

3 WATTS UNREGULATED DC/DC CONVERTERS

PWR12XX



DESCRIPTION

The PWR12XX 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 pinouts. The PWR12XX Series is internally filtered. No external parts are necessary.

Surface mounted components and a low thermal resistance 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 PWR12XX Series is ideal for use on high-density PC boards where isolated, unregulated, power is needed. Standoffs 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
- 24-PIN DIP PACKAGE
- BUILT-IN STANDOFFS
- INTERNAL INPUT AND OUTPUT FILTERING

MECHANICAL

TOP VIEW

SIDE VIEW

NC = Do Not Connect
Duplicate pin functions are internally connected.
All dimensions are in inches (millimeters).
GRID: 0.100 inches (2.54 millimeters)
PIN PLACEMENT TOLERANCE: $\pm 0.015''$

MATERIAL: Units are encapsulated in a low thermal resistance molding compound which has excellent chemical resistance, wide operating temperature range, and good electrical properties under high humidity environments. The encapsulant and outer shell of the unit have UL94V-0 ratings. Lead material is brass with a solder plated surface to allow ease of solderability.

BOTTOM VIEW

PIN #	SINGLES	DUALS
1	+VIN	+VIN
2	NC	-VOUT
3	NC	Common
10	-VOUT	Common
11	+VOUT	+VOUT
12	-VIN	-VIN
13	-VIN	-VIN
14	+VOUT	+VOUT
15	-VOUT	Common
22	NC	Common
23	NC	-VOUT
24	+VIN	+VIN

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ELECTRICAL SPECIFICATIONS

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

MODEL	NOMINAL INPUT VOLTAGE (Vdc)	RATED OUTPUT VOLTAGE (Vdc)	RATED OUTPUT CURRENT (mA)	INPUT CURRENT		REFLECTED RIPPLE CURRENT (mApp)
				NO LOAD (mA)	RATED LOAD (mA)	
PWR1200	5	5	600	30	800	45
PWR1201	5	12	250	30	800	45
PWR1202	5	15	200	30	800	45
PWR1203	5	± 5	± 300	30	800	45
PWR1204	5	± 12	± 125	30	800	45
PWR1205	5	± 15	± 100	30	800	45
PWR1206	12	5	600	30	330	25
PWR1207	12	12	250	30	330	25
PWR1208	12	15	200	30	330	25
PWR1209	12	± 5	± 300	30	330	25
PWR1210	12	± 12	± 125	30	330	25
PWR1211	12	± 15	± 100	30	330	25
PWR1212	15	5	600	30	265	20
PWR1213	15	12	250	30	265	20
PWR1214	15	15	200	30	265	20
PWR1215	15	± 5	± 300	30	265	20
PWR1216	15	± 12	± 125	30	265	20
PWR1217	15	± 15	± 100	30	265	20
PWR1218	24	5	600	30	165	20
PWR1219	24	12	250	30	165	20
PWR1220	24	15	200	30	165	20
PWR1221	24	± 5	± 300	30	165	20
PWR1222	24	± 12	± 125	30	165	20
PWR1223	24	± 15	± 100	30	165	20
PWR1240	5	9	333	30	800	45
PWR1241	12	9	333	30	330	25
PWR1242	15	9	333	30	265	20
PWR1243	24	9	333	30	165	20

COMMON SPECIFICATIONS

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

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT Voltage Range		4.5 10.8 13.5 21.6	5 12 15 24	5.5 13.2 16.5 26.4	V _{DC} V _{DC} V _{DC} V _{DC}
ISOLATION Rated Voltage Test Voltage Resistance Capacitance Leakage Current	60 Hz, 10 Seconds V _{ISO} = 240V _{AC} , 60HZ	500 500	10 90 10		V _{DC} V _{pk} G _N pF 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} = +5V No Load, V _{OUT} = $\pm 12\text{V}$ No Load, V _{OUT} = $\pm 15\text{V}$ No Load To Rated Load		3 ± 3 ± 0.02 150 10 30 1.2 6	 7 ± 15 ± 18	W % %/°C mVp-p mVrms mVp-p V _{DC} V _{DC} V _{DC} %/V _{IN} %
GENERAL Package Weight Switching Frequency MTTF per MIL-HDBK-217, Rev E* Efficiency	Circuit Stress Method		12 150 700 75		g kHz kHr %
TEMPERATURE Specification Operation Storage		-25 -40 -40	+25	+85 +125 +125	°C °C °C

* For demonstrated MTTF results reference Power Convertible's Reliability Report PWR1205

ABSOLUTE MAXIMUM RATINGS

Output Short-Circuit Duration	Momentary
Internal Power Dissipation	1.3W
Lead Temperature (soldering, 10 seconds max)	+300°C

ORDERING INFORMATION

Device Family _____	PWR	12XX
PWR indicates DC/DC converter		
Model Number _____		
Selected from Table of Electrical Characteristics		

APPLICATION NOTES

UNBALANCED LOADS

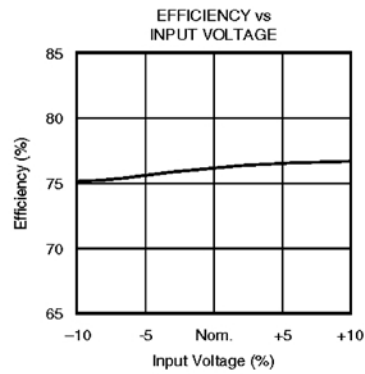
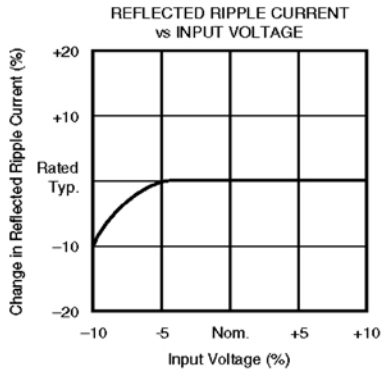
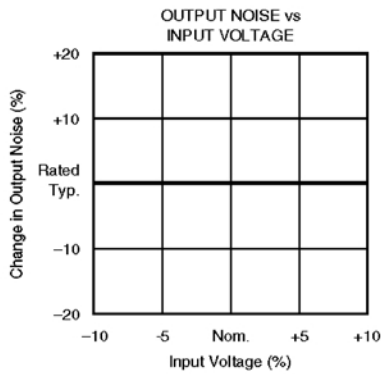
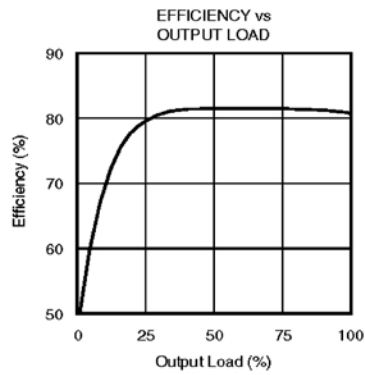
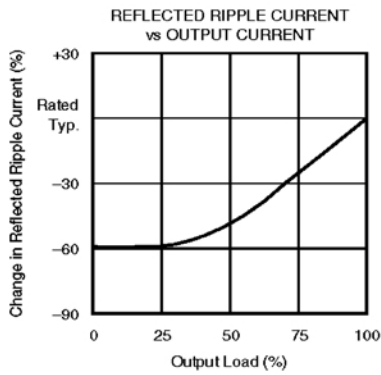
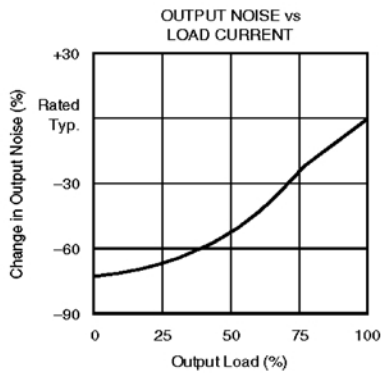
Unbalanced loads may be used on dual output models with either side providing up to its rated current. Output voltages, by design, will track each other in an unbalanced state within ±10% of one another.

OUTPUT NOISE

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

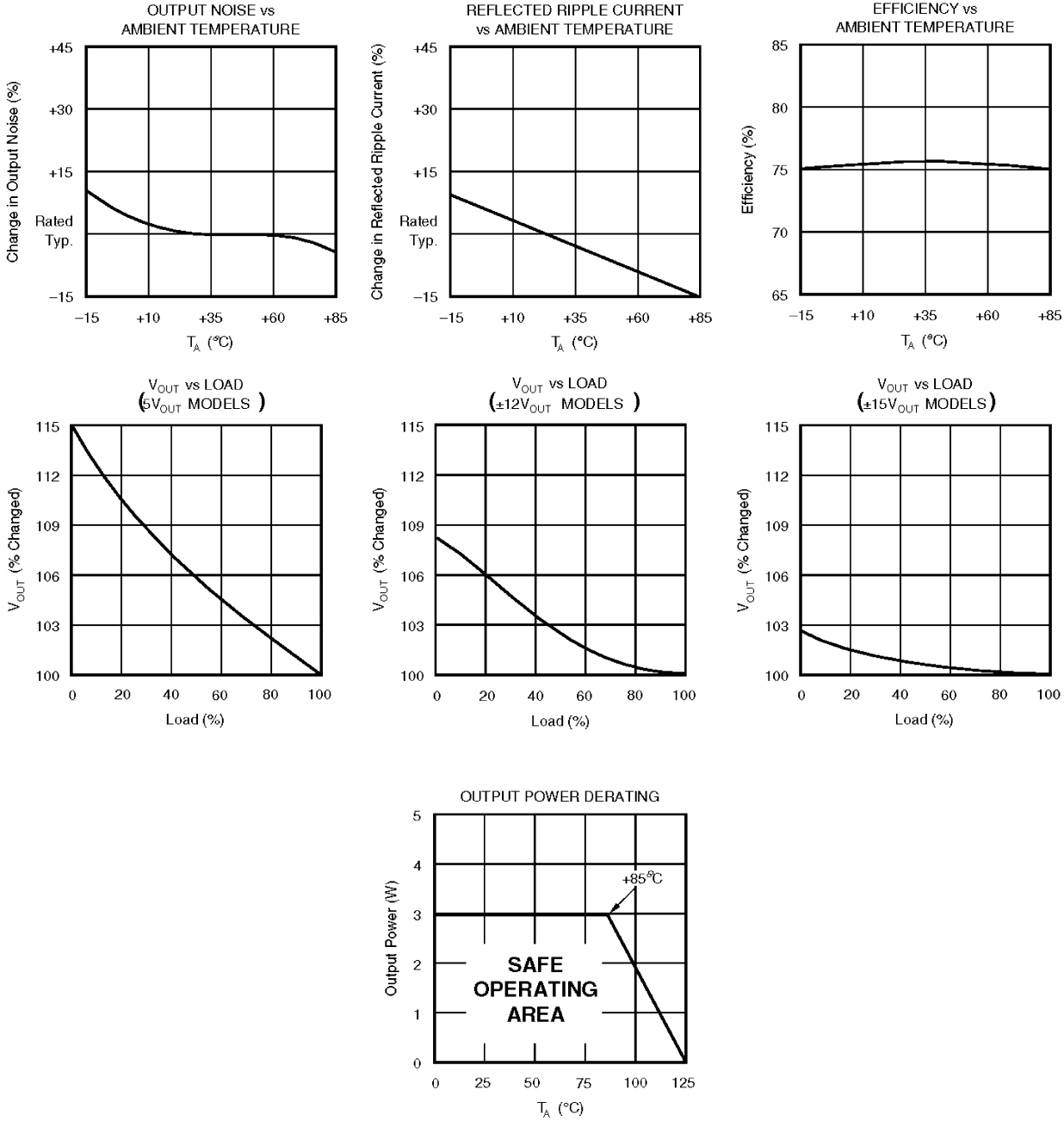
TYPICAL PERFORMANCE CURVES

T_A = +25°C, Rated Input Voltage, Rated Output Current unless otherwise noted.



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