

PART NUMBER: VBD20**DESCRIPTION:** dc-dc converter**features**

- 20W isolated output
- efficiency to 88%
- 2:1 input range
- regulated outputs
- continuous short circuit protection
- Pi input filter

**MODEL**

| MODEL | input voltage (V dc) | output voltage (V dc) | output current | | input current | | efficiency (%) |
|----------------|----------------------|-----------------------|----------------|-----------|---------------|----------------|----------------|
| | | | min. (mA) | max. (mA) | no load (mA) | full load (mA) | |
| VBD20-D24-S1R8 | 18 ~ 36 | 1.8 | 0 | 6000 | 30 | 523 | 86 |
| VBD20-D24-S2R5 | 18 ~ 36 | 2.5 | 0 | 6000 | 30 | 718 | 87 |
| VBD20-D24-S3R3 | 18 ~ 36 | 3.3 | 0 | 5000 | 40 | 722 | 89 |
| VBD20-D24-S5 | 18 ~ 36 | 5 | 0 | 4000 | 60 | 926 | 90 |
| VBD20-D24-S12 | 18 ~ 36 | 12 | 0 | 1670 | 20 | 938 | 89 |
| VBD20-D24-S15 | 18 ~ 36 | 15 | 0 | 1330 | 20 | 934 | 87 |
| VBD20-D24-D12 | 18 ~ 36 | ±12 | 42 | 835 | 20 | 938 | 89 |
| VBD20-D24-D15 | 18 ~ 36 | ±15 | 33 | 670 | 20 | 941 | 89 |
| VBD20-D48-S1R8 | 36 ~ 75 | 1.8 | 0 | 6000 | 30 | 262 | 86 |
| VBD20-D48-S2R5 | 36 ~ 75 | 2.5 | 0 | 6000 | 30 | 359 | 87 |
| VBD20-D48-S3R3 | 36 ~ 75 | 3.3 | 0 | 5000 | 30 | 386 | 89 |
| VBD20-D48-S5 | 36 ~ 75 | 5 | 0 | 4000 | 40 | 463 | 90 |
| VBD20-D48-S12 | 36 ~ 75 | 12 | 0 | 1670 | 15 | 469 | 89 |
| VBD20-D48-S15 | 36 ~ 75 | 15 | 0 | 1330 | 15 | 467 | 89 |
| VBD20-D48-D12 | 36 ~ 75 | ±12 | 42 | 835 | 10 | 469 | 89 |
| VBD20-D48-D15 | 36 ~ 75 | ±15 | 33 | 670 | 10 | 471 | 89 |

NOTE:

add suffix "-1" to the model number for remote on/off option

**PART NUMBER:** VBD20**DESCRIPTION:** dc-dc converter**INPUT**

| parameter | conditions/description | min | nom | max | units |
|---------------------------------------|----------------------------|-----|-----|-----|-------|
| input voltage range | 24 V | 18 | | 36 | V |
| | 48 V | 36 | | 72 | V |
| under voltage lockout | 24 V power up | | 17 | | V |
| | 24 V power down | | 16 | | V |
| | 48 V power up | | 34 | | V |
| | 48 V power down | | 33 | | V |
| input filter | pi type | | | | |
| positive logic remote on/off control: | | | | | |
| logic compatibility | CMOS or open TTL | | | | |
| module ON | > 5.5 V dc or open circuit | | | | |
| module OFF | < 1.2 V dc | | | | |

OUTPUT

| parameter | conditions/description | min | nom | max | units |
|--------------------------|---|-----|------|-------|--------|
| voltage accuracy | | | ±1.5 | | % |
| transient response | single 25% step load change | 500 | | | μ sec. |
| temperature coefficient | | | | ±0.03 | %/°C |
| ripple & noise | 20 MHz BW | | | 75 | mVp-p |
| short circuit protection | continuous | | | | |
| over voltage protection | zener or tvs clamp | | | | |
| external trim adj. range | | | ±10 | | % |
| line regulation | measured from high line to low line | | | | |
| | single output | | ±0.2 | | % |
| | dual output | | ±0.5 | | % |
| load regulation | single: measured from full load to 10% | | ±1 | | % |
| | dual: measured from full load to 1/4 load | | ±1 | | % |

GENERAL SPECIFICATIONS

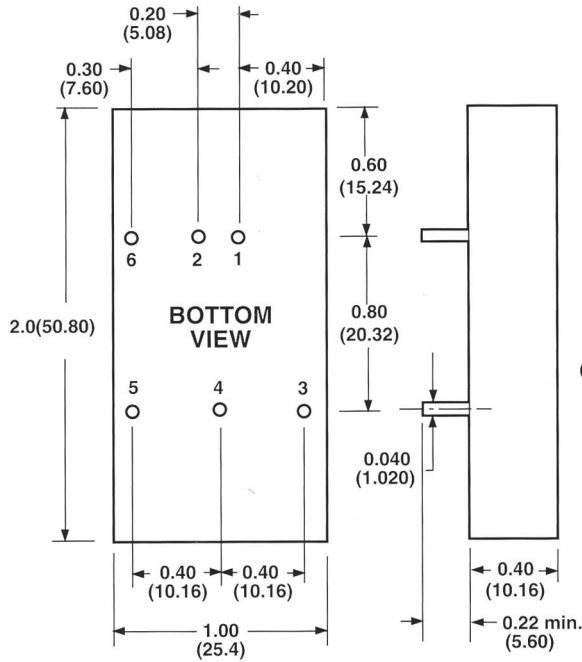
| parameter | conditions/description | min | nom | max | units |
|-----------------------------|--|------|-----------------|-----|-------|
| efficiency | see table | | | | |
| isolation voltage | | 1500 | | | V dc |
| isolation resistance | | | 10 ⁷ | | Ω |
| switching frequency | | | 350 | | kHz |
| operating temperature range | | -40 | | +85 | °C |
| derating (above 71°C) | linearly to zero power at +100°C | | | | |
| case temperature | | | | 100 | °C |
| cooling | free-air convection | | | | |
| storage temperature range | | -55 | | 105 | °C |
| EMI/RFI | conductive EMI meet EN55022 class B | | | | |
| dimensions | 2 x 1 x 0.4 inches (50.8 x 25.4 x 10.2 mm) | | | | |
| case material | black coated copper with non-conductive base | | | | |

PART NUMBER: VBD20

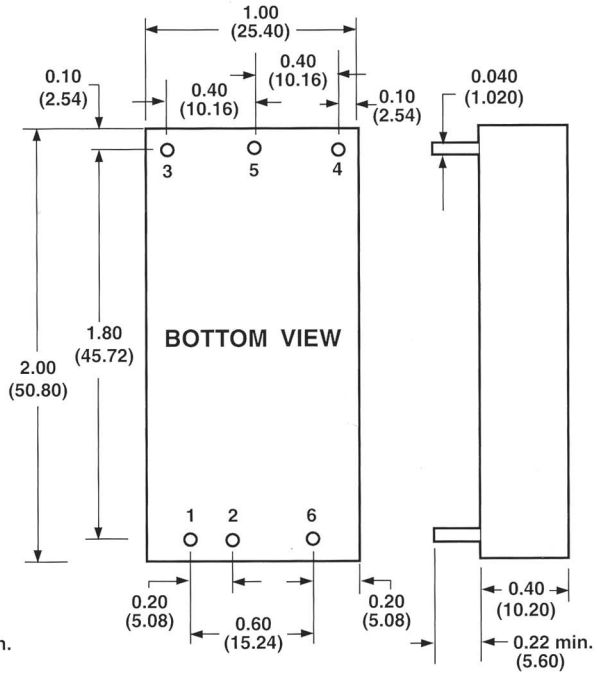
DESCRIPTION: dc-dc converter

DIMENSIONS (mm)

STANDARD PIN CONFIGURATION



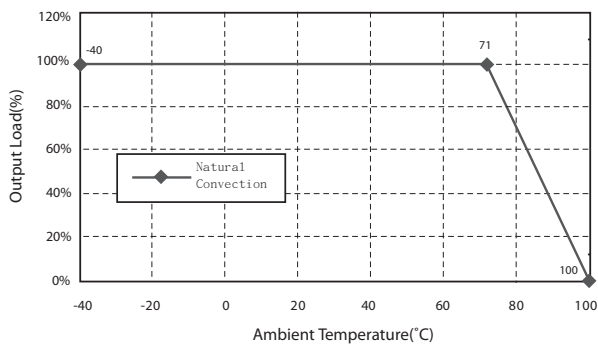
ALTERNATE PIN CONFIGURATION (suffix "-S")



tolerance: **inches** .xx = ±0.04, .xxx = ±0.010
mm .xx = ±1.0, .xxx = ±0.25

| Pin # | Single Output | Dual Output |
|-------|-----------------|-------------|
| | Function | Function |
| 1 | +V Input | +V Input |
| 2 | -V Input | -V Input |
| 3 | +V Output | +V Output |
| 4 | Trim | Common |
| 5 | -V Output | -V Output |
| 6 | Remote ON / OFF | |

DERATING CURVE



EXTERNAL OUTPUT TRIMMING

Output may optionally be externally trimmed (±10%) with a fixed resistor or an external trimpot as shown.

