



## SERIES: VQB75W | DESCRIPTION: DC-DC CONVERTER

### FEATURES

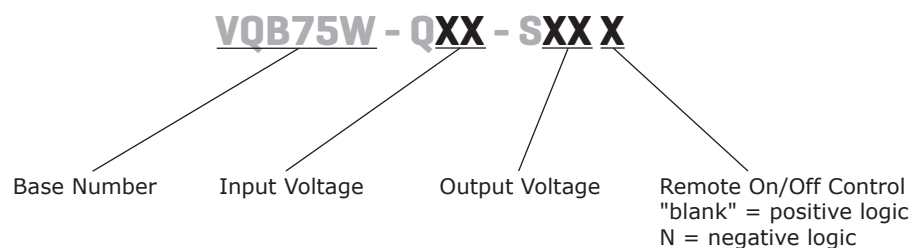
- up to 75 W isolated output
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~24 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 87%



| 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>(%) |
|-----------------|------------------------------------|----------------------------|---------------------------------|-------------------------------|----------------------------------------------------|------------------------------|
| VQB75W-Q24-S3R3 | 9 ~ 36                             | 3.3                        | 12                              | 40                            | 100                                                | 81                           |
| VQB75W-Q24-S5   | 9 ~ 36                             | 5                          | 12                              | 60                            | 100                                                | 84                           |
| VQB75W-Q24-S12  | 9 ~ 36                             | 12                         | 6.25                            | 75                            | 150                                                | 86                           |
| VQB75W-Q24-S15  | 9 ~ 36                             | 15                         | 5                               | 75                            | 150                                                | 86                           |
| VQB75W-Q24-S24  | 9 ~ 36                             | 24                         | 3.12                            | 75                            | 240                                                | 86                           |
| VQB75W-Q48-S3R3 | 18 ~ 75                            | 3.3                        | 12                              | 40                            | 100                                                | 82                           |
| VQB75W-Q48-S5   | 18 ~ 75                            | 5                          | 12                              | 60                            | 100                                                | 85                           |
| VQB75W-Q48-S12  | 18 ~ 75                            | 12                         | 6.25                            | 75                            | 150                                                | 86                           |
| VQB75W-Q48-S15  | 18 ~ 75                            | 15                         | 5                               | 75                            | 150                                                | 87                           |
| VQB75W-Q48-S24  | 18 ~ 75                            | 24                         | 3.12                            | 75                            | 240                                                | 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    |                                                                                                                                              |            | 9   | 24  | 36  | Vdc   |
|                            |                                                                                                                                              |            | 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   |
| remote on/off <sup>1</sup> |                                                                                                                                              |            |     |     |     |       |
| filter                     | PI type                                                                                                                                      |            |     |     |     |       |
| Notes:                     | 1. logic compatibility, open collector ref to -input<br>for positive logic<br>Module ON, >3.5~75 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         | 75~100% step load change<br>recovery time                                                                                       |  |     |       | 500  | µs    |
|                            | error band                                                                                                                      |  |     | ±5    |      | %Vout |
| 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 | %     |
| over current protection  | % nominal output current | 110 |     | 140 | %     |
| short circuit protection | continuous               |     |     |     |       |

## 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 | tested at 500 Vdc      | 100   |     |     | MΩ    |
| RoHS compliant       | yes                    |       |     |     |       |

## ENVIRONMENTAL

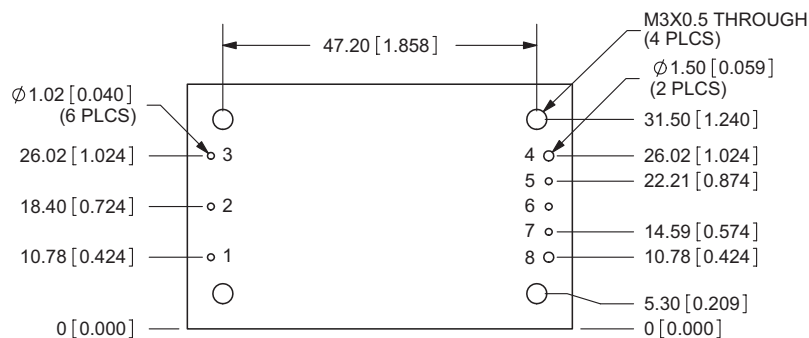
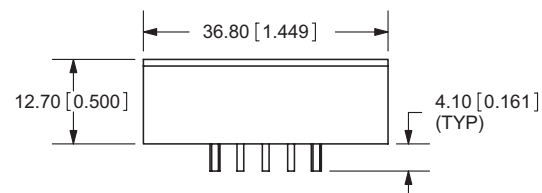
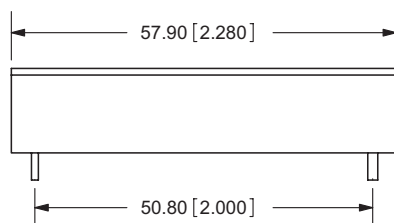
| parameter                   | conditions/description | min | typ | max | units |
|-----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature  |                        | -40 |     | 100 | °C    |
| storage temperature         |                        | -55 |     | 105 | °C    |
| thermal shutdown case temp. |                        |     | 105 |     | °C    |

## MECHANICAL

| parameter     | conditions/description                            | min | typ | max | units |
|---------------|---------------------------------------------------|-----|-----|-----|-------|
| dimensions    | 36.8 x 57.90 x 12.70 (1.449 x 2.280 x 0.500 inch) |     |     |     | mm    |
| case material | aluminum baseplate, plastic case                  |     |     |     |       |

## MECHANICAL DRAWING

units: mm[inch]  
tolerance:  
X.X =  $\pm 0.5$ mm  
X.XX =  $\pm 0.25$ mm



| PIN CONNECTIONS |          |
|-----------------|----------|
| PIN             | FUNCTION |
| 1               | +Vin     |
| 2               | on/off   |
| 3               | -Vin     |
| 4               | -Vo      |
| 5               | -S       |
| 6               | trim     |
| 7               | +S       |
| 8               | +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             | 12/04/2008 |
| 1.01 | updated mechanical drawing  | 01/08/2009 |
| 1.02 | V-Infinity branding removed | 09/25/2012 |
| 1.03 | updated spec                | 03/18/2013 |

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



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