



**SERIES:** VHB75W | **DESCRIPTION:** DC-DC CONVERTER

**FEATURES**

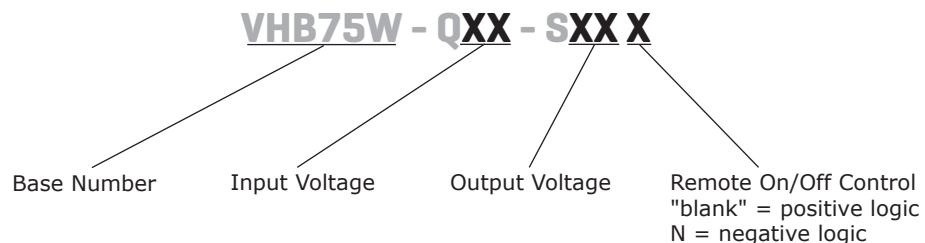
- up to 75 W isolated output
- industry standard half brick package
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~48 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 85%



| MODEL           | input voltage range | output voltage | output current | output power | ripple and noise <sup>1</sup> | efficiency |
|-----------------|---------------------|----------------|----------------|--------------|-------------------------------|------------|
|                 | (Vdc)               | (Vdc)          | max (A)        | max (W)      | max (mVp-p)                   | typ (%)    |
| VHB75W-Q24-S3R3 | 9 ~ 36              | 3.3            | 15             | 50           | 100                           | 79         |
| VHB75W-Q24-S5   | 9 ~ 36              | 5              | 15             | 75           | 100                           | 82         |
| VHB75W-Q24-S12  | 9 ~ 36              | 12             | 6.25           | 75           | 150                           | 83         |
| VHB75W-Q24-S15  | 9 ~ 36              | 15             | 5              | 75           | 150                           | 84         |
| VHB75W-Q24-S24  | 9 ~ 36              | 24             | 3.12           | 75           | 240                           | 84         |
| VHB75W-Q24-S48  | 9 ~ 36              | 48             | 1.56           | 75           | 480                           | 82         |
| VHB75W-Q48-S3R3 | 18 ~ 75             | 3.3            | 15             | 50           | 100                           | 80         |
| VHB75W-Q48-S5   | 18 ~ 75             | 5              | 15             | 75           | 100                           | 83         |
| VHB75W-Q48-S12  | 18 ~ 75             | 12             | 6.25           | 75           | 150                           | 84         |
| VHB75W-Q48-S15  | 18 ~ 75             | 15             | 5              | 75           | 150                           | 85         |
| VHB75W-Q48-S24  | 18 ~ 75             | 24             | 3.12           | 75           | 240                           | 85         |
| VHB75W-Q48-S48  | 18 ~ 75             | 48             | 1.56           | 75           | 480                           | 84         |

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          | 24  | 36  | Vdc   |
|   |   | 18         | 48  | 75  | Vdc   |
| under voltage lockout                     | power up  |            | 8.8 |     | Vdc   |
|   |   | 24 V input |     |     |       |
|   |   | 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   | %     |
| transient response         | 25% step load change  |     |       | 500  | µs    |
| adjustability <sup>2</sup> |   |     | ±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<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 |     | 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 |                        | 100   |     |     | MΩ    |
| safety approvals     | UL 60950-1             |       |     |     |       |
| RoHS compliant       | yes                    |       |     |     |       |

## ENVIRONMENTAL

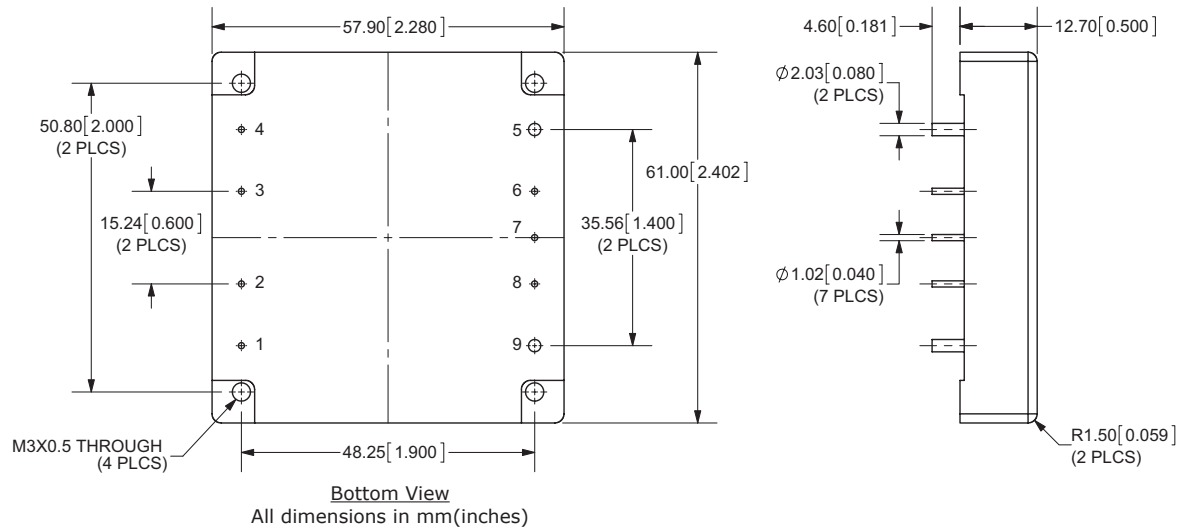
| parameter                  | conditions/description | min | typ | max | units |
|----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature |                        | -40 |     | 100 | °C    |
| storage temperature        |                        | -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:  $\pm 0.25$  [ $\pm 0.01$ ]



| 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   | 10/01/2008 |
| 1.01 | applied new spec template                                       | 09/28/2011 |
| 1.02 | add remote on/off control to the part number key                | 11/23/2011 |
| 1.03 | updated features  | 12/20/2011 |
| 1.04 | misc. updates and corrections                                   | 02/14/2012 |
| 1.05 | new template applied, updated trim note, updated pin references | 06/07/2012 |
| 1.06 | updated spec  | 04/01/2013 |

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



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