

FEATURES

- ◆ Wide (4:1) Input Range
- ◆ Short Circuit Protection(automatic recovery)
- ◆ 1500VDC Isolation
- ◆ Operating Temperature: -40°C ~ +85°C
- ◆ Excellent load and line regulation
- ◆ Ultra-compact SIP-8 packaged
- ◆ Internal SMD construction
- ◆ Remote On/Off control
- ◆ Small footprint: 21.8*9.2mm
- ◆ Excellent load and line regulation

MODEL SELECTION

WRB^① 24^② 12^③ Z^④ S^⑤ -3W^⑥

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

APPLICATIONS

The WRA_ZS-3W&WRB_ZS-3W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board. These products apply to:

- 1) Where the voltage of the input power supply is wide range (Voltage range ≤ 4:1);
- 2) Where isolation is necessary between input and output (Isolation voltage ≤ 1500VDC);
- 3) Where the regulation of the Output voltage and the output ripple noise are demanded.



CE REACH

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SELECTION GUIDE

Order code	Input		Output		Efficiency (%Typ.)
	Voltage(VDC)		Voltage (VDC)	Current(mA) Max.	
	Nominal	Range			
WRB2403ZS-3W	24	9-36	3.3	700	81
WRB2405ZS-3W	24	9-36	5	600	83
WRB2412ZS-3W	24	9-36	12	250	74
WRB2415ZS-3W	24	9-36	15	200	76
WRA2405ZS-3W	24	9-36	±5	±300	81
WRA2412ZS-3W	24	9-36	±12	±125	81
WRA2415ZS-3W	24	9-36	±15	±100	85
WRB4803ZS-3W	48	18-75	3.3	700	83
WRB4805ZS-3W	48	18-75	5	600	85
WRB4812ZS-3W	48	18-75	12	250	74
WRB4815ZS-3W	48	18-75	15	200	78
WRA4805ZS-3W	48	18-75	±5	±300	80
WRA4812ZS-3W	48	18-75	±12	±125	80
WRA4815ZS-3W	48	18-75	±15	±100	85

NOTE:

Case material: non-conductive plastic

Weight: 4.8g (0.17oz)

Input Specifications

Parameter	Conditions	Max.
Input current at full load	24Vin models:	170mAmax.
	48 Vin models:	85mAmax.
Surge voltage (100 msec. max.)	24 Vin models:	50Vmax.
	48 Vin models:	100Vmax.
Input current at no load	24 Vin models:	25mA typ.
Input filter	48 Vin models: EN 55022 level A 24 Vin models: EN 55022 level A with external capacitor	15mA typ. 15mA typ. Level A

The WR-ZS-3W series is a new family of isolated 3W DC/DC converters with regulated output, featuring ultra-wide 4:1 input voltage range. The product comes in a ultra-compact SIP plastic package with a small footprint occupying only 2.0 cm² (0.3 square in.) of board space. An excellent efficiency allows -40° to +85°C operation temperatures.

Further features include remote On/Off control and continuous short circuit protection. The very compact dimensions of these converters make them an ideal solution for many space critical applications in battery-powered equipment and instrumentation.

Output Specifications

Parameter	Conditions
Voltage set accuracy	± 1 % max
Regulation	- Input variation Vin min. to Vin max. 0.2 % max.
	- Load variation 5 – 100% single output models: 1.0% max. dual output models: 1.0 % max. balanced load
	- Load cross regulation 25/100% 5.0 % max. (dual output models)
Minimum load	not required
Temperature coefficient	0.1 %/K
Ripple and noise (20 MHz Bandwidth)	30 mVpk-pk max.
Start up time (constant resistive load)	- Power On 30 ms typ.
	- Remote On 30 ms typ.
Transient response setting time (25% load step change)	500 µs typ
Temperature coefficient	± 0.1 %/°C
Short circuit protection	continuous, automatic recovery
Capacitive load	3.3 VDC output models: 1'760 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.

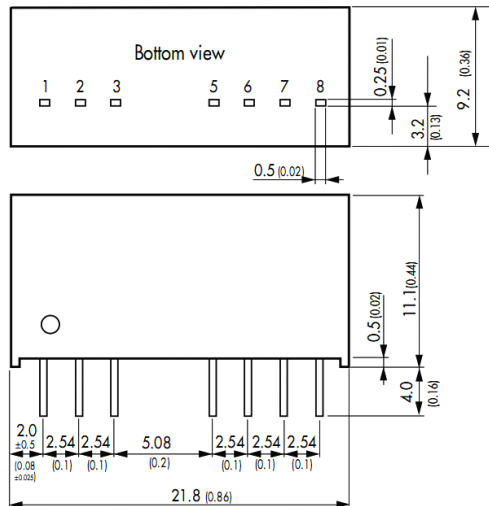
General Specifications

Parameter	Conditions
Temperature ranges	- Operating - 40 °C ~ + 85 °C (no derating)
	- Case temperature +100 °C max.
	- Storage - 55 °C ~ + 125 °C
Load derating	3.5 %/K above 70°C
Humidity (non condensing)	95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217F ground benign)	>1.7Mio h @ 25°C
Isolation voltage (60 sec)	- Input/Output 1'500 VDC
Isolation capacity	- Input/Output 200 pF max.
Isolation resistance	- Input/Output (500 VDC) >1 GOhm
Switching frequency	100 kHz (PWM)
Remote On/Off	- On: open or high impedance
	- Off: 2...4 mA current applied via 1KOhm resistor
	- Off stand by input current 2.5 mA max.
Vibration and thermal shock	MIL-STD-810E
Safety standards	UL /cUL 60950-1, EN 60950-1, IEC 60950-1
Safety approvals	- UL/cUL pending

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

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
1	-Vin(GND)	-Vin(GND)
2	+Vin(Vcc)	+Vin(Vcc)
3	Remote On/Off	Remote On/Off
5	No function	No function
6	+Vout	+Vout
7	-Vout	Common
8	No function	-Vout

Note:specifications can be changed any time without notice.

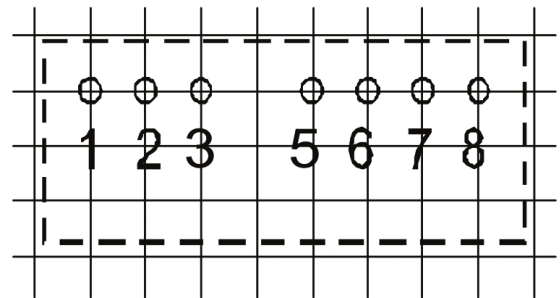
When the environment temperature is higher than 71°C, the product output power should be less than 60% of the rated power.
No parallel connection or plug and play.

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.

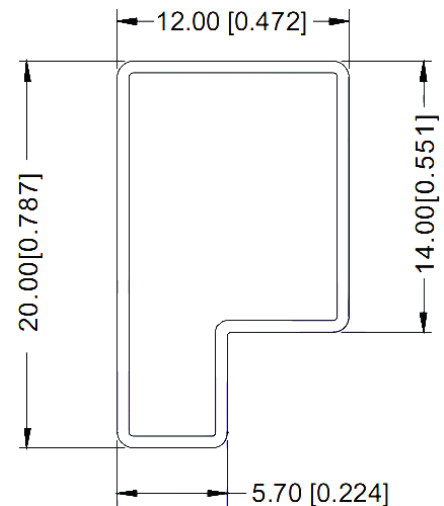
RECOMMENDED FOOTPRINT

Dual/Single Output



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: 22pcs
 L=220mm[8.661inch] Tube Quantity:8pcs