



FEATURES

- ◆ DIP-24 package with industry Standard footprint
- ◆ Wide 2:1 input voltage range
- ◆ Input filter meets EN 55022, class A
- ◆ Extended operating temperature range:
-40°C ~ +85°C
- ◆ Remote On/Off
- ◆ Shielded metal case with insulated baseplate
- ◆ Lead free design, RoHS compliant
- ◆ 3 Year product warranty

MODEL SELECTION

WRB^①24^②15^③Y^④D^⑤-8W^⑥

- ① Product Series ② Input Voltage
③ Output Voltage ④ Wide (2:1) Input Range
⑤ DIP24 Package Style ⑥ Rated Power

APPLICATIONS

The WRA-YD-8W&WRB-YD-8W series is a family of high performance 8W DC/DC converter modules featuring wide 2:1 input voltage ranges in a DIP-24 package with industry standard footprint. A very high efficiency allows an operating temperature range of -40°C to +85°C. A built-in EMI input filter complies with EN 55022, class A with external components. Further standard features include remote On/Off and short-circuit protection.

Typical applications for these converters are battery operated equipment, instrumentation, communication and industrial electronics, everywhere where isolated, tightly regulated voltages are required and space is limited on the PCB.



SELECTION GUIDE

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
WRB0503YD-2000	4.5 – 9VDC	3.3VDC	2000mA	80%
WRB0503YD-2400	4.5 – 9VDC	3.3VDC	2400mA	82%
WRB0505YD-8W	4.5 – 9VDC	05VDC	1500mA	83%
WRB0512YD-8W	4.5 – 9VDC	12VDC	665mA	88%
WRB0515YD-8W	4.5 – 9VDC	15VDC	535mA	87%
WRA0505YD-8W	4.5 – 9VDC	± 05VDC	±800mA	83%
WRA0512YD-8W	4.5 – 9VDC	±12VDC	±335mA	87%
WRA0515YD-8W	4.5 – 9VDC	±15VDC	±265mA	85%
WRB1203YD-2000	9 – 18VDC	3.3VDC	2000mA	80%
WRB1203YD-2400	9 – 18VDC	3.3VDC	2400mA	81%
WRB1205YD-8W	9 – 18VDC	05VDC	1500mA	83%
WRB1212YD-8W	9 – 18VDC	12VDC	665mA	88%
WRB1215YD-8W	9 – 18VDC	15VDC	535mA	87%
WRA1205YD-8W	9 – 18VDC	± 05VDC	±800mA	83%
WRA1212YD-8W	9 – 18VDC	±12VDC	±335mA	87%
WRA1215YD-8W	9 – 18VDC	±15VDC	±265mA	85%
WRB2403YD-2000	18 – 36VDC	3.3VDC	2000mA	80%
WRB2403YD-2400	18 – 36VDC	3.3VDC	2400mA	83%
WRB2405YD-8W	18 – 36VDC	05VDC	1500mA	83%
WRB2412YD-8W	18 – 36VDC	12VDC	665mA	86%
WRB2415YD-8W	18 – 36VDC	15VDC	535mA	85%
WRA2405YD-8W	18 – 36VDC	± 05VDC	±800mA	82%
WRA2412YD-8W	18 – 36VDC	±12VDC	±335mA	86%
WRA2415YD-8W	18 – 36VDC	±15VDC	±265mA	85%
WRB4803YD-2000	36 – 75VDC	3.3VDC	2000mA	80%
WRB4803YD-2400	36 – 75VDC	3.3VDC	2400mA	84%
WRB4805YD-8W	36 – 75VDC	05VDC	1500mA	83%
WRB4812YD-8W	36 – 75VDC	12VDC	665mA	86%
WRB4815YD-8W	36 – 75VDC	15VDC	535mA	86%
WRA4805YD-8W	36 – 75VDC	± 05VDC	±800mA	85%
WRA4812YD-8W	36 – 75VDC	±12VDC	±335mA	87%
WRA4815YD-8W	36 – 75VDC	±15VDC	±265mA	87%

*Input voltage can't exceed this value, or will cause the permanent damage.

Input Specifications

Input current (no load)		05 Vin models:	25 mA typ.
		12 Vin models:	20 mA typ.
		24 Vin models:	15 mA typ.
		48 Vin models:	10 mA typ.
Input current (full load)	05 Vin;	3.3 Vout models:	2000 mA typ.
	05 Vin;	other output models:	1600 mA typ.
	12 Vin;	3.3 Vout models:	700 mA typ.
	12 Vin;	other output models:	820 mA typ.
	24 Vin;	3.3 Vout models:	350 mA typ.
	24 Vin;	other output models:	400 mA typ.
	48 Vin;	3.3 Vout models:	170 mA typ.
	48 Vin;	other output models:	200 mA typ.
Surge voltage (100 msec. max.)		12 Vin models:	36 V max.
		24 Vin models:	50 V max.
		48 Vin models:	100 V max.
Conducted noise (input)			EN 55022 level A, FCC part 15, level A
ESD (input)			EN 61000-4-2, Perf. Criteria B
Fast Transient (input)			EN 61000-4-4, Perf. Criteria B
Surge (input)			EN 61000-4-5, Perf. Criteria B

Output Specifications

Voltage set accuracy			± 2%
Regulation	- Input variation Vin min. to Vin max		0.2 % max.
	- Load variation 25 – 100%		
		single output models:	1 % max.
		dual output models:	1 % max.
	- Load cross variation 25 % / 100 %		5 % max.
Temperature coefficient			0.02 % /K
Ripple and noise (20 MHz Bandwidth)			50 mVpk-pk max.
Start up time (nominal Vin and constant)			600 ms typ.
Transient response(25% load step change)			200 μs typ.
Short circuit protection			continuous (automatic recovery)
Over load protection			150% of Iout max typ. foldback
Minimum load (only for dual output models)			10% of rated max current (operation at lower load condition will not damage these converters, however, they may not meet all listed specifications)
Capacitive load		3.3 Vout models:	3300 μF max
		5 Vout models / ± 5 Vout models:	1600 μF max. / ± 1000 μF max.
		12 Vout models / ±12 Vout models:	350 μF max. / ± 160 μF max.
		15 Vout models / ±15 Vout models:	240 μF max. / ± 100 μF max.

General Specifications

Temperature ranges	- Operating		-40 °C to +85 °C
	- Case temperature		+100 °C max.
	- Storage		-55 °C to +105 °C
Derating			3.3% /K above 70°C
Humidity (non condensing)			95 % rel H max.

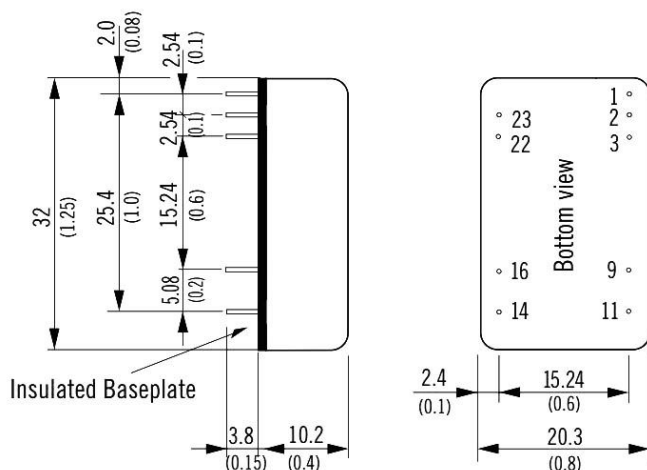
General Specifications

Reliability, calculated MTBF (MIL-HDBK-217F ground benign)		>715000 h @ +25 °C
Isolation voltage (60sec.)	- Input/Output	1500 VDC
Isolation capacity	- Input/Output	300 pF max.
Isolation Resistance	- Input/Output	> 1000 M Ohm
Switching frequency		300 kHz typ. (pulse width modulation PWM)
Vibration		10-55Hz, 2G, 30 minutes along X,Y,Z
Safety standards		UL/cUL 60950-1, IEC/EN 60950-1 compliance up to 60 VDC input voltage (SELV limit)
Safety approvals	- UL/cUL	certifications - File E188913
Remote On/Off		On: 3.5 ... 12 VDC or open circuit Off: 0 ... 1.2 VDC or short circuit pin 1 and pin 2/3 Off idle current: 2.5 mA

Physical Specifications

Case material	copper , nickel plated
Baseplate material	non conductive FR4
Potting material	epoxy (UL94V-0 rated)
Weight	17 g (0.60 oz)
Soldering temperature	max. 265 °C / 10 sec.

Outline Dimensions



FOOTPRINT DETAILS

Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin (GND)	-Vin (GND)
3	-Vin (GND)	-Vin (GND)
9	No con.	Common
11	No con.	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

NC: NO Connection

Dimensions in [mm], () = Inch

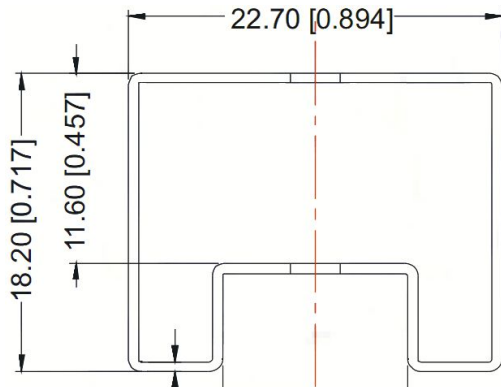
Pin diameter $\varnothing 0.5 \pm 0.05$ (0.02 ± 0.002)

Tolerances ± 0.5 (0.02)

Pin pitch tolerances ± 0.35 (0.014)

Specifications can be changed any time without notice

TUBE OUTLINE DIMENSIONS



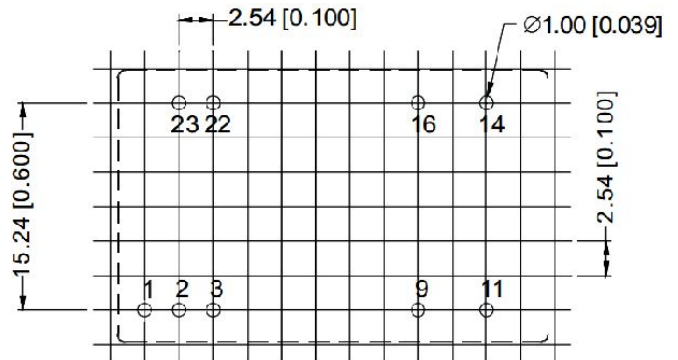
Note:

General diameter: 0.60 [0.024]

L=530mm[20.866inch] Tube Quantity: 15pcs

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

RECOMMENDED FOOTPRINT



RECOMMENDED FOOTPRINT

Top view grid: 2.54mm(0.1inch)

diameter: 1.00mm(0.039inch)

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 datasheet, 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.

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.