

## FEATURES

- ◆RoHS compliant
- ◆24 Pin DIP Package
- ◆Wide 4:1 input range
- ◆High efficiency up to 85%
- ◆Operating temperature -40°C to + 85°C
- ◆Input/output isolation 1500VDC
- ◆Pin compatible with multiple manufacturers
- ◆Continuous short circuit protection
- ◆No heat sink required
- ◆Industry standard pinout
- ◆MTBF < 1,000,000 hours

## MODEL SELECTION

**WRA<sup>①</sup>24<sup>②</sup>15<sup>③</sup>Z<sup>④</sup>HD<sup>⑤</sup>-3W(100)<sup>⑥</sup>**

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

## APPLICATIONS

The WRA-ZHD-3W&WRB-ZHD-3W series offer 6 watts of output power from a package in an IC compatible 24 pin DIP configuration without derating to 71°C ambient temperature. WRA-ZHD-3W&WRB-ZHD-3W series have 4:1 wide input voltage of 9-36 and 18-72VDC.



**CE REACH**  
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## SELECTION GUIDE

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load(uF)	Efficiency (%)
WRB2403ZHD-3W	9-36	3.3	700	1500	500	75
WRB2405ZHD-3W	9-36	5	600	1500	340	81
WRB2407ZHD-3W	9-36	7.2	415	1500	340	78
WRB2409ZHD-3W	9-36	9	330	1500	165	82
WRB2412ZHD-3W	9-36	12	250	1500	50	83
WRB2415ZHD-3W	9-36	15	200	1500	50	83
WRB2418ZHD-3W	9-36	18	165	1500	50	83
WRB2424ZHD-3W	9-36	24	125	1500	34	82
WRB4803ZHD-3W	18-72	3.3	700	1500	500	75
WRB4805ZHD-3W	18-72	5	600	1500	340	81
WRB4807ZHD-3W	18-72	7.2	415	1500	340	81
WRB4809ZHD-3W	18-72	9	330	1500	165	82
WRB4812ZHD-3W	18-72	12	250	1500	50	82
WRB4815ZHD-3W	18-72	15	200	1500	50	85
WRB4818ZHD-3W	18-72	18	165	1500	50	83
WRB4824ZHD-3W	18-72	24	125	1500	34	83
WRA2403ZHD-3W	9-36	±3.3	±350	1500	±235	80
WRA2405ZHD-3W	9-36	±5	±300	1500	±165	82
WRA2407ZHD-3W	9-36	±7.2	±205	1500	±165	80
WRA2409ZHD-3W	9-36	±9	±165	1500	±50	82
WRA2412ZHD-3W	9-36	±12	±125	1500	±34	84
WRA2415ZHD-3W	9-36	±15	±100	1500	±34	80
WRA2418ZHD-3W	9-36	±18	±80	1500	±34	80
WRA2424ZHD-3W	9-36	±24	±62	1500	±11	81
WRA4803ZHD-3W	18-72	±3.3	±350	1500	±235	79
WRA4805ZHD-3W	18-72	±5	±300	1500	±165	82
WRA4807ZHD-3W	18-72	±7.2	±205	1500	±165	81
WRA4809ZHD-3W	18-72	±9	±165	1500	±50	81
WRA4812ZHD-3W	18-72	±12	±125	1500	±34	83
WRA4815ZHD-3W	18-72	±15	±100	1500	±34	81
WRA4818ZHD-3W	18-72	±18	±80	1500	±34	81
WRA4824ZHD-3W	18-72	±24	±62	1500	±11	81

## Parameters

Model	CE
Standards	EN55022 Class A, EN55024
	IEC61000-4-2, Perf. Criteria B
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria B (external 220uF/100V cap required)
	IEC61000-4-5, Perf. Criteria B (external 220uF/100V cap required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A
NOTE: Also designed to meet IEC60950-1:2001	

### Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24	9-36		VDC
	48	18-72		VDC
Filter	π (Pi) Network			
Turn on Transient process time			350	ms
Start up time		500		ms
Absolute Maximum Rating	24 Vin	-0.7-40		VDC
	48 Vin	-0.7-80		VDC
Peak Input Voltage time				ms

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3 sec		1500	VDC
Resistance		> 1000		MOhm
Capacitance		470		pF

### Output Specifications

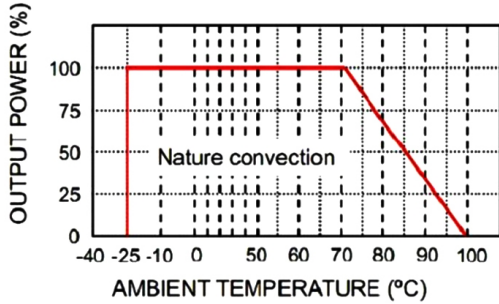
Parameters	Conditions	Typical	Rated	Units
Voltage accuracy		±1		%
Voltage balance	Dual Output	±1		%
Short Circuit protection	Continuous			
Short circuit restart	Auto-recovery			
Over current protection		120% Iout		
Line voltage regulation (Single)		±0.5		%
Line voltage regulation (Dual)		±0.5		%
Load voltage regulation (Single)				
Load voltage regulation (Single) 3.3V output model	0 – 100% load	±1.5		%
Load voltage regulation (Dual)	0 – 100% load	±0.5		%
Load voltage regulation (Dual) ±3.3V output model	0 – 100% load	±1.5		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise	At 20MHz Bandwidth	60		mV p-p
Rising time		10		ms

### General Specifications

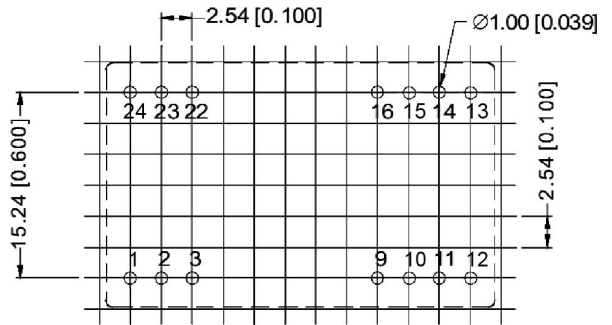
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	260		KHz
Operating temperature	Full Load without Derating	-40 to +85		°C
Storage temperature		-40 to +125		°C
Max Case temperature			+100	°C
Derating	Not-Required			
Cooling	Free air convection			
Humidity			90	%
Case material	Plastic or Nickel coated copper			
Weight		26		g
Dimensions (L x W x H)	Tolerance ±0.5 mm or ±0.02 inches	(1.28 x 0.84 x 0.41 inches )32.25 x 21.35 x 10.50 mm		
MTBF	>960 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			

### TYPICAL CHARECTERISTICS

WRA2405ZHD-3W&WRB2405ZHD-3W Derating Curve



### RECOMMENDED FOOTPRINT



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

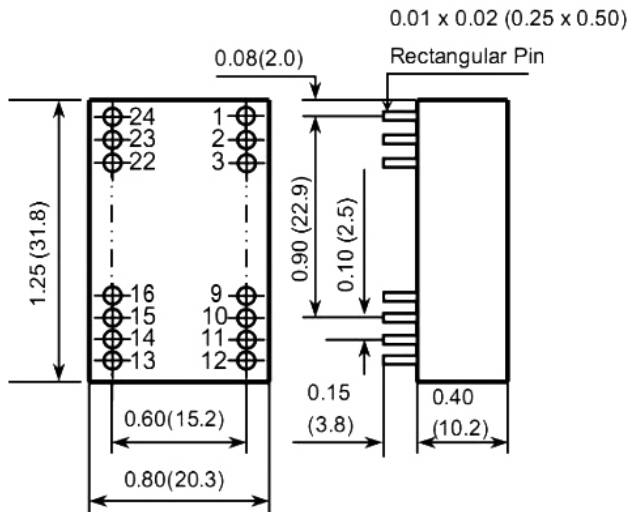
### Pin Out Specifications

PIN	Single	Dual
1、24	+V Input	+V Input
2、23	N. C.	-V Output
3、22	N. C.	Common
9、16*	Omitted	Omitted
10、15	-V Output	Common
11、14	+V Output	+V Output
12、13	-V Input	-V Input

NC:No Connection

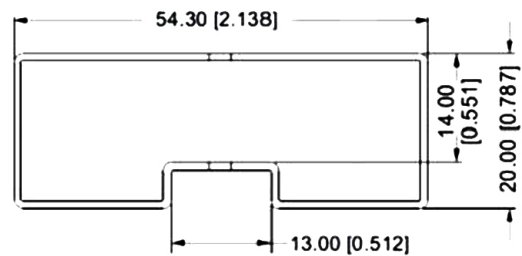
\*:this pin can be omitted.

### MECHANICAL DIMENSIONS



Unit:inch(mm)  
Pin section tolerances:±0.004inch(±0.10mm)  
General tolerances:±0.010inch(±0.25mm)

### TUBE OUTLINE DIMENSIONS



Note:

Unit :mm[inch]

General tolerances:±0.50mm[±0.020inch]

L=230mm[9.055inch] Tube Quantity: 10pcs

### 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.