

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

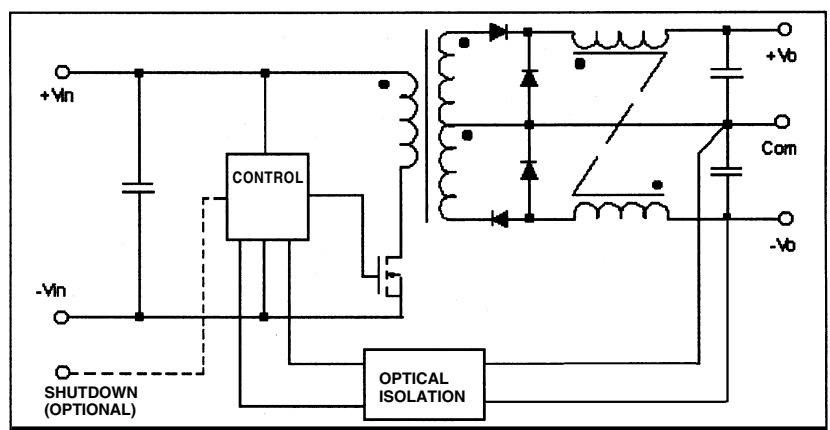
- TELECOMMUNICATION APPLICATIONS
- BATTERY POWERED SYSTEMS
- PORTABLE INSTRUMENTS
- PROCESS CONTROL EQUIPMENT
- TRANSPORTATION EQUIPMENT
- DISTRIBUTED POWER SYSTEMS

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



Internet: <http://www.cdpowerelectronics.com>

Power Electronics Division, United States
3400 E Britannia Drive, Tucson, Arizona 85706
Phone: 800.547.2537 Fax: 520.770.9369

Power Electronics Division, Europe
C&D Technologies (Power Electronics) Ltd.
132 Shannon Industrial Estate, Shannon, Co. Clare, Ireland
Tel: +353.61.474.133 Fax: +353.61.474.141

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		mArms	
OUTPUT						
Rated Power	Low Line to High Line			10	Watts	
Voltage Setpoint Accuracy					± 1	%
Temperature Coefficient	Min Load to Rated Load				± 0.02	
Line Regulation					%/ $^\circ\text{C}$	
Singles	BW = 5 Hz to 20 MHz				± 0.2	
Duals					%	
Load Regulation					± 0.2	
Singles					%	
Duals					± 0.5	
Ripple & Noise				75	mV _{p-p}	
GENERAL						
Switching Frequency	Circuit Stress Method, $T_A = +25^\circ\text{C}$				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	$^\circ\text{C}$	

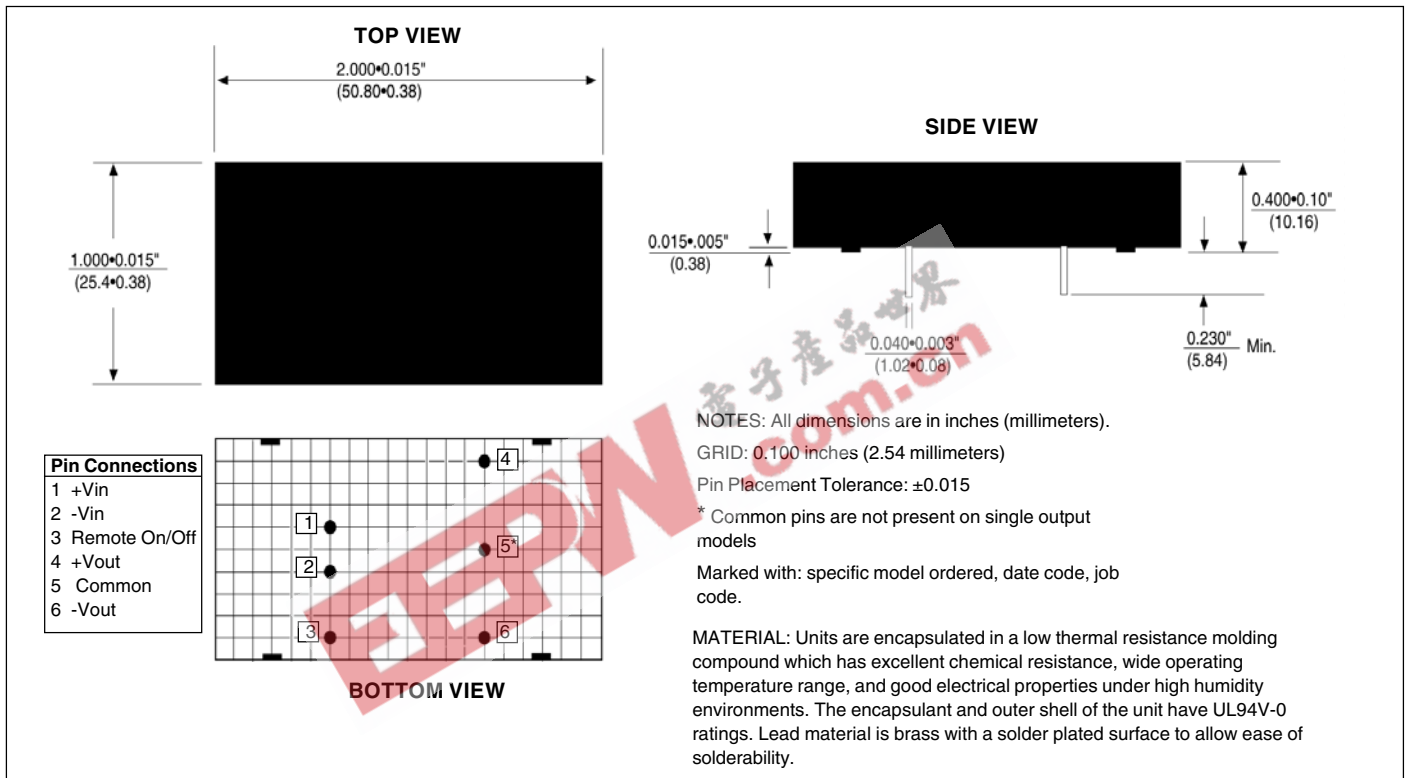
ABSOLUTE MAXIMUM RATINGS

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

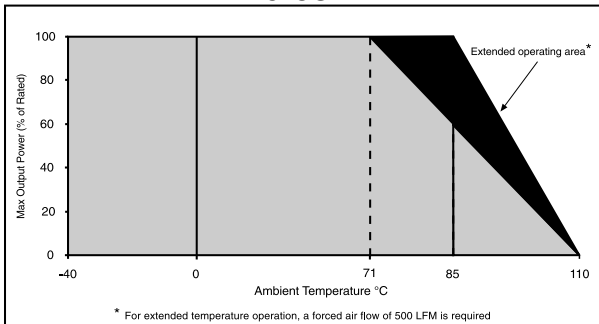
ORDERING INFORMATION

	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



The information provided herein is believed to be reliable; however, C&D TECHNOLOGIES assumes no responsibility for inaccuracies or omissions. C&D TECHNOLOGIES assumes no responsibility for the use of this information, and all use of such information shall be entirely at the user's own risk. Prices and specifications are subject to change without notice. No patent rights or licenses to any of the circuits described herein are implied or granted to any third party. C&D TECHNOLOGIES does not authorize or warrant any C&D TECHNOLOGIES product for use in life support devices/systems or in aircraft control applications.