



**SERIES:** VAWQ6 | **DESCRIPTION:** DC-DC CONVERTER

#### **FEATURES**

- up to 6 W isolated output
- wide input (4:1)
- industry standard 24 pin DIP package style
- single and dual regulated outputs
- 3,000 Vdc isolation
- short circuit protection
- wide temperature range -25 ~ 95°C with derating
- efficiency up to 80%

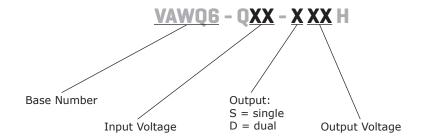




| MODEL           |                     | put<br>tage    | output<br>voltage | output<br>current | output<br>power | ripple<br>and noise¹  | efficiency        |
|-----------------|---------------------|----------------|-------------------|-------------------|-----------------|-----------------------|-------------------|
|                 | <b>typ</b><br>(Vdc) | range<br>(Vdc) | (Vdc)             | max<br>(mA)       | max<br>(W)      | <b>max</b><br>(mVp-p) | <b>typ</b><br>(%) |
| VAWQ6-Q24-S3R3H | 24                  | 9~36           | 3.3               | 1,000             | 3.3             | 100                   | 72                |
| VAWQ6-Q24-S5H   | 24                  | 9~36           | 5                 | 1,000             | 5               | 100                   | 78                |
| VAWQ6-Q24-S12H  | 24                  | 9~36           | 12                | 470               | 5.64            | 120                   | 80                |
| VAWQ6-Q24-S15H  | 24                  | 9~36           | 15                | 400               | 6               | 150                   | 80                |
| VAWQ6-Q24-D5H   | 24                  | 9~36           | ±5                | ±500              | 5               | 100                   | 78                |
| VAWQ6-Q24-D12H  | 24                  | 9~36           | ±12               | ±230              | 5.52            | 120                   | 80                |
| VAWQ6-Q24-D15H  | 24                  | 9~36           | ±15               | ±190              | 5.7             | 150                   | 80                |
| VAWQ6-Q48-S3R3H | 48                  | 18~72          | 3.3               | 1,000             | 3.3             | 100                   | 70                |
| VAWQ6-Q48-S5H   | 48                  | 18~72          | 5                 | 1,000             | 5               | 100                   | 78                |
| VAWQ6-Q48-S12H  | 48                  | 18~72          | 12                | 470               | 5.64            | 120                   | 79                |
| VAWQ6-Q48-S15H  | 48                  | 18~72          | 15                | 400               | 6               | 150                   | 80                |
| VAWQ6-Q48-D5H   | 48                  | 18~72          | ±5                | ±500              | 5               | 100                   | 77                |
| VAWQ6-Q48-D12H  | 48                  | 18~72          | ±12               | ±230              | 5.52            | 120                   | 79                |
| VAWQ6-Q48-D15H  | 48                  | 18~72          | ±15               | ±190              | 5.7             | 150                   | 80                |

Notes: 1. ripple and noise are measured at 20 MHz BW with  $10\mu F$  tantalum capacitor and  $1\mu F$  ceramic capacitor across output

### **PART NUMBER KEY**



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## **INPUT**

| parameter               | conditions/description         | min     | typ      | max      | units      |
|-------------------------|--------------------------------|---------|----------|----------|------------|
| operating input voltage | 24 Vdc models<br>48 Vdc models | 9<br>18 | 24<br>48 | 36<br>72 | Vdc<br>Vdc |
| input filter            | PI type                        |         |          |          |            |

## **OUTPUT**

| parameter               | conditions/description                       | min | typ | max          | units  |
|-------------------------|--|-----|-----|--------------|--------|
| line regulation         | measured from low line to high line          |     |     | ±0.5         | %      |
| load regulation         | single output models¹<br>dual output models² |     |     | ±0.5<br>±1.0 | %<br>% |
| voltage accuracy        |  |     |     | ±2.0         | %      |
| voltage balance         | dual output models                           |     |     | ±1.0         | %      |
| switching frequency     |  | 200 |     |              | kHz    |
| temperature coefficient |  |     |     | ±0.05        | %/°C   |

Notes:

## **PROTECTIONS**

| parameter                | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-----|-----|-------|
| short circuit protection | continuous             |     |     |     |       |

# **SAFETY AND COMPLIANCE**

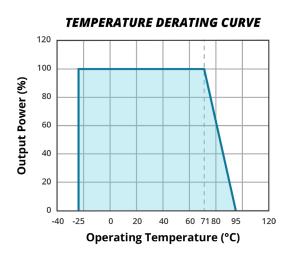
| parameter             | conditions/description | min   | typ | max | units |
|-----------------------|------------------------|-------|-----|-----|-------|
| isolation voltage     |                        | 3,000 |     |     | Vdc   |
| insulation resistance |                        | 1,000 |     |     | ΜΩ    |
| RoHS                  | 2011/65/EU             |       |     |     |       |

## **ENVIRONMENTAL**

| parameter             | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | see derating curve     | -25 |     | 95  | °C    |
| storage temperature   |                        | -40 |     | 100 | °C    |

<sup>1.</sup> measured from 10% to 100% full load 2. measured from 25% to 100% full load

#### **DERATING CURVES**



### **MECHANICAL**

| parameter     | conditions/description                         | min | typ  | max | units |
|---------------|--|-----|------|-----|-------|
| dimensions    | 31.8 x 20.3 x 10.2 (1.25 x 0.80 x 0.40 inches) |     |      |     | mm    |
| case material | non-conductive black plastic                   |     |      |     |       |
| weight        |  |     | 12.5 |     | g     |

### **MECHANICAL DRAWING**

units: mm [inches]

tolerance: inches:  $x.xx = \pm 0.02$ ,  $x.xxx = \pm 0.010$ 

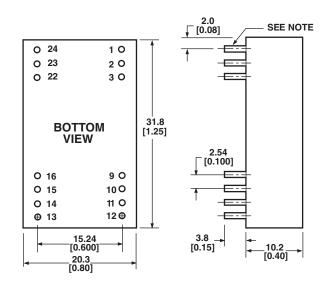
mm:  $x.xx = \pm 0.5$ ,  $x.xxx = \pm 0.25$ 

Note: pin diameter: 0.5 mm [0.02"]

| PIN CONNECTIONS |               |             |  |  |  |
|-----------------|---------------|-------------|--|--|--|
|                 | SINGLE OUTPUT | DUAL OUTPUT |  |  |  |
| PIN             | FUNCTION      | FUNCTION    |  |  |  |
| 1,24            | NP            | NP          |  |  |  |
| 2,3             | -Vin          | -Vin        |  |  |  |
| 4,5             | NP            | NP          |  |  |  |
| 9               | NC            | Common      |  |  |  |
| 10,15           | NC            | NC          |  |  |  |
| 11              | NC            | -Vo         |  |  |  |
| 12,13           | NP            | NP          |  |  |  |
| 14              | +Vo           | +Vo         |  |  |  |
| 16              | -Vo           | Common      |  |  |  |
| 20,21           | NP            | NP          |  |  |  |
| 22,23           | +Vin          | +Vin        |  |  |  |

NP = No Pin

NC = No connection



All specifications measured at 25°C, nominal input voltage, and full load unless otherwise noted.

Note:

CUI Inc | SERIES: VAWQ6 | DESCRIPTION: DC-DC CONVERTER

#### **REVISION HISTORY**

| rev. | description                 | date       |
|------|-----------------------------|------------|
| 1.0  | initial release             | 10/13/2008 |
| 1.01 | updated information         | 04/09/2009 |
| 1.02 | updated to new template     | 08/22/2011 |
| 1.03 | V-Infinity branding removed | 09/11/2011 |
| 1.04 | updated spec                | 03/12/2013 |
| 1.05 | updated spec                | 05/12/2015 |
| 1.06 | company logo updated        | 02/16/2021 |
| 1.07 | company address updated     | 11/05/2024 |
| 1.07 | maximum temperature updated | 11/20/2024 |

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



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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