

SERIES: VHB350 | **DESCRIPTION:** DC-DC CONVERTER

FEATURES

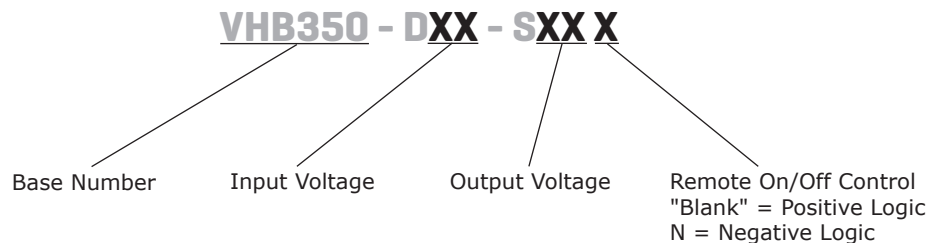
- up to 350 W isolated output
- industry standard half brick package
- 2:1 input range (18~36 V, 36~75 V)
- single output from 3.3~28 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 92.5%



| MODEL | input voltage range (Vdc) | output voltage (Vdc) | output current max (A) | output power max (W) | ripple and noise ¹ max (mVp-p) | efficiency typ (%) |
|-----------------|---------------------------|----------------------|------------------------|----------------------|---|--------------------|
| VHB350-D24-S3R3 | 18 ~ 36 | 3.3 | 70 | 231 | 100 | 88 |
| VHB350-D24-S5 | 18 ~ 36 | 5 | 70 | 350 | 100 | 89.5 |
| VHB350-D24-S12 | 18 ~ 36 | 12 | 29.2 | 350 | 120 | 91.5 |
| VHB350-D24-S24 | 18 ~ 36 | 24 | 14.6 | 350 | 280 | 90 |
| VHB350-D24-S28 | 18 ~ 36 | 28 | 12.5 | 350 | 280 | 91 |
| VHB350-D48-S3R3 | 36 ~ 75 | 3.3 | 70 | 231 | 100 | 89 |
| VHB350-D48-S5 | 36 ~ 75 | 5 | 70 | 350 | 100 | 91 |
| VHB350-D48-S12 | 36 ~ 75 | 12 | 29.2 | 350 | 120 | 92.5 |
| VHB350-D48-S24 | 36 ~ 75 | 24 | 14.6 | 350 | 280 | 91.5 |
| VHB350-D48-S28 | 36 ~ 75 | 28 | 12.5 | 350 | 280 | 92.5 |

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 | | 18 | 24 | 36 | Vdc | |
| | | 36 | 48 | 75 | Vdc | |
| surge voltage ¹ | 24 V input | | | 50 | Vdc | |
| | 48 V input | | | | | |
| under voltage lockout | power up | 24 V input 48 V input | 16 34 | 17 35 | 18 36 | Vdc Vdc |
| | power down | 24 V input 48 V input | 15 32 | 16 33 | 17 35 | Vdc Vdc |
| over voltage protection | turn on | 24 V input 48 V input | | 38 77 | Vdc Vdc | |
| | turn off | 24 V input 48 V input | | 40 80 | Vdc Vdc | |
| positive logic remote on/off | see note 2 | | | | | |
| filter | PI type | | | | | |

Notes: 1. 100 ms max
2. logic compatibility, open collector ref to -input
Module ON, >3.5 to 75 Vdc or open circuit
Module OFF, <1.2 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 | 25% step load change | | | 500 | µs |
| adjustability ³ | | | ±10 | | % |
| switching frequency | 3.3 and 5 V models | | 300 | | kHz |
| | all other models | | 330 | | kHz |
| temperature coefficient | | | ±0.03 | | %/°C |

Notes: 3. trim-up: connect a resistor between the trim pin and +Sense
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 | % |
| short circuit protection | continuous | | | | |
| current limit | | 105 | | 140 | % |
| thermal shutdown case temp. | | | 110 | | °C |

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 | | 10 | | | MΩ |
| isolation capacitance | | | 1,000 | | pF |
| safety approvals | UL60950-1, EN60950-1 | | | | |
| RoHS compliant | yes | | | | |

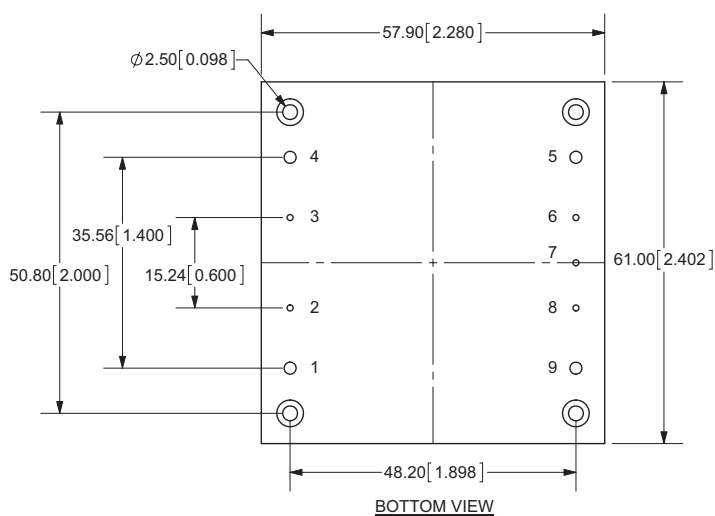
ENVIRONMENTAL

| parameter | conditions/description | min | typ | max | units |
|----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature | | -40 | | 100 | °C |
| storage temperature | | -55 | | 105 | °C |
| humidity | non-condensing | | | 95 | % |

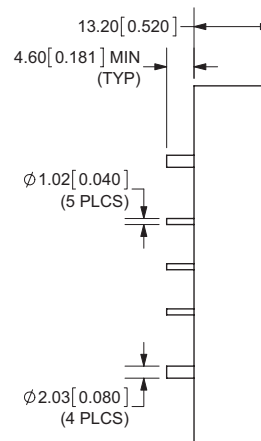
MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---------------|---|-----|-----|-----|-------|
| dimensions | 2.28 x 2.40 x 0.52 inch (57.9 x 61.0 x 13.2 mm) | | | | |
| case material | aluminum baseplate with plastic | | | | |
| weight | | | 114 | | g |

MECHANICAL DRAWING



All dimensions in mm[inches]:



| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | FUNCTION |
| 1 | +Vin |
| 2 | On/Off |
| 3 | CASE |
| 4 | -Vin |
| 5 | -Vo |
| 6 | -S |
| 7 | TRIM |
| 8 | +S |
| 9 | +Vo |

REVISION HISTORY

| rev. | description | date |
|------|--|------------|
| 1.0 | initial release | 06/01/2011 |
| 1.01 | add remote on/off control to the part number key | 11/23/2011 |
| 1.02 | V-Infinity branding removed | 08/30/2012 |
| 1.03 | updated spec | 03/14/2013 |

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



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