# VAQ20 Wide Input DC-DC Converter

## Features

- 6-24W Non-Isolated Output
- Efficiency to 94%
- 24-Pin DIP Package
- Input LC Filter
- Regulated outputs


| Model Number | Input Voltage | Output Voltage | Output Current | Input Current No Load | Input Current Full Load | Effic. | Case |
|---|---|---|---|---|---|---|---|
| VAQ20-Q5-S3R3 | 4.7-6VDC | 3.3VDC | 2000mA | 15mA | 1553mA | 85% | A |
| VAQ20-Q12-S3R3 | 9-32VDC | 3.3VDC | 2000mA | 15mA | 655mA | 84% | A |
| VAQ20-Q12-S5 | 9-32VDC | 5VDC | 2000mA | 15mA | 947mA | 88% | A |
| VAQ20-Q12-S12 | 9-32VDC | 12VDC | 830mA | 15mA | 954mA | 87% | A |
| VAQ20-Q12-S15 | 9-32VDC | 15VDC | 666mA | 15mA | 957mA | 87% | A |
| VAQ20-Q24-S12 | 16-32VDC | 12VDC | 1600mA | 15mA | 860mA | 93% | A |
| VAQ20-Q24-S15 | 19-32VDC | 15VDC | 1600mA | 15mA | 1064mA | 94% | A |

## Input

| | | | |
|---|---|---|---|
| Input Voltage Range | | | 5.0V 4.7-6V<br>12V 9-32V<br>24V 16-32V<br>24V 19-32V |
| Input Filter | | | LC Type |

## Output

| | | | |
|---|---|---|---|
| Voltage Accuracy | | | ±2.0% max. |
| Ripple & Noise | 20MHz BW, | 3.3V, 5V | 100mV p-p, max. |
| | | 12V, 15V | 1% p-p max. |
| Temperature Coefficient | | | ±0.05%/°C |
| Over Current Protection | | | 120%~150% |
| Line Regulation[1] | | | ±0.5% max |
| Load Regulation[2] | | | ±0.5% max |

## General Specifications

| | |
|---|---|
| Efficiency | see table |
| Switching Frequency | 150KHz, Type |
| Isolation Voltage (Input/Output) | Non-Isolated |
| Operating Temperature Range | -25°C to +71°C |
| Case Temperature | 100°C |
| Cooling | Free-Air Convection |
| Storage Temperature Range | -40°C to +100°C |
| Dimensions | 1.25x0.8x0.4 inches<br>(31.8x20.3x10.2mm) |

## Case Material

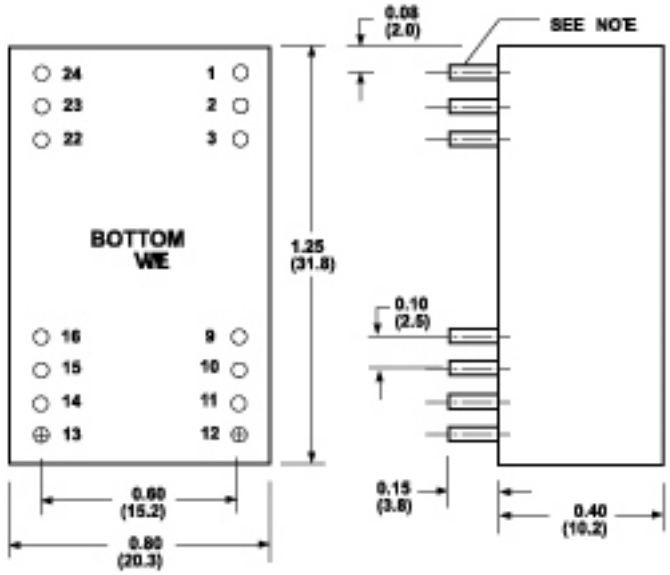
| | |
|---|---|
| Standard Models | Black Coated Copper with Non-Conductive base |

**NOTES:**

1. Measured from high line to low line
2. Measured from full load to 10% load

## Case A

NOTE: Pin Size is 0.02" Inch (0.5mm) DIA
All Dimensions In Inches(mm)
Tolerance .xx= ±.02, .xxx= ±.010

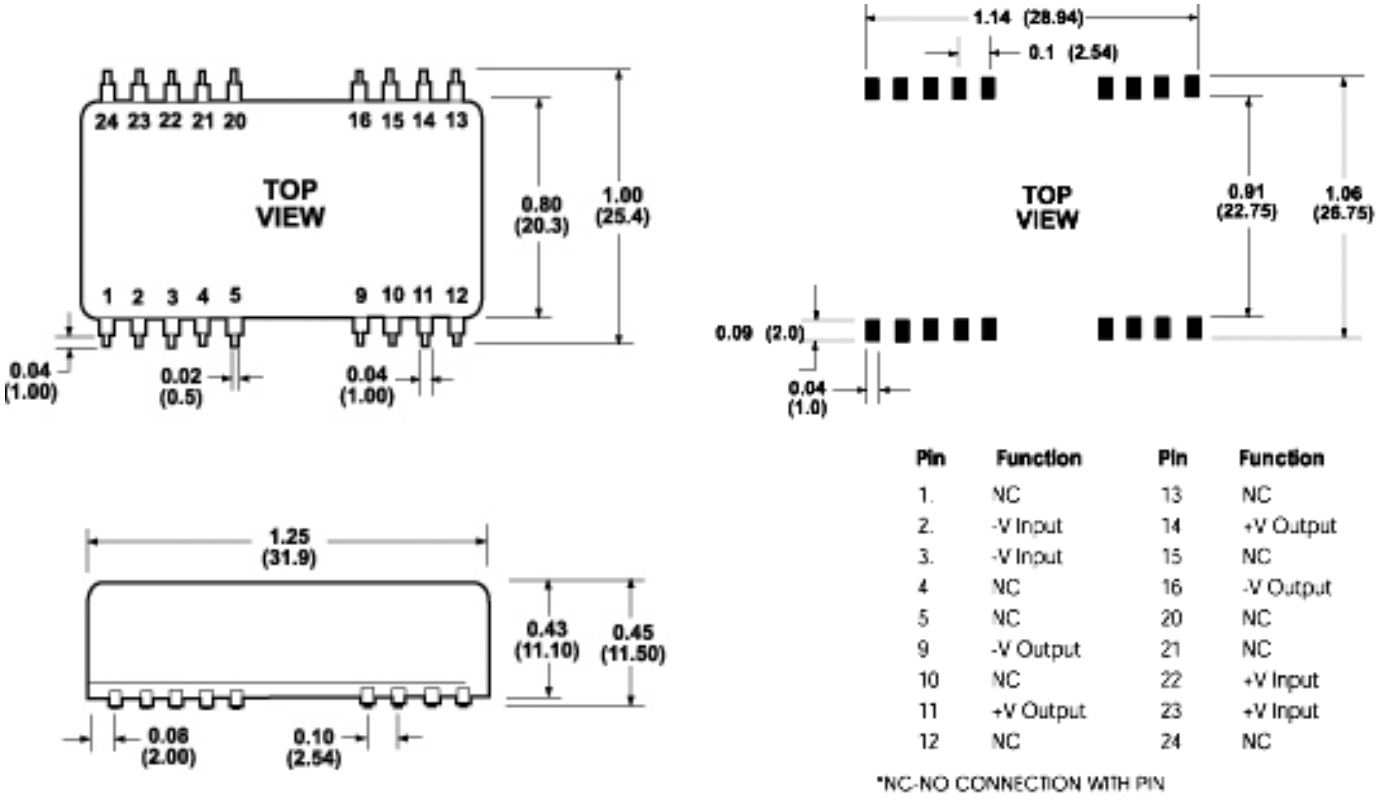



**PIN CONNECTION**

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1. | NP | 24 | NP |
| 2. | -V Input | 23 | +V Input |
| 3. | -V Input | 22 | +V Input |
| 9 | -V Output | 16 | -V Output |
| 10 | NC | 15 | NC |
| 11 | +V Output | 14 | +V Output |
| 12 | NP | 13 | NP |

*NP-NO PIN
*NC-NO CONNECTION WITH PIN

## Case AS




| Pin | Function | Pin | Function |
|---|---|---|---|
| 1. | NC | 13 | NC |
| 2. | -V Input | 14 | +V Output |
| 3. | -V Input | 15 | NC |
| 4 | NC | 16 | -V Output |
| 5 | NC | 20 | NC |
| 9 | -V Output | 21 | NC |
| 10 | NC | 22 | +V Input |
| 11 | +V Output | 23 | +V Input |
| 12 | NC | 24 | NC |

*NC-NO CONNECTION WITH PIN