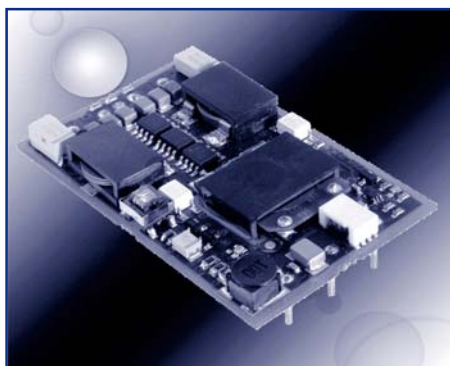


# WPA60 Series

## 60 Watt Dual Output Quarter Brick DC/DC Converter



- 2.3" x 1.45" x 0.40"  
(58.42mm x 36.83mm x 10.16mm)
- Dual Outputs - Output 1/Output 2 Vdc:  
1.0/1.5 1.2/1.8; 1.5/2.2; 1.8/2.5;  
1.2/3.3; 1.8/3.3; 2.5/3.3; 1.5/5.0;  
3.3/5.0
- Independently Regulated Outputs
- 36V - 75V Input Range
- Industry Standard Pinouts
- Input & Output Filtering
- Remote On/Off Function
- Meets Operational Insulation Requirements of EN60950
- UL/CUL 60950, VDE EN60950 Approved
- Fixed Frequency Operation
- No Minimum Load Requirements
- Hiccup Mode Current Limiting
- Self-resetting Over Voltage Protection
- C&D Technologies, Power Electronics Division is ISO9001:2000 Certified

The WPA60 Series are high performance DC/DC converters providing two independent regulated outputs. For maximum flexibility, power can be traded between outputs as required. The unit delivers high performance across all line and load conditions.

The WPA60 Series are assembled by a fully automated process using surface mount components for increased

reliability.

WPA DC-DC converter modules are certified to UL/CUL 60950, and VDE to EN60950. It meets CISPR22/EN55022/ FCC15J Class B specs for EMI levels with external filtering.

Other features include:

- Full Regulation Down to Zero Load
- Undervoltage Lock-Out
- Auto-Start

- Internal Temperature Shutdown
- Auto-Reset
- Soft Start
- Remote On/Off (Available in Positive or Negative Logic)
- Over Current Protection
- Overvoltage Protection
- Output Voltage Adjust on Both Outputs

### PRODUCT SELECTION CHART<sup>1</sup>

| MODEL          | NOMINAL INPUT VOLTAGE (Vdc) | OUTPUT #1 | OUTPUT #2 | OUTPUT CURRENT |              | TYPICAL EFFICIENCY (%) |
|----------------|-----------------------------|-----------|-----------|----------------|--------------|------------------------|
|                |                             |           |           | MIN LOAD(A)    | MAX LOAD (A) |                        |
| WPA60R48D1510* | 48                          | 1.0       | 1.5       | 0.0            | 12.0         | 82                     |
| WPA60R48D1812* | 48                          | 1.2       | 1.8       | 0.0            | 12.0         | 82                     |
| WPA60R48D2215* | 48                          | 1.5       | 2.2       | 0.0            | 12.0         | 86                     |
| WPA60R48D2518* | 48                          | 1.8       | 2.5       | 0.0            | 12.0         | 86                     |
| WPA60R48D3312* | 48                          | 1.2       | 3.3       | 0.0            | 12.0         | 89                     |
| WPA60R48D3318* | 48                          | 1.8       | 3.3       | 0.0            | 12.0         | 89                     |
| WPA60R48D3325* | 48                          | 2.5       | 3.3       | 0.0            | 12.0         | 89                     |
| WPA60R48D0515* | 48                          | 1.5       | 5.0       | 0.0            | 12.0         | 89                     |
| WPA60R48D0533* | 48                          | 3.3       | 5.0       | 0.0            | 12.0         | 89                     |

Input current at nominal input line = 1.45A (Output Power = 60W)

\*Models available with -1 option (positive logic)

<sup>1</sup>Total output power not to exceed 60 Watts

## SPECIFICATIONS, ALL MODELS

Specifications are at  $T_A = +25^{\circ}\text{C}$ , Airflow = 300LFM (1.5m/s) at nominal input voltage unless otherwise specified.

|       | PARAMETER                 | CONDITIONS              | MIN | TYP  | MAX | UNITS              |
|-------|---------------------------|-------------------------|-----|------|-----|--------------------|
| INPUT | <b>INPUT</b>              |                         |     |      |     |                    |
|       | Voltage Range             | WPA60R48D315            | 36  | 48   | 75  | VDC                |
|       | Reflected Ripple Current  |                         |     |      | 675 | mApk-pk            |
|       | <b>INPUT CONTROL</b>      |                         |     |      |     |                    |
|       | Temperature Shutdown      | PCB                     |     | 120  |     | $^{\circ}\text{C}$ |
|       | Temperature Hysteresis    |                         |     | 5    |     | $^{\circ}\text{C}$ |
|       | Quiescent Standby Current | $V_{in} = 48\text{VDC}$ |     | 8    | 10  | mA                 |
|       | Undervoltage Lockout      |                         |     | 32.5 |     | V                  |
|       | Undervoltage Shutdown     |                         |     | 2    |     | V                  |

## SPECIFICATIONS

Specifications are at  $T_A = +25^{\circ}\text{C}$ , Airflow = 300LFM (1.5m/s) at nominal input voltage unless otherwise specified.

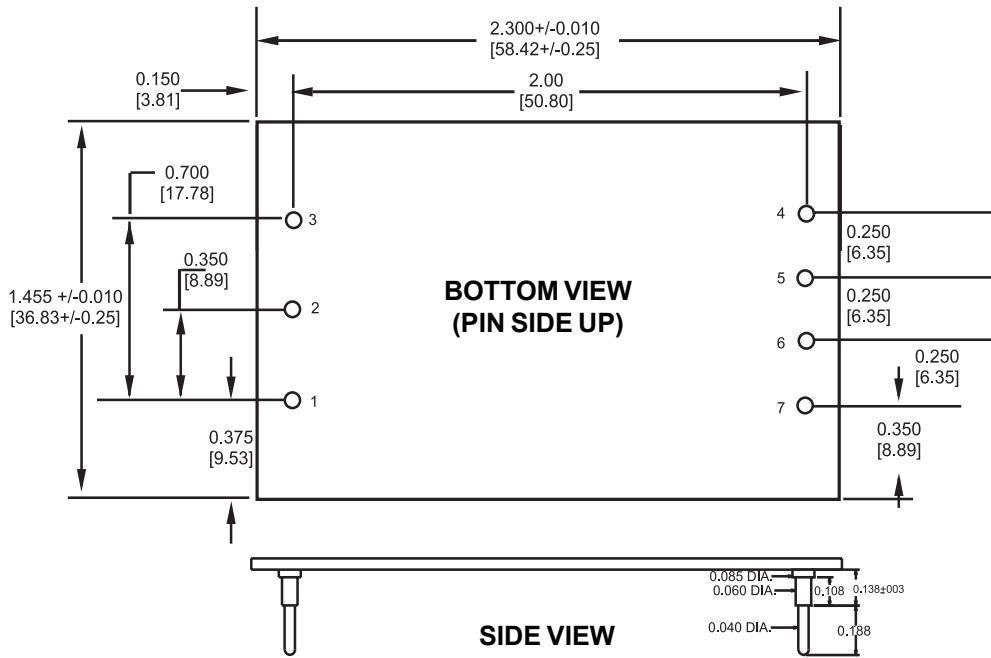
|         | PARAMETER                                               | CONDITIONS                                                       | MIN  | TYP         | MAX       | UNITS                 |
|---------|---------------------------------------------------------|------------------------------------------------------------------|------|-------------|-----------|-----------------------|
| GENERAL | <b>ISOLATION</b>                                        |                                                                  |      |             |           |                       |
|         | Rated Voltage                                           |                                                                  | 2000 |             |           | VDC                   |
|         | Resistance                                              |                                                                  |      | 10          |           | $\text{M}\Omega$      |
|         | Capacitance                                             |                                                                  |      | 1000        |           | pF                    |
|         | Leakage Current                                         | 240 VAC                                                          |      | 90          |           | $\mu\text{Arms}$      |
|         | <b>OUTPUT</b>                                           |                                                                  |      |             |           |                       |
|         | Rated Power                                             |                                                                  |      |             | 60        | W                     |
|         | Voltage Setpoint Accuracy                               |                                                                  |      |             | $\pm 1.5$ | %                     |
|         | Temperature Coefficient                                 |                                                                  |      | $\pm 0.005$ |           | $\%/^{\circ}\text{C}$ |
|         | Output Voltage                                          |                                                                  |      |             |           |                       |
|         | (Over all conditions of I/P voltage load & temperature) | V1                                                               |      |             | 2         | % of Nom              |
|         |                                                         | v2                                                               |      |             | 8         | % of Nom              |
|         | Ripple & Noise (NOTE 1)                                 | BW = 5Hz to 20MHz                                                |      |             | 90        | mVp-p                 |
|         | Output Adjust Range                                     |                                                                  |      |             |           |                       |
|         | Trim Up                                                 |                                                                  |      |             | 10        | %                     |
|         | Trim Down                                               |                                                                  |      |             | 10        | %                     |
|         | Short Circuit and Overcurrent Protection                |                                                                  |      | 120         |           | %                     |
|         | Max Capacitive Load                                     |                                                                  |      |             | 10,000    | $\mu\text{F}$         |
|         | Overvoltage Protection                                  |                                                                  |      | 15          |           | %                     |
|         | <b>GENERAL</b>                                          |                                                                  |      |             |           |                       |
|         | Switching Frequency                                     |                                                                  |      | 350         |           | KHz                   |
|         | MTTF per ML-HDBK-217 Ground Benign                      | Circuit Stress Method<br>$T_A = +25^{\circ}$ Unmodified Database |      | 1,000,000   |           | Hr                    |
|         | Package Weight                                          |                                                                  |      | 30          |           | g                     |
|         | <b>TEMPERATURE</b>                                      |                                                                  |      |             |           |                       |
|         | Operation/Specification                                 | PCB Temperature                                                  | -40  |             | +100      | $^{\circ}\text{C}$    |
|         | Storage                                                 | PCB Temperature                                                  | -55  |             | +125      | $^{\circ}\text{C}$    |
|         | Shutdown Temperature                                    | PCB Temperature                                                  |      | +120        |           | $^{\circ}\text{C}$    |

**NOTE 1:** Measured at 20 MHz bandwidth across a 6 $\mu\text{f}$  multi layer ceramic capacitor located approximately 1" from output terminals.

## PERFORMANCE CURVES

Rev B of the WPA60 Datasheet will include extensive performance curves and graphs.

## MECHANICAL



### PIN CONNECTIONS

| # | Function                |
|---|-------------------------|
| 1 | +Vin                    |
| 2 | On/Off                  |
| 3 | -Vin                    |
| 4 | +Vout1                  |
| 5 | RTN (-Vout1 and -Vout2) |
| 6 | Trim                    |
| 7 | +Vout2                  |

### NOTES:

All dimensions are in inches (millimeters).

All through hole pins are  $\varnothing$  0.040" [1.02] with  $\varnothing$  0.078" [1.98] shoulder

Pin placement tolerance:  $\pm$  0.010

Pin material: Brass

Pin Finish: Tin/Lead over Nickel

Converter weight: [30g]

Max height 12.5mm

## ORDERING INFORMATION

### To Find Model Number

Device Family **WPA60R48D** **yz** -

60 Watt, Dual Output,  
Quarter Brick, 48VDC Input Range

Model Number

Selected from Product Selection Chart (above)

y = 15 = 1.5V, 18 = 1.8V, 22 = 2.2V, 25 = 2.5V,  
33 = 3.3V, 05 = 5.0V,

z = 10 = 1.0V, 12 = 1.2V, 15 = 1.5V, 18 = 1.8V  
25 = 2.5V, 33 = 3.3V

Remote On/Off Logic

Positive Logic - No Number  
Negative Logic - 1

### Model Numbers

### Part Numbers

|                 |         |
|-----------------|---------|
| WPA60R48D1510   | 6064965 |
| WPA60R48D1812   | 6064957 |
| WPA60R48D2215   | 6064956 |
| WPA60R48D2518   | 6064955 |
| WPA60R48D3312   | 6064953 |
| WPA60R48D3318   | 6064952 |
| WPA60R48D3325   | 6064951 |
| WPA60R48D0515   | 6064966 |
| WPA60R48D0533   | 6064954 |
| WPA60R48D1510-1 | 6064993 |
| WPA60R48D1812-1 | 6064992 |
| WPA60R48D2215-1 | 6064991 |
| WPA60R48D2518-1 | 6064990 |
| WPA60R48D3312-1 | 6064989 |
| WPA60R48D3318-1 | 6064988 |
| WPA60R48D3325-1 | 6064987 |
| WPA60R48D0515-1 | 6064994 |
| WPA60R48D0533-1 | 6064986 |

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