

**SERIES:** VHB150W | **DESCRIPTION:** DC-DC CONVERTER

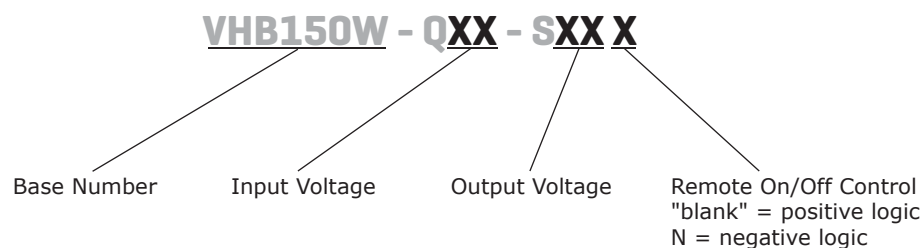
**FEATURES**

- up to 150 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 89%



| 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 (%) |
|------------------|---------------------------|----------------------|------------------------|----------------------|---|--------------------|
|                  |                           |                      |                        |                      |   |                    |
| VHB150W-Q24-S3R3 | 9 ~ 36                    | 3.3                  | 30                     | 99                   | 100                                       | 85                 |
| VHB150W-Q24-S5   | 9 ~ 36                    | 5                    | 30                     | 150                  | 100                                       | 87                 |
| VHB150W-Q24-S12  | 9 ~ 36                    | 12                   | 12.5                   | 150                  | 150                                       | 88                 |
| VHB150W-Q24-S15  | 9 ~ 36                    | 15                   | 10                     | 150                  | 150                                       | 88                 |
| VHB150W-Q24-S24  | 9 ~ 36                    | 24                   | 6.50                   | 156                  | 240                                       | 88                 |
| VHB150W-Q24-S28  | 9 ~ 36                    | 28                   | 5.40                   | 156                  | 280                                       | 87                 |
| VHB150W-Q24-S48  | 9 ~ 36                    | 48                   | 3.12                   | 150                  | 480                                       | 84                 |
| VHB150W-Q48-S3R3 | 18 ~ 75                   | 3.3                  | 30                     | 99                   | 100                                       | 87                 |
| VHB150W-Q48-S5   | 18 ~ 75                   | 5                    | 30                     | 150                  | 100                                       | 89                 |
| VHB150W-Q48-S12  | 18 ~ 75                   | 12                   | 12.5                   | 150                  | 150                                       | 89                 |
| VHB150W-Q48-S15  | 18 ~ 75                   | 15                   | 10                     | 150                  | 150                                       | 89                 |
| VHB150W-Q48-S24  | 18 ~ 75                   | 24                   | 6.50                   | 156                  | 240                                       | 89                 |
| VHB150W-Q48-S28  | 18 ~ 75                   | 28                   | 5.40                   | 156                  | 280                                       | 88                 |
| VHB150W-Q48-S48  | 18 ~ 75                   | 48                   | 3.12                   | 150                  | 480                                       | 87                 |

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<br>Module ON, >3.5 Vdc or open circuit<br>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           |   |     |       | ±1.5 | %     |
| transient response         | 25% step load change  |     |       | 500  | µs    |
| adjustability <sup>2</sup> |   |     | ±10   |      | %     |
| switching frequency        | 100% load, input voltage range  |     | 250   |      | kHz   |
| temperature coefficient    |   |     | ±0.03 |      | %/°C  |
| Notes:                     | 2. trim-up: connect a resistor between the trim pin and +Sense<br>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 |     | 140 | %     |
| thermal shutdown case temp. |                          |     | 110 |     | °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      | UL60950-1 <sup>3</sup>                                 |       |       |     |       |
| RoHS compliant        | yes  |       |       |     |       |
| Notes:                | 3. VHB150W-Q24-S48 and VHB150W-Q48-S48 models excluded |       |       |     |       |

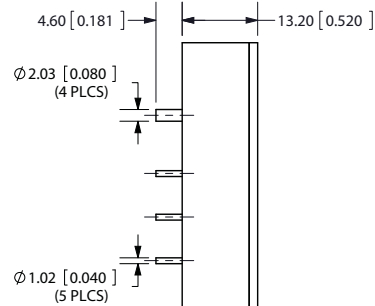
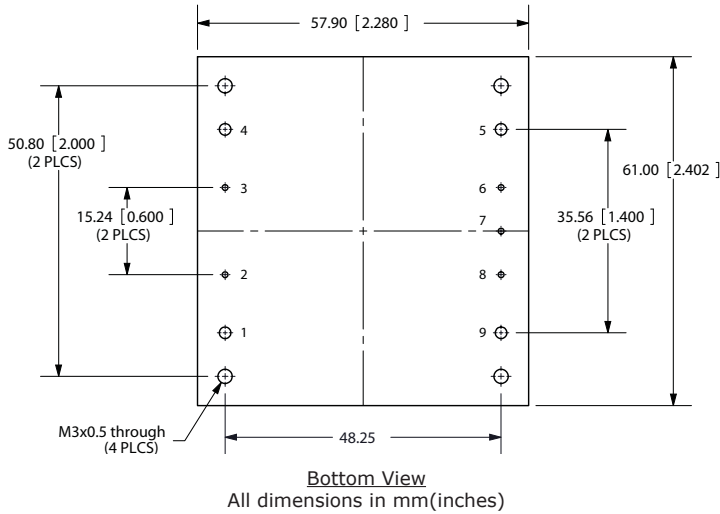
## ENVIRONMENTAL

| 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    | 2.28 x 2.40 x 0.52 (57.9 x 61.0 x 13.2 mm) |     |     |     | inch  |
| case material | aluminum                                   |     |     |     |       |
| weight        |  |     | 95  |     | g     |

## MECHANICAL DRAWING



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

## REVISION HISTORY

| rev. | description                                      | date       |
|------|--|------------|
| 1.0  | initial release                                  | 10/01/2008 |
| 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 | misc. updates and corrections                    | 02/29/2012 |
| 1.05 | V-Infinity branding removed                      | 09/07/2012 |

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



**CUI INC**<sup>®</sup>

**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.