

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				

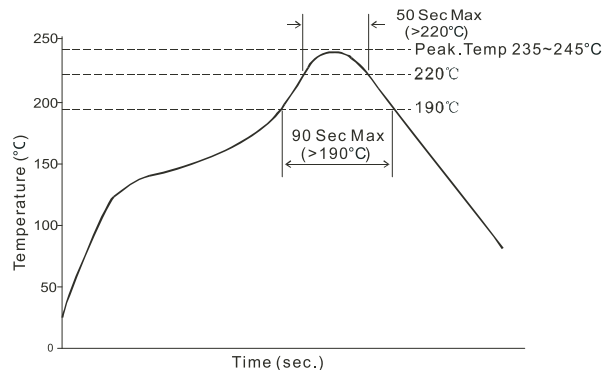
SAFETY AND COMPLIANCE

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

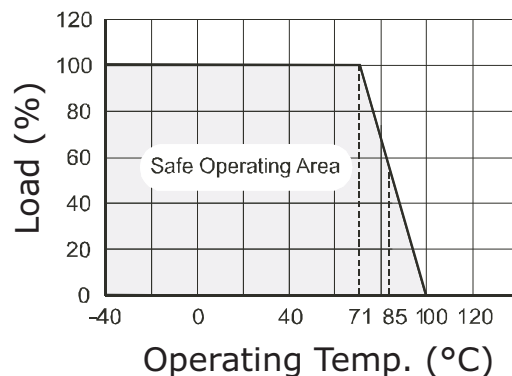
ENVIRONMENTAL

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



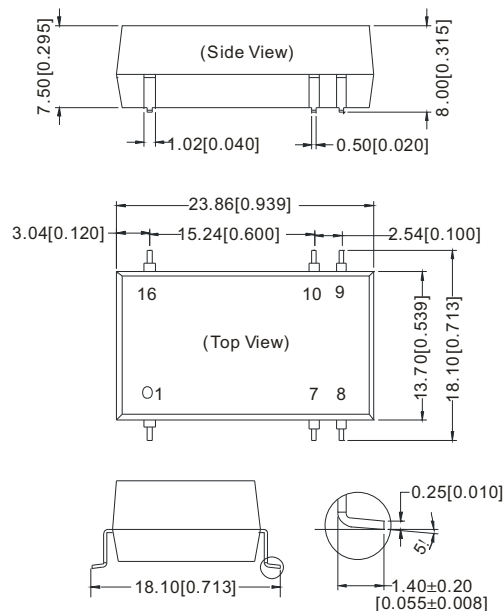
DERATING CURVE



MECHANICAL

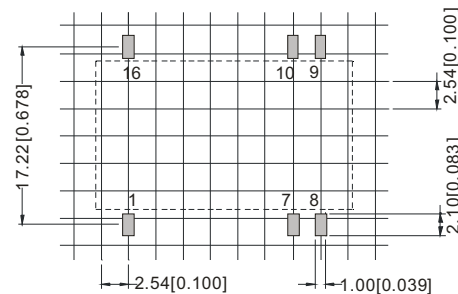
parameter	conditions/description	min	typ	max	units
dimensions	0.94 x 0.71 x 0.32 inch (23.9 x 18.1 x 8.0 mm)				
case material	UL94V-0 epoxy resin				
weight			5.2		g

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**

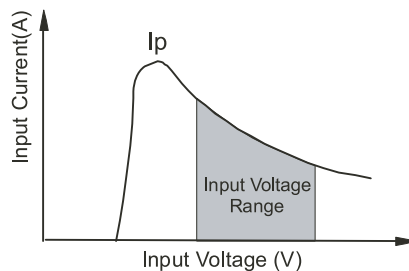
It is best to test with full load and not to test without load. To further reduce output ripple, you may increase the external capacitor, choose a capacitor with low ESR.

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)

$$I_P \leq 1.4 \cdot I_{in-max}$$

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.



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