



V-INFINITY
a division of CUI INC

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date 05/2008

PART NUMBER: VWRBT2 Series

DESCRIPTION: dc-dc converter

description

Designed to convert a wide input voltage range into an isolated regulated voltage, the VWRBT2-SMT series is well suited for providing board-mount local supplies in a wide range of applications, including mixed analog/digital circuits, test & measurement equip., process/machine controls, datacom/telecom fields, etc...

features

- wide (2:1) input range
- regulated
- single voltage output
- I/O isolation: 1500 V dc
- no heatsink required
- short circuit protection
- MTBF >1,000,000 hours
- temperature range: -40°C~+85°C



MODEL

	nominal (V dc)	input voltage range (V dc)	max. (V dc)	output voltage (V dc)	output current		efficiency typ. (%)
					max. (mA)	min. (mA)	
VWRBT2-D12-S3.3-SMT	12	9.0~18.0	22	3.3	500	50	70
VWRBT2-D12-S5-SMT	12	9.0~18.0	22	5	400	40	74
VWRBT2-D12-S9-SMT	12	9.0~18.0	22	9	222	22	76
VWRBT2-D12-S12-SMT	12	9.0~18.0	22	12	167	16	78
VWRBT2-D12-S15-SMT	12	9.0~18.0	22	15	133	13	79
VWRBT2-D24-S3.3-SMT	24	18.0~36.0	40	3.3	500	50	71
VWRBT2-D24-S5-SMT	24	18.0~36.0	40	5	400	40	76
VWRBT2-D24-S9-SMT	24	18.0~36.0	40	9	222	22	78
VWRBT2-D24-S12-SMT	24	18.0~36.0	40	12	167	16	79
VWRBT2-D24-S15-SMT	24	18.0~36.0	40	15	133	13	80

notes: 1. All specifications measured at TA=25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.

INPUT

parameter	conditions/description	min	nom	max	units
input voltage range		12	9~18	22	V dc
		24	18~36	40	V dc

OUTPUT

parameter	conditions/description	min	nom	max	units
2W output power		0.2		2	W
voltage accuracy ²	refer to recommended circuit		±1	±2	%
ripple	@ 20MHz Bandwidth		20	40	mVpp
noise	@ 20MHz Bandwidth		50	100	mVpp
line regulation	input voltage from low to high		±0.2	±0.5	%
load regulation	10% to 100% full load		±0.5	±1.0	%
temperature coefficient	refer to recommended circuit			0.03	%/°C
switching frequency	100% load, nominal input		300PFM		KHz

notes: 2. 3.3 V ±3% max.



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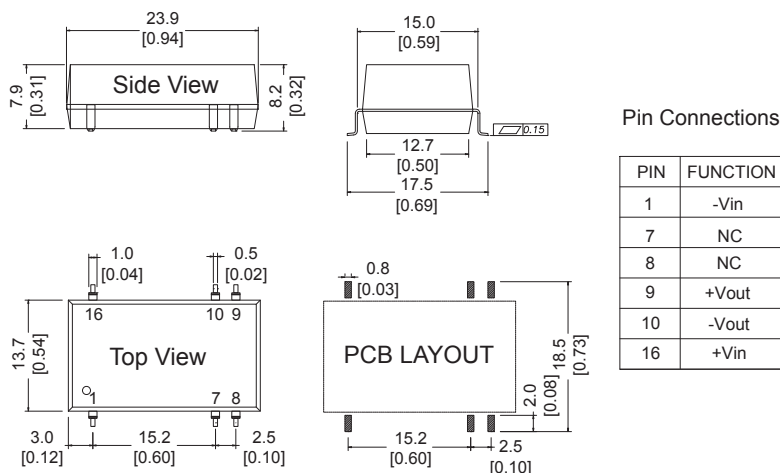
GENERAL SPECIFICATIONS

parameter	conditions/description
output short circuit protection	continuous
temperature rise at full load	15°C typ., 35°C max.
cooling	free air convection
operating temp. range	-40°C ~ +85°C
storage temp. range	-55°C ~ +125°C
reflow soldering temp.	245°C (for 10 seconds)
storage humidity range	≤95%
case material	plastic (UL94-V0)
MTBF	>1,000,000 hours

ISOLATION SPECIFICATIONS

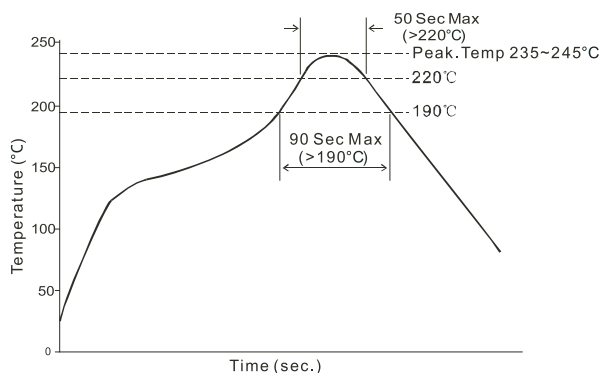
parameter	conditions/description	min	nom	max	units
isolation voltage	flash tested for 1 minute	1500			V dc
isolation resistance	test at 500 V dc	1000			MΩ

OUTLINE DIMENSIONS & RECOMMENDED LAYOUT PATTERN



Note: Unit: mm[inch]; Tolerance: ±0.25mm; All Pins on a 2.54mm.

RECOMMENDED REFLOW PROFILE



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Application Notes:

- All of the VWRBT2-SMT Series have been tested according to the following recommended testing circuit before leaving the factory. This series should be tested under load (Figure 1). If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high (Table 1).

Figure 1


- Recommended circuit

It is best to test with full load and not to test without load. To further reduce output ripple, you may increase the external capacitor, choose a capacitor with low ESR, or add external inductor to the circuit as shown above.

General:

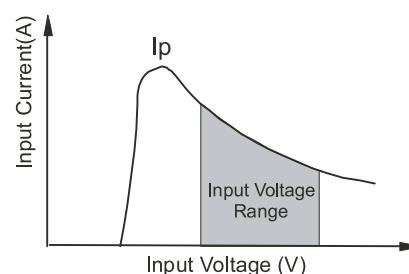
Cin: 12V 100 μ F

24V 10 μ F or 22 μ F

Cout: 100 μ F (typ)

- Input current

Nominal input voltage range. The input current of the power supply must be sufficient to the startup current (I_p) of the DC/DC module (Figure 2)

Figure 2


- Output Load

In order to ensure the product operates efficiently and reliably, make sure the specified range of input voltage is not exceeded.

No parallel connection or plug and play.

- NC Terminals

Unless otherwise specified, NC terminals of all series are used for converter's interior circuit connection, and are not allowed connection of any external circuit.

Table 1

Vout(V)	Cout/ μ F(max)
3.3	2200
5	1000
9	330
12	150
15	120

Temperature Derating Curve
