



SERIES: VFK400W

**DESCRIPTION: CHASSIS MOUNT
DC-DC CONVERTER**

DESCRIPTION

The VFK400W series of rugged DC-DC converters are designed for high reliability applications, featuring integral heat sink, over-temperature protection, over-current protection and input transient voltage protection. With an external input fuse, the converter can protect accidental input polarity reversal. The wide 4:1 input range (10-36V) is very useful to stabilize an input source like batteries in various discharging and charging conditions.

Additionally, high efficiency, fast response, tight regulations, remote sense and remote On/Off control make these converters very useful in many industrial and communications applications.

FEATURES

- 400W isolated output
- Efficiency to 87%
- RoHS Compliant
- 4:1 input range
- Regulated output
- Continuous short circuit protection
- Metal enclosure with integrated heatsink
- Rugged design
- Over-temperature shutdown



MODEL

| MODEL | input voltage | | output voltage | output current | efficiency |
|-----------------|----------------|--------------|----------------|----------------|------------|
| | nominal (V dc) | range (V dc) | max (V dc) | max (A) | typ (%) |
| VFK400W-Q24-S12 | 24 | 10 ~ 36 | 12 | 33.3 | 87 |
| VFK400W-Q24-S24 | 24 | 10 ~ 36 | 24 | 16.7 | 86 |
| VFK400W-Q24-S48 | 24 | 10 ~ 36 | 48 | 8.3 | 86 |
| VFK400W-Q48-S12 | 48 | 20 ~ 75 | 12 | 33.6 | 87 |
| VFK400W-Q48-S24 | 48 | 18 ~ 75 | 24 | 16.7 | 86 |
| VFK400W-Q48-S48 | 48 | 18 ~ 75 | 48 | 8.3 | 86.5 |

INPUT

| parameter | conditions/description | min | nom | max | units | |
|--------------------------------------|-----------------------------|------------|------|------|-------|------|
| under voltage lockout | power up | 24 V input | 9.5 | | V dc | |
| | | 48 V input | 17.8 | | V dc | |
| | power down | 24 V input | | 8.5 | | V dc |
| | | 48 V input | | 15.5 | | V dc |
| positive logic remote on/off control | module off | | | 1.2 | V dc | |
| | module on (or open circuit) | 3.5 | | 75 | V dc | |



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OUTPUT

| parameter | conditions/description | min | nom | max | units |
|-----------------------------|--------------------------------------|-----|------|-----|-------|
| line regulation | measured from high line to low line | | | ±1 | % |
| load regulation | measured from full load to zero load | | | ±1 | % |
| voltage accuracy | | | ±1.5 | | % |
| voltage adjustment range | %Vo | 90 | | 105 | % |
| current limit | | 110 | | 150 | % |
| ripple & noise ¹ | 12 V model | | | 80 | mV |
| | | | | 200 | mVp-p |
| | 24 V model | | | 120 | mV |
| | | | | 240 | mVp-p |
| | 48 V model | | | 200 | mV |
| | | | | 480 | mVp-p |
| short circuit protection | output shut down and auto-restart | | | | |
| over voltage protection | %Vo | 115 | | 140 | % |

notes: 1. measured at 20MHz bandwidth with a 10 µF tantalum cap and a 1 µF ceramic cap on the output

GENERAL

| parameter | conditions/description | min | nom | max | units |
|-----------------------------|---|-----|-----|-----|-------|
| switching frequency | | | 250 | | kHz |
| case operating temperature | | -40 | | 100 | °C |
| storage temperature | | -55 | | 105 | °C |
| thermal shutdown case temp. | | | 110 | | °C |
| case material | steel and aluminum extrusion | | | | |
| dimensions | 7.84 x 4.99 x 1.54 inches (199 x 126.8 x 39 mm) | | | | |
| RoHS compliant | yes | | | | |

ISOLATION SPECIFICATIONS

| parameter | conditions/description | min | nom | max | units |
|-------------------|------------------------|-------|-----|-----|-------|
| isolation voltage | input to output | 1,500 | | | V dc |
| | input to case | 1,500 | | | V dc |
| | output to case | 1,500 | | | V dc |

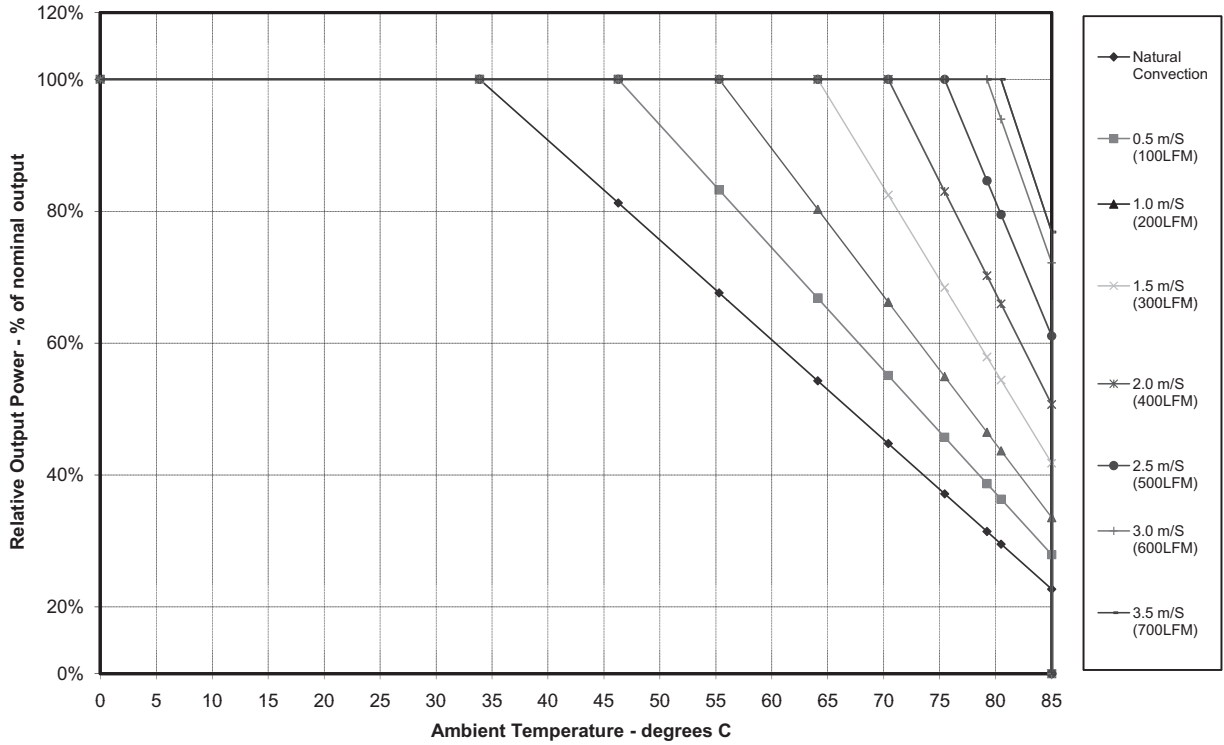


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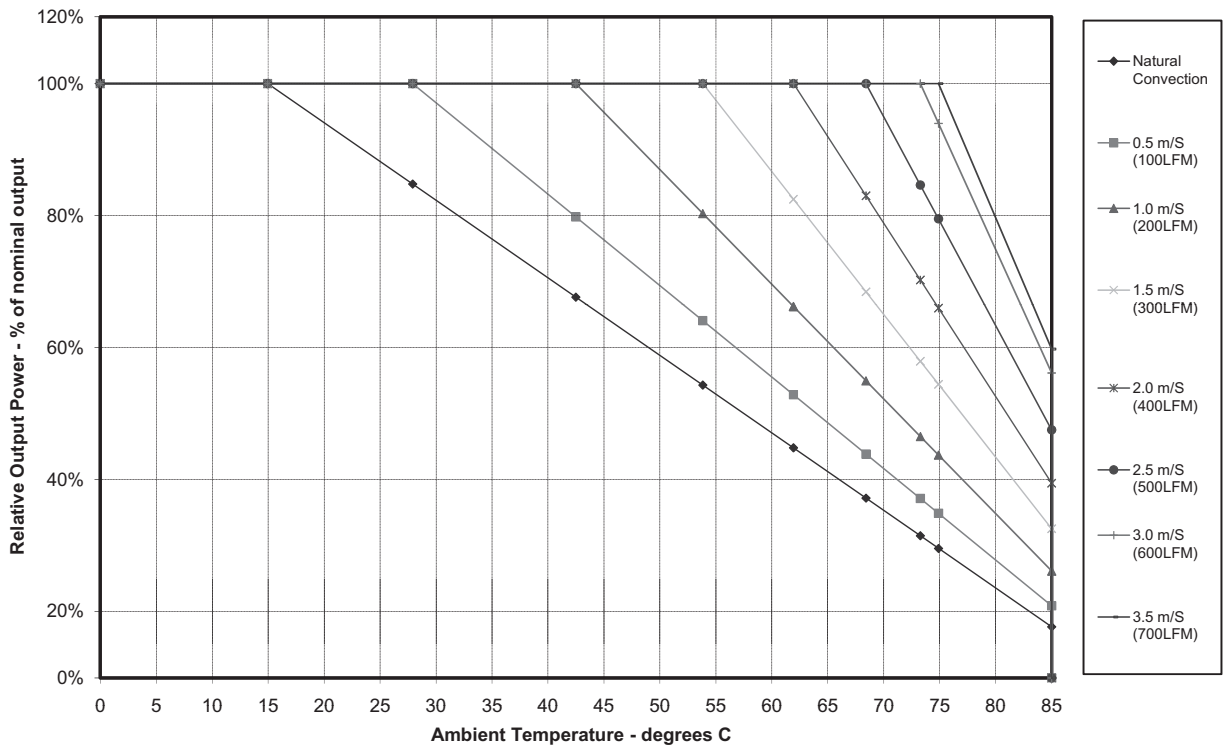
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POWER DERATING CURVES (AT NOMINAL INPUT)

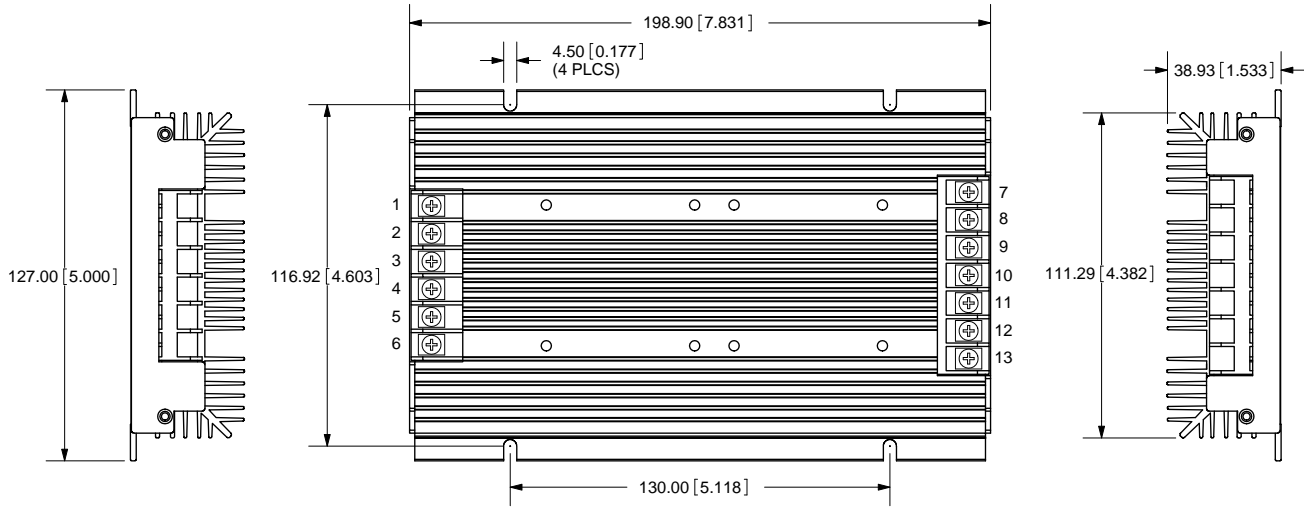
Q24-S12
Q48-S12
Q48-S24
Q48-S48



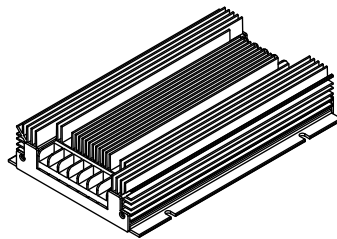
Q24-S24
Q24-S48



| REV. | DESCRIPTION | DATE |
|------|-------------|-----------|
| A | NEW DRAWING | 8/30/2010 |



| PINOUT | |
|--------|-----------|
| 1, 2 | +V Input |
| 3, 4 | -V Input |
| 5 | On/Off |
| 6 | Case |
| 7, 8 | +V Output |
| 9 | +Sense |
| 10 | Trim |
| 11 | -Sense |
| 12, 13 | -V Output |



SCALE: 1:4

TOLERANCE:
X.X = ±0.5mm
X.XX = ±0.25mm



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|---------------|--------------------|------------|
| TITLE: VFK | | REV: A |
| PART NO: VFK | UNITS: MM [INCHES] | |
| DRAWN BY: ZRJ | APPROVED BY: | SCALE: 1:2 |

PC FILE NAME: VFK

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