CUI INC®

SERIES: VWRBS3 | DESCRIPTION: DC-DC CONVERTER

DISCONTINUED

FEATURES

- 3 W isolated output
- wide input (2:1)
- industry standard 8 pin SIP package style
- single unregulated outputs
- 1,500 V isolation
- short circuit protection
- wide temperature (-40~85°C)
- efficiency up to 81%

RoHS

MODEL

MODEL	input voltage typ (Vdc)	input voltage range (Vdc)	output voltage (Vdc)	output current min (mA)	output current max (mA)	output power max (W)	ripple and noise[1] typ (mVp-p)	efficiency typ (%)
VWRBS3-D12-S5-SIP	12	9~18	5	60	600	1	100	74
VWRBS3-D12-S9-SIP	12	9~18	9	33	333	1	100	76
VWRBS3-D12-S12-SIP	12	9~18	12	25	250	1	100	78
VWRBS3-D12-S15-SIP	12	9~18	15	20	200	1	100	80
VWRBS3-D24-S5-SIP	24	18~36	5	60	600	1	100	76
VWRBS3-D24-S9-SIP	24	18~36	9	33	333	1	100	78
VWRBS3-D24-S12-SIP	24	18~36	12	25	250	1	100	80
VWRBS3-D24-S15-SIP	24	18~36	15	20	200	1	100	81

Notes: 1. ripple and noise are measured at 20 Hz BW

PART NUMBER KEY

VWRBS3 - DXX - SXX -SIP

- VWRBS3 — Base Number
- DXX — Input Voltage
- SXX — Output Voltage
- SIP — Packaging Style

INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage	12 V model 24 V model	9.0 18.0	12 24	18.0 36.0	Vdc Vdc

OUTPUT

parameter	conditions/description	min	typ	max	units
voltage accuracy	positive negative refer to recommended circuit		±1 ±2	±3 ±5	% %
line regulation	measured from low line to high line		±0.2	±0.5	%
load regulation	measured from 10% to 100% full load		±0.5	±0.75	%
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

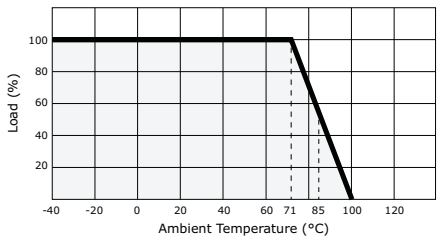
parameter	conditions/description	min	typ	max	units
isolation voltage	tested for 1 minute at 1 mA max.	1,500			Vdc
insulation resistance	at 500 Vdc	1,000			MΩ
isolation capacitance	100 kHz, 1V		80		pF
RoHS compliant	yes				
MTBF	MIL-HDBK-217F, 25°C	1,000,000			hours

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-40		85	°C
storage temperature		-50		125	°C
storage humidity	non-condensing			95	%
temperature rise	at full load		15		°C
lead temperature	1.5 mm from case for 10 seconds			300	°C

DISCONTINUED

DERATING CURVE



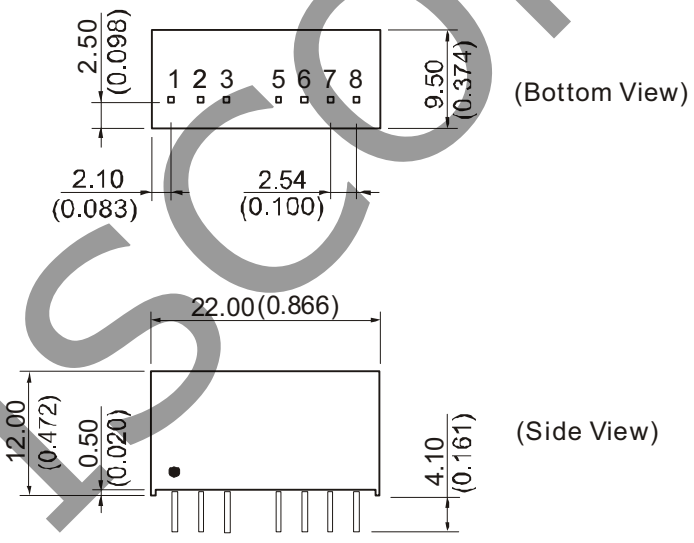
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	0.866 x 0.374 x 0.472 (22.00 x 9.50 x 12.00 mm)				inch
case material	Plastic (UL94-V0)				
weight			6		g

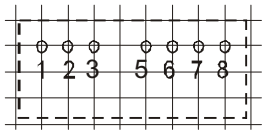
MECHANICAL DRAWING

units: mm (inches)
tolerance: ±0.25 (±0.010)
pin section tolerance: ±0.10 mm (±0.004)

First Angle Projection



RECOMMENDED FOOTPRINT
Top view,grid:2.54mm(0.1inch)
diameter:1.00mm(0.039inch)



PIN CONNECTIONS	
PIN	FUNCTION
1	-Vin
2	+Vin
3	CTRL
5	NC
6	+Vo
7	-Vo
8	CS

DISCONTINUED

APPLICATION NOTES

-All of the VWRBS3 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 2).

CS Capacitor Table (Table 1)

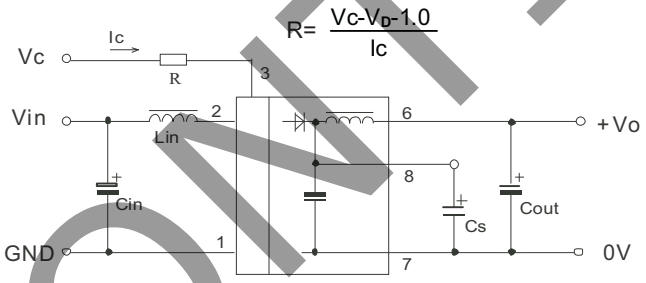
Vout	5V	9V	12V	15V	24V
CS	47uF-100uF		10uF-47uF		

External Capacitor Table (Table 2)

Vout	Cout/μF (max)
5 V	1000
9 V	680
12 V	470
15 V	330

1. **NCs 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

RECOMMENDED CIRCUIT (Figure 1)

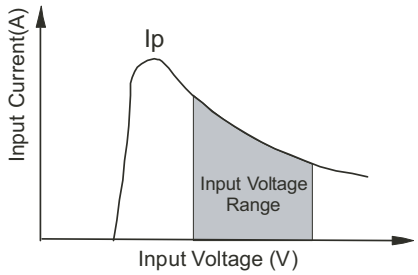


CS Pin-By connecting a low ESR capacitor between this terminal and the pin-7 (Figure 1). the output ripple and noise may be further improved. Generally, the capacitance is no greater than 47uF.

2. **CTRL Terminal**
When open or high impedance, the converter will work well; When this pin is 'high'; the converter will shutdown; It should be noted that the input current should remain between 5-10mA, exceeding the maximum 20mA will cause permanent damage to the converter.

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

Figure 2



4. **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.

DISCONTINUED

REVISION HISTORY

rev.	description	date
1.0	initial release	07/27/2007
1.01	updated to new template	05/27/2009
1.02	new template applied, V-Infinity branding removed	09/11/2012

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

DISCONTINUED

CUI INC®

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.