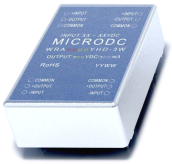
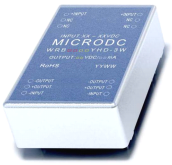
MICRODC
Professional Power Module

WRA-YHD-3W&WRB-YHD-3W Series

3W, WIDE INPUT, ISOLATED & REGULATED DUAL/SINGLE OUTPUT DC-DC CONVERTER

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

WRA①24②15③Y④ HD⑤-3W(100)⑥

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 71ºC 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.

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RoHS MICRODC Green Technology CE REACH

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% / ºC, max.
Transient response recovery time	25% load step change			500μS
Over load protection	% of FL at nominal input			180%, typ.
Short circuit protection				Continuous, automatics recovery

GENERAL SPECIFICATIONS

Efficiency			See table
Isolation voltage	Input to Output		1600VDC, min.
Isolation resistance			10^9ohms, 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 10^6hrs

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	-25ºC ~ +71ºC(non derating)
Storage temperature range	-55ºC ~ +105ºC
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.

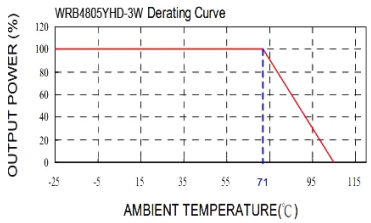
SELECTION GUIDE

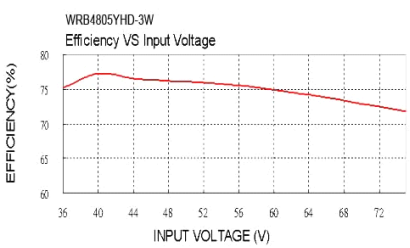
Model Number	Input Range	Output Voltage	Output Current		Output[4] Ripple&Noise	Input Current		Eff[4] (%)	Capacitor[5] Load max
			Min. load	Full load		No load [3]	Full load[2]		
WRB0503YHD-600	4.5 – 6 VDC	3.3VDC	60mA	600mA	75mVp-p	15mA	609mA	69	2200μF
WRB0505YHD-3W	4.5 – 6 VDC	5VDC	60mA	600mA	75mVp-p	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

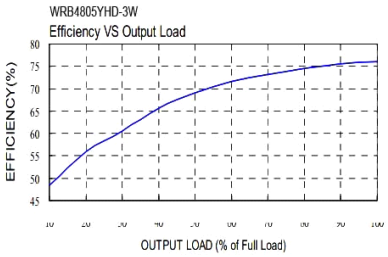
Note

1. MIL-HDBK-217F Notice2 @Ta=25 ºC, 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.

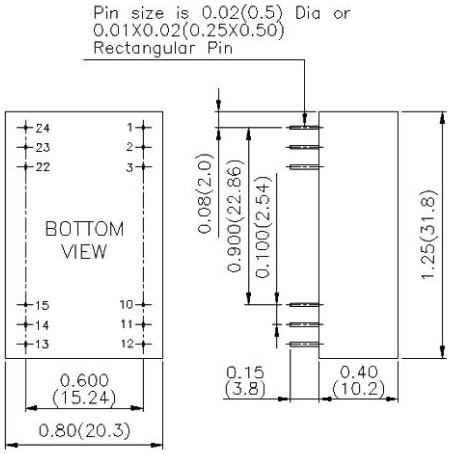
DERATING GRAPH







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

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.