

date 11/13/2024

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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%

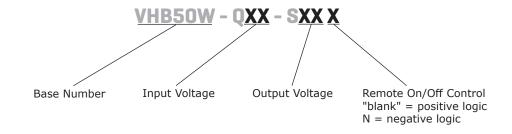




MODEL	input voltage	output voltage	output current	output power	ripple and noise¹	efficiency
	range (Vdc)	(Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
VHB50W-Q24-S3R3	9 ~ 36	3.3	10	33	100	77
VHB50W-Q24-S5	9 ~ 36	5	10	50	100	81
VHB50W-Q24-S12	9 ~ 36	12	4.16	50	150	83
VHB50W-Q24-S15	9 ~ 36	15	3.33	50	150	83
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
	power up	24 V input		8.8		Vdc
under veltage leekeut		48 V input		17		Vdc
under voltage lockout		24 V input		8		Vdc
	power down	48 V input		16		Vdc
positive logic remote on/off1						

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 ²			±10		%
switching frequency	100% load, input voltage range		300		kHz
temperature coefficient			±0.03		%/°C

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

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
	input to output	1,500			Vdc
isolation voltage	input to case	1,500			Vdc
3	output to case	1,500			Vdc
isolation resistance		10			MΩ
isolation capacitance			1,000		pF
safety approvals	EN 62368, UL 60950				
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	%

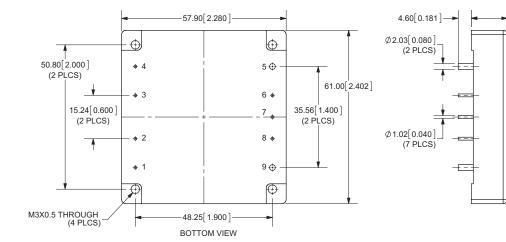
MECHANICAL

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: ± 0.25 mm [± 0.01 inches] pin tolerance: ± 0.5 mm [± 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				

-12.70[0.500]

R1.50[0.059]

(2 PLCS)

REVISION HISTORY

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
1.06	company logo updated	02/12/2021
1.07	safety approvals and marks updated	10/05/2022
1.08	company address updated	11/13/2024

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



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

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