

30 WATT REGULATED, 2:1 WIDE INPUT RANGE, HIGH DENSITY DC/DC CONVERTER

WPN30R



FEATURES

- 18-36 V_{DC} & 36-75 V_{DC} INPUT RANGES
- SMALL SIZE: 2.28" x 2.4" x 0.50"
- INDUSTRY STANDARD PINOUTS
- INPUT AND OUTPUT FILTERING
- SINGLE AND TRIPLE OUTPUTS
- EXTENDED TEMPERATURE RANGE:
-40°C TO +100°C BASEPLATE TEMPERATURE
- REMOTE ON/OFF FUNCTION
- INPUT REVERSE VOLTAGE PROTECTION
- FIXED FREQUENCY OPERATION
- EXCELLENT CROSS-REGULATION
- SHORT CIRCUIT PROTECTION
- EN60950, UL1950 SAFETY APPROVALS PENDING
- EMC EN55022 LEVEL A
- CASE GROUND PIN (AVAILABLE IN SINGLE OUTPUTS)

APPLICATIONS

- TELECOMMUNICATION APPLICATIONS
- BATTERY POWERED SYSTEMS
- PROCESS CONTROL EQUIPMENT
- TRANSPORTATION EQUIPMENT
- DISTRIBUTED POWER SYSTEMS

DESCRIPTION

The WPN30R Series is a family of high performance DC/DC converters. The unit is housed in a space-saving shell and combines low cost with high performance across all line and load conditions. A $\pm 10\%$ output trim feature is provided, allowing the user to compensate for long line lengths. The WPN30R Series is assembled by a fully automated process using surface mount components for increased reliability. Through holes are provided to simplify unit mounting or the addition of a heatsink for high temperature applications. Other features include:

- Full Regulation Down to Zero Load
- Under Voltage Lock-Out, Auto-Start
- Internal Temperature Shutdown, Auto-Reset
- Soft Start
- Remote On/Off (Available in Positive or Negative Logic)
- Remote Sense (Available in Single Outputs)
- Over Current Protection
- Output Over Voltage Protection
- Output Voltage Adjust

AGENCY APPROVALS PENDING



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ELECTRICAL SPECIFICATIONS

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

MODEL	NOMINAL INPUT VOLTAGE (V _{DC})	RATED OUTPUT VOLTAGE (V _{DC})	OUTPUT CURRENT			INPUT CURRENT NOM LOAD (A)	EFFICIENCY (%)
			MIN LOAD (A)	NOM LOAD (A)	MAX LOAD (A)		
WPN30R24S03	24	3.3	0.0	9.0	11.0	1.470	85
WPN30R24S05	24	5.0	0.0	6.0	7.5	1.453	86
WPN30R24S12	24	12	0.0	2.5	3.0	1.437	87
WPN30R24S15	24	15	0.0	2.0	2.4	1.437	87
WPN30R24T312	24	3.3 ± 12	0.0	6.0 ± 0.417	7.5 ± 0.521	1.453	86
WPN30R24T315	24	3.3 ± 15	0.0	6.0 ± 0.333	7.5 ± 0.416	1.453	86
WPN30R24T512	24	5 ± 12	0.0	4.0 ± 0.417	5.0 ± 0.521	1.453	86
WPN30R24T515	24	5 ± 15	0.0	4.0 ± 0.333	5.0 ± 0.416	1.453	86
WPN30R48S03	48	3.3	0.0	9.0	11.0	0.735	85
WPN30R48S05	48	5.0	0.0	6.0	7.5	0.727	86
WPN30R48S12	48	12	0.0	2.5	3.0	0.718	87
WPN30R48S15	48	15	0.0	2.0	2.4	0.718	87
WPN30R48T312	48	3.3 ± 12	0.0	6.0 ± 0.417	7.5 ± 0.521	0.727	86
WPN30R48T315	48	3.3 ± 15	0.0	6.0 ± 0.333	7.5 ± 0.416	0.727	86
WPN30R48T512	48	5 ± 12	0.0	4.0 ± 0.417	5.0 ± 0.521	0.727	86
WPN30R48T515	48	5 ± 15	0.0	4.0 ± 0.333	5.0 ± 0.416	0.727	86

COMMON SPECIFICATIONS

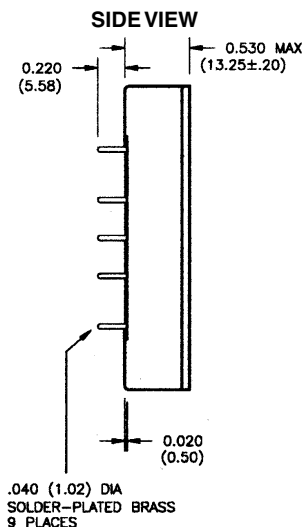
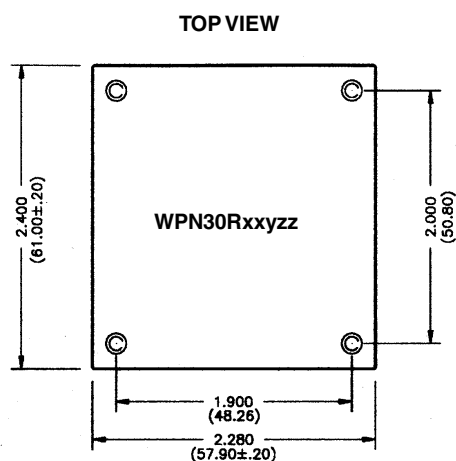
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PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Voltage Range	WPN30R24xyzz WPN30R48xyzz	18 36	24 48 50	36 75 75	V _{DC} V _{DC} mA
Reflected Ripple Current					
INPUT CONTROL					
Temperature Shutdown			107		°C
Temperature Hysteresis			5		°C
Quiescent Standby Current	Current into & Vin		8	10	mA
Under Voltage Shutdown	WPN30R24xyzz WPN30R48xyzz		16.5 32.5		V V
Under Voltage Hysteresis	WPN30R24xyzz WPN30R48xyzz		1 1		V V
ISOLATION					
Rated Voltage		1500			V _{DC}
Test Voltage	60 Hz, 10 Seconds	1500			V _{pk}
Resistance			10		GΩ
Capacitance			1000		pF
Leakage Current				100	nArms
OUTPUT					
Rated Power				30	W
Voltage Setpoint Accuracy					
Single & Main Outputs				±1.5	%
Aux. Outputs, Triples				±3.0	%
Temperature Coefficient			±0.2		%/°C
Line Regulation	High Line to Low Line				%
Single & Main Outputs				±0.1	%
Aux. Outputs, Triples				±0.7	%
Load Regulation	Min. Load to Nom Load				
Single & Main Outputs				±0.4	%
Aux. Outputs, Triples				±0.6	%
Ripple & Noise					
Single & Main Outputs	BW = 5Hz to 20 MHz		50	80	mVp-p
Aux. Outputs, Triples	BW = 5Hz to 20 MHz		80	120	mVp-p
Output Adjust Range	All Outputs		±10	±12	%
Output Adjust Current	Current Sourced/Sank by Vadj Pin			±0.5	mA
Short Circuit Protection					
Single & Main Output				7.5	A
GENERAL					
Switching Frequency			250		kHz
MTTF per MIL-HDBK-217	Circuit Stress Method		1,500,000		Hr
Ground Benign	TA = +25°C, Unmodified Database		85		g
Package Weight					
TEMPERATURE					
Operation/Specification	Case Temperature	-40		+100	°C
Storage	Case Temperature	-55		+110	°C
Shutdown Temperature	Case Temperature	+105		+110	°C
Thermal Impedance, Case-Ambient			7		°C/W

ORDERING INFORMATION

Device Family **WPN30R** **xx** **yy** **zz** -
 Indicated 30 Watt Regulated DC/DC Converter
 Model Number _____
 Selected from Table of Electrical Characteristics
 Where:
 xx = Input Voltage
 yy = Number of Outputs (Single "S", Triple "T")
 zz = Output Voltage
 Remote On/Off Logic _____
 Positive Logic - No Number
 Negative Logic - 1

MECHANICAL



NOTES

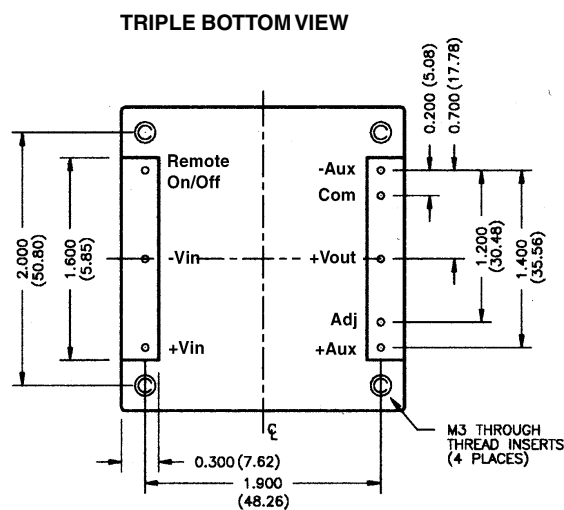
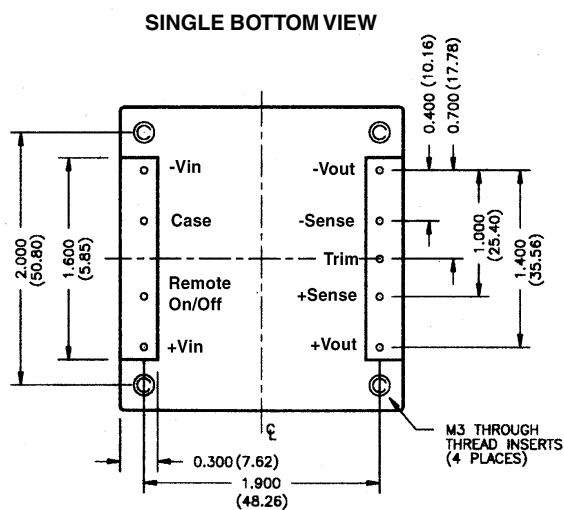
All dimensions are in inches (millimeters).

Unless stated otherwise, dimensional tolerance $\pm 0.010"$ ($\pm 0.2\text{mm}$).

Pin placement tolerance: $\pm 0.015"$ ($\pm 0.2\text{mm}$).

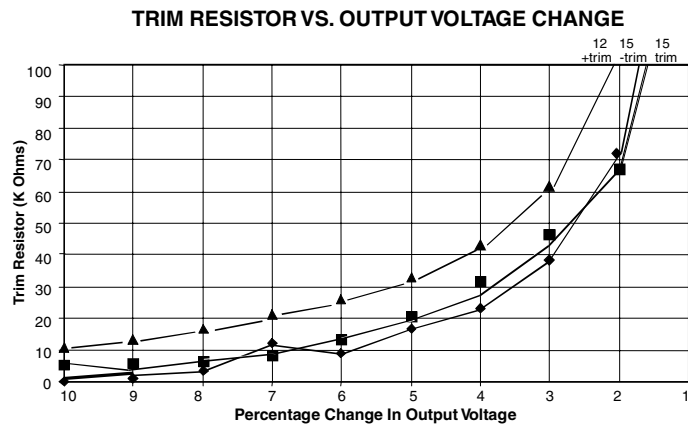
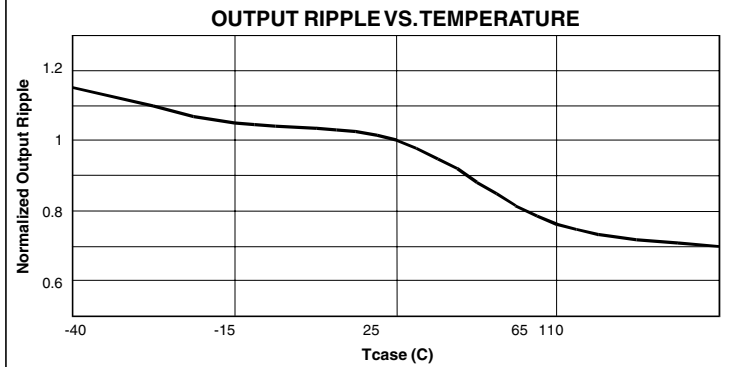
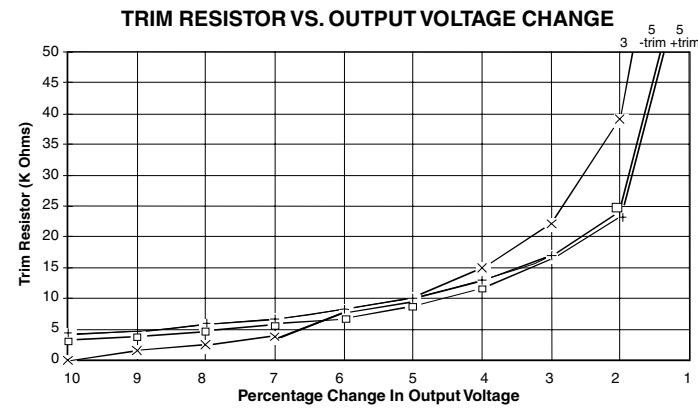
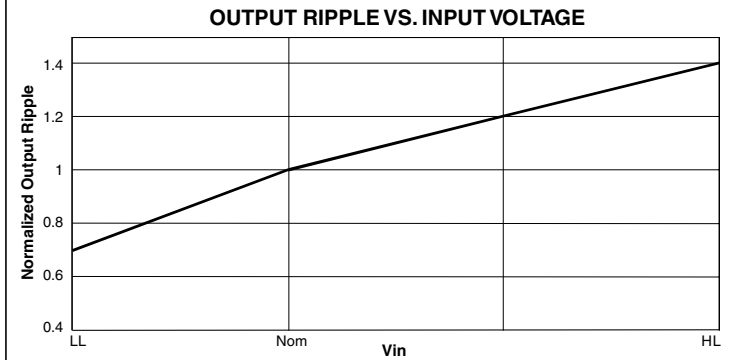
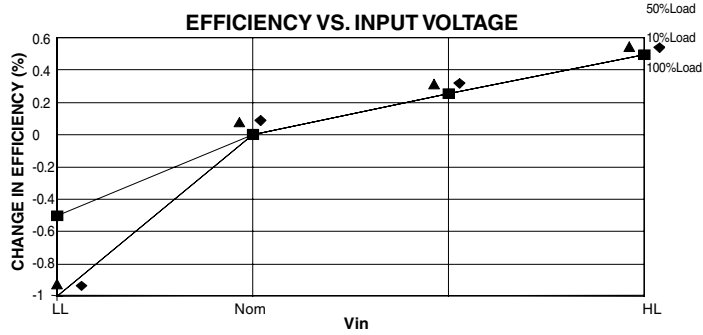
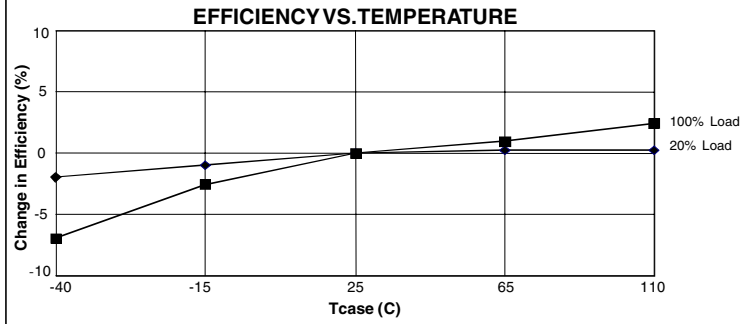
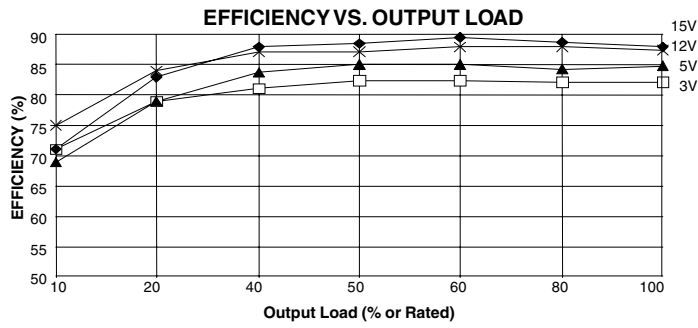
Marked with specific model ordered, date, code, job code.

MATERIAL: Lead material is brass with a solder plated surface to allow ease of solderability.

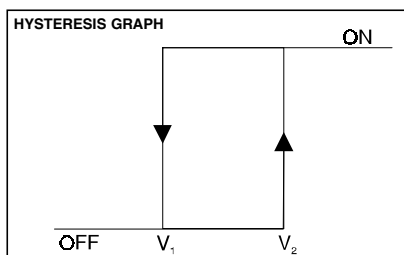
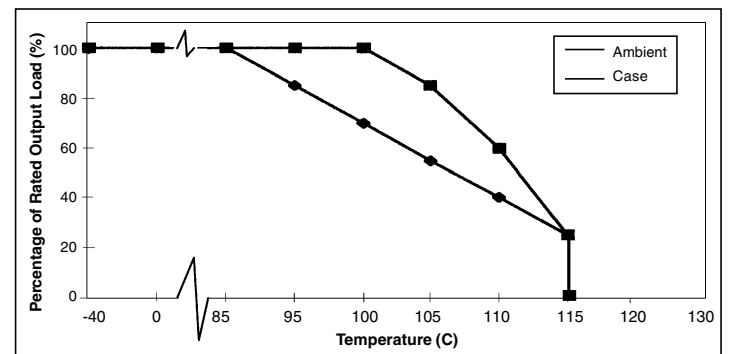


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PERFORMANCE GRAPHS



THERMAL DERATING CURVE



Undervoltage Lockout Threshold Voltages

Nominal Input Voltage Range	Shutdown Low Voltage (V1) OFF	Shutdown High Voltage (V2) ON
24	16.5	17.5
48	32.5	33.5

Specifications typical at TA=25°C, rated output current.