

**SERIES:** VHB100W | **DESCRIPTION:** DC-DC CONVERTER

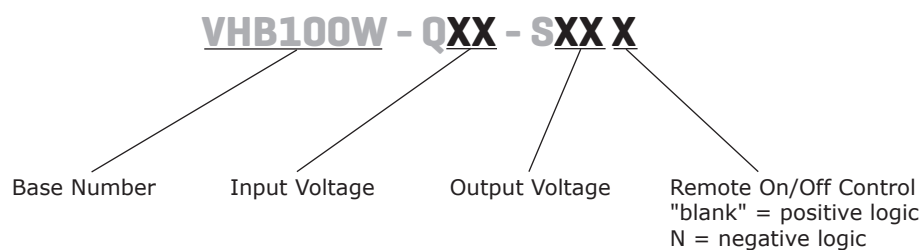
**FEATURES**

- up to 100 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<br>voltage<br>range<br>(Vdc) | output<br>voltage<br>(Vdc) | output<br>current<br>max<br>(A) | output<br>power<br>max<br>(W) | ripple<br>and noise <sup>1</sup><br>max<br>(mVp-p) | efficiency<br><br>typ<br>(%) |
|------------------|------------------------------------|----------------------------|---------------------------------|-------------------------------|----------------------------------------------------|------------------------------|
| VHB100W-Q24-S3R3 | 9 ~ 36                             | 3.3                        | 20                              | 66                            | 100                                                | 81.5                         |
| VHB100W-Q24-S5   | 9 ~ 36                             | 5                          | 20                              | 100                           | 100                                                | 83.5                         |
| VHB100W-Q24-S12  | 9 ~ 36                             | 12                         | 8.3                             | 100                           | 150                                                | 85                           |
| VHB100W-Q24-S15  | 9 ~ 36                             | 15                         | 6.7                             | 100                           | 150                                                | 86.5                         |
| VHB100W-Q24-S24  | 9 ~ 36                             | 24                         | 4.17                            | 100                           | 240                                                | 86                           |
| VHB100W-Q24-S28  | 9 ~ 36                             | 28                         | 3.57                            | 100                           | 280                                                | 86                           |
| VHB100W-Q24-S48  | 9 ~ 36                             | 48                         | 2.08                            | 100                           | 480                                                | 85                           |
| VHB100W-Q48-S3R3 | 18 ~ 75                            | 3.3                        | 20                              | 66                            | 100                                                | 80.5                         |
| VHB100W-Q48-S5   | 18 ~ 75                            | 5                          | 20                              | 100                           | 100                                                | 86                           |
| VHB100W-Q48-S12  | 18 ~ 75                            | 12                         | 8.3                             | 100                           | 150                                                | 86.5                         |
| VHB100W-Q48-S15  | 18 ~ 75                            | 15                         | 6.7                             | 100                           | 150                                                | 87.5                         |
| VHB100W-Q48-S24  | 18 ~ 75                            | 24                         | 4.17                            | 100                           | 240                                                | 88                           |
| VHB100W-Q48-S28  | 18 ~ 75                            | 28                         | 3.57                            | 100                           | 280                                                | 88                           |
| VHB100W-Q48-S48  | 18 ~ 75                            | 48                         | 2.08                            | 100                           | 480                                                | 88                           |

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                   |                          |            | 9<br>18 | 24<br>48 | 36<br>75  | Vdc<br>Vdc |
| surge voltage <sup>1</sup>                | 24 V input<br>48 V input |            |         |          | 50<br>100 | Vdc<br>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>2</sup> |                          |            |         |          |           |            |
| filter                                    | PI type                  |            |         |          |           |            |

Notes: 1. 100 ms max  
2. 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           |                                      |  |     |       | ±1.5 | %     |
| transient response         | 25% step load change                 |  |     |       | 500  | µs    |
| adjustability <sup>3</sup> |                                      |  |     | ±10   |      | %     |
| switching frequency        | 100% load, input voltage range       |  |     | 250   |      | kHz   |
| temperature coefficient    |                                      |  |     | ±0.03 |      | %/°C  |

Notes: 3. 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 |     | 140 | %     |
| thermal shutdown case temp. |                          |  |     | 105 |     | °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 |                        |  |       | 1,500 |     | pF    |
| safety approvals      | UL60950-1              |  |       |       |     |       |
| RoHS compliant        | yes                    |  |       |       |     |       |

## ENVIRONMENTAL

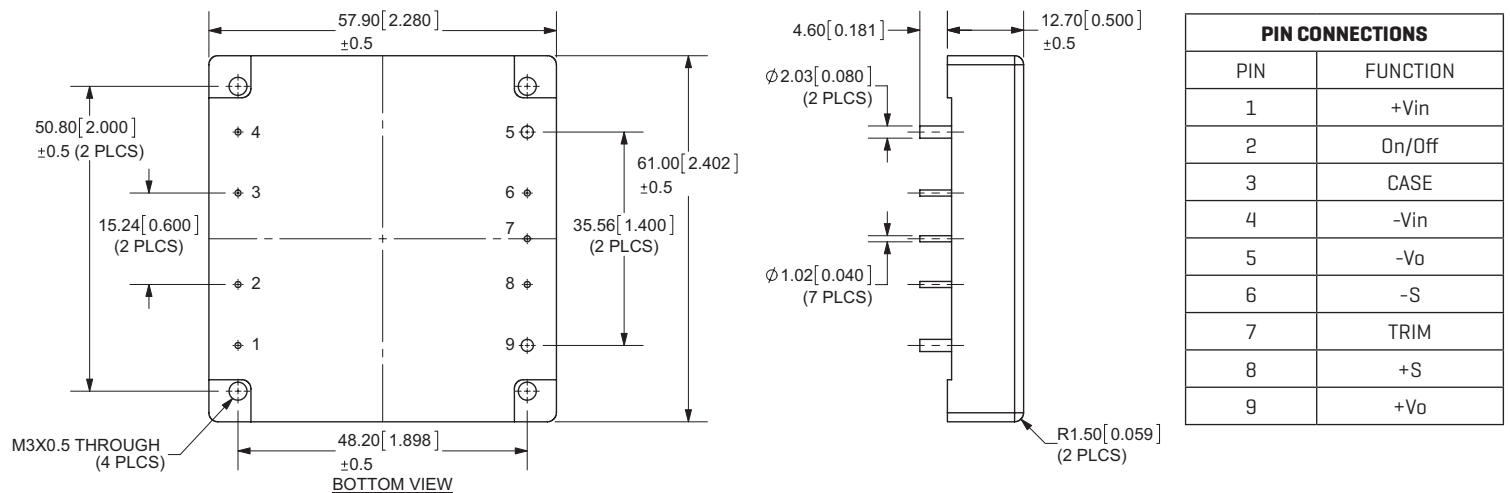
| parameter                  | conditions/description | min | typ | max | units |
|----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature |                        | -40 |     | 100 | °C    |
| storage temperature        |                        | -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        |                                             |     | 95  |     | g     |

## MECHANICAL DRAWING

units: mm [inches]

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

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                                  | 10/01/2008 |
| 1.01 | new template applied                             | 08/17/2011 |
| 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        | 04/23/2012 |
| 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

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.