POWER CONVERTIBLES™

PWR70XX SERIES
5 WATTS
REGULATED

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 reliablility.

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°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 (mAp-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

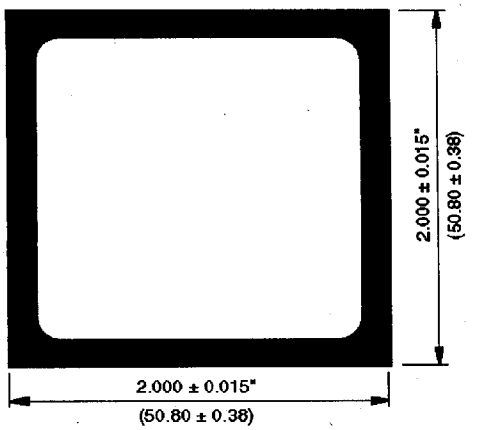
Specifications typical at T_A = +25°C, nominal input voltage, rated output current unless otherwise specified.

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		500			VDC
Test Voltage	60Hz, 10 Seconds	500			Vpk
Resistance			10		GΩ
Capacitance			80		pF
Leakage Current	V_{ISO} = 240VAC, 60Hz		10	18	µArms
OUTPUT					
Rated Power			5		W
Voltage Setpoint Accuracy	Rated Load, Nominal V_{IN}			±1	%
Temperature Coefficient			±0.02		%/°C
Ripple and Noise	BW = DC to 10MHz		30		mVp-p
	BW = DC to 2MHz		5		mVrms
Tracking	$-V_{OUT}$ Tracks $+V_{OUT}$		±1		%
TRANSIENT RESPONSE					
5V Output Models (Within ±1%)	Rated Load to No Load		50		µs
	No Load to Rated Load		100		µs
All Other Models (Within ±0.1%)	Rated Load to No Load		30		µs
	No Load to Rated Load		100		µs
REGULATION					
Line Regulation	High Line to Low Line		±0.02		%
Load Regulation	Rated Load to No Load				
5V Output Models			±0.04		%
All Other Models			±0.02		%
GENERAL					
Switching Frequency			170		kHz
Package Weight			50		g
MTTF per MIL-HDBK-217, Rev. E*	Circuit Stress Method				
Ground Benign	T_A = +25°C		762,000		Hr
	T_A = +70°C		46,000		Hr
Fixed Ground	T_A = +35°C		230,000		Hr
Naval Sheltered	T_A = +35°C		127,000		Hr
Airborne Uninhabited Fighter	T_A = +35°C		29,000		Hr
TEMPERATURE					
Specification		0	+25	+70	°C
Operation		-25		+85	°C
Storage		-40		+110	°C

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

MECHANICAL

Top View



NOTES: All dimensions are in inches (millimeters).

GRID: 0.1 inches (2.54 millimeters).

Common pin not present on single output models.

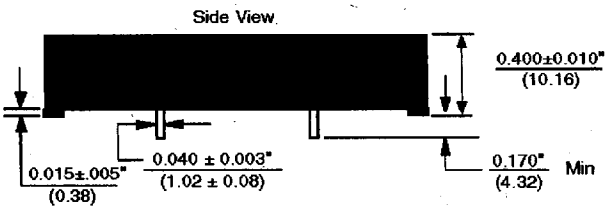
Marked with: specific model ordered, date code, job code.

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.

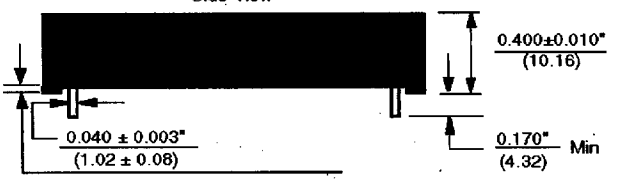
("A" Package Option)

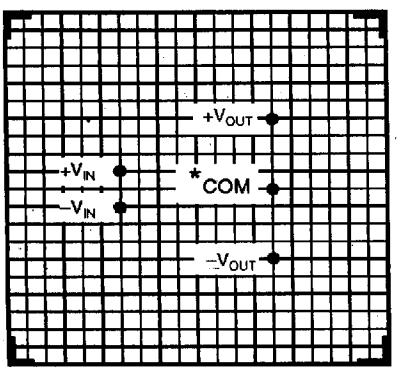
Side View



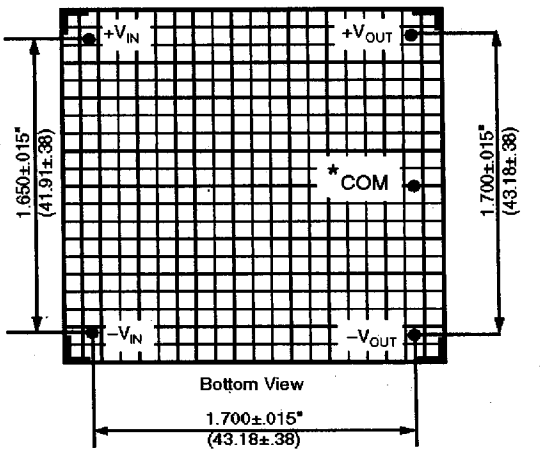
("C" Package Option)

Side View





Bottom View



Bottom View