

**OBSOLETE PRODUCT**  
 Contact factory for replacement model



# PWR60XX

## 1.8 WATT REGULATED DC/DC CONVERTER

### FEATURES

- | Low Cost
- | Low Noise
- | Industry-Standard Package
- | Single and Dual Outputs
- | High Isolation Voltage Option Available
- | Linear Output Regulation
- | Internal Input and Output Filtering
- | Low EMI Transformer Design
- | No External Components Required
- | Thermal Shutdown Protection

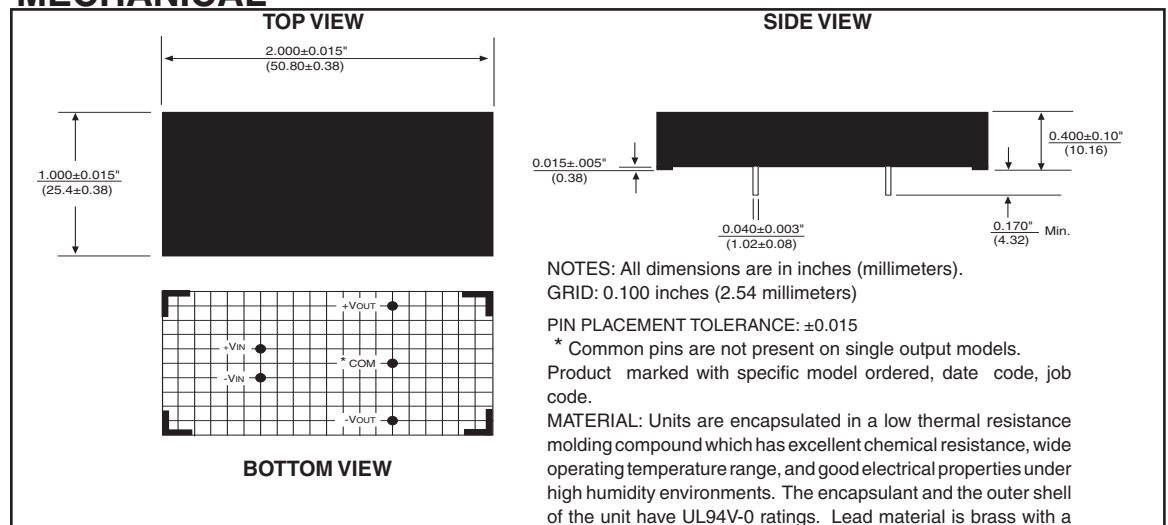
### DESCRIPTION

The PWR60XX Series offers a low-cost alternative for some of the most popular DC/DC converters industry wide. Each model has very low noise and an outstanding MTTF. The superior reliability, excellent filtering, and low cost make it an excellent choice for industry-standard usage.

The series includes eleven models (other input and output voltages are available upon request), all set in an encapsulant for excellent thermal dissipation for internal components. The use of surface-mount devices and manufacturing processes combined with the encapsulation process, provides the user a product that is more environmentally rugged.

The PWR60XX has full isolation between input and output to give the designer maximum flexibility in grounding options and polarity configurations. The outputs are protected against shorts to increase the units survivability in harsh environments.

### MECHANICAL



# ELECTRICAL SPECIFICATIONS

Specifications typical at  $T_A = +25^\circ\text{C}$ , rated input voltage, rated output current unless otherwise specified.

| MODEL   | NOMINAL INPUT VOLTAGE (V <sub>dc</sub> ) | RATED OUTPUT VOLTAGE (V <sub>dc</sub> ) | RATED OUTPUT CURRENT (mA) | INPUT CURRENT |                 | REFLECTED RIPPLE CURRENT (mA <sub>p-p</sub> ) | EFFICIENCY (%) |
|---------|--|---|---------------------------|---------------|-----------------|---|----------------|
|         |  |   |                           | NO LOAD (mA)  | RATED LOAD (mA) |   |                |
| PWR6000 | 5  | 5                                       | 360                       | 70            | 655             | 15  | 55             |
| PWR6004 | 5  | ±12                                     | ±75                       | 70            | 570             | 15  | 63             |
| PWR6005 | 5  | ±15                                     | ±60                       | 70            | 555             | 15  | 65             |
| PWR6006 | 12                                       | 5                                       | 360                       | 30            | 275             | 10  | 55             |
| PWR6010 | 12                                       | ±12                                     | ±75                       | 30            | 240             | 10  | 63             |
| PWR6011 | 12                                       | ±15                                     | ±60                       | 30            | 230             | 10  | 65             |
| PWR6012 | 15                                       | 5                                       | 360                       | 25            | 220             | 8   | 55             |
| PWR6016 | 15                                       | ±12                                     | ±75                       | 25            | 190             | 8   | 63             |
| PWR6017 | 15                                       | ±15                                     | ±60                       | 25            | 185             | 8   | 65             |
| PWR6018 | 24                                       | 5                                       | 360                       | 13            | 120             | 12  | 62             |
| PWR6023 | 24                                       | ±15                                     | ±60                       | 13            | 120             | 12  | 62             |

## ABSOLUTE MAXIMUM RATINGS

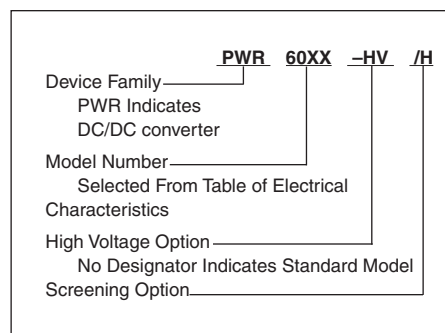
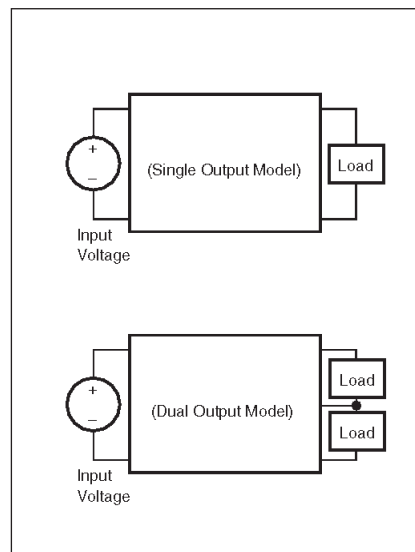
Output Short-Circuit Duration  
 Outputs to Common ..... Continuous  
 Output to Output ..... Momentary  
 Output Power ..... 2.0W  
 Lead Temperature ..... +300°C  
 (soldering, 10 seconds max)

NOTE: Other input to output voltages may be available. Please consult factory.

Specifications typical at  $T_A = +25^\circ\text{C}$ , rated input voltage, rated output current unless otherwise specified.

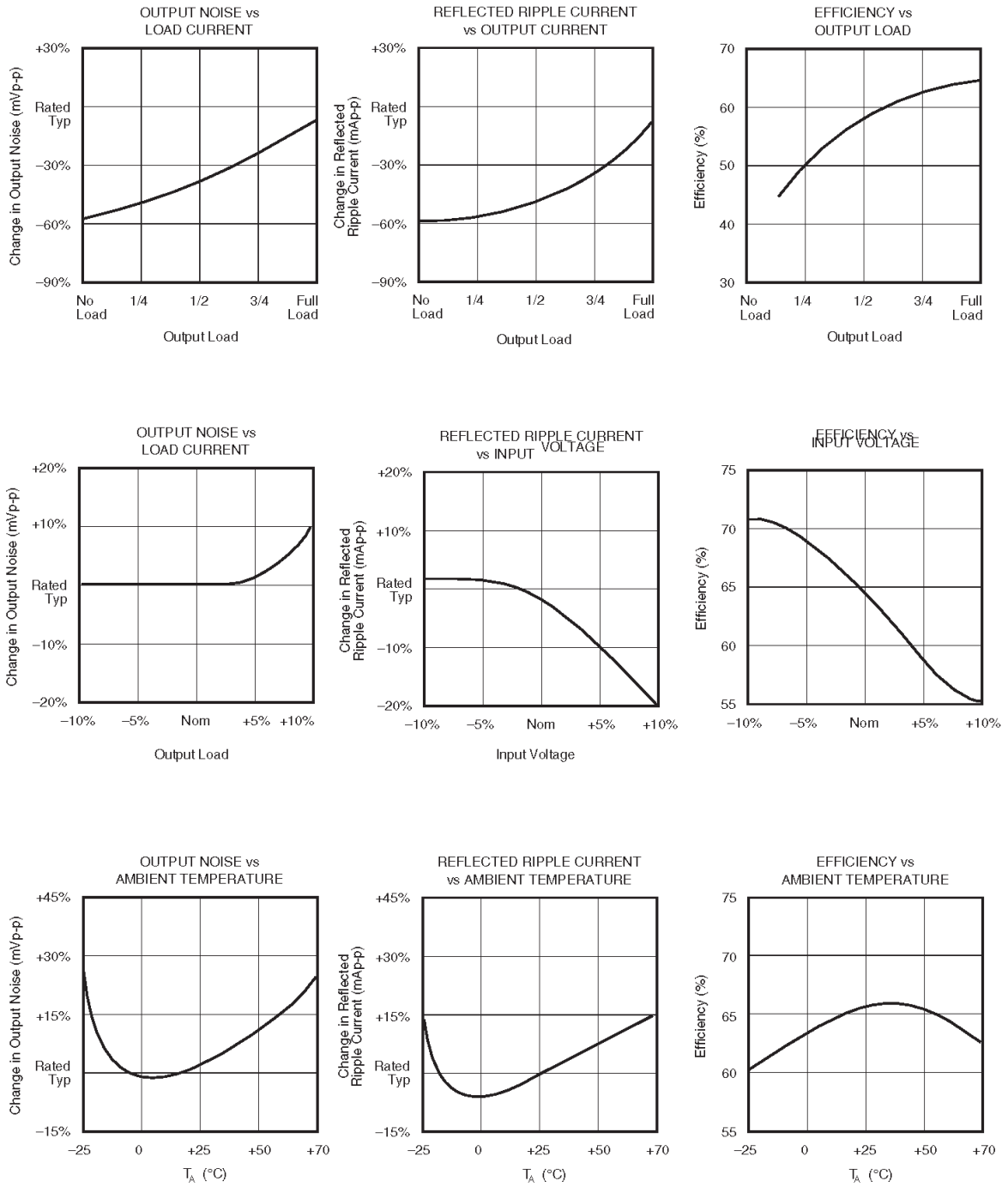
| PARAMETER                     | CONDITIONS                                   | MIN  | TYP     | MAX  | UNITS             |
|-------------------------------|--|------|---------|------|-------------------|
| <b>INPUT</b>                  | PWR6000                                      | 4.65 | 5.0     | 5.5  | V <sub>DC</sub>   |
|                               | PWR6004                                      | 4.65 | 5.0     | 5.5  | V <sub>DC</sub>   |
|                               | PWR6005                                      | 4.65 | 5.0     | 5.5  | V <sub>DC</sub>   |
|                               | PWR6006                                      | 10.9 | 12.0    | 13.2 | V <sub>DC</sub>   |
|                               | PWR6010                                      | 10.9 | 12.0    | 13.2 | V <sub>DC</sub>   |
|                               | PWR6011                                      | 10.9 | 12.0    | 13.2 | V <sub>DC</sub>   |
|                               | PWR6012                                      | 13.9 | 15.0    | 16.5 | V <sub>DC</sub>   |
|                               | PWR6016                                      | 13.9 | 15.0    | 16.5 | V <sub>DC</sub>   |
|                               | PWR6017                                      | 13.9 | 15.0    | 16.5 | V <sub>DC</sub>   |
|                               | PWR6018                                      | 21.6 | 24      | 26.4 | V <sub>DC</sub>   |
|                               | PWR6023                                      | 21.6 | 24      | 26.4 | V <sub>DC</sub>   |
| <b>ISOLATION (Standard)</b>   |  |      |         |      |                   |
| Rated Voltage                 |  | 500  |         |      | V <sub>DC</sub>   |
| Test Voltage                  |  | 500  |         |      | V <sub>pk</sub>   |
| Resistance                    |  |      | 10      |      | GΩ                |
| Capacitance                   |  |      | 27      |      | pF                |
| Leakage Current               | V <sub>ISO</sub> = 240V <sub>AC</sub> , 60Hz |      |         | 5    | μArms             |
| <b>ISOLATION (-HV Option)</b> |  |      |         |      |                   |
| Rated Voltage                 |  | 1000 |         |      | V <sub>DC</sub>   |
| Test Voltage                  |  | 3000 |         |      | V <sub>pk</sub>   |
| Resistance                    |  |      | 10      |      | GΩ                |
| Capacitance                   |  |      | 27      |      | pF                |
| Leakage Current               | V <sub>ISO</sub> = 240V <sub>AC</sub> , 60Hz |      |         | 5    | μArms             |
| <b>OUTPUT</b>                 |  |      |         |      |                   |
| Rated Power                   | -25°C T <sub>A</sub> +70°C                   |      | 1.8     |      | Watts             |
| Voltage Setpoint Accuracy     | Rated Load, Nominal Vin                      |      |         | ±2   | %                 |
| Temperature Coefficient       |  |      | ±0.01   |      | %/°C              |
| Ripple and Noise              | BW = DC to 10MHz                             |      | 20      | 45   | mV <sub>p-p</sub> |
| <b>REGULATION</b>             |  |      |         |      |                   |
| Line                          | High Line to Low Line                        |      | ±0.2    | ±1.0 | %                 |
| Load                          | Full Load to No Load                         |      | 0.5     | 1.0  | %                 |
| <b>GENERAL</b>                |  |      |         |      |                   |
| Switching Frequency           |  |      | 150     |      | kHz               |
| Package Weight                |  |      | 20      |      | g                 |
| MTTF per MIL-HDBK-217, RevE   | Circuit Stress Method                        |      | 930,000 |      | Hr                |
| <b>TEMPERATURE</b>            |  |      |         |      |                   |
| Specification                 |  | -25  | +25     | +70  | °C                |
| Operation                     |  | -25  |         | +100 | °C                |
| Storage                       |  | -40  |         | +110 | °C                |

## TYPICAL APPLICATIONS



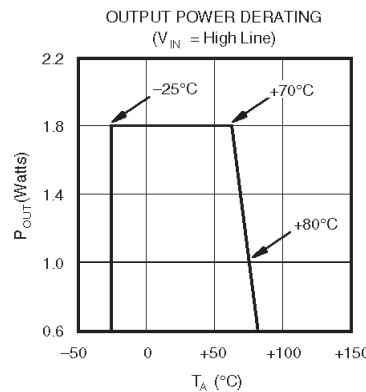
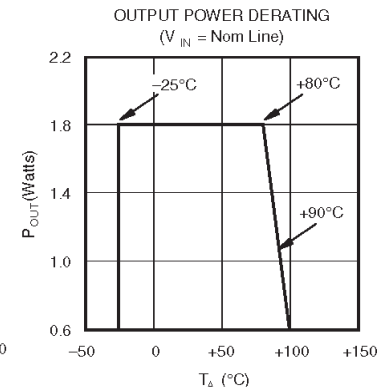
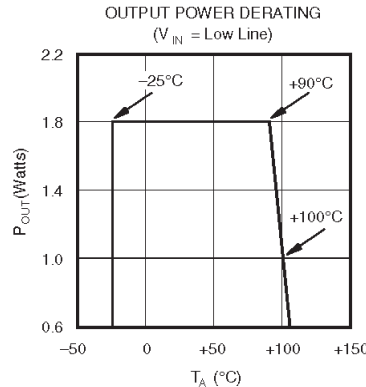
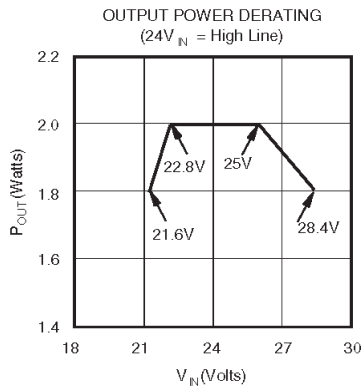
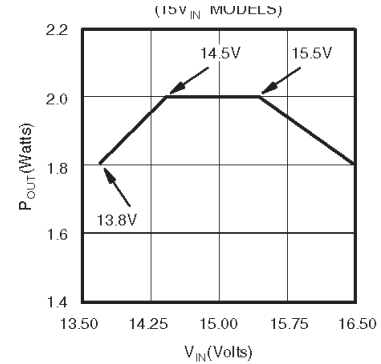
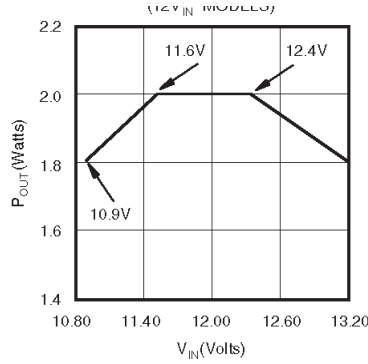
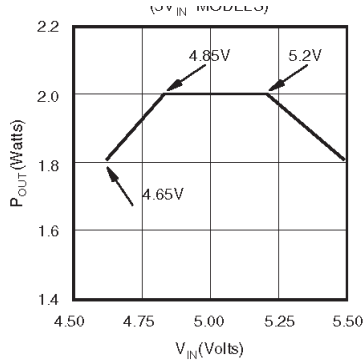
# TYPICAL PERFORMANCE CURVES

$T_A = +25^\circ\text{C}$ , Rated Input Voltage, Rated Output Current unless otherwise noted.



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$T_A = +25^\circ\text{C}$ , Rated Input Voltage, Rated Output Current unless otherwise noted.



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