

DC/DC CONVERTERS

HIGH DENSITY, 40 WATT, ALUMINUM CASE

FEATURES

- EN 60950 (IEC 950) APPROVED
- INPUT AND OUTPUT FILTERING
- SINGLE AND TRIPLE OUTPUTS
- EXTENDED TEMPERATURE RANGE:
-40°C TO +85°C
- INDUSTRY STANDARD PINOUTS
- SIX-SIDED SHIELDING
- NEG. AND POS. GROUND MODELS
- REMOTE ON/OFF
- SELECTABLE OVER-TEMPERATURE SHUTDOWN
- REVERSE POLARITY PROTECTED INPUT
- OUTPUT VOLTAGE ADJUST $\pm 10\%$
- RUGGED ALUMINUM CASE

APPLICATIONS

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

DESCRIPTION

The WP40R Series is a family of high performance DC/DC converters available in two input ranges of 18-36V and 36-72V with four output combinations of singles and triples. The unit features industry-standard pinout and combines low cost with high performance.

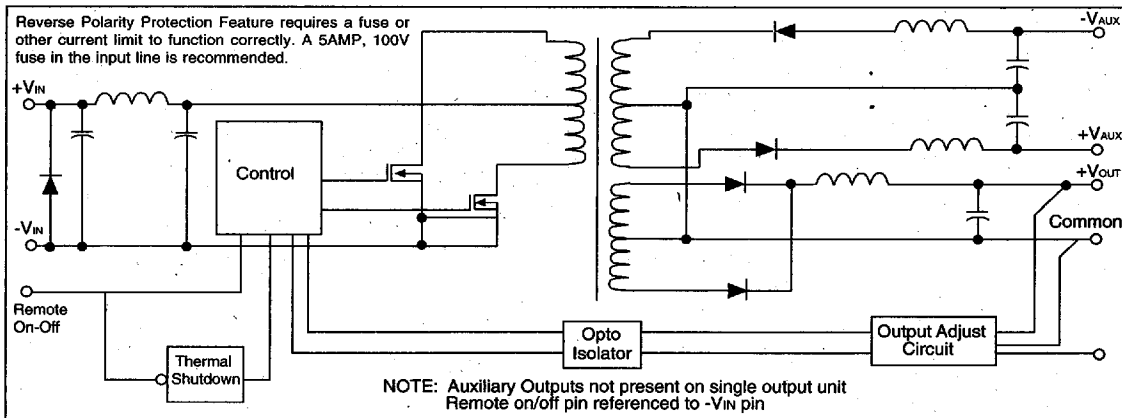
Other features include a remote on/off pin, and an internal temperature shutdown which can be disabled. A $\pm 10\%$ output adjust feature is provided,

allowing the user to compensate for long line lengths.

The units are constructed on an aluminum substrate printed wiring board which provides improved thermal performance. The WP40R Series is assembled by a fully automated process using surface mounted components for increased reliability.

Housing the units in a rugged low-profile aluminum housing provides excellent EMI/RFI shielding.

SIMPLIFIED CIRCUIT DIAGRAM



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)	OUTPUT CURRENT			INPUT CURRENT NOM LOAD (A)	EFFICIENCY (%)
			MIN LOAD (A)	NOM LOAD (A)	MAX LOAD (A)		
WP40R24S05 *	24	5.1 **	0.8	8.0	8.0	2.06	79
WP40R24S12 *	24	12	0.33	3.30	3.30	2.06	81
WP40R24T512 *	24	5±12	0.5±0.06	5.0±0.625	7.0±1.0	2.06	81
WP40R24T515 *	24	5±15	0.5±0.05	5.0±0.5	7.0±1.0	2.06	81
WP40R48S05 *	48	5.1 **	0.8	8.0	8.0	1.03	80
WP40R48S12 *	48	12	0.33	3.30	3.30	1.03	81
WP40R48T512 *	48	5±12	0.5±0.06	5.0±0.625	7.0±1.0	1.03	81
WP40R48T515 *	48	5±15	0.5±0.05	5.0±0.5	7.0±1.0	1.03	81

* NOTE: A "N" designator indicates the aluminum shell is connected internally to the negative input voltage pin.

A "P" designator indicates the aluminum shell is connected internally to the positive input voltage pin.

** NOTE: Output set to 5.1 Volts to offset line length losses.

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		18	24	36	VDC
Reflected Ripple Current		36	48	72	VDC
			250	350	mA
INPUT CONTROL					
Temperature Shutdown			110		$^{\circ}\text{C}$
Temperature Hysteresis			5		$^{\circ}\text{C}$
Quiescent Standby Current			4	6	mA
I/P Shutdown Voltage	Current into +Vin			18V	VDC
I/P Shutdown I	Ref to Input Com	0		-60	μA
Temp Shutdown Disable	Current from V shutdown @ 0V	1V		18V	VDC
I/P Enable Current	V shutdown @ 5V			1	mA
ISOLATION					
Rated Voltage		500			VDC
Test Voltage	60 Hz, 10 Seconds	1500			Vpk
Resistance			10		G Ω
Capacitance			1000		pF
Leakage Current				100	nA _{rms}
OUTPUT					
Rated Power				40	W
Voltage Setpoint Accuracy				±1.5	%
Single & Main Outputs				±3	%
Aux. Outputs, Triples				±0.2	%/ $^{\circ}\text{C}$
Temperature Coefficient				±0.5	%
Line Regulation	High Line to Low Line			±1.5	%
Singles & Main Outputs				±0.5	%
Aux. Outputs, Triples				±0.5	%
Load Regulation	Min Load to Nom. Load, Main & Aux.			±0.5	%
Single & Main Outputs					
Aux. Outputs, Triples	See Graphs				
Ripple & Noise					
Single & Main Outputs	BW = 5Hz to 20MHz		100	120	mVp-p
Aux. Outputs, Triples	BW = 5Hz to 20MHz		120	150	mVp-p
Output Adjust Range	All Outputs	±8	±10	±12	%
Output Adjust Current	Current Sourced/Sunk by Vadj Pin			±0.5	mA
Short Circuit Protection	Single & Main Output			9	A
	Auxiliary Outputs 10 Seconds				
GENERAL					
Switching Frequency			250		kHz
MTTF per MIL-HDBK-217	Circuit Stress Method				
Ground Benign	$T_A = +25^{\circ}\text{C}$, Unmodified Database		215,518		Hr
Fixed Ground	$T_A = +85^{\circ}\text{C}$, Unmodified Database		138,229		Hr
Package Weight			85		g
TEMPERATURE					
Specification		-25		+60	$^{\circ}\text{C}$
Operation		-25		+110	$^{\circ}\text{C}$
Storage		-55		+125	$^{\circ}\text{C}$

ABSOLUTE MAXIMUM RATINGS

Short Circuit Protection	Continuous
Internal Power Dissipation	12.5W
Lead Temperature (soldering 10seconds, max)	+300°C
Maximum Case Temperature.....	+110°C

ORDERING INFORMATION

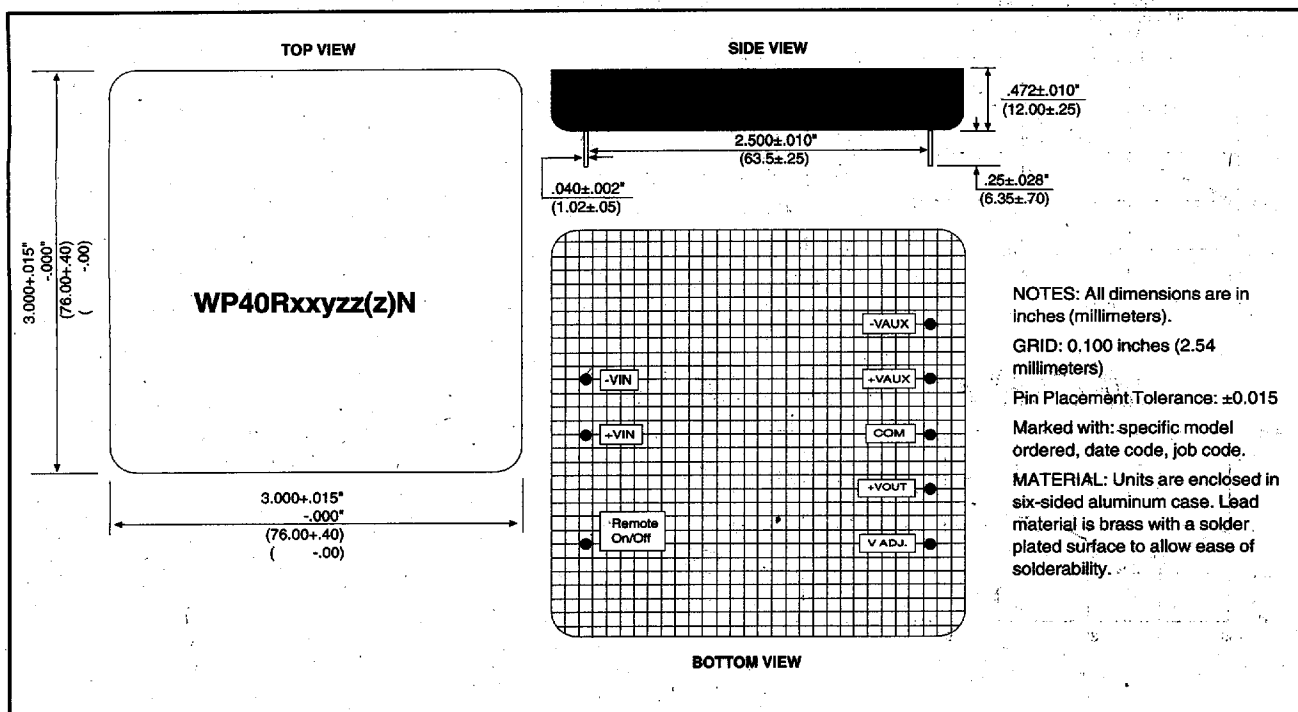
Device Family **WP40R** **xyzz(z)** **P/N** **/H**
 Indicates Wide Input Voltage 40 Watt Regulated Unit

Model Number _____
 Selected from Table of Electrical Characteristics
 Where:
 xx = Input Voltage
 y = Number of Outputs (Single "S", Triple "T")
 zz(z) = Output Voltage

Ground Option _____
 "P" = Positive
 "N" = Negative

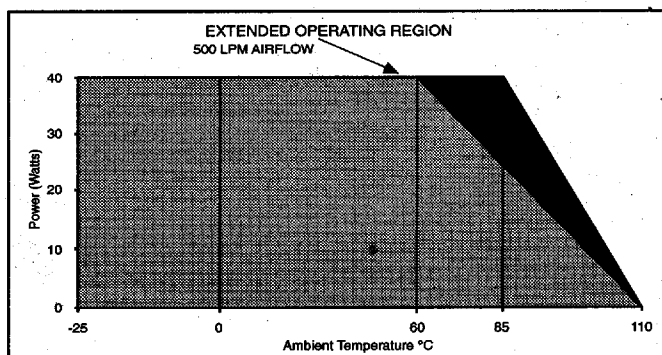
Screening Option _____

MECHANICAL



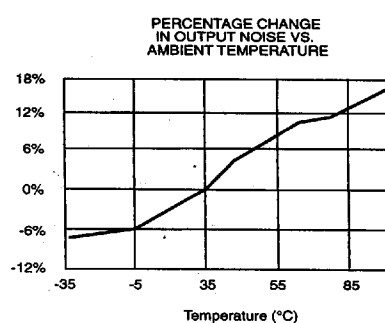
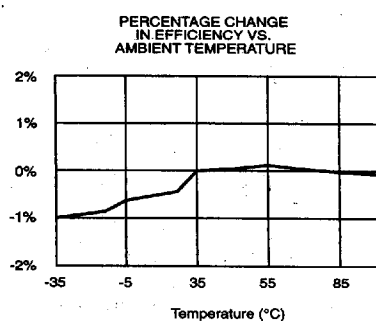
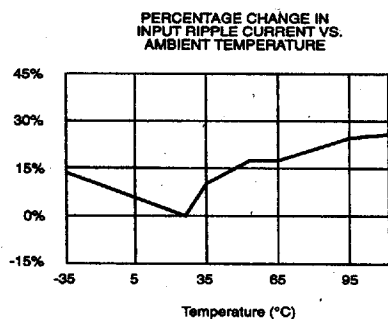
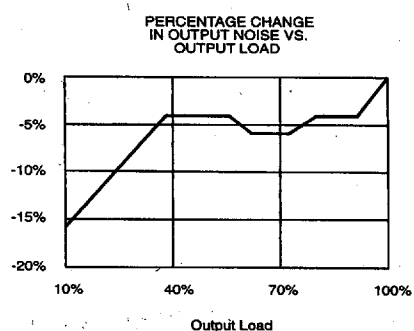
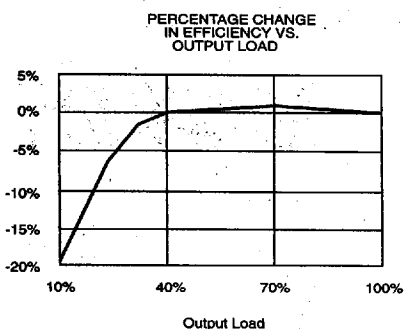
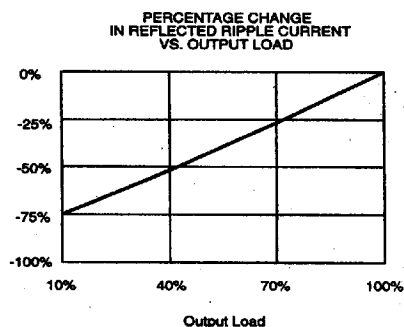
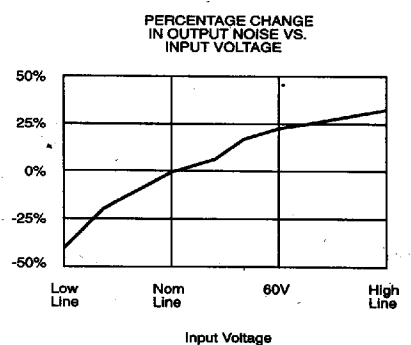
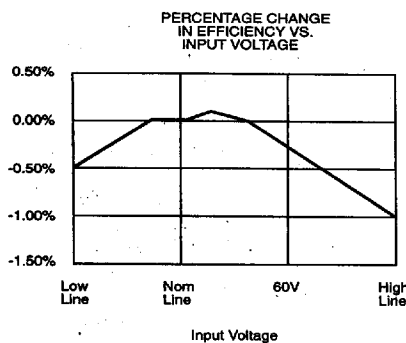
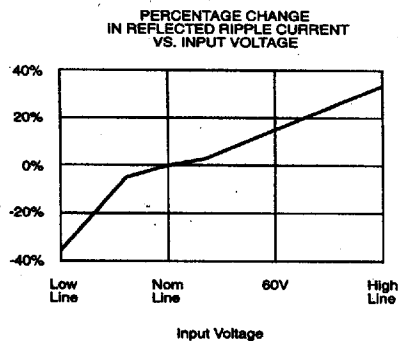
REMOTE ON/OFF PIN	OUTPUT	TEMPERATURE SHUTDOWN *
Floating	On	Enabled
High > 1.0V	On	Disabled
Low < 1.0V	Off	

* The Temperature Shutdown Feature is designed to protect the unit from excessive temperatures in operation. The sole reason for disabling this feature is to allow for Elevated Temperature Reliability testing of the units. The user may disable this feature for incoming Reliability testing but it is recommended that this feature is not disabled in operation.



TYPICAL PERFORMANCE CURVES

$T_A = +25^\circ\text{C}$, nominal input voltage, rated load, recommended external components applied, unless otherwise specified.



% CHANGE IN AUXILIARY OUTPUT VOLTAGES FROM NOMINAL WP40R CROSS REGULATION

