# CHB50W SERIES

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

E176177

## 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/UL60950-1

| 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℃ 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.

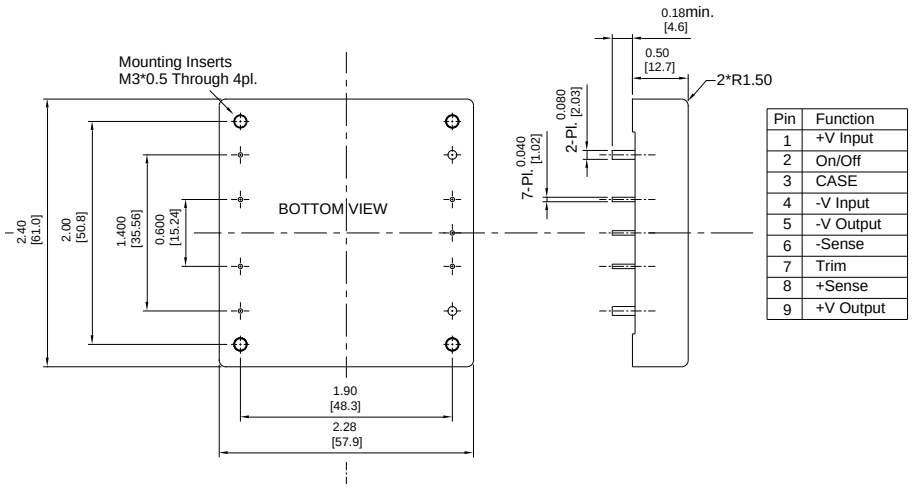
## GENRAL SPECIFICATIONS:

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

## NOTE:

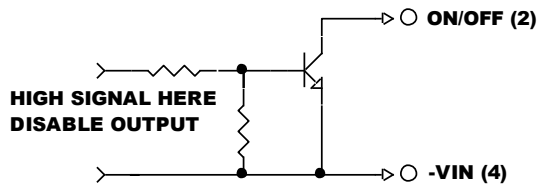
1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility ..... open collector ref to -input
   Module on ..... >3.5VDC to 75VDC or open circuit
   Module off ..... 0 to <0.8VDC
4. Suffix "N" to the model number with negative logic remote on/off.
   Module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

CASE HB
All Dimensions In Inches(mm)
Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
Millimeters: X.X= ±0.5 , X.XX=±0.25




| Pin | Function |
|---|---|
| 1 | +V Input |
| 2 | On/Off |
| 3 | CASE |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

## REMOTE ON/OFF CONTROL




## EXTERNAL OUTPUT TRIM

