

FEATURES

- ◆ Low Profile SMD-Package
- ◆ Wide 2:1 Input Voltage Range
- ◆ I/O-Isolation 1500 VDC
- ◆ Input Filter meets EN55022, Class A
- ◆ Operating Temperature Range -40°C to +71°C
- ◆ Short-Circuit Protection
- ◆ Lead free Design, RoHS compliant
- ◆ 3 Year Product Warranty
- ◆ RoHS Compliance

MODEL SELECTION

WRB^①12^②05^③Y^④T^⑤-2W(400)^⑥

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

DESCRIPTION

The WRA-YT-2W&WRB-YT-2W series is a family of high performance 2W DC/DC converter modules featuring wide 2:1 input voltage ranges. The 28 models come in a low profile SMD package which requires just 3 cm² space on the PCB. A high efficiency allows an operating temperature range of -40°C to 71°C without derating. A built-in EMI input filter complies with EN 55022, class A. Typical applications for these converters are battery operated equipment, instrumentation, communication and industrial electronics, everywhere where isolated, tightly regulated voltages are required.

SELECTION GUIDE

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
WRB0503YT-500	4.5 – 9.0 VDC	3.3 VDC	500 mA	70 %
WRB0505YT-2W	4.5 – 9.0 VDC	5 VDC	400 mA	73 %
WRB0512YT-2W	4.5 – 9.0 VDC	12VDC	165 mA	75 %
WRB0515YT-2W	4.5 – 9.0 VDC	15 VDC	135 mA	73 %
WRA0505YT-2W	4.5 – 9.0 VDC	± 5 VDC	± 200 mA	64 %
WRA0512YT-2W	4.5 – 9.0 VDC	± 12 VDC	± 85 mA	69 %
WRA0515YT-2W	4.5 – 9.0 VDC	± 15 VDC	± 65 mA	71 %
WRB1203YT-500	9 – 18 VDC	3.3 VDC	500 mA	73 %
WRB1205YT-2W	9 – 18 VDC	5 VDC	400 mA	77 %
WRB1212YT-2W	9 – 18 VDC	12VDC	165 mA	80 %
WRB1215YT-2W	9 – 18 VDC	15 VDC	135 mA	80 %
WRA1205YT-2W	9 – 18 VDC	± 5 VDC	± 200 mA	73 %
WRA1212YT-2W	9 – 18 VDC	± 12 VDC	± 85 mA	78 %
WRA1215YT-2W	9 – 18 VDC	± 15 VDC	± 65 mA	78 %
WRB2403YT-500	18 – 36 VDC	3.3 VDC	500 mA	72 %
WRB2405YT-2W	18 – 36 VDC	5 VDC	400 mA	77 %
WRB2412YT-2W	18 – 36 VDC	12VDC	165 mA	80 %
WRB2415YT-2W	18 – 36 VDC	15 VDC	135 mA	81 %
WRA2405YT-2W	18 – 36 VDC	± 5 VDC	± 200 mA	74 %
WRA2412YT-2W	18 – 36 VDC	± 12 VDC	± 85 mA	78 %
WRA2415YT-2W	18 – 36 VDC	± 15 VDC	± 65 mA	80 %
WRB4803YT-500	36 – 72 VDC	3.3 VDC	500 mA	71 %
WRB4805YT-2W	36 – 72 VDC	5 VDC	400 mA	73 %
WRB4812YT-2W	36 – 72 VDC	12VDC	165 mA	79 %
WRB4815YT-2W	36 – 72 VDC	15 VDC	135 mA	79 %
WRA4805YT-2W	36 – 72 VDC	± 5 VDC	± 200 mA	71 %
WRA4812YT-2W	36 – 72 VDC	± 12 VDC	± 85 mA	77 %
WRA4815YT-2W	36 – 72 VDC	± 15 VDC	± 65 mA	77 %



Input Specifications

Input current at full load(nominal input)	5 Vin models:	600 mA typ.
	12 Vin models:	220 mA typ.
	24 Vin models:	110 mA typ.
	48 Vin models:	55 mA typ.
Surge voltage (100 msec. max.)	5 Vin models:	11 V max.
	12 Vin models:	25 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

*Supply voltage must be discontinued at the end of short circuit duration.

Output Specifications

Voltage set accuracy			± 2 %
Regulation	– Input variation Vin min. to Vin max.		± 0.5 % max.
	– Load variation 25 – 100 %		± 0.75 % max.
		dual output models:	± 2.0% (balanced load)
Ripple and noise (20 MHz Bandwidth)			50 mVpk-pk max
Temperature coefficient			± 0.02 %/K
Short circuit protection			indefinite, automatic recovery
Minimum load			25% of rated max current (operation at lower load condition is safe but a higher output ripple will be experienced)
Capacitive load		3.3 VDC output models:	2'200 µF max.
		5 VDC output models:	1'000 µF max.
		12 VDC output models:	170 µF max.
		15 VDC output models:	110 µF max.
		± 5 VDC output models:	470 µF max.
		± 12 VDC output models:	100 µF max.
		± 15 VDC output models:	47 µF max.

*Supply voltage must be discontinued at the end of short circuit duration.

General Specifications

Temperature ranges	– Operating	– 40 °C ... + 71 °C (no derating)
	– Storage	– 55 °C ... + 125 °C
Humidity (non condensing)		95 % rel. H max.
Reliability, calculated MTBF(MIL-HDBK-217 F)		> 1.0 Mio h @ 25°C
Isolation voltage	Input/Output	1'500 VDC
Isolation capacity	Input/Output	250 pF
Isolation resistance	Input/Output (500 VDC)	> 1'000 M Ohm
Switching frequency		300 kHz (PFM)

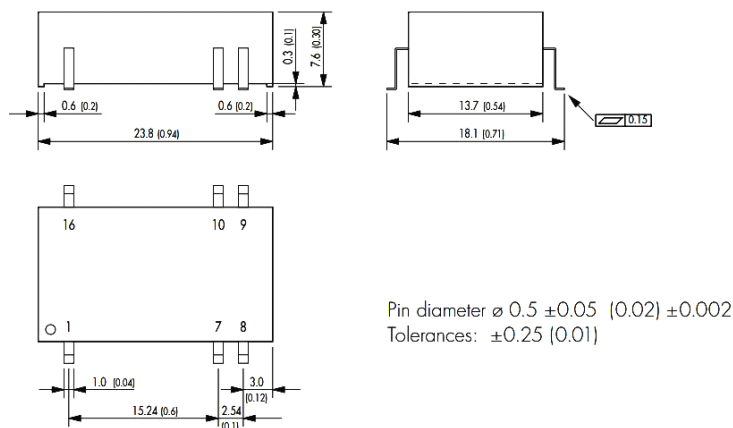
*Supply voltage must be discontinued at the end of short circuit duration.

General Specifications

Case material		non conductive FR4
Weight		3.8 g (0.13oz)
Reflow soldering profile		Peak temp. 245°C (10 sec max.)
		217°C for 90 sec. max.
		Convection reflow solder process is recommended

*All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

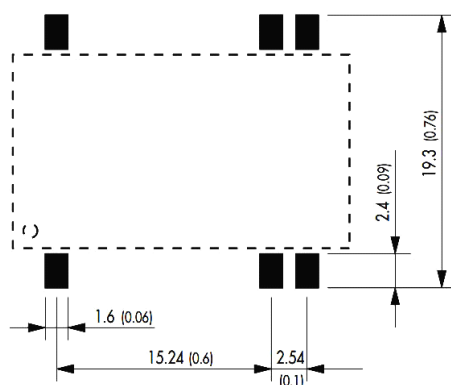
Outline Dimensions mm (inches)



Pin-Out

Pin	Single	Dual
1	-Vin (GND)	-Vin (GND)
7	No con.	No con.
8	No con.	Common
9	+Vout	+Vout
10	-Vout	-Vout
16	+Vin	+Vin

Outline Dimensions mm (inches)



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. Capacitor MAX load tested at input voltage range and full load.
4. All specifications measured at $T_a=25^{\circ}\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
5. Only typical models listed, other models may be different, please contact our technical person for more details.
6. In this data sheet, all the test methods of indications are based on corporate standards.

MICRODC
Professional Power Module

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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.