

FEATURES

- ◆ 12 WATTS OUTPUT POWER
- ◆ OUTPUT CURRENT UP TO 3.5A
- ◆ STANDARD 31.8×20.3×10.2MM
- ◆ HIGH EFFICIENCY UP TO 88%
- ◆ 2:1 WIDE INPUT VOLTAGE RANGE
- ◆ FIVE-SIDED CONTINUOUS SHIELD
- ◆ FLXED SWITCHING FREQUENCY (400KHz)
- ◆ STANDARD 24 PIN DIP PACKAGE
- ◆ I/O ISOLATION 1500 VDC
- ◆ CE MARK MEETS 2009/11/12
- ◆ COMPLIANT TO RoHS BSTDG13061091RC-4

APPLICATIONS

The WRA(B)-YD-12W series offer 12 watts of output power From a package in an IC compatible 24pin DIP configuration. WRA(B)-YD-12W series have 2:1 wide input voltage of 9-18, 18-36 and 36-72VDC.

The WRA(B)-YD-12W have features 1500VDC of isolation, short circuit protection and as well as five sided shielding.

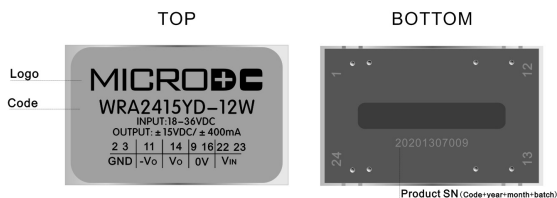
SELECTION GUIDE

Order code	Input			Output			Efficiency ³ (%.Typ.)
	Voltage(VDC)		Current(mA)	Voltage (VDC)	Current(mA)		
	Nominal	Range	No load ²		Max.	Min.	
WRB1202YD-12W	12	9-18	50mA	2.5	3500	0mA	82
WRB1203YD-12W	12	9-18	60mA	3.3	3500	0mA	84
WRB1205YD-12W	12	9-18	53mA	5.1	2400	0mA	86
WRB1212YD-12W	12	9-18	15mA	12	1000	0mA	86
WRB1215YD-12W	12	9-18	17mA	15	800	0mA	86
WRA1205YD-12W	12	9-18	24mA	±5	±1200	0mA	82
WRA1212YD-12W	12	9-18	19mA	±12	±500	0mA	87
WRA1215YD-12W	12	9-18	24mA	±15	±400	0mA	87
WRB2402YD-12W	24	18-36	36mA	2.5	3500	0mA	83
WRB2403YD-12W	24	18-36	36mA	3.3	3500	0mA	85
WRB2405YD-12W	24	18-36	35mA	5.1	2400	0mA	87
WRB2412YD-12W	24	18-36	16mA	12	1000	0mA	87
WRB2415YD-12W	24	18-36	17mA	15	800	0mA	87
WRA2405YD-12W	24	18-36	15mA	±5	±1200	0mA	83
WRA2412YD-12W	24	18-36	15mA	±12	±500	0mA	88
WRA2415YD-12W	24	18-36	18mA	±15	±400	0mA	88
WRB4802YD-12W	48	36-72	10mA	2.5	3500	0mA	83
WRB4803YD-12W	48	36-72	14mA	3.3	3500	0mA	85
WRB4805YD-12W	48	36-72	23mA	5.1	2400	0mA	87
WRB4812YD-12W	48	36-72	11mA	12	1000	0mA	87
WRB4815YD-12W	48	36-72	5mA	15	800	0mA	87
WRA4805YD-12W	48	36-72	6mA	±5	±1200	0mA	83
WRA4812YD-12W	48	36-72	6mA	±12	±500	0mA	88
WRA4815YD-12W	48	36-72	6mA	±15	±400	0mA	88

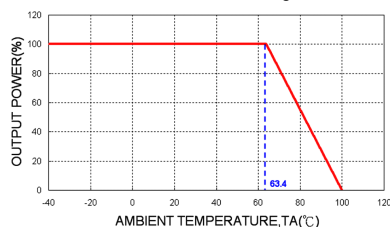
NOTE(Apply to this data):

- 1.MIL-HDBK-217F Notice2 @Ta=25°C, Full load(ground, Benign, controlled environment).
2. Typical value at nominal input voltage and no load.
3. Typical value at nominal input voltage and full load.
4. The ON/OFF control pin voltage is referenced to -INPUT.
5. The WRA(B)-YD-12W series can meet EN55022 Class A with a parallel an external capacitor to the input pins. Recommend: 12Vin: 6.8μF/50V. 24Vin: 4.7μF/50V. 48Vin: 2.2μF/100V.
6. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220/100V, ESR 48MΩ.

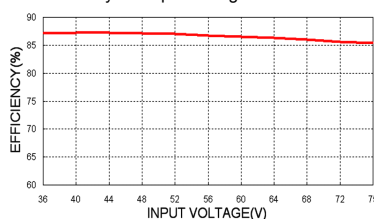
PRODUCT ID DESCRIPTION



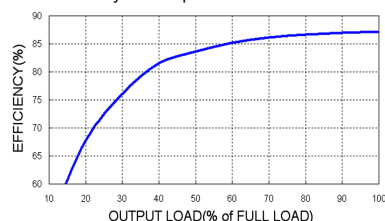
WRB4805YD-12W Derating Curve



WRB4805YD-12W Efficiency VS Input Voltage



WRB4805YD-12W Efficiency VS Output Load



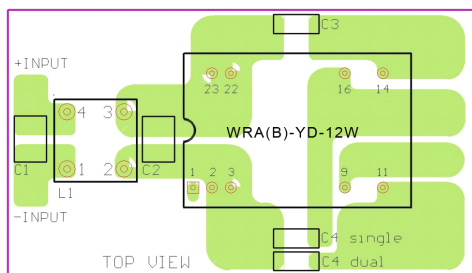
TECHNICAL SPECIFICATION (All specifications are typical at nominal input, full load and 25°C otherwise noted)

Output Specifications			
Output power		12Watts,max.	
Voltage accuracy		±1.2%	
Minimum load		0%	
Line regulation	LL to HL at Full Load	Single Dual	±0.2% ±0.5%
Load regulation	No Load to Full Load	Single(DIP) Dual (DIP) (2.5Vo only)	±0.5% ±1% ±1%
Cross regulation(Dual)	Asymmetrical load 25%/100% FL	±5%	
Ripple and noise	20MHz bandwidth	See table	
Temperature coefficient		±0.02%/°C,max.	
Transient response recovery time 25% load step change		250	
Over voltage protection zener diode clamp(only single)	2.5VDC output	3.9VDC	
	3.3VDC output	3.9VDC	
	5.1VDC output	6.2VDC	
	12VDC output	15VDC	
	15VDC output	18VDC	
Over load protection	% of FL at nominal input		150%
Short circuit protection		Continuous,automatics recovery	

Input Specifications			
Input voltage range	12VDC nominal input 24VDC nominal input 48VDC nominal input	9-18VDC 18-36VDC 36-72VDC	
Input filter	Pi type		
Input surge voltage	12VDC input 24VDC input 48VDC input	36VDC 100mS,max 50VDC 100mS,max 100VDC 100mS,max	
Input reflected ripple current		20mA p-p	
Start up time	Nominal input and constant resistive load	power up	450mS
Start-up voltage	12VDC input	9VDC	
	24VDC input	18VDC	
	48VDC input	36VDC	
Shutdown voltage	12VDC input	8VDC	
	24VDC input	16VDC	
	48VDC input	33VDC	
Remote ON/OFF ⁴ (Positive logic)	DC-DC ON DC-DC-OFF	Open or 3.0V<Vr<12V Short or 0V<Vr<1.2V	
Input current of remote control pin		Nominal input	-0.5mA ~ 0.5mA
Remote off state input current		Nominal input	2.5mA
Environmental Specifications			
Operating ambient temperature		-40℃ ~ +85℃ (with derating)	
Maximum case temperature		100℃	
Storage temperature range		-55℃ ~ +105℃	
Thermal impedance		Nature convection	20℃/Watt
Thermal shock		MIL-STD-810F	
Vibration		MIL-STD-810F	
Relative humidity		5% to 95% RH	
EMC Characteristics			
EMI ⁵	EN55022	Class A	
ESD	EN61000-4-2	Air ± 8KV Contact ± 6KV	perf.Criteria A
Radiated immunity	EN61000-4-3	10V/m	perf.Criteria A
Fast transient ⁶	EN61000-4-4	± 2KV	perf.Criteria A
Surge ⁶	EN61000-4-5	± 1KV	perf.Criteria A
Conducted immunity	EN61000-4-5	10 Vr.m.s	perf.Criteria A

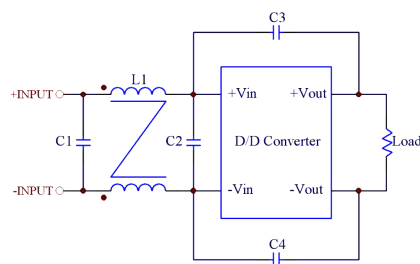
General Specifications			
Efficiency		See table	
Isolation voltage	Input to Output	1500VDC,min. 1minute	
Isolation resistance		10 ⁹ ohms,min.	
Isolation capacitance		1200pF, max.	
Switching frequency		400KHz ± 10%	
Approvals and standard		IEC60950-1,UL60950-1,EN60950-1	
Case material		Nickel-coated copper	
Base material		Non-conductive black plastic	
Potting material		Epoxy (UL94-V0)	
Dimensions		1.25 X 0.80 X 0.40 Inch (31.8 X 20.3 X 10.2 mm)	
Weight		18g(0.62oz)	
MTBF ¹	MIL-HDBK-217F	7.575x10 ⁵ hrs	

Recommended EMI Filter



Recommended EN55022 Class B Filter Circuit Layout

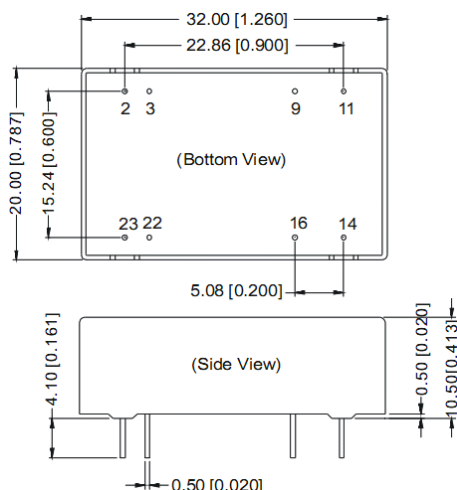
Recommended EMI Filter



Recommended Filter for EN55022 Class B Compliance

OUTLINE DIMENSIONS & FOOTPRINT DETAILS

MECHANICAL DIMENSIONS



Note:

Unit:mm[inch]

Pin section tolerances:±0.10mm[±0.004inch]

General tolerances:±0.25mm[±0.010inch]

FOOTPRINT DETAILS

Pin	Single	Dual
2、3	GND	GND
9	NC	0V
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22、23	Vin	Vin

NC:No connection

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

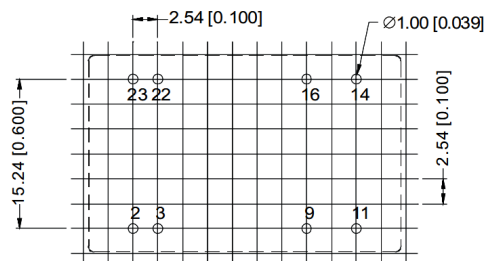
No parallel connection or plug and play.

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

Note:

1. The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
2. Operation under 10% load will not damage the converter; However, they may not meet all specification listed.
3. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
4. In this data sheet, all the test methods of indications are based on corporate standards.
5. Only typical models listed, other models may be different, please contact our technical person for more details.

RECOMMENDED FOOTPRINT

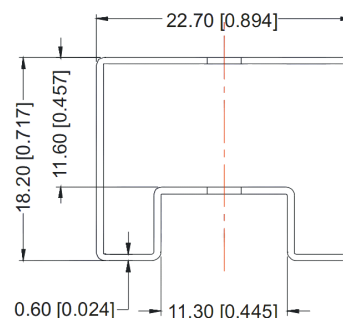


RECOMMENDED FOOTPRINT

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: 15pcs

L=220mm[8.661inch] Tube Quantity: 6pcs