

FEATURES

- ◆ 3 WATTS REGULATED OUTPUT POWER
- ◆ OUTPUT CURRENT UP TO 600mA
- ◆ STANDARD 31.8 X 20.3X 10.2mm
- ◆ HIGH EFFICIENCY UP TO 80%
- ◆ 2:1 WIDE INPUT VOLTAGE RANGE
- ◆ SWITCHING FREQUENCY (100KHz, MIN)
- ◆ INCLUDE 3.3VDC OUTPUT
- ◆ STANDARD 24 PIN DIP PACKAGE & SYMMETRIC PIN LAYOUT
- ◆ DUAL SEPARATE OUTPUT
- ◆ CE MARK MEETS 2006/95/EC, 93/68/EEC AND 2004/108/EC
- ◆ UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ◆ ISO9001 CERTIFIED MANUFACTURING FACILITIES
- ◆ COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

MODEL SELECTION

WRA[®]24[®]15[®]Y[®]HD[®]-3W(100)[®]

- ①Product Series ②Input Voltage
- ③Output Voltage ④2:1Wide Input Volage Range
- ⑤Symmetric pin layout DIP24 Package Style
- ⑥Rated Power(Output current)

APPLICATIONS

The WRA-YHD-3W & WRB-YHD-3W series offer 3 watts of output power from a package in an IC compatible 24pin DIP configuration without derating to 71°C ambient temperature. WRA-YHD-3W & WRB-YHD-3W series have 2:1 wide input voltage of 4.5-6, 9-18, 18-36 and 36-75VDC.



CE REACH

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OUTPUT SPECIFICATIONS

Output power	3 Watts, max.		
Voltage accuracy	Full load and nominal Vin	±1%	
Minimum load (Note 7)	See table		
Line regulation	LL to HL at Full Load	±0.2%	
Load regulation	Min Load to Full Load	Single	3.3Vout ±0.3%
		Others	±0.2%
	Dual	±2%	
Cross regulation (Dual) Asymmetrical load 25% / 100% FL	±5%		
Ripple and noise	20MHz bandwidth	See table	
Temperature coefficient	±0.02% / °C, max.		
Transient response recovery time 25% load step change	500µS		
Over load protection	% of FL at nominal input	180%, typ.	
Short circuit protection	Continuous, automatic recovery		

GENERAL SPECIFICATIONS

Efficiency	See table		
Isolation voltage	Input to Output	1600VDC, min.	
Isolation resistance	10 ⁹ ohms, min.		
Isolation capacitance	300pF, max.		
Switching frequency	100KHz, min.		
Approvals and standard	IEC60950-1, UL60950-1, EN60950-1		
Case material	Non-conductive black plastic		
Base material	Non-conductive black plastic		
Potting material	Epoxy (UL94-V0)		
Dimensions	1.25 X 0.80 X 0.40 Inch (31.8 X 20.3 X 10.2 mm)		
Weight	DIP24	14g	
MTBF (Note 1)	MIL-HDBK-217F	3.018 x 10 ⁶ hrs	

INPUT SPECIFICATIONS

Input voltage range	5V nominal input	4.5 - 6VDC	
	12V nominal input	9 - 18VDC	
	24V nominal input	18 - 36VDC	
	48V nominal input	36 - 75VDC	
Input filter	Pi type		
Input reflected ripple current	Nominal Vin and full load	120mAp-p	
Start up time	Nominal Vin and constant resistive load	Power up	30mS, typ.

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	-25°C ~ +71°C(non derating)		
Storage temperature range	-55°C ~ +105°C		
Thermal shock	MIL-STD-810F		
Vibration	MIL-STD-810F		
Relative humidity	5% to 95% RH		

EMC CHARACTERISTICS

EMI	EN55022	Class A		
ESD	EN61000-4-2	Air	±8KV	Perf. Criteria A
		Contact	±6KV	
Radiated immunity	EN61000-4-3	10 V/m Perf. Criteria A		
Fast transient (Note 6)	EN61000-4-4	±2KV Perf. Criteria B		
Surge (Note 6)	EN61000-4-5	±1KV Perf. Criteria B		
Conducted immunity	EN61000-4-6	10 Vr.m.s Perf. Criteria A		

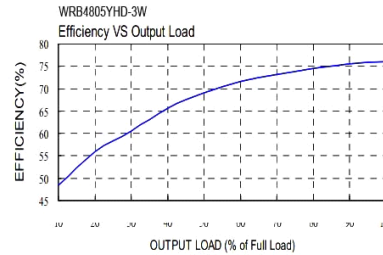
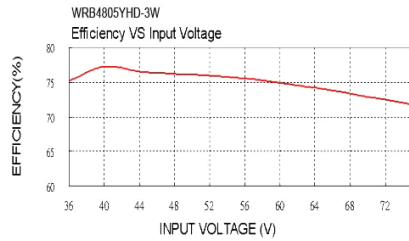
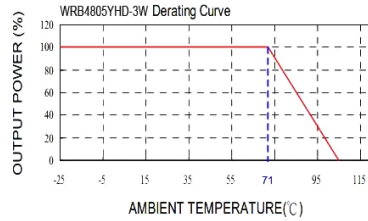
*Input voltage can't exceed this value, or will cause the permanent damage.

SELECTION GUIDE									
Model Number	Input Range	Output Voltage	Output Current		Output ⁽⁴⁾ Ripple&Noise	Input Current		Eff ⁽⁴⁾ (%)	Capacitor ⁽⁵⁾ Load max
			Min. load	Full load		No load ⁽³⁾	Full load ⁽²⁾		
WRB0503YHD-600	4.5 – 6 VDC	3.3VDC	60mA	600mA	75mVp-p	15mA	609mA	69	2200µF
WRB0505YHD-3W	4.5 – 6 VDC	5VDC	60mA	600mA	75mVp-p	15mA	857mA	74	1000µF
WRB0512YHD-3W	4.5 – 6 VDC	12VDC	25mA	250mA	120mVp-p	30mA	845mA	75	170µF
WRB0515YHD-3W	4.5 – 6 VDC	15VDC	20mA	200mA	150mVp-p	25mA	845mA	75	110µF
WRA0505YHD-3W	4.5 – 6 VDC	±5VDC	±30mA	±300mA	75mVp-p	15mA	870mA	73	±500µF
WRA0512YHD-3W	4.5 – 6 VDC	±12VDC	±12mA	±125mA	120mVp-p	20mA	845mA	75	±96µF
WRA0515YHD-3W	4.5 – 6 VDC	±15VDC	±10mA	±100mA	150mVp-p	50mA	845mA	75	±47µF
WRB1203YHD-600	9 – 18 VDC	3.3VDC	60mA	600mA	75mVp-p	20mA	252mA	70	2200µF
WRB1205YHD-3W	9 – 18 VDC	5VDC	60mA	600mA	75mVp-p	20mA	352mA	75	1000µF
WRB1212YHD-3W	9 – 18 VDC	12VDC	25mA	250mA	120mVp-p	20mA	334mA	79	170µF
WRB1215YHD-3W	9 – 18 VDC	15VDC	20mA	200mA	150mVp-p	30mA	334mA	79	110µF
WRA1205YHD-3W	9 – 18 VDC	±5VDC	±30mA	±300mA	75mVp-p	20mA	357mA	74	±500µF
WRA1212YHD-3W	9 – 18 VDC	±12VDC	±12mA	±125mA	120mVp-p	35mA	334mA	79	±96µF
WRA1215YHD-3W	9 – 18 VDC	±15VDC	±10mA	±100mA	150mVp-p	45mA	334mA	79	±47µF
WRB2403YHD-600	18 – 36 VDC	3.3VDC	60mA	600mA	75mVp-p	10mA	126mA	70	2200µF
WRB2405YHD-3W	18 – 36 VDC	5VDC	60mA	600mA	75mVp-p	10mA	174mA	76	1000µF
WRB2412YHD-3W	18 – 36 VDC	12VDC	25mA	250mA	120mVp-p	20mA	165mA	80	170µF
WRB2415YHD-3W	18 – 36 VDC	15VDC	20mA	200mA	150mVp-p	20mA	165mA	80	110µF
WRA2405YHD-3W	18 – 36 VDC	±5VDC	±30mA	±300mA	75mVp-p	20mA	174mA	76	±500µF
WRA2412YHD-3W	18 – 36 VDC	±12VDC	±12mA	±125mA	120mVp-p	20mA	167mA	79	±96µF
WRA2415YHD-3W	18 – 36 VDC	±15VDC	±10mA	±100mA	150mVp-p	20mA	164mA	80	±47µF
WRB4803YHD-600	36 – 75 VDC	3.3VDC	60mA	600mA	75mVp-p	10mA	61mA	72	2200µF
WRB4805YHD-3W	36 – 75 VDC	5VDC	60mA	600mA	75mVp-p	10mA	88mA	75	1000µF
WRB4812YHD-3W	36 – 75 VDC	12VDC	25mA	250mA	120mVp-p	10mA	84mA	79	170µF
WRB4815YHD-3W	36 – 75 VDC	15VDC	20mA	200mA	150mVp-p	10mA	84mA	79	110µF
WRA4805YHD-3W	36 – 75 VDC	±5VDC	±30mA	±300mA	75mVp-p	10mA	86mA	77	±500µF
WRA4812YHD-3W	36 – 75 VDC	±12VDC	±12mA	±125mA	120mVp-p	10mA	84mA	79	±96µF
WRA4815YHD-3W	36 – 75 VDC	±15VDC	±10mA	±100mA	150mVp-p	10mA	84mA	79	±47µF

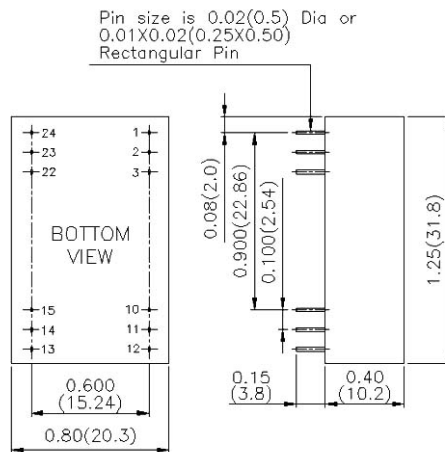
Note

1. MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment).
2. Maximum value at nominal input voltage and full load.
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Test by minimum Vin and constant resistive load.
6. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
7. The output requires a minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.

DERATING GRAPH



MECHANICAL DIMENSIONS



DIP PIN CONNECTION

PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT	24	+ INPUT	+ INPUT
2	NC	- OUTPUT	23	NC	- OUTPUT
3	NC	COMMON	22	NC	COMMON
10	-OUTPUT	COMMON	15	-OUTPUT	COMMON
11	+OUTPUT	+OUTPUT	14	+OUTPUT	+OUTPUT
12	- INPUT	- INPUT	13	- INPUT	- INPUT

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.