

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

**FEATURES**

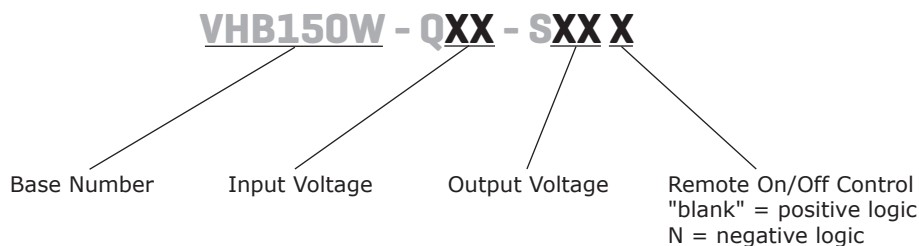
- up to 150 W isolated output
- industry standard half brick package
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~48 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 89%



| 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 |       |       |     |       |

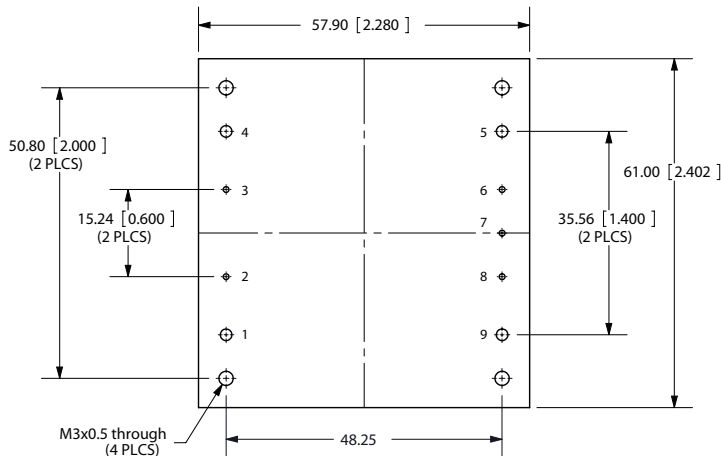
## ENVIRONMENTAL

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

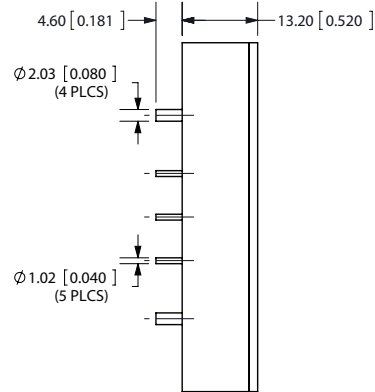
## MECHANICAL

| 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



**Bottom View**  
All dimensions in mm(inches)



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

Notes: 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                                  | 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 |
| 1.06 | updated spec                                     | 03/13/2013 |

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

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