POWER CONVERTIBLES™

PWR59XX SERIES

.5 to 1 WATT
REGULATED

DC/DC CONVERTERS

24-PIN DUAL-IN-LINE PACKAGE

FEATURES

- HIGH RELIABILITY
- 24-PIN DIP PACKAGE
- INTERNAL INPUT AND OUTPUT FILTERING
- SHORT-CIRCUIT CURRENT LIMITED
- THERMAL OVERLOAD PROTECTION
- BUILT-IN STANDOFFS
- INDUSTRY STANDARD PINOUT

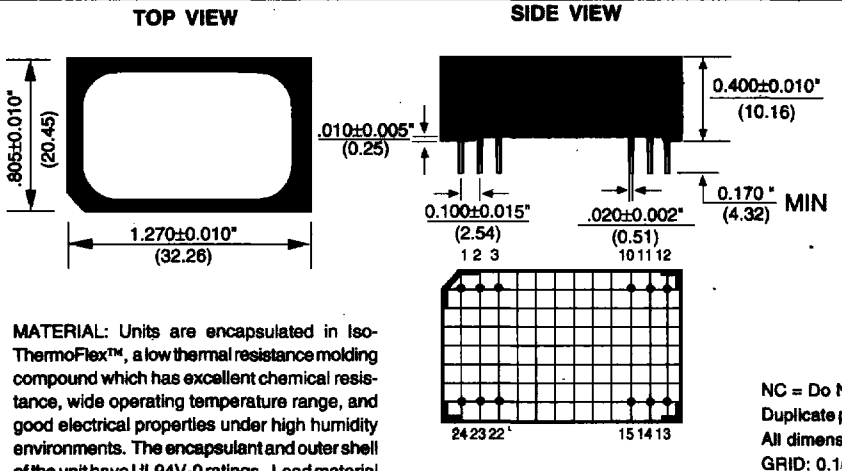
DESCRIPTION

The PWR59XX Series offers an extensive selection of input and output voltage combinations to choose from, including a 9V output for Cheapernet local area networking. Both single and dual output voltages are available. These miniature, regulated DC/DC converters come in a 24-pin dual-in-line package for applications where space is at a premium. This small size is possible through the use of surface mounted devices and manufacturing technologies. SMT processes and components also make it possible to offer the PWR59XX Series with no power derating over an extended temperature range of –25°C to +85°C.

A push-pull input stage ensures fixed frequency, non-saturating operation of the oscillator section of the PWR59XX Series. MOSPOWER transistors are used as high speed switching elements. These rugged devices provide higher frequency to 500kHz operation, and uncomplicated drive circuitry. Reduced component count means higher reliability. High frequency operation means smaller magnetics. Higher isolation voltages are possible, due to the section wound transformer. Higher frequency operation also means less noise generation within the system's bandwidth.

Linear regulators are used in the output stage to minimize variations in output voltage due to line and load changes. These devices also provide short-circuit current limiting and thermal overload protection.

MECHANICAL



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.

PIN CONNECTIONS

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

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: ± 0.015"
Marked with: specific model ordered, date code, job code.

ELECTRICAL SPECIFICATIONS

Specifications typical at T_A = +25°C, nominal input voltage, and 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 (%)	RATED OUTPUT POWER (mW)
PWR5900	5	5	100	40	175	10	57	500
PWR5901	5	9	111	40	345	10	57	1000
PWR5902	5	12	83	40	345	10	57	1000
PWR5903	5	15	67	40	345	10	57	1000
PWR5904	5	±5	±50	40	175	10	57	500
PWR5905	5	±12	±42	40	345	10	57	1000
PWR5906	5	±15	±33	40	345	10	57	1000
PWR5907	12	5	100	35	100	30	42	500
PWR5908	12	9	111	35	170	30	49	1000
PWR5909	12	12	83	35	150	30	55	1000
PWR5910	12	15	67	35	150	30	55	1000
PWR5911	12	±5	±50	35	76	30	55	500
PWR5912	12	±12	±42	35	150	30	55	1000
PWR5913	12	±15	±33	35	150	30	55	1000
PWR5914	15	5	100	30	76	20	44	500
PWR5915	15	9	111	30	135	20	50	1000
PWR5916	15	12	83	30	120	20	55	1000
PWR5917	15	15	67	30	120	20	55	1000
PWR5918	15	±5	±50	30	60	20	55	500
PWR5919	15	±12	±42	30	120	20	55	1000
PWR5920	15	±15	±33	30	120	20	55	1000
PWR5921	24	5	100	15	43	10	48	500
PWR5922	24	9	111	15	83	10	50	1000
PWR5923	24	12	83	15	73	10	55	1000
PWR5924	24	15	67	15	73	10	55	1000
PWR5925	24	±5	±50	15	40	10	55	500
PWR5926	24	±12	±42	15	73	10	60	1000
PWR5927	24	±15	±33	15	73	10	60	1000

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

COMMON SPECIFICATIONS

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

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Input Voltage Range		4.75	5	5.25	VDC
		11.4	12	12.6	VDC
		14.25	15	15.75	VDC
		22.8	24	25.2	VDC
ISOLATION					
Rated Voltage		750			VDC
Test Voltage	60 Hz, 10 Seconds	750			Vpk
Resistance			10		GΩ
Capacitance			50		pF
Leakage Current	V_{ISO} = 240VAC, 60Hz		4		µArms
OUTPUT					
Voltage Setpoint Accuracy	Rated Load, Nominal V_{IN}			±5	%
Temperature Coefficient			±0.02		%/°C
Ripple & Noise	No External Components		50		mVp-p
(BW = DC to 20MHz)	10µF Across Each Output		5		mVrms
	10µF Across Each Output		10	20	mVp-p
Line Regulation			±0.3		%
Load Regulation	No Load to Rated Load		±0.4		%
GENERAL					
Switching Frequency	All Models Except 24V_{IN}		500		kHz
	24V_{IN} Models		200		kHz
MTTF per MIL-HDBK-217, Rev. E*			900		kHr
Package Weight			11		g
TEMPERATURE					
Specification		–25	+25	+85	°C
Operation		–40		+100	°C
Storage		–40		+110	°C

* For demonstrated MTTF results reference Power Convertibles' Reliability Report PWR590s.

ABSOLUTE MAXIMUM RATINGS

Output Short-Circuit Duration	Continuous
Internal Power Dissipation	1.5W
Lead Soldering Temperature (10seconds, max)	+300°C

ORDERING INFORMATION

PWR 59XX /H

- Device Family: PWR Indicates DC/DC Converter
- Model Number: Selected from Table of Electrical Characteristics
- Screening Option