



### FEATURES

- RoHS compliant
- Safety approval (cULus)
- Meets EN55022 level A & B for conducted Emissions with a 10 micro farad external capacitor
- Industry standard pinouts
- Industry standard package
- Low profile 0.4 inch (10mm)
- Short circuit protection
- Temperature shutdown

### DESCRIPTION

The WPC10 series is a family of DC/DC converters that offer regulated outputs over an input voltage range 18 - 36V and over a wide specification case temperature range of -40°C to +100°C.

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 under very low load conditions, although the minimum load is required to guarantee full parametric functionality. A metal package is utilized for decreased radiated noise.

The product range has been recognised by Underwriters Laboratory (UL) to UL 1950 for operational insulation, file number E179522 applies.

### SELECTION GUIDE

Order Code	Nominal Input Voltage	Output Voltage	Output Current		Voltage Regulation		Noise	Efficiency	Recommended Alternative
	V	V	mA	mA	Line	Load			
WPC10R24S05C									NPH10S2405IC
WPC10R24S12C									NPH10S2412IC
WPC10R24D15C									BWR-15/575-D24A-C

### INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	Continuous operation	18	24	36	V
Reflected ripple current			20	50	mAp-p

### OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power				10	W
Voltage set point accuracy			±1		%
Temperature coefficient			±0.02		%/°C
Line regulation	Low line to high line	Singles	±0.2		
		Duals	±0.2		%
Load regulation	Min load to rated load	Singles	±0.2		
		Duals	±0.5		
Ripple & noise	BW = 5Hz to 20MHz			75	mVp-p

### ABSOLUTE MAXIMUM RATINGS

Output short circuit protection	Continuous
Internal power dissipation	2.5W
Maximum case temperature	+110°C

### ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	60Hz, 10 seconds	1500			Vpk
Resistance			10		GΩ
Capacitance			1500		pF
Leakage current	V <sub>iso</sub> = 240VAC, 60Hz		100		μArms

### TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification (ambient)		-40		71	
Case temperature		-40		100	°C
Storage		-55		125	

### GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency			350		KHz
MTTF	MIL-HDBK-217F Ground benign		933		KHr

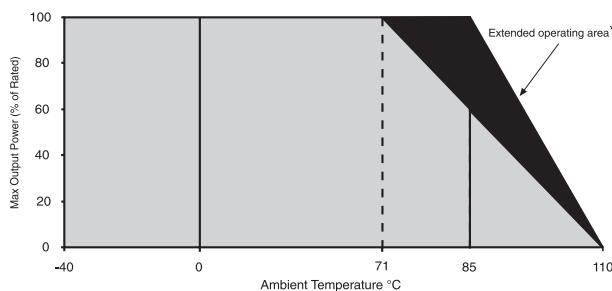
All specifications typical at T<sub>A</sub>=25°C, nominal input voltage and rated output current unless otherwise specified.



For full details go to [www.murata-ps.com/rohs](http://www.murata-ps.com/rohs)



## THERMAL DERATING CURVE



## TECHNICAL NOTES

## ISOLATION VOLTAGE

'Hi Pot Test', 'Flash Tested', 'Withstand Voltage', 'Proof Voltage', 'Dielectric Withstand Voltage' & 'Isolation Test Voltage' are all terms that relate to the same thing, a test voltage, applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

Murata Power Solutions WPC10 series of dc/dc converters are all 100% production tested at their stated isolation voltage. This is 1500V Vpk for 10 seconds.

A question commonly asked is, "What is the continuous voltage that can be applied across the part in normal operation?"

The WPC10 series has been recognized by Underwriters Laboratory, both input and output should normally be maintained within SELV limits i.e. less than 42.4V peak, or 60VDC. The isolation test voltage represents a measure of immunity to transient voltages and the part should never be used as an element of a safety isolation system. The part could be expected to function correctly with several hundred volts offset applied continuously across the isolation barrier; but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

## REPEATED HIGH-VOLTAGE ISOLATION TESTING

It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials, construction and environment. While manufactured parts can withstand several times the stated test voltage, the isolation capability does depend on the wire insulation. Any material, including this enamel (typically polyurethane) is susceptible to eventual chemical degradation when subject to very high applied voltages thus implying that the number of tests should be strictly limited. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

## FUSING

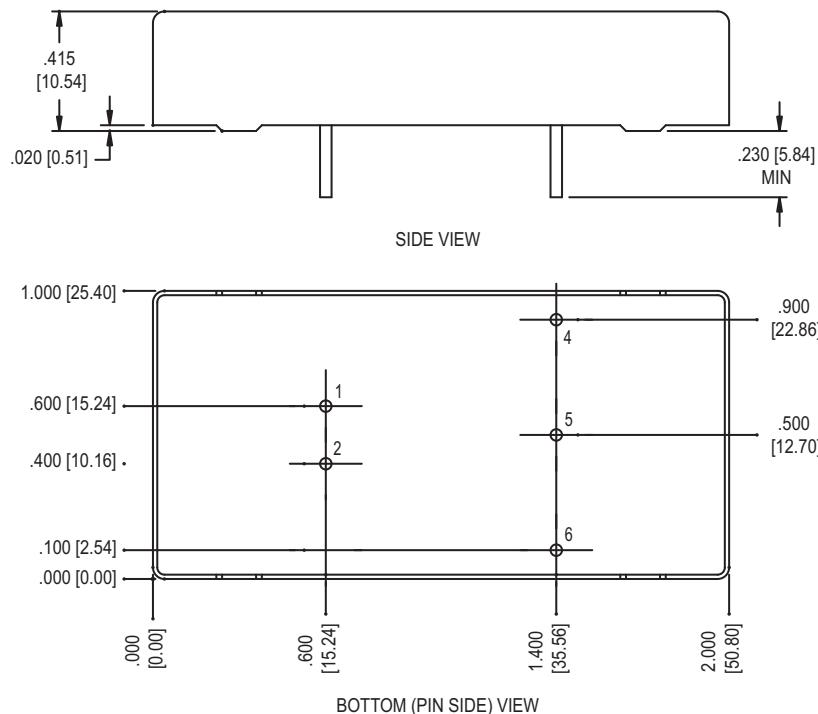
The WPC10 series DC/DC converter may be optionally fused with a 2A fuse. The input must be SELV or TNV according to EN60950/IEC950. UL recognition was obtained without an input fuse.

## RoHS COMPLIANCE INFORMATION



This series is compatible with RoHS soldering systems with a peak wave solder temperature of 260°C for 10 seconds. The pin termination finish on this product series is UNS C36000 brass plated with matte tin 100 micro-inches min., over nickel, 40-80 micro-inches. The series is backward compatible with Sn/Pb soldering systems. For further information, please visit [www.murata-ps.com/rohs](http://www.murata-ps.com/rohs)

**MECHANICAL DIMENSTIONS**



Weight: 35g (Typ.)

All pins on a 0.1 (2.54) pitch and within  $\pm 0.01$  (0.25) of true position.  
Unless otherwise stated all dimensions are in inches (mm)  $\pm 0.01$  (0.25).

**PIN CONNECTIONS**

Pin	Function	
	Singles	Duals
1	+V <sub>IN</sub>	+V <sub>IN</sub>
2	-V <sub>IN</sub>	-V <sub>IN</sub>
4	+V <sub>OUT</sub>	+V <sub>OUT</sub>
5	No pin	Common
6	-V <sub>OUT</sub>	-V <sub>OUT</sub>



# Mouser Electronics

Authorized Distributor

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