

Excellent Integrated System Limited

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[CUI Inc.](#)
[VHB50W-Q24-S3R3](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

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

FEATURES

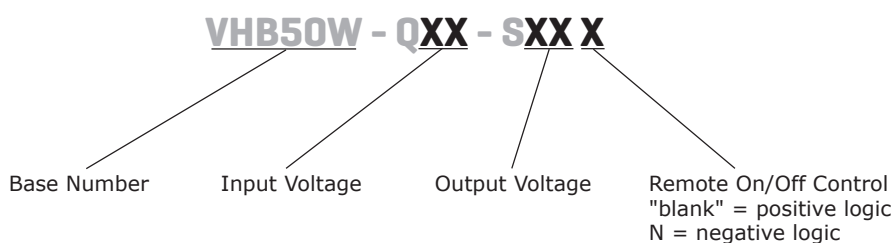
- up to 50 W isolated output
- industry standard half brick package
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~48 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 87%



MODEL	input voltage range (Vdc)	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise ¹ max (mVp-p)	efficiency 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
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 ¹						
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

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

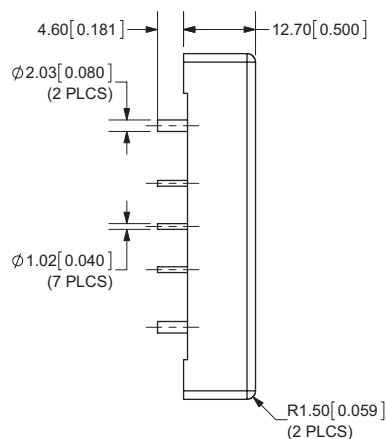
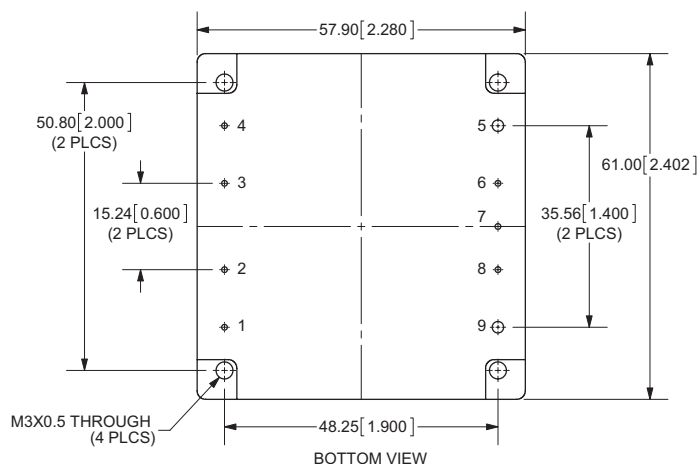
parameter	conditions/description	min	typ	max	units
dimensions	57.9 x 61.0 x 12.7 (2.28 x 2.40 x 0.5 inch)				mm
case material	aluminum				
weight			94		g

MECHANICAL DRAWING

units: mm [inches]

tolerance: $\pm 0.25\text{mm}$ [± 0.01 inches]

pin tolerance: $\pm 0.5\text{mm}$ [± 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

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



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

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



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