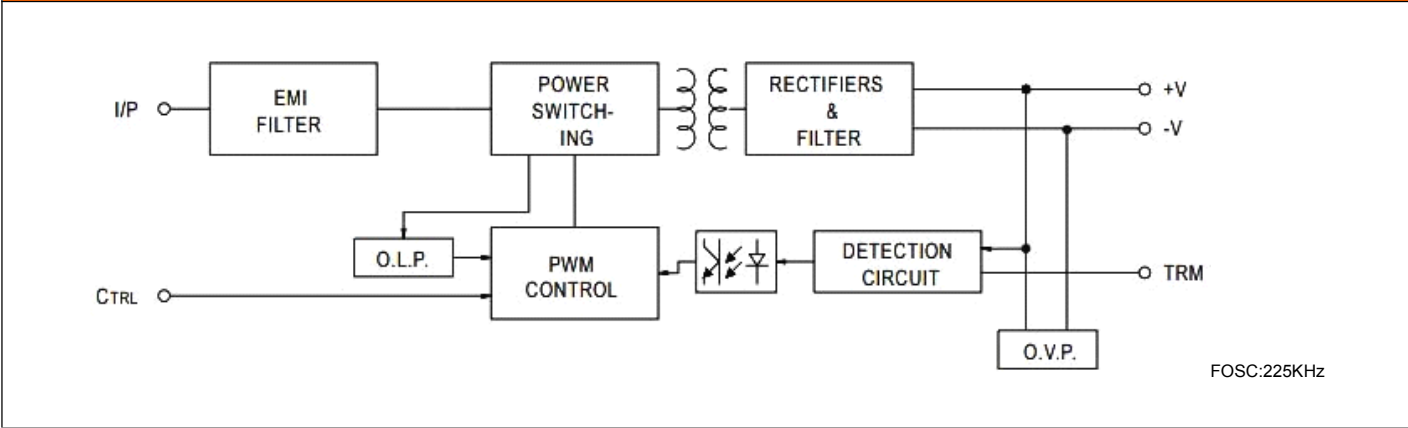
OUTPUT MAY OPTIONALLY BE EXTERNALLY TRIMMED (10%)
A FIXED RESISTOR OR AN EXTERNAL TRIMPOT AS SHOWN



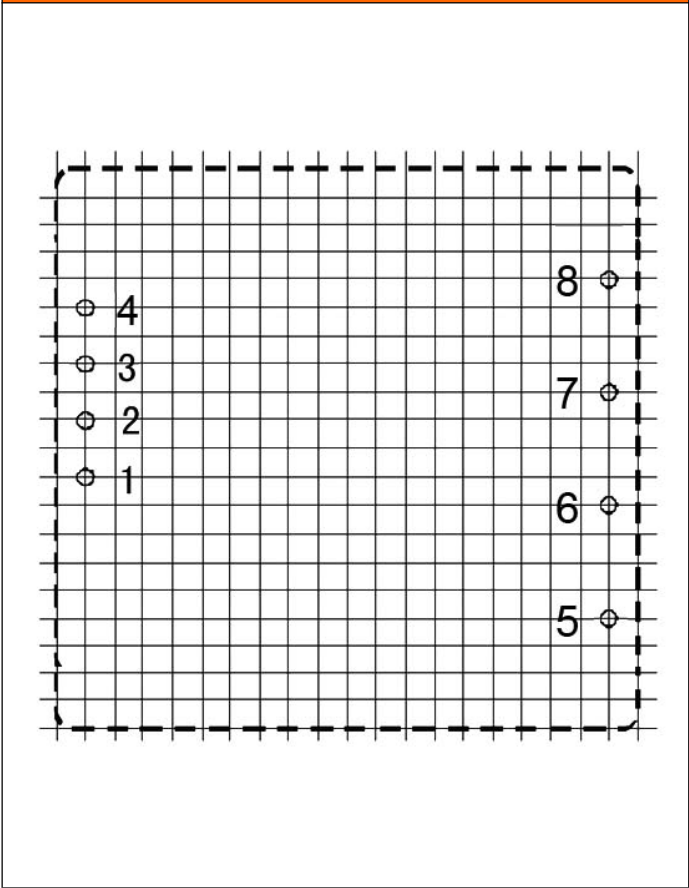
ON/OFF Control Pin

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

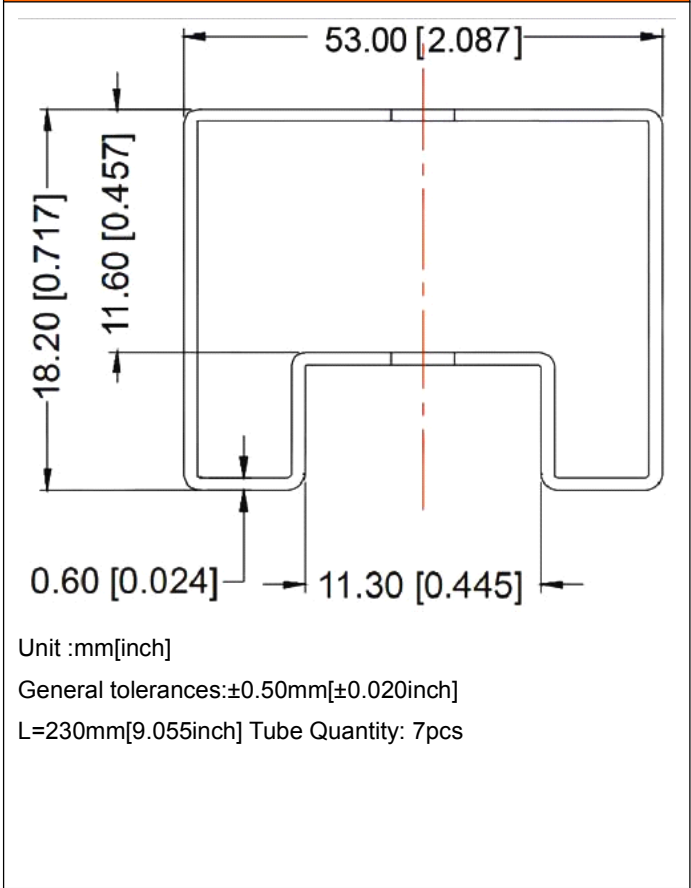
OUTLINE DIMENSIONS & FOOTPRINT DETAILS



RECOMMENDED FOOTPRINT



TUBE OUTLINE DIMENSIONS



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.