

2:1 WIDE INPUT RANGE DC/DC CONVERTER

WPC10R



FEATURES

- SAFETY APPROVALS (cULus, CE)
- MEETS EN55022 LEVEL A & B FOR CONDUCTED EMISSIONS WITH A 10 MFD EXTERNAL CAPACITOR
- OPERATING TEMPERATURE RANGE:
-40°C TO +100°C
- INDUSTRY STANDARD PINOUTS
- INDUSTRY STANDARD PACKAGE
- LOW PROFILE 0.4 INCH (10MM)
- SHORT CIRCUIT PROTECTION
- TEMPERATURE SHUTDOWN
- REMOTE ON/OFF (OPTIONAL)
- LOW RADIATED EMISSIONS

APPLICATIONS

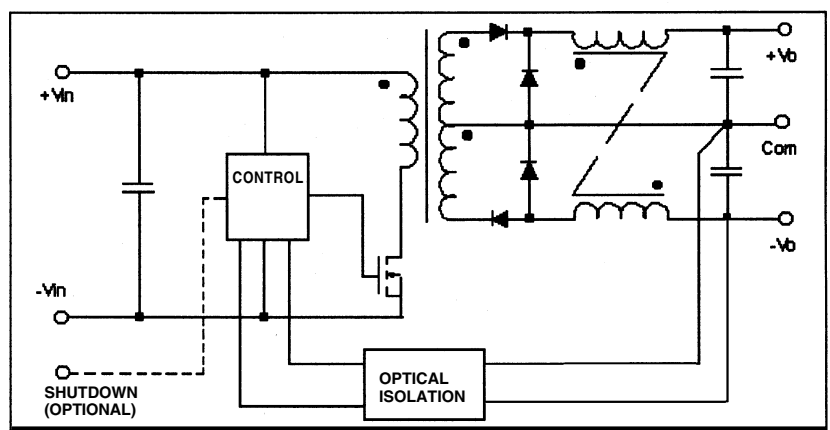
- TELECOMMUNICATION APPLICATIONS
- BATTERY POWERED SYSTEMS
- PORTABLE INSTRUMENTS
- PROCESS CONTROL EQUIPMENT
- TRANSPORTATION EQUIPMENT
- DISTRIBUTED POWER SYSTEMS

DESCRIPTION

The WPC10R is a family of high performance DC/DC converters that offer regulated outputs over two input voltage ranges of 18 - 36 and 28 - 75V and over a wide operating temperature range of -40°C to +100°C without derating.

The 350kHz switching frequency and forward converter topology provide optimum performance in a space-saving package. The design uses all surface mounted components, including magnetics, to provide enhanced reliability. All models will operate even under no-load conditions, although a minimum load is specified for load regulation measurement purposes. A metal package is utilized for decreased radiated noise and an optional remote enable feature allows low power standby operation.

SIMPLIFIED CIRCUIT DIAGRAM



AGENCY APPROVALS



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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		VOLTAGE REGULATION		NOISE (mVpp)	EFFICIENCY (%)
			MIN LOAD (mA)	RATED LOAD (mA)	LINE (\pm)	LOAD (\pm)		
WPC10R24S03	24	3.3	300	3000	0.5%	1%	75	75
WPC10R24S05	24	5	200	2000	0.5%	1%	75	77
WPC10R24S12	24	12	83	833	0.5%	1%	75	78
WPC10R24S15	24	15	67	666	0.5%	1%	75	79
WPC10R24D05	24	± 5	± 100	± 1000	0.5%	2%	75	77
WPC10R24D12	24	± 12	± 42	± 417	0.5%	2%	75	78
WPC10R24D15	24	± 15	± 33	± 333	0.5%	2%	75	79
WPC10R48S03	48	3.3	300	3000	0.5%	1%	75	77
WPC10R48S05	48	5	200	2000	0.5%	1%	75	79
WPC10R48S12	48	12	83	833	0.5%	1%	75	80
WPC10R48S15	48	15	67	666	0.5%	1%	75	81
WPC10R48D05	48	± 5	± 100	± 1000	0.5%	2%	75	79
WPC10R48D12	48	± 12	± 42	± 417	0.5%	2%	75	80
WPC10R48D15	48	± 15	± 33	± 333	0.5%	2%	75	81

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	$V_{IN}=34-75$ for $3.3V_{out}$	18	24	36	VDC
Reflected Ripple Current		28	48	75	VDC
			20	50	mA _{p-p}
ISOLATION					
Test Voltage	60 Hz, 10 Seconds	1500			V _{pk}
Resistance			10		G Ω
Capacitance	$V_{ISO}=240\text{VAC}$, 60Hz		1500		pF
Leakage Current			100		mA _{rms}
OUTPUT					
Rated Power	Low Line to High Line			10	Watts
Voltage Setpoint Accuracy			± 1		%
Temperature Coefficient	Min Load to Rated Load		± 0.02		%/ $^\circ\text{C}$
Line Regulation			± 0.2		%
Singles	BW = 5 Hz to 20 MHz		± 0.2		%
Duals			± 0.2		%
Load Regulation			± 0.2		%
Singles			± 0.2		%
Duals			± 0.5		%
Ripple & Noise				75	mV _{p-p}
GENERAL					
Switching Frequency	Circuit Stress Method, $T_A = +25^\circ\text{C}$		350		kHz
MTTF per MIL-HDBK-217, Rev F			933		hr
Ground Benign					
Package Weight			35		g
TEMPERATURE					
Specification (ambient)		-25		+71	$^\circ\text{C}$
Specification (case)		-25		+100	$^\circ\text{C}$
Operation (case)		-40		+100	$^\circ\text{C}$
Storage		-55		+125	$^\circ\text{C}$

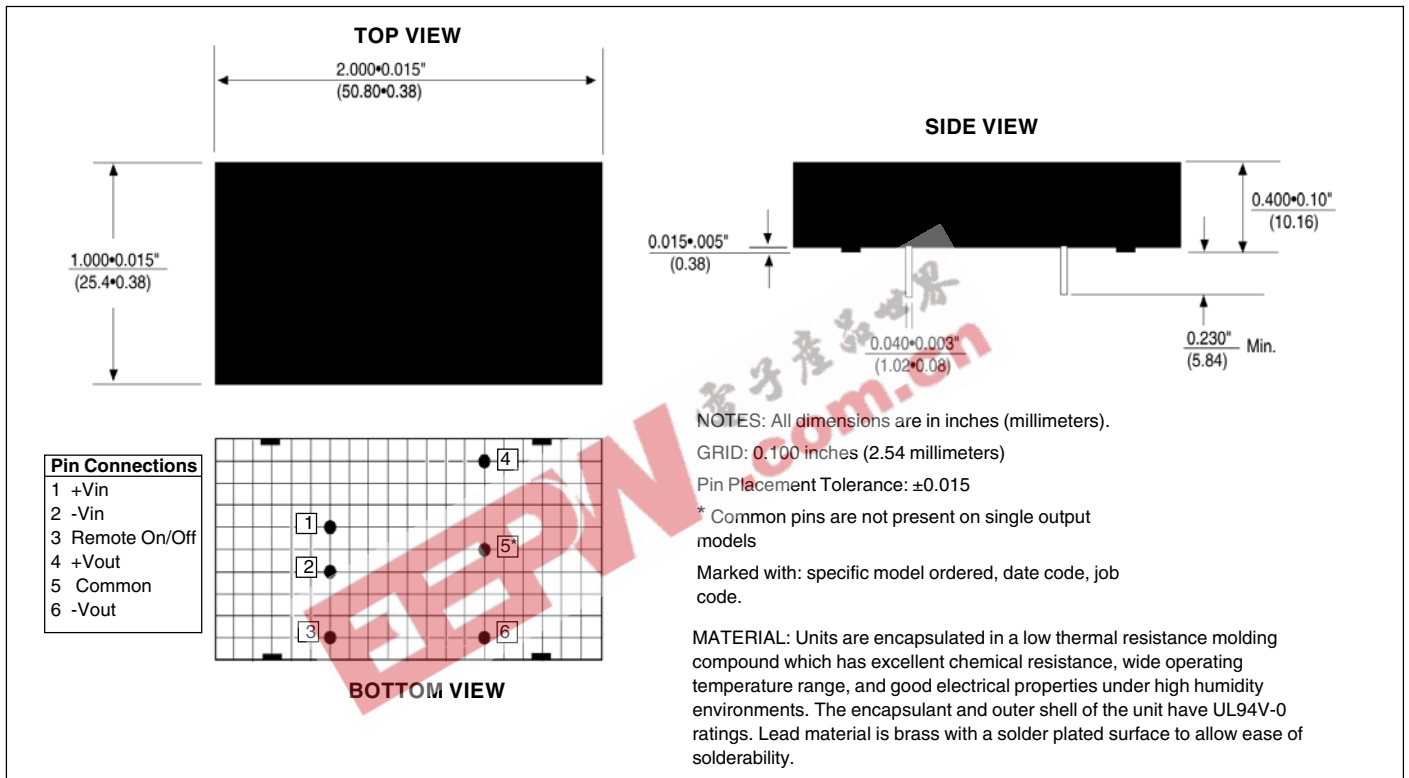
ABSOLUTE MAXIMUM RATINGS

Output Short Circuit Protection (at $T_A = 25^\circ\text{C}$, nominal input voltage)	Continuous
Internal Power Dissipation.....	2.5W
Lead Temperature (soldering 10seconds, max)	+300°C
Maximum Case Temperature	+110°C

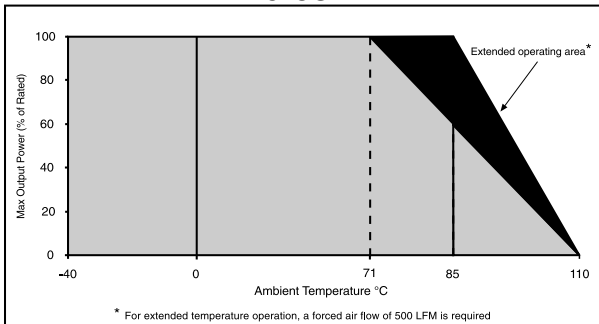
ORDERING INFORMATION

	WPC10R	xyzz	N/P/F	R
Device Family	_____			
Indicates Wide Input Voltage 10 Watt Regulated Unit	_____			
Model Number	_____			
Selected from Table of Electrical Characteristics				
xx = Input Voltage				
y = Number of Outputs (Single "S", Dual "D")				
zz = Output Voltage				
Case Ground Option	_____			
"P" = Positive Input Connection				
"N" = Negative Input Connection				
"F" = Floating Input Connection				
Remote ON/OFF (optional)_____				

MECHANICAL



THERMAL DERATING CURVE



Hiweise:

- Gerät wird mit einer 2A Sicherung abgesichert
- Eingangsspannung muss SELV oder TNV nach EN60950, IEC60950 entsprechen
- Ein- und Ausgang des Converters müssen mit dem Schutzleiter verbunden werden
- Power supply must be fused with a 2A fuse or current limited to 2A max
- Input must be SELV or TNV according to EN60950/ IEC950
- One input and output pin must be tied to safety earth ground

REMOTE ON/OFF CONTROL

Logic Compatibility	CMOS or Open Collector TTL
EC On	Open Circuit or > 2VDC
EC Off	< 1.3VDC
Shutdown Idle Current	< 10mA
Control Common	-Vin



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