

SERIES: VWRBT2 | **DESCRIPTION:** DC-DC CONVERTER

FEATURES

- 2 W isolated output
- wide input (2:1)
- industry standard 16 pin SMT package style
- single regulated outputs
- 1,500 V isolation
- short circuit protection
- wide temperature (-40~85°C)
- efficiency up to 80%


V-Infinity

MODEL	input voltage range (Vdc)	output voltage (Vdc)	output current		output power max (W)	ripple and noise max (mVp-p)	efficiency typ (%)
			min (mA)	max (mA)			
VWRBT2-D12-S3.3-SMT	9 ~ 18	3.3	50	500	1.65	150	70
VWRBT2-D12-S5-SMT	9 ~ 18	5	40	400	2	150	74
VWRBT2-D12-S9-SMT	9 ~ 18	9	22	222	2	150	76
VWRBT2-D12-S12-SMT	9 ~ 18	12	16	167	2	150	78
VWRBT2-D12-S15-SMT	9 ~ 18	15	13	133	2	150	79
VWRBT2-D24-S3.3-SMT	18 ~ 36	3.3	50	500	1.65	150	72
VWRBT2-D24-S5-SMT	18 ~ 36	5	40	400	2	150	76
VWRBT2-D24-S9-SMT	18 ~ 36	9	22	222	2	150	78
VWRBT2-D24-S12-SMT	18 ~ 36	12	16	167	2	150	80
VWRBT2-D24-S15-SMT	18 ~ 36	15	13	133	2	150	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	typ	max	units
operating input voltage	12 V input	9	12	18	Vdc
	24 V input	18	24	36	Vdc

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	measured from low line to high line		±0.2	±0.5	%
load regulation	measured from 10% to 100% full load		±0.5	±1	%
voltage accuracy	refer to recommended circuit		±1	±3	%
switching frequency	100% load, nominal input voltage		300		kHz
temperature coefficient				±0.03	%/°C

PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous, automatic recovery				

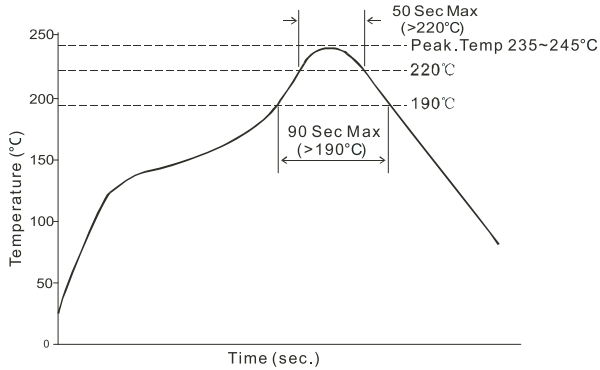
SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	tested for 1 minute, at 1 mA max.	1,500			Vdc
insulation resistance	at 500 Vdc	1,000			MΩ
RoHS compliant	yes				
MTBF		1,000,000			hours

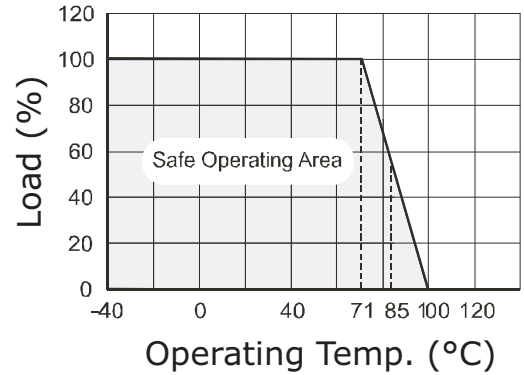
ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-40		85	°C
storage temperature		-55		125	°C
storage humidity				95	%
temperature rise	100% load		15		°C
reflow soldering temperature	for 10 seconds			245	°C

RECOMMENDED REFLOW PROFILE



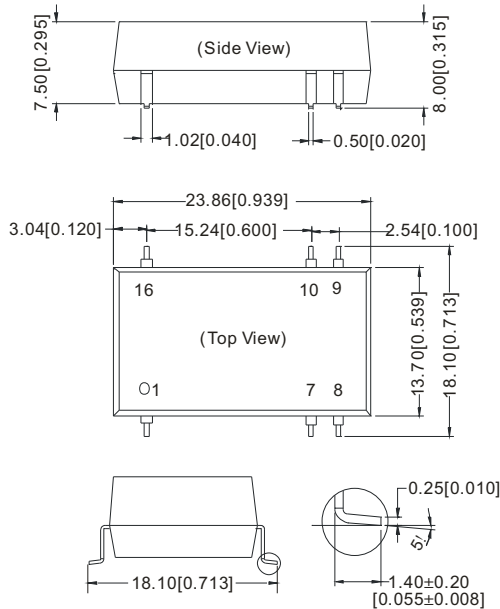
DERATING CURVE



MECHANICAL

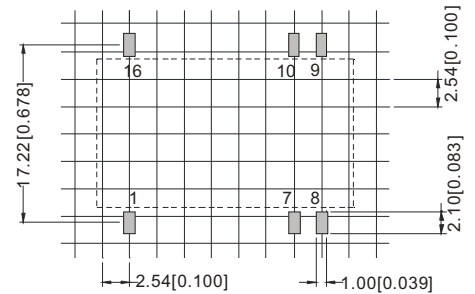
parameter	conditions/description	min	typ	max	units
dimensions	0.94 x 0.71 x 0.32 inch (23.9 x 18.1 x 8.0 mm)				
case material	UL94V-0 epoxy resin				
weight			5.2		g

MECHANICAL DRAWING



PIN CONNECTIONS	
PIN	Function
1	GND
7	NC
8	NC
9	+Vo
10	0V
16	+Vin

NC: No connection



Note:
 Unit:mm[inch]
 Pin section tolerances:±0.10mm[±0.004inch]
 General tolerances:±0.25mm[±0.010inch]

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



Table 1

Single Vout (Vdc)	Cout (µF)
3.3	2,200
5	1,000
9	680
12	470
15	330

1. Requirement on Output Load

In order to ensure the product operates efficiently and reliably, make sure the specified range of input voltage is not exceeded. The minimum output load must be at least 10%. If the actual load is less than 10%, the output ripple may increase sharply while the efficiency and reliability will greatly reduce.

2. Recommended Circuit

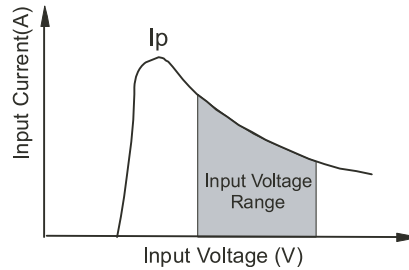
It is best to test with full load and not to test without load. To further reduce output ripple, you may increase the external capacitor, choose a capacitor with low ESR.

3. 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)

$$I_p \leq 1.4 * I_{in-max}$$

Figure 2



4. No parallel connection or plug and play

REVISION HISTORY

rev.	description	date
1.0	initial release	05/12/2008
1.01	updated to new template	10/04/2011

The revision history provided is for informational purposes only and is believed to be accurate.



Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.