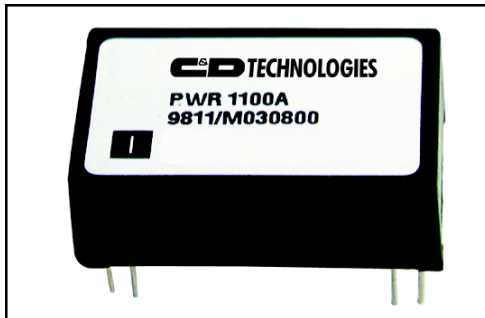


1.5 WATT UNREGULATED DUAL-IN-LINE DC/DC CONVERTER

PWR11XX



DESCRIPTION

The PWR11XX Series offers a broad line of low-cost, high-performance, unregulated, single and dual output DC/DC converters in a 24-pin DIP package. These miniature converters offer better performance and lower cost in industry-standard packages and pin-outs. The PWR11XX Series is internally filtered. No external parts are necessary.

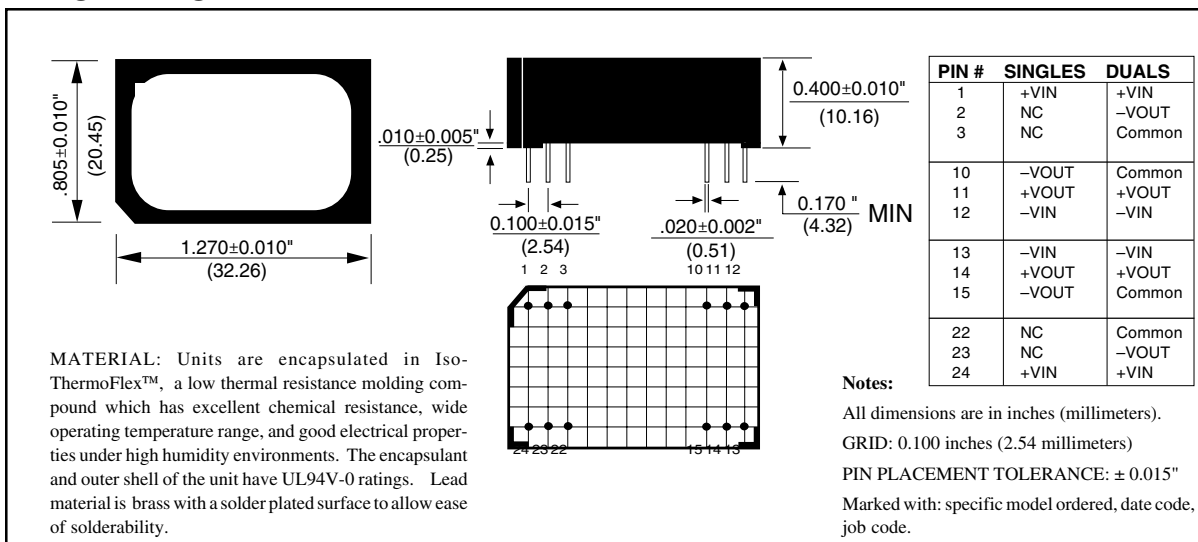
Surface mounted components and a special encapsulant allow for superior reliability, excellent thermal dissipation, and an extended temperature range of -25°C to $+85^{\circ}\text{C}$ at no extra cost.

The PWR11XX Series is ideal for use on high-density PC boards where isolated, unregulated, power is needed. Stand-offs allow for PC board cleaning, helping preserve isolation. They also allow for visual inspection of solder joints.

FEATURES

- Low Cost
- Industry-Standard Package
- Single and Dual Outputs
- Internal Input and Output Filtering
- 24-Pin DIP Package
- Built-In Standoffs

MECHANICAL



Internet: <http://www.cdpowerelectronics.com>

Power Electronics Division, United States
 3400 E Britannia Drive, Tucson, Arizona 85706
 Phone: 800.547.2537 Fax: 520.295-4197

Power Electronics Division, Europe
 C&D Technologies (Power Electronics) Ltd.
 132 Shannon Industrial Estate, Shannon, Co. Clare, Ireland
 Tel: +353.61.474.133 Fax: +353.61.474.141

ELECTRICAL SPECIFICATIONS

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

| MODEL | NOMINAL INPUT VOLTAGE | RATED OUTPUT VOLTAGE | RATED OUTPUT CURRENT | INPUT CURRENT | | REFLECTED RIPPLE CURRENT |
|---------|-----------------------|----------------------|----------------------|---------------|------------|--------------------------|
| | | | | NO LOAD | RATED LOAD | |
| Units | Vdc | Vdc | mA | mA | mA | mAp-p |
| PWR1100 | 5 | 5 | 300 | 30 | 400 | 45 |
| PWR1101 | 5 | 12 | 125 | 30 | 400 | 45 |
| PWR1102 | 5 | 15 | 100 | 30 | 400 | 45 |
| PWR1103 | 5 | ±5 | ±150 | 30 | 400 | 45 |
| PWR1104 | 5 | ±12 | ±63 | 30 | 400 | 45 |
| PWR1105 | 5 | ±15 | ±50 | 30 | 400 | 45 |
| PWR1106 | 12 | 5 | 300 | 30 | 175 | 25 |
| PWR1107 | 12 | 12 | 125 | 30 | 175 | 25 |
| PWR1108 | 12 | 15 | 100 | 30 | 175 | 25 |
| PWR1109 | 12 | ±5 | ±150 | 30 | 175 | 25 |
| PWR1110 | 12 | ±12 | ±63 | 30 | 175 | 25 |
| PWR1111 | 12 | ±15 | ±50 | 30 | 175 | 25 |
| PWR1112 | 15 | 5 | 300 | 30 | 140 | 20 |
| PWR1113 | 15 | 12 | 125 | 30 | 140 | 20 |
| PWR1114 | 15 | 15 | 100 | 30 | 140 | 20 |
| PWR1115 | 15 | ±5 | ±150 | 30 | 140 | 20 |
| PWR1116 | 15 | ±12 | ±63 | 30 | 140 | 20 |
| PWR1117 | 15 | ±15 | ±50 | 30 | 140 | 20 |
| PWR1118 | 24 | 5 | 300 | 30 | 90 | 20 |
| PWR1119 | 24 | 12 | 125 | 30 | 90 | 20 |
| PWR1120 | 24 | 15 | 100 | 30 | 90 | 20 |
| PWR1121 | 24 | ±5 | ±150 | 30 | 90 | 20 |
| PWR1122 | 24 | ±12 | ±63 | 30 | 90 | 20 |
| PWR1123 | 24 | ±15 | ±50 | 30 | 90 | 20 |
| PWR1140 | 5 | 9 | 167 | 30 | 400 | 45 |
| PWR1141 | 12 | 9 | 167 | 30 | 175 | 25 |
| PWR1142 | 15 | 9 | 167 | 30 | 140 | 20 |

COMMON SPECIFICATIONS

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

| PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS | |
|--|--|------|-------|------|------------------|-------------------|
| INPUT Voltage Range | | 4.5 | 5 | 5.5 | Vdc | |
| | | 10.8 | 12 | 13.2 | Vdc | |
| | | 13.5 | 15 | 16.5 | Vdc | |
| | | 21.6 | 24 | 26.4 | Vdc | |
| ISOLATION Rated Voltage Test Voltage Resistance Capacitance Leakage Current | 60 Hz, 10 Seconds $V_{ISO} = 240\text{VAC}, 60\text{Hz}$ | 500 | | | Vdc | |
| | | 500 | | | Vpk | |
| | | | 10 | | $\text{G}\Omega$ | |
| | | | 90 | | pF | |
| | | | 10 | | μArms | |
| OUTPUT Rated Power Voltage Setpoint Accuracy Temperature Coefficient Ripple and Noise (BW = DC to 20MHz) Voltage Line Regulation Load | Rated Load, Nominal V_{in} No External Components 10 μF Across Each Output 10 μF Across Each Output No Load, $V_{OUT} = +5\text{V}$ No Load, $V_{OUT} = \pm 12\text{V}$ No Load, $V_{OUT} = \pm 15\text{V}$ No Load To Rated Load | | 1.5 | | W | |
| | | | ±3 | ±5 | % | |
| | | | ±0.02 | | %/°C | |
| | | | | 150 | | mVp-p |
| | | | | 10 | | mVrms |
| | | | | 30 | | mVp-p |
| | | | | | 7 | Vdc |
| | | | | | ±15 | Vdc |
| | | | | | ±18 | Vdc |
| | | | | | 1.2 | %/V _{IN} |
| | | | 6 | % | | |
| GENERAL Switching Frequency Package Weight MTTF per MIL-HDBK-217 Rev. E* Efficiency | Circuit Stress Method | | 150 | | kHz | |
| | | | 12 | | g | |
| | | | 800 | | kHr | |
| | | | 75 | | % | |
| TEMPERATURE Specification Operation Storage | | -25 | +25 | +85 | °C | |
| | | -40 | | +100 | °C | |
| | | -40 | | +110 | °C | |

* For demonstrated MTTF results reference Burr-Brown Reliability Report PWR1205 (Literature Number PA647)

ABSOLUTE MAXIMUM RATINGS

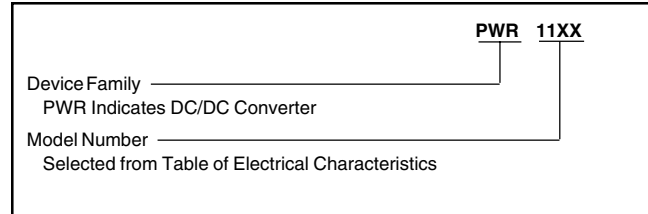
| | |
|---|-----------|
| Output Short-Circuit Duration | Momentary |
| Internal Power Dissipation | 750mW |
| Lead Soldering Temperature (10 seconds max) | +300°C |

APPLICATION NOTE

UNBALANCED LOADS

Unbalanced loads may be used on dual output models with either side providing up to its rated current. Output voltages, by design, will track each other in an unbalanced state within $\pm 10\%$ of one another.

ORDERING INFORMATION

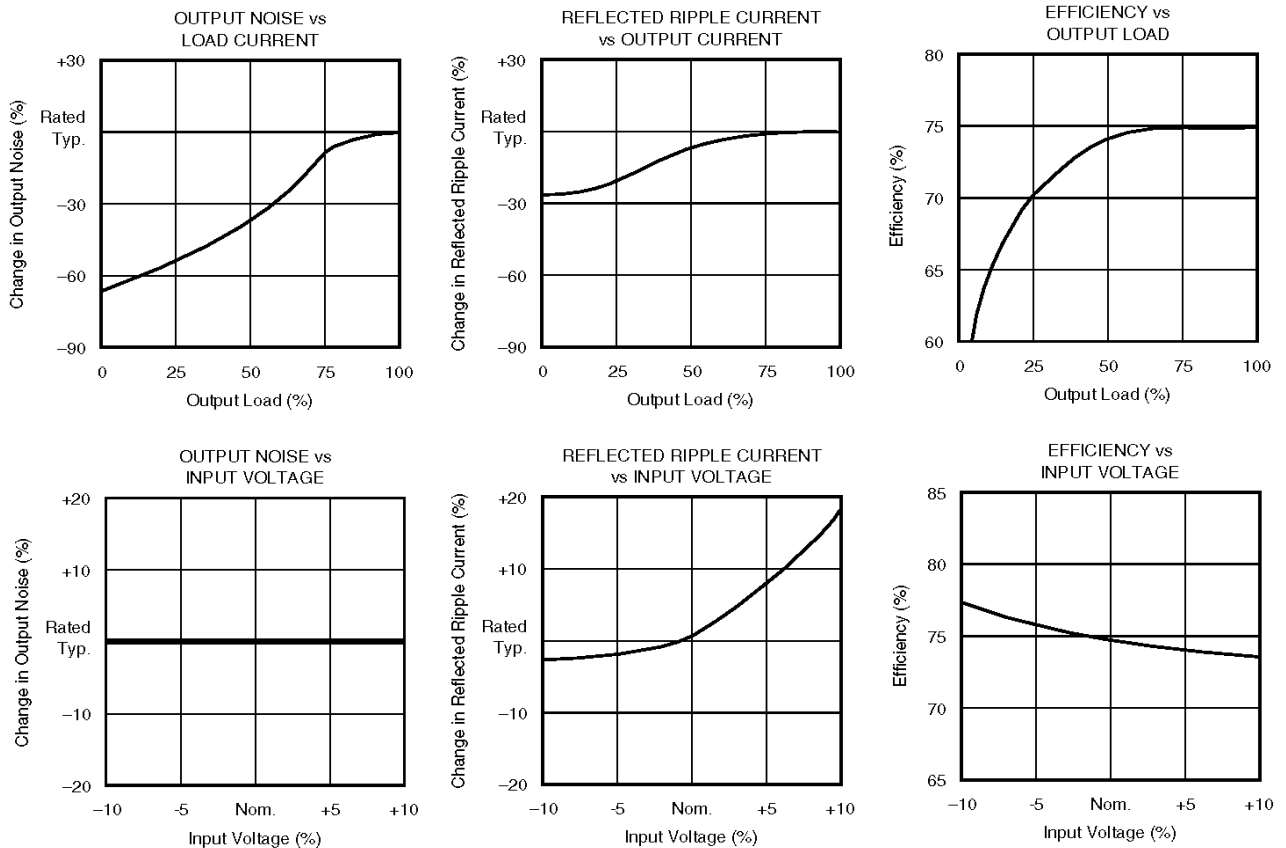


OUTPUT NOISE

Output noise can be reduced to 30mVp-p, typically, by adding a 10 μ F tantalum capacitor with an equivalent series resistance (ESR) of less than 150m Ω at 10kHz across each output.

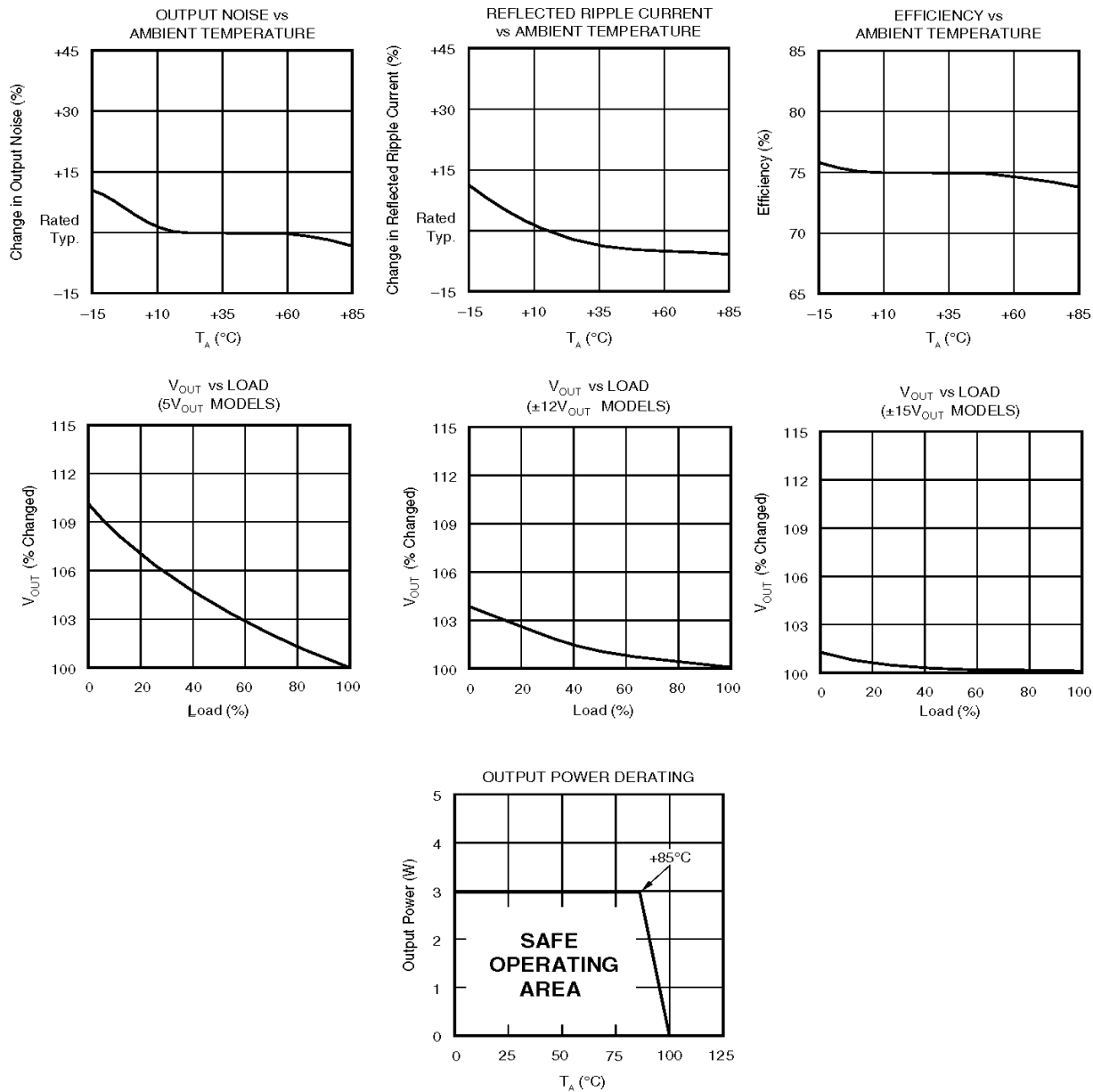
TYPICAL PERFORMANCE CURVES

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



TYPICAL PERFORMANCE CURVES (CONT)

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



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