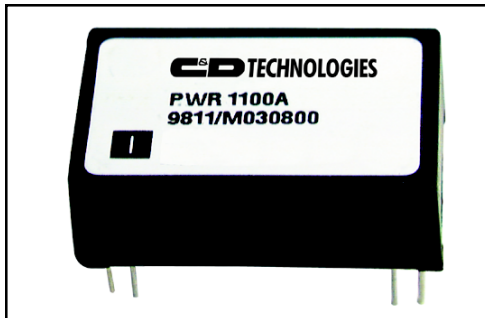


## 1.5 WATT UNREGULATED DUAL-IN-LINE DC/DC CONVERTER

### 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.

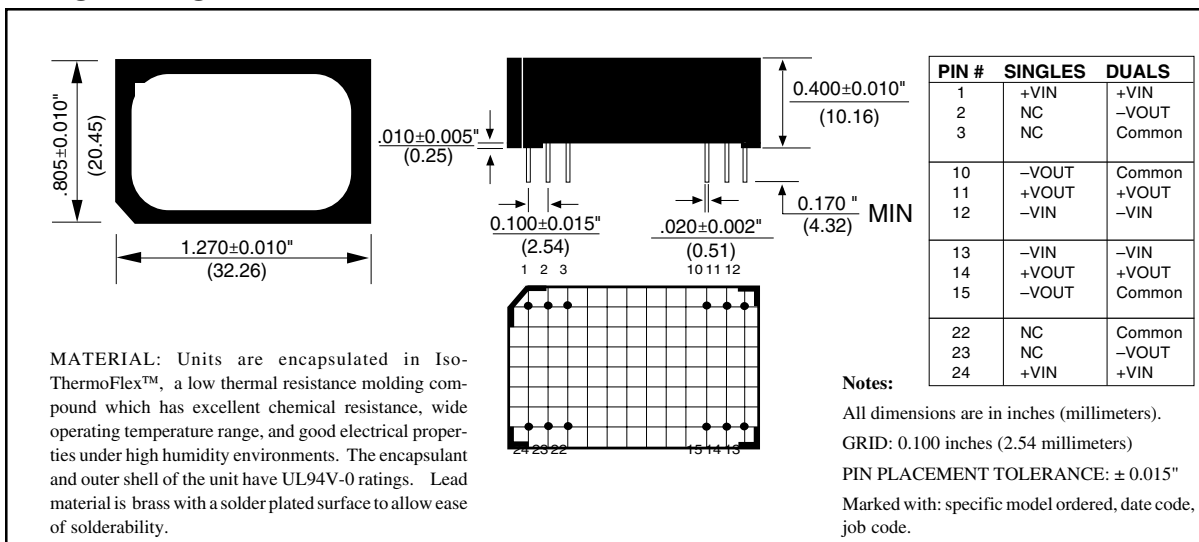
Surface mounted components and a special encapsulant allow for superior reliability, excellent thermal dissipation, and an extended temperature range of  $-25^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  at no extra cost.

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



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# 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	
<b>INPUT</b> 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	
<b>ISOLATION</b> 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		$\mu\text{Arms}$	
<b>OUTPUT</b> 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 $\mu\text{F}$ Across Each Output 10 $\mu\text{F}$ 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 <sub>IN</sub>
		6		%		
<b>GENERAL</b> Switching Frequency Package Weight MTTF per MIL-HDBK-217 Rev. E* Efficiency	Circuit Stress Method		150		kHz	
			12		g	
			800		kHr	
			75		%	
<b>TEMPERATURE</b> 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

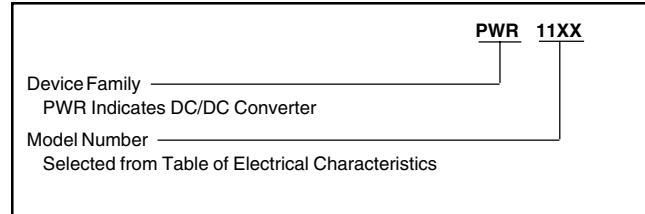
Output Short-Circuit Duration .....	Momentary
Internal Power Dissipation .....	750mW
Lead Soldering Temperature (10 seconds max) .....	+300°C

## 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

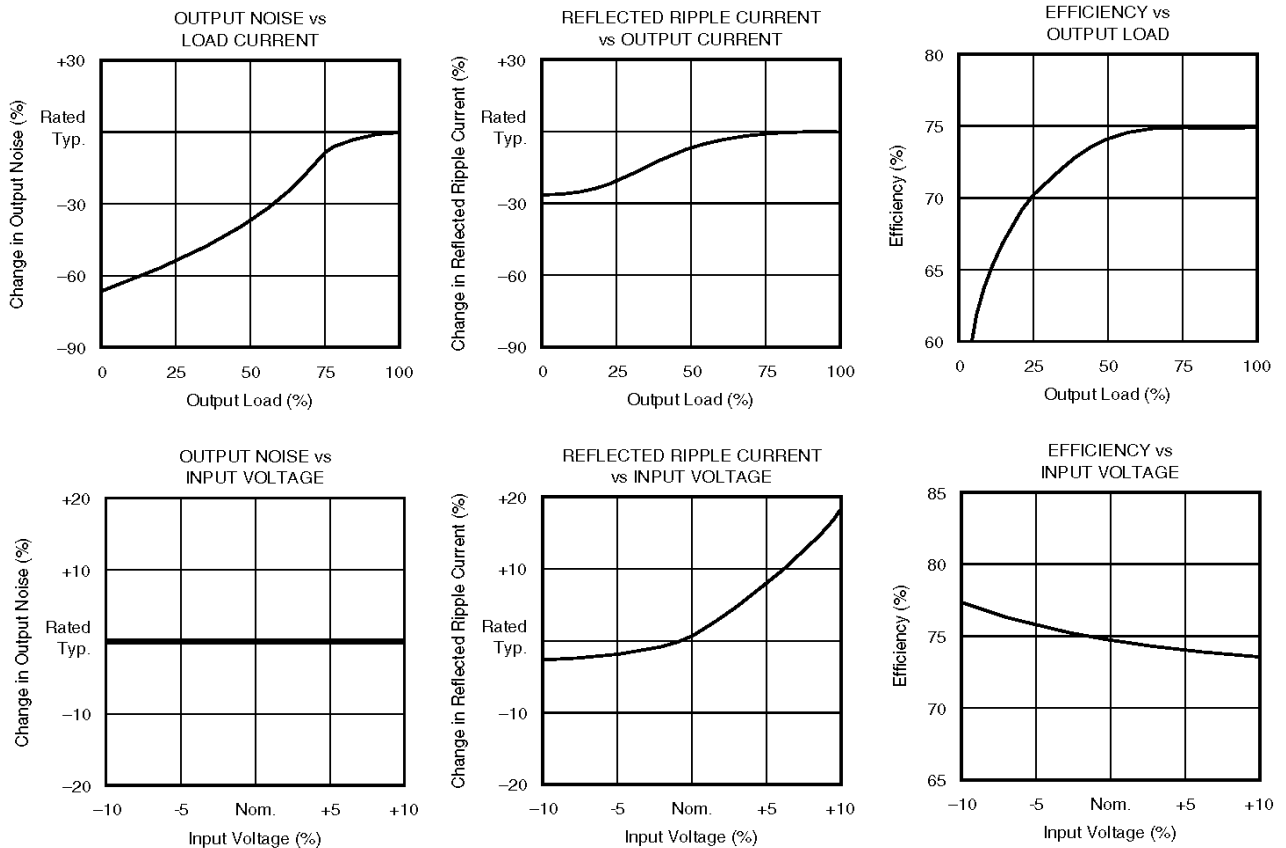


### OUTPUT NOISE

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

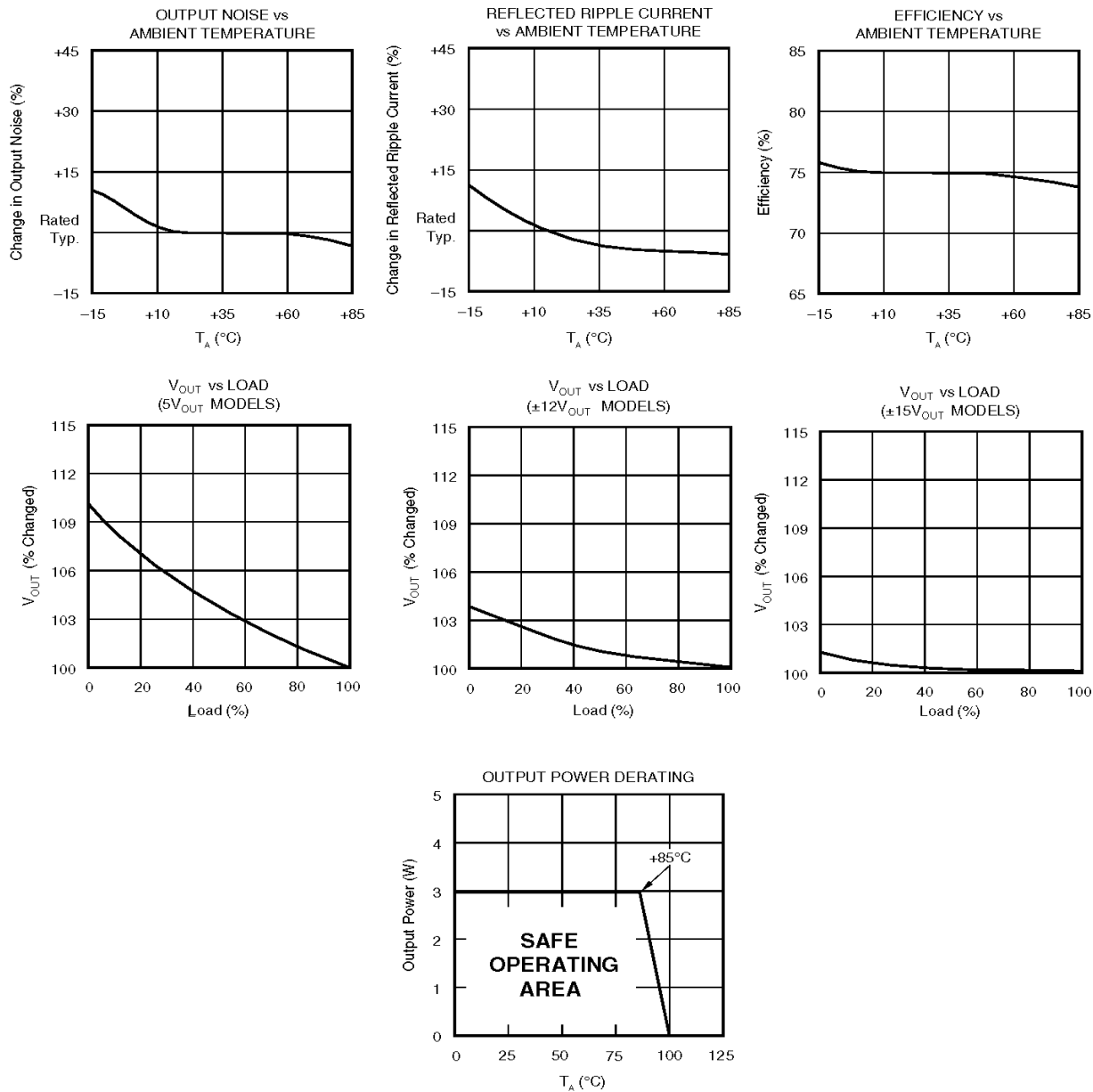
## TYPICAL PERFORMANCE CURVES

$T_A = +25^\circ\text{C}$ , 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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