

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
- ◆ FLXG 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) No load ²	Voltage (VDC)	Current(mA)		
	Nominal	Range			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

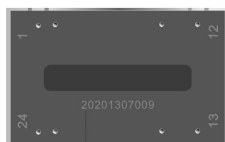
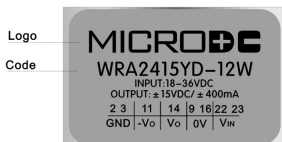
NOTE(Apply to this data):

- 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 parallel an external capacitor to the input pins. Recommend: 12Vin:6.8µF/50V. 24Vin:4.7µF/50. 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

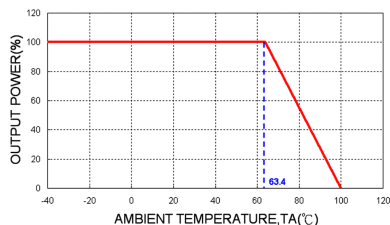
TOP

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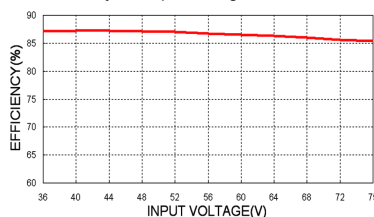


Product SN (Code-year-month-batch)

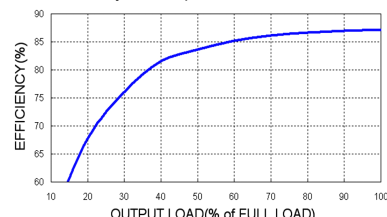
WRB4805YD-12W Derating Curve



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	±0.2%
		Dual	±0.5%
Load regulation	No Load to Full Load	Single(DIP)	±0.5%
		Dual (DIP)	±1%
		(2.5Vo only)	±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, automatic recovery		

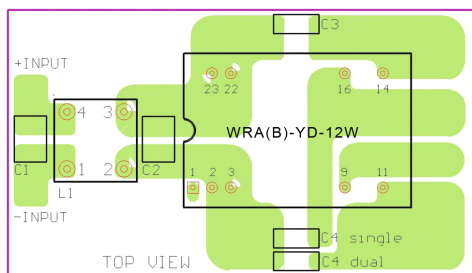
General Specifications		
Efficiency	See table	
Isolation voltage	Input to Output	1500VDC, min. 1minute
Isolation resistance	10 ⁹ ohms, min.	
Isolation capacitance	1200pF, max.	
Switching frequency	400KHz ± 10%	
Approvals and standard	IEC60950-1, UL60950-1, EN60950-1	
Case material	Nickel-coated copper	
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

Input Specifications		
Input voltage range	12VDC nominal input	9-18VDC
	24VDC nominal input	18-36VDC
	48VDC nominal input	36-72VDC
Input filter	Pi type	
Input surge voltage	12VDC input	36VDC 100mS, max
	24VDC input	50VDC 100mS, max
	48VDC input	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	Open or 3.0V < Vr < 12V
	DC-DC-OFF	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°C ~ +85°C (with derating)
Maximum case temperature	100°C
Storage temperature range	-55°C ~ +105°C
Thermal impedance	Nature convection 20°C/Watt
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity	5% to 95% RH

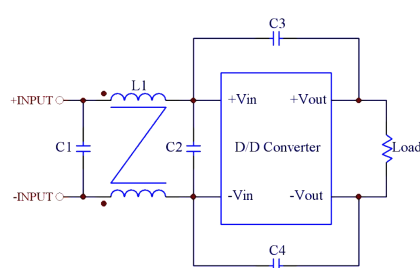
EMC Characteristics			
EMI ⁵	EN55022	Class A	
ESD	EN61000-4-2	Air ± 8KV	perf. Criteria A
		Contact ± 6KV	
Radiated immunity	EN61000-4-3	10V/m	perf. Criteria A
Fast transient ⁶	EN61000-4-4	± 2KV	perf. Criteria A
Surge ⁶	EN61000-4-5	± 1KV	perf. Criteria A
Conducted immunity	EN61000-4-5	10 Vr.m.s	perf. Criteria A

Recommended EMI Filter



Recommended EN55022 Class B Filter Circuit Layout

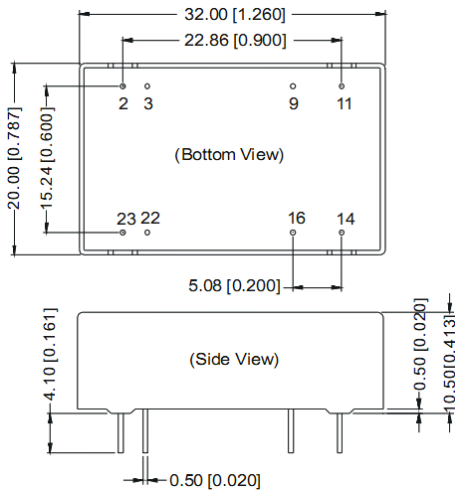
Recommended EMI Filter



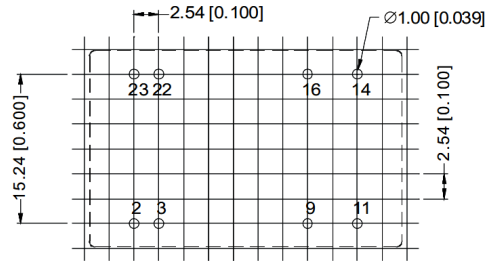
Recommended Filter for EN55022 Class B Compliance

OUTLINE DIMENSIONS & FOOTPRINT DETAILS

MECHANICAL DIMENSIONS



RECOMMENDED FOOTPRINT



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

Note:

Unit:mm[inch]

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

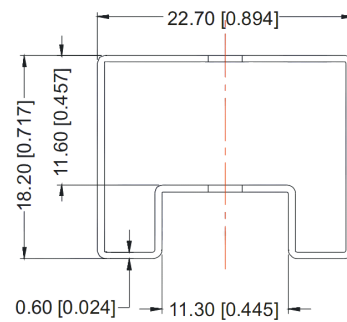
General tolerances:±0.25mm[±0.010inch]

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

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

When the environment temperature is higher than 71°C, the product output power should be less than 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.