C&D TECHNOLOGIES

Product Data Sheet

1.8 WATT REGULATED DC/DC CONVERTER

PWR60XX

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.

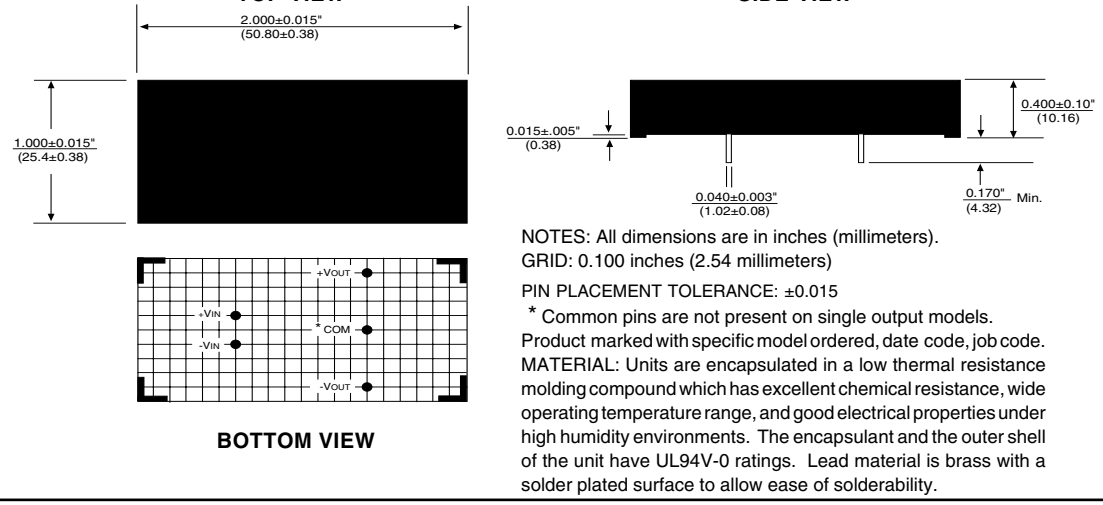
The series includes eleven models (other input and output voltages are available upon request), all set in an encapsulant for excellent thermal dissipation for internal components. The use of surface-mount devices and manufacturing processes combined with the encapsulation process, provides the user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

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**

MECHANICAL



NOTES: All dimensions are in inches (millimeters).
GRID: 0.100 inches (2.54 millimeters)

PIN PLACEMENT TOLERANCE: ±0.015

* Common pins are not present on single output models.

Product marked with specific model ordered, date code, job code.

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 the outer shell of the unit have UL94V-0 ratings. Lead material is brass with a solder plated surface to allow ease of solderability.

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ELECTRICAL SPECIFICATIONS

Specifications typical at T_A = +25°C, rated input voltage, rated output current unless otherwise specified.

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	RATED OUTPUT CURRENT (mA)	INPUT CURRENT NO LOAD (mA)	INPUT CURRENT RATED LOAD (mA)	REFLECTED RIPPLE CURRENT (mAp-p)	EFFICIENCY (%)
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

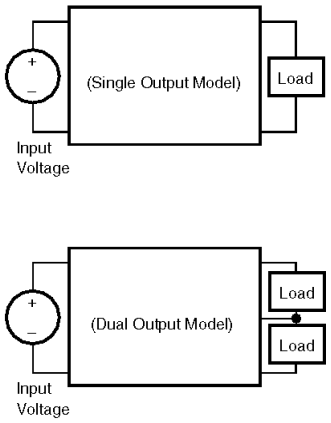
NOTE: Other input to output voltages may be available. Please consult factory.

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)

TYPICAL APPLICATIONS



COMMON SPECIFICATIONS

Specifications typical at T_A = +25°C, rated input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT	PWR6000	4.65	5.0	5.5	VDC
	PWR6004	4.65	5.0	5.5	VDC
	PWR6005	4.65	5.0	5.5	VDC
	PWR6006	10.9	12.0	13.2	VDC
	PWR6010	10.9	12.0	13.2	VDC
	PWR6011	10.9	12.0	13.2	VDC
	PWR6012	13.9	15.0	16.5	VDC
	PWR6016	13.9	15.0	16.5	VDC
	PWR6017	13.9	15.0	16.5	VDC
	PWR6018	21.6	24	26.4	VDC
	PWR6023	21.6	24	26.4	VDC
ISOLATION (Standard)					
Rated Voltage		500			VDC
Test Voltage		500			Vpk
Resistance			10		GΩ
Capacitance			27		pF
Leakage Current	V_{ISO} = 240VAC, 60Hz			5	µArms
ISOLATION (–HV Option)					
Rated Voltage		1000			VDC
Test Voltage		3000			Vpk
Resistance			10		GΩ
Capacitance			27		pF
Leakage Current	V_{ISO} = 240VAC, 60Hz			5	µArms
OUTPUT					
Rated Power	–25°C - T_A - +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	mVp-p
REGULATION					
Line	High Line to Low Line		±0.2	±1.0	%
Load	Full Load to No Load		0.5	1.0	%
GENERAL					
Switching Frequency			150		kHz
Package Weight			20		g
MTTF per MIL-HDBK-217, RevE	Circuit Stress Method		930,000		Hr
TEMPERATURE					
Specification		–25	+25	+70	°C
Operation		–25		+100	°C
Storage		–40		+110	°C

ORDERING INFORMATION

PWR 60XX –HV /H

Device Family
- PWR Indicates DC/DC converter

Model Number
- Selected From Table of Electrical Characteristics

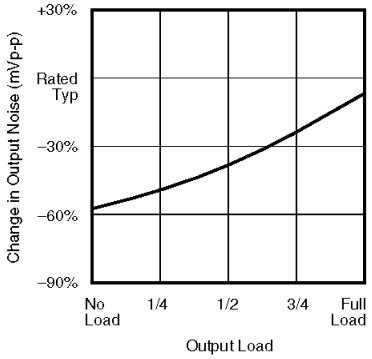
High Voltage Option
- No Designator Indicates Standard Model

Screening Option

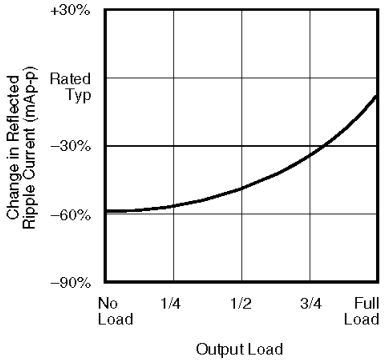
TYPICAL PERFORMANCE CURVES

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

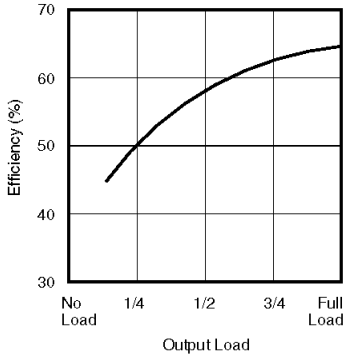
OUTPUT NOISE vs LOAD CURRENT



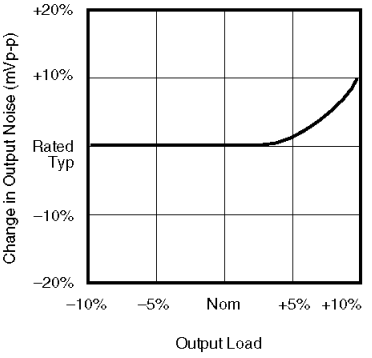
REFLECTED RIPPLE CURRENT vs OUTPUT CURRENT



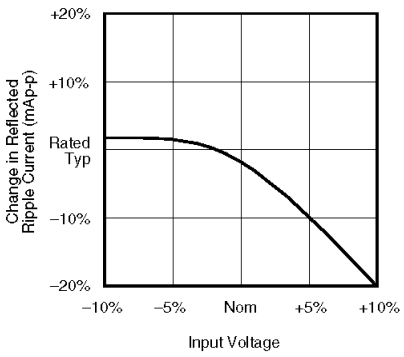
EFFICIENCY vs OUTPUT LOAD



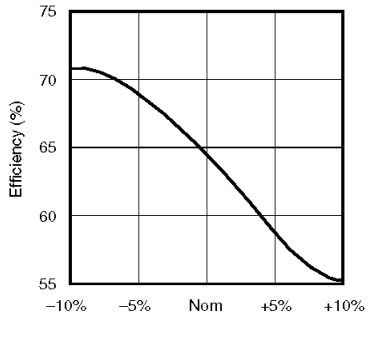
OUTPUT NOISE vs LOAD CURRENT



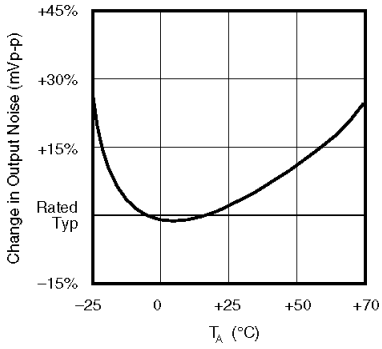
REFLECTED RIPPLE CURRENT vs INPUT VOLTAGE



EFFICIENCY vs INPUT VOLTAGE



OUTPUT NOISE vs AMBIENT TEMPERATURE



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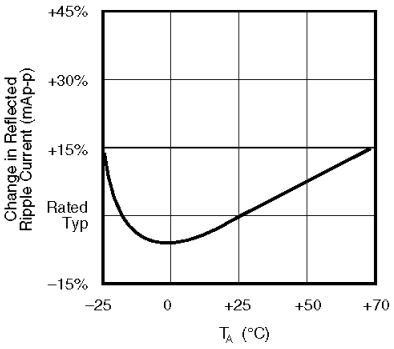

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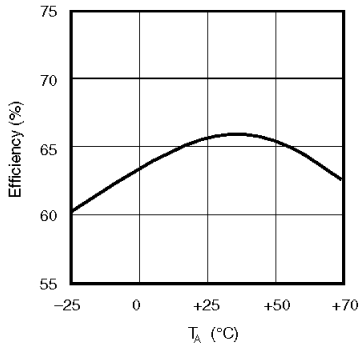
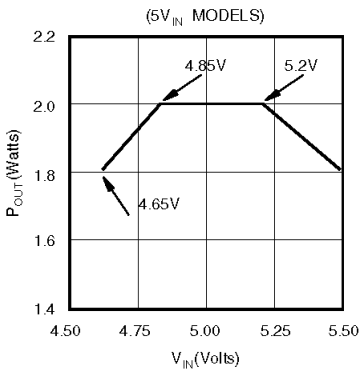
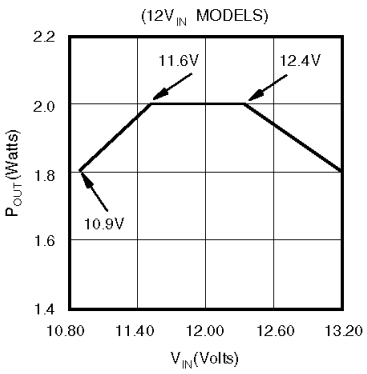
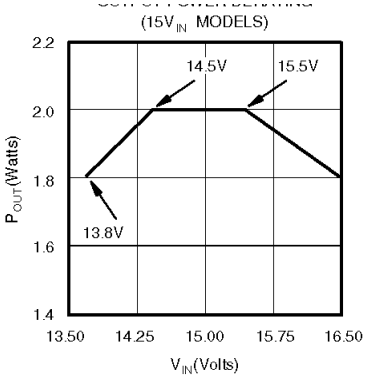
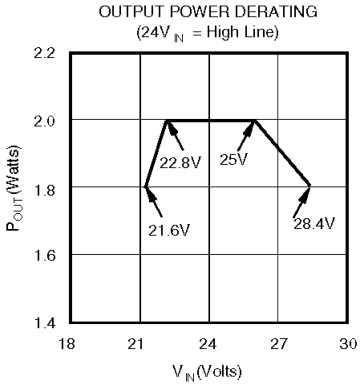
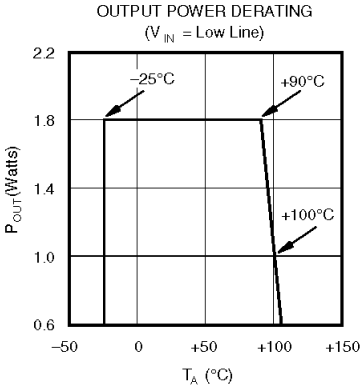
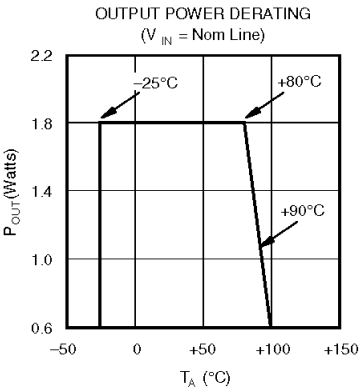
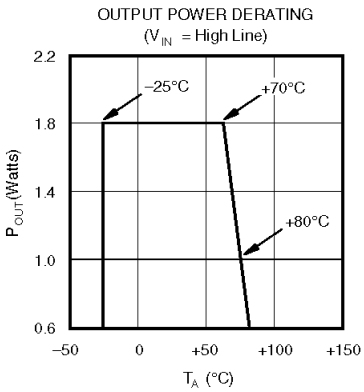


TYPICAL PERFORMANCE CURVES

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