

**SERIES:** VHB50W | **DESCRIPTION:** DC-DC CONVERTER

**FEATURES**

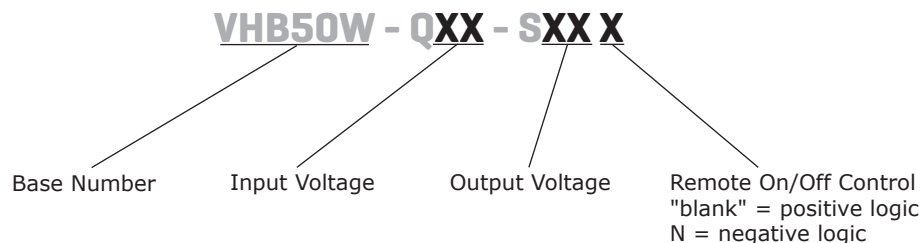
- up to 50 W isolated output
- industry standard half brick package
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~48 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 87%



MODEL	input voltage range (Vdc)	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise <sup>1</sup> max (mVp-p)	efficiency typ (%)
	VHB50W-Q24-S3R3	9 ~ 36	3.3	10	33	100
VHB50W-Q24-S5	9 ~ 36	5	10	50	100	81
VHB50W-Q24-S12	9 ~ 36	12	4.16	50	150	83
VHB50W-Q24-S15	9 ~ 36	15	3.33	50	150	83
VHB50W-Q24-S24	9 ~ 36	24	2.08	50	240	83
VHB50W-Q24-S28	9 ~ 36	28	1.78	50	280	83
VHB50W-Q24-S48	9 ~ 36	48	1.04	50	480	83
VHB50W-Q48-S3R3	18 ~ 75	3.3	10	33	100	78
VHB50W-Q48-S5	18 ~ 75	5	10	50	100	82
VHB50W-Q48-S12	18 ~ 75	12	4.16	50	150	84
VHB50W-Q48-S15	18 ~ 75	15	3.33	50	150	84
VHB50W-Q48-S24	18 ~ 75	24	2.08	50	240	84
VHB50W-Q48-S28	18 ~ 75	28	1.78	50	280	84
VHB50W-Q48-S48	18 ~ 75	48	1.04	50	480	83

Notes: 1. ripple and noise are measured at 20 MHz BW with 10µF tantalum capacitor and 1µF ceramic capacitor across output

**PART NUMBER KEY**



## INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage	24 V input	9	24	36	Vdc
	48 V input	18	48	75	Vdc
under voltage lockout	power up	24 V input	8.8		Vdc
		48 V input	17		Vdc
	power down	24 V input	8		Vdc
		48 V input	16		Vdc

positive logic remote on/off<sup>1</sup>

filter PI type

Notes: 1. logic compatibility, open collector ref to -input  
Module ON, >3.5 Vdc or open circuit  
Module OFF, <1.8 Vdc

## OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	measured from high line to low line			±0.2	%
load regulation	measured from full load to zero load			±0.2	%
voltage accuracy				±1	%
transient response	25% step load change			500	µs
adjustability <sup>2</sup>			±10		%
switching frequency	100% load, input voltage range		300		kHz
temperature coefficient			±0.03		%/°C

Notes: 2. trim-up: connect a resistor between the trim pin and -Sense  
trim-down: connect a resistor between the trim pin and +Sense

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	%Vo	115		140	%
short circuit protection	continuous				
current limit	% nominal output current	110		160	%
thermal shutdown case temp.			100		°C

## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output	1,500			Vdc
	input to case	1,500			Vdc
	output to case	1,500			Vdc
isolation resistance		10			MΩ
isolation capacitance			1,000		pF
safety approvals	UL 60950-1				
RoHS compliant	yes				

## ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
case operating temperature		-40		100	°C
storage temperature		-55		105	°C
humidity	non-condensing			95	%

## MECHANICAL

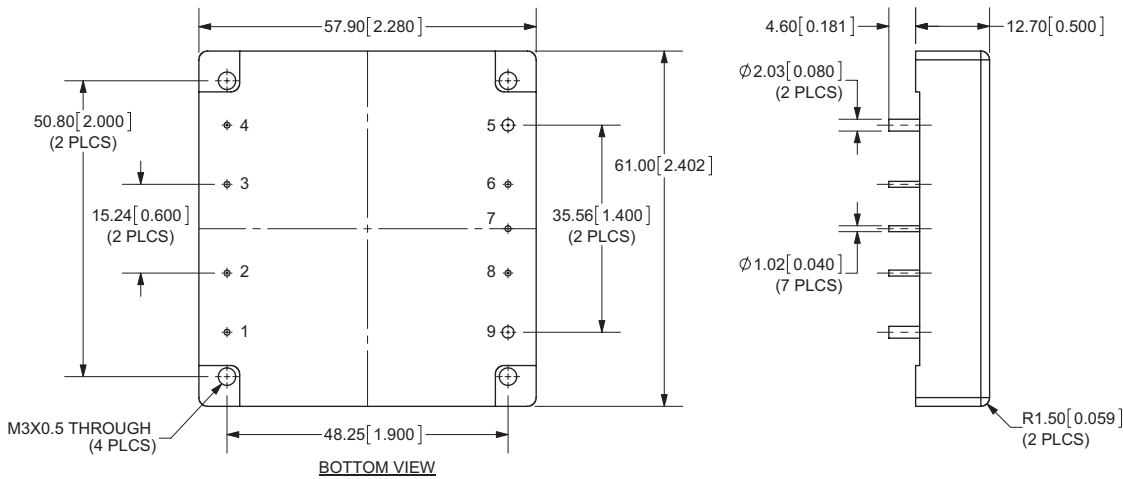
parameter	conditions/description	min	typ	max	units
dimensions	57.9 x 61.0 x 12.7 (2.28 x 2.40 x 0.5 inch)				mm
case material	aluminum				
weight			94		g

## MECHANICAL DRAWING

units: mm [inches]

tolerance: ±0.25mm [±0.01 inches]

pin tolerance: ±0.5mm [±0.02 inches]



PIN CONNECTIONS	
PIN	FUNCTION
1	+Vin
2	On/Off
3	CASE
4	-Vin
5	-Vo
6	-S
7	TRIM
8	+S
9	+Vo

Note: All specifications measured at 25°C, nominal input voltage, and full load unless otherwise noted.

## REVISION HISTORY

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rev.	description	date
1.0	initial release	09/07/2006
1.01	new template applied	08/05/2011
1.02	add remote on/off control to the part number key	11/23/2011
1.03	features updated	12/20/2011
1.04	updated trim note, updated pin references	04/20/2012
1.05	updated spec	04/01/2013

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

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