



# CHB50W SERIES

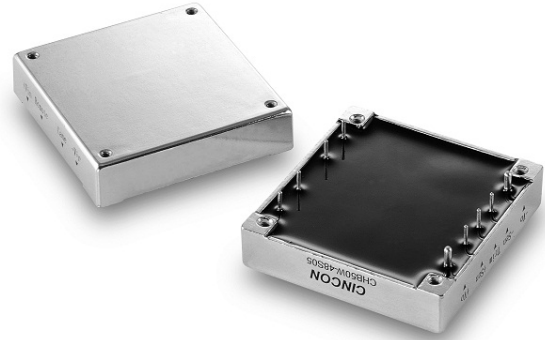
## 33 TO 50 WATT WIDE INPUT DC-DC CONVERTERS

### SINGLE OUTPUT



## FEATURES

- \* 33-50W Isolated Output
- \* Efficiency to 87%
- \* 300KHz Switching Frequency
- \* 4:1 Input Range
- \* Regulated Outputs
- \* Continuous Short Circuit Protection
- \* Five-Sided Shield Metal Case
- \* Half-Brick Size Meet Industrial Standard
- \* UL60950-1 Approval (Except 28 Vout)
- \* Safety Meets IEC/EN/UL62368-1



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT |        | INPUT CURRENT |           | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
|              |               |                | MIN.           | MAX.   | NO LOAD       | FULL LOAD |        |                     |
| CHB50W-24S33 | 9-36 VDC      | 3.3 VDC        | 0 mA           | 10 A   | 50 mA         | 1740 mA   | 79     | 10000uF             |
| CHB50W-24S05 | 9-36 VDC      | 5 VDC          | 0 mA           | 10 A   | 50 mA         | 2570 mA   | 81     | 10000uF             |
| CHB50W-24S12 | 9-36 VDC      | 12 VDC         | 0 mA           | 4.16 A | 50 mA         | 2510 mA   | 83     | 4160uF              |
| CHB50W-24S15 | 9-36 VDC      | 15 VDC         | 0 mA           | 3.33 A | 50 mA         | 2448 mA   | 85     | 3330uF              |
| CHB50W-24S24 | 9-36 VDC      | 24 VDC         | 0 mA           | 2.08 A | 50 mA         | 2476 mA   | 84     | 2080uF              |
| CHB50W-24S28 | 9-36 VDC      | 28 VDC         | 0 mA           | 1.78 A | 50 mA         | 2510 mA   | 83     | 1780uF              |
| CHB50W-24S48 | 9-36 VDC      | 48 VDC         | 0 mA           | 1.04 A | 50 mA         | 2506 mA   | 83     | 1040uF              |
| CHB50W-48S33 | 18-75 VDC     | 3.3 VDC        | 0 mA           | 10 A   | 50 mA         | 848 mA    | 81     | 10000uF             |
| CHB50W-48S05 | 18-75 VDC     | 5 VDC          | 0 mA           | 10 A   | 50 mA         | 1255 mA   | 83     | 10000uF             |
| CHB50W-48S12 | 18-75 VDC     | 12 VDC         | 0 mA           | 4.16 A | 50 mA         | 1223 mA   | 85     | 4160uF              |
| CHB50W-48S15 | 18-75 VDC     | 15 VDC         | 0 mA           | 3.33 A | 50 mA         | 1196 mA   | 87     | 3330uF              |
| CHB50W-48S24 | 18-75 VDC     | 24 VDC         | 0 mA           | 2.08 A | 50 mA         | 1209 mA   | 86     | 2080uF              |
| CHB50W-48S28 | 18-75 VDC     | 28 VDC         | 0 mA           | 1.78 A | 50 mA         | 1223 mA   | 85     | 1780uF              |
| CHB50W-48S48 | 18-75 VDC     | 48 VDC         | 0 mA           | 1.04 A | 50 mA         | 1238 mA   | 84     | 1040uF              |

NOTE: 1. Nominal Input Voltage 24, 48VDC

# SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

## INPUT SPECIFICATIONS:

|                                        |           |             |
|----------------------------------------|-----------|-------------|
| Input Voltage Range.....               | 24V ..... | 9 – 36V     |
|                                        | 48V ..... | 18 – 75V    |
| Input Surge Voltage (100ms max.) ..... | 24V ..... | 50Vdc max.  |
|                                        | 48V ..... | 100Vdc max. |

### Under Voltage Lockout:

|             |                |                        |     |
|-------------|----------------|------------------------|-----|
| 24Vin ..... | power up ..... | 8.8V, power down ..... | 8V  |
| 48Vin ..... | power up ..... | 17V, power down .....  | 16V |

Positive Logic Remote On/Off (note3&4)

Input Filter ..... Pi Type

## OUTPUT SPECIFICATIONS:

|                                                |            |
|------------------------------------------------|------------|
| Voltage Accuracy (note7) .....                 | ±1.0% max. |
| Transient Response: 25% Step Load Change ..... | <500µs     |
| External Trim Adj. Range .....                 | ±10%       |
| Ripple & Noise, 20MHz BW (note5)               |            |

|               |                                  |
|---------------|----------------------------------|
| 3.3V&5V ..... | 40mV RMS max., 100mV pk-pk max.  |
| 12V&15V ..... | 60mV RMS max., 150mV pk-pk max.  |
| 24V .....     | 100mV RMS max., 240mV pk-pk max. |
| 28V .....     | 100mV RMS max., 280mV pk-pk max. |
| 48V .....     | 200mV RMS max., 480mV pk-pk max. |

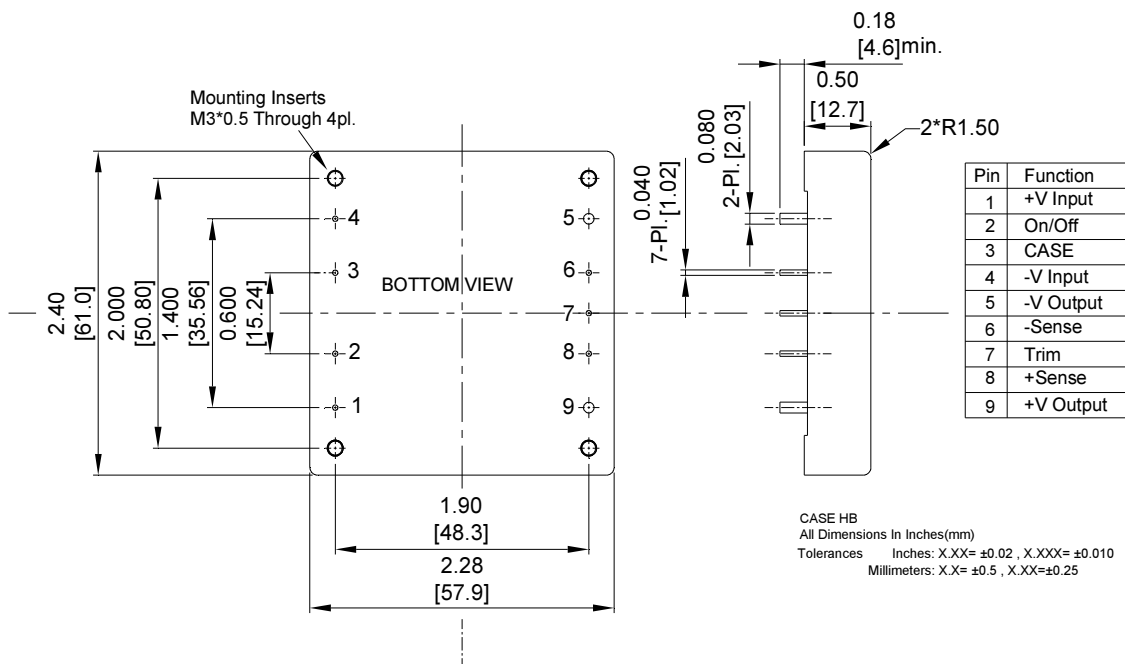
|                                                    |                           |
|----------------------------------------------------|---------------------------|
| Temperature Coefficient .....                      | ±0.03%/°C max.            |
| Short Circuit Protection .....                     | Continuous                |
| Line Regulation (note1&7) .....                    | ±0.2% max.                |
| Load Regulation (note2&7) .....                    | ±0.2% max.                |
| Over Voltage Protection Trip Range, % Vo nom. .... | 115-140%                  |
| Current Limit .....                                | 110% -160% Nominal Output |
| Start up Time .....                                | 5ms typ.                  |

## GENERAL SPECIFICATIONS:

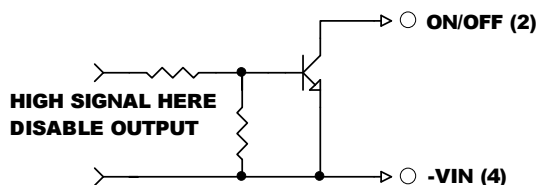
|                                                                 |                                                        |
|-----------------------------------------------------------------|--------------------------------------------------------|
| Efficiency .....                                                | See Table                                              |
| Isolation Voltage ... Input/Output, Input/Case, Output/Case ... | 1500VDC min.                                           |
| Isolation Resistance .....                                      | 10 <sup>7</sup> ohm min.                               |
| Isolation Capacitance .....                                     | 1000pF typ.                                            |
| Switching Frequency .....                                       | 300KHz typ.                                            |
| Operating Case Temperature .....                                | -40°C to 100°C                                         |
| Storage Temperature .....                                       | -55°C to +105°C                                        |
| Thermal Shutdown Case Temp. ....                                | 100°C typ.                                             |
| Humidity .....                                                  | 95% RH max. Non Condensing                             |
| MTBF .....                                                      | MIL-HDBK-217F, GB, 25°C, Full Load ..... 1000Khrs typ. |
| Dimensions .....                                                | 2.28x2.40x0.50 inches (57.9x61.0x12.7 mm)              |
| Case Material .....                                             | Aluminum                                               |
| Weight .....                                                    | 94g                                                    |

## NOTE:

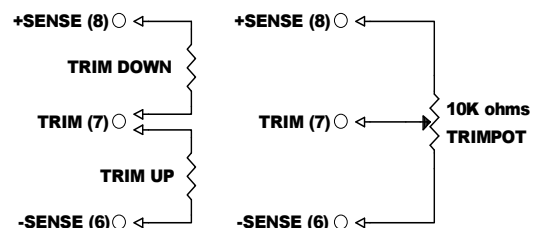
1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility ..... open collector ref to -input  
 Module on ..... >3.5VDC to 75VDC or open circuit  
 Module off ..... 0 to <0.8VDC
4. Suffix "N" to the model number with negative logic remote on/off.  
 Module on ..... 0 to <0.8VDC  
 Module off ..... >3.5VDC to 75VDC or open circuit
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (48V: 1µF ceramic cap. only)
6. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)
7. Require a 47µF aluminum capacitor connected between +Vout and -Vout for 48Vout models.



## REMOTE ON/OFF CONTROL



## EXTERNAL OUTPUT TRIM



# Mouser Electronics

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