

## FEATURES

- ◆ Wide (2:1) Input Range
- ◆ Short Circuit Protection (automatic recovery)
- ◆ 1500VDC Isolation
- ◆ Operating Temperature: -40°C ~ +85°C
- ◆ Small Footprint
- ◆ Ultra-compact SIP-8 packaged
- ◆ Internal SMD construction
- ◆ Remote On/Off control
- ◆ Excellent load and line regulation

## MODEL SELECTION

**WRB<sup>①</sup>24<sup>②</sup>12<sup>③</sup>YS<sup>④</sup>S<sup>⑤</sup>-3W<sup>⑥</sup>**

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

## APPLICATIONS

The WRA\_YS-3W & WRB\_YS-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 ≤ 2:1);
- 2) Where isolation is necessary between input and output (Isolation voltage ≤ 1500VDC);
- 3) Where the regulation of the Output voltage and the output



## SELECTION GUIDE

Order code	Input		Output		Efficiency (% Typ.)
	Voltage (VDC)		Voltage (VDC)	Current (mA) Max.	
	Nominal	Range			
WRB0503YS-700	5	4.5-9	3.3	700	76
WRB0505YS-3W	5	4.5-9	5	600	81
WRB0512YS-3W	5	4.5-9	12	250	83
WRB0515YS-3W	5	4.5-9	15	200	76
WRA0505YS-3W	5	4.5-9	±5	±300	81
WRA0512YS-3W	5	4.5-9	±12	±125	81
WRA0515YS-3W	5	4.5-9	±15	±100	76
WRB1203YS-700	12	9-18	3.3	700	81
WRB1205YS-3W	12	9-18	5	600	83
WRB1212YS-3W	12	9-18	12	250	74
WRB1215YS-3W	12	9-18	15	200	76
WRA1205YS-3W	12	9-18	±5	±300	81
WRA1212YS-3W	12	9-18	±12	±125	81
WRA1215YS-3W	12	9-18	±15	±100	76
WRB2403YS-700	24	18-36	3.3	700	81
WRB2405YS-3W	24	18-36	5	600	83
WRB2412YS-3W	24	18-36	12	250	74
WRB2415YS-3W	24	18-36	15	200	76
WRA2405YS-3W	24	18-36	±5	±300	81
WRA2412YS-3W	24	18-36	±12	±125	81
WRA2415YS-3W	24	18-36	±15	±100	85
WRB4803YS-700	48	36-75	3.3	700	83
WRB4805YS-3W	48	36-75	5	600	85
WRB4812YS-3W	48	36-75	12	250	74
WRB4815YS-3W	48	36-75	15	200	78
WRA4805YS-3W	48	36-75	±5	±300	80
WRA4812YS-3W	48	36-75	±12	±125	80
WRA4815YS-3W	48	36-75	±15	±100	85

NOTE:  
 Case material: non-conductive plastic  
 Weight: 4.8g (0.17oz)

## Input Specifications

Parameter	Conditions	Max.
Input current at full load (nominal input voltage)	4.5-9 Vin models:	820 mA max.
	9-18 Vin models:	330 mA max.
	18-36 Vin models:	170 mA max.
	36-75 Vin models:	85 mA max.
Surge voltage (100 msec. max.)	4.5-9 Vin models:	15 V max.
	9-18 Vin models:	36 V max.
	18-36 Vin models:	50 V max.
	36-75 Vin models:	100 V max.
Input voltage variation (dv/dt)		5 V/ms, max. (complies with ETS300 132 part 4.4)
Input filter		capacitor type (see application note for compliance to EN 55022 class A/B)
Start up time		< 1ms at nominal input and resistive load

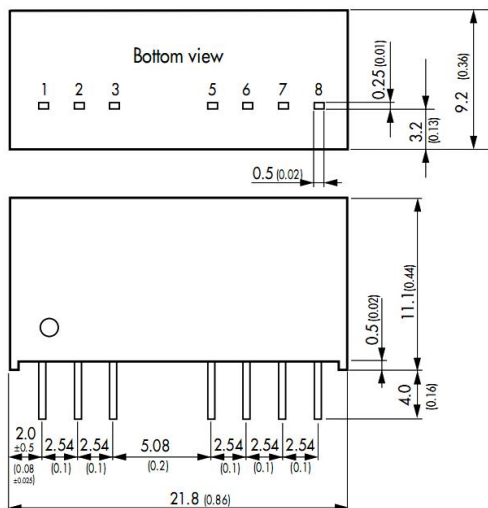
Output Specifications		
Parameter	Conditions	
Voltage set accuracy	± 1 % max	
Regulation	- Input variation Vin min. to Vin max.	0.2 % max.
	- Load variation 5 – 100% single output models:	0.5 % max.
	dual output models:	1.0 % max. balanced load
	- Load variation 0 – 100% single output models:	1.0 % max.
	dual output models:	1.0 % max. balanced load
- Load cross regulation 25/100%	5.0 % max. (dual output models)	
Minimum load	0% of rated max. load	
Temperature coefficient	0.1 %/K	
Ripple and noise (20 MHz Bandwidth)	75 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 / 5 VDC output models:	1'760 µF max. / 1'000 µF max.
	12 VDC / 15 VDC output models:	170 µF max. / 110 µF max.
	±5 VDC / ±15 VDC output models:	± 470 µF max. / ± 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)	>2.4 Mio h @ 25°C	
Isolation voltage (60 sec)	- Input/Output	1'500 VDC
Isolation capacity	- Input/Output	1000 pF max.
Isolation resistance	- Input/Output (500 VDC)	>10 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.

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

### OUTLINE DIMENSIONS & FOOTPRINT DETAILS

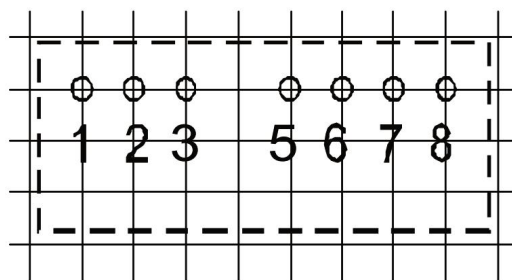
#### MECHANICAL DIMENSIONS



Note:  
 Unit:mm[inch]  
 Pin section tolerances:±0.10mm[±0.004inch]  
 General tolerances:±0.25mm[±0.010inch]

#### RECOMMENDED FOOTPRINT

### Dual/Single Output



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

#### FOOTPRINT DETAILS

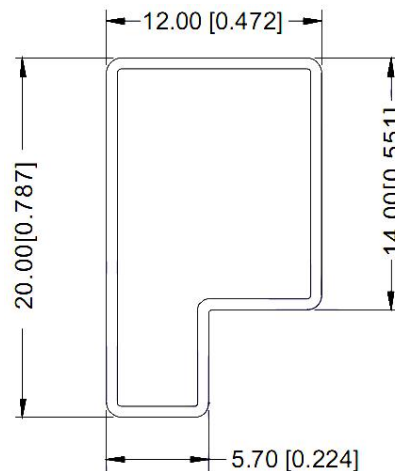
Pin	Single	Dual
1	-Vin(GND)	-Vin(GND)
2	+Vin(Vcc)	+Vin(Vcc)
3*	Remote On/Off	Remote On/Off
5	No function	No function
6	+Vout	+Vout
7	0V	Common
8	No function	-Vout

Note:specifications can be changed any time without notice.  
 \*:this pin can be added according to customer's need.

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.**

#### 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

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.