

DC/DC CONVERTERS

INDUSTRY STANDARD PINOUT, LOW COST

FEATURES

- HIGH RELIABILITY
- SHORT-CIRCUIT PROTECTED
- FOLDBACK CURRENT LIMIT
- HIGH EFFICIENCY
- LINEAR OUTPUT REGULATION
- TRACKING OUTPUTS
- SIX-SIDED SHIELDING
- INTERNAL INPUT AND OUTPUT FILTERING
- NON-CONDUCTIVE CASE
- INDUSTRY STANDARD PINOUT
- 500VDC ISOLATION

DESCRIPTION

The PWR70XX Series uses advanced circuit design and packaging technology to realize superior reliability and performance. A 170kHz driven push-pull oscillator is used to ensure stable frequency and non-saturating operation of the input stage. This means there are no high peak voltages or currents like other design topologies, which can severely reduce unit reliability. Reliability is further enhanced by the use of MOSPOWER transistors. These rugged devices permit higher frequency operation with less complicated drive circuitry than is possible with bipolar power transistors. Reduced parts count adds to the reliability of the PWR70XX Series.

Continuous short-circuit protection and foldback current limiting make the PWR70XX Series rugged

devices for use in demanding system applications. These features add to the overall reliability of the PWR70XX Series by reducing the possibility of inadvertently damaging the unit due to an output overload.

The high efficiency of the PWR70XX Series means low internal power dissipation. With less heat dissipated, the PWR70XX Series can operate at higher ambient temperature with no degradation of reliability.

The PWR70XX Series offers the user low cost without sacrificing reliability. The use of surface mounted devices and manufacturing technologies makes it possible to offer premium performance and low cost.

ABSOLUTE MAXIMUM RATINGS

Output Short-Circuit Duration.....	Continuous
Internal Power Dissipation.....	3.5W
Lead Temperature (soldering, 10 seconds max).....	+300°C

ORDERING INFORMATION

	PWR	70XX	A	/H
Device Family	PWR Indicates DC/DC Converter			
Model Number	Selected from Table of Electrical Characteristics			
Package Option	A or C (see Mechanical section)			
Screening Option				

ELECTRICAL SPECIFICATIONS

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

MODEL	NOMINAL Input Voltage (VDC)	Rated OUTPUT Voltage (VDC)	RATED OUTPUT CURRENT (mA)	Input Current		Reflected Ripple Current (mA-p-p)	EFFICIENCY (%)
				No Load (mA)	RATED Load (mA)		
PWR7000	5	5	1000	50	1580	30	63
PWR7004	5	± 12	± 210	50	1490	30	67
PWR7005	5	± 15	± 167	50	1450	30	69
PWR7006	12	5	1000	30	620	30	67
PWR7010	12	± 12	± 210	30	580	30	72
PWR7011	12	± 15	± 167	30	570	30	73
PWR7012	15	5	1000	30	500	30	67
PWR7016	15	± 12	± 210	30	480	30	70
PWR7017	15	± 15	± 167	30	460	30	73
PWR7018	24	5	1000	30	320	30	65
PWR7022	24	± 12	± 210	30	310	30	67
PWR7023	24	± 15	± 167	30	305	30	68
PWR7030	48	5	1000	20	165	30	63
PWR7033	48	± 5	± 500	20	168	30	62

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

COMMON SPECIFICATIONS

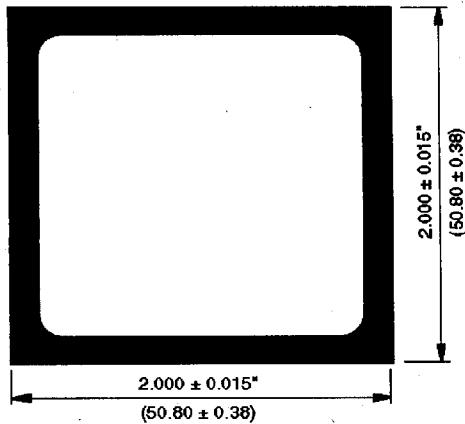
Specifications typical at $T_A = +25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT Voltage Range		4.75	5	5.25	VDC
		10.8	12	13.2	VDC
		13.5	15	16.5	VDC
		21.6	24	26.5	VDC
		43.2	48	52.8	VDC
ISOLATION Rated Voltage Test Voltage Resistance Capacitance Leakage Current	60Hz, 10 Seconds	500			VDC
		500			Vpk
	$V_{ISO} = 240\text{VAC}, 60\text{Hz}$		10		GΩ
			80		pF
OUTPUT Rated Power Voltage Setpoint Accuracy Temperature Coefficient Ripple and Noise Tracking	Rated Load, Nominal V_{IN} BW = DC to 10MHz BW = DC to 2MHz $-V_{OUT}$ Tracks $+V_{OUT}$		5		W
			± 0.02	± 1	%
			30		%/ $^\circ\text{C}$
			5		mVp-p
			± 1		mVrms
TRANSIENT RESPONSE 5V Output Models (Within $\pm 1\%$) All Other Models (Within $\pm 0.1\%$)	Rated Load to No Load No Load to Rated Load Rated Load to No Load No Load to Rated Load		50		μs
			100		μs
			30		μs
			100		μs
REGULATION Line Regulation Load Regulation 5V Output Models All Other Models	High Line to Low Line Rated Load to No Load		± 0.02		%
			± 0.04		%
			± 0.02		%
GENERAL Switching Frequency Package Weight MTTF per MIL-HDBK-217, Rev. E* Ground Benign Fixed Ground Naval Sheltered Airborne Uninhabited Fighter	Circuit Stress Method $T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$ $T_A = +35^\circ\text{C}$ $T_A = +35^\circ\text{C}$ $T_A = +35^\circ\text{C}$		170		kHz
			50		g
			762,000		Hr
			46,000		Hr
			230,000		Hr
			127,000		Hr
TEMPERATURE Specification Operation Storage		0	+25	+70	$^\circ\text{C}$
		-25		+85	$^\circ\text{C}$
		-40		+110	$^\circ\text{C}$

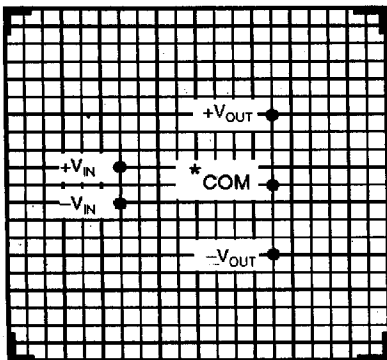
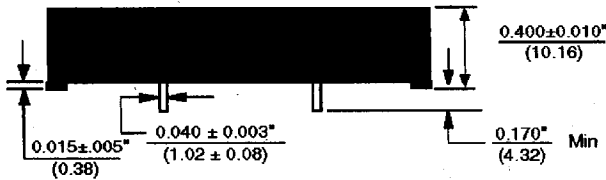
* For demonstrated MTTF results reference Power Convertibles' Reliability Report: PWR7005.

MECHANICAL

Top View



("A" Package Option)
Side View



Bottom View

NOTES: All dimensions are in inches (millimeters).

GRID: 0.1 inches (2.54 millimeters).

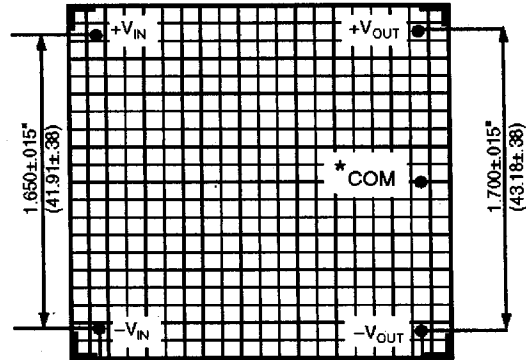
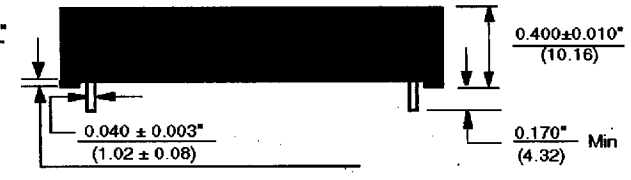
Common pin not present on single output models.

Marked with: specific model ordered, date code, job code.

PIN PLACEMENT TOLERANCE: ±0.015"

MATERIAL: Units are encapsulated in Iso-ThermoFlex™, 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.

("C" Package Option)
Side View



Bottom View

1.700 ± 0.015"
(43.18 ± 0.38)