S E R I E S

CHB150

75 TO 150 WATT WIDE INPUT DC-DC CONVERTERS SINGLE OUTPUT

c UL us
E176177

Features

- 75-150W Isolated Output
- Efficiency to 85%
- 500KHz Switching Frequency
- 2 : 1 Input Range
- Regulated Outputs
- Continuous Short Circuit Protection
- Five-Sided Metal Case
- Industry Standard Half-Brick Package

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT NO LOAD	INPUT CURRENT FULL LOAD	%EFF	CASE
CHB150-48S25		2.5 VDC	30A		2.6A	74	
CHB150-48S33		3.3 VDC	30A		2.6A	79	
CHB150-48S05		5 VDC	30A		3.7A	83	
	36-75 VDC			25 mA			HB
CHB150-48S12		12 VDC	12.5A		3.6A	85	
CHB150-48S15		15 VDC	10A		3.6A	85	
CHB150-48S24		24 VDC	6.25A		3.6A	85	

NOTE : 1. Nominal Input Voltage 48 VDC

Specifications

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

INPUT SPECIFICATIONS:

Input Voltage Range ..... 48V.....36-75V
Undervoltage lockout ..... 48Vin power up 34V
48Vin power down 32.5V
Positive Logic Remote ON/OFF [3,4]
Input Filter ..... PI Type

OUTPUT SPECIFICATIONS:

Voltage Accuracy : ..... ±1% max.
Transient Response :25% Step Load Change .....<500µ sec.
External Trim Adj. Range .....±10%
Ripple & Noise, 20MHz BW, 2.5V & 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.
Temperature Coefficient..... ±0.03%/˚C
Short Circuit Protection.....Continuous
Line Regulation[1] .....±0.2% max.
Load Regulation[2] .....±0.2% max.
Over Voltage Protection trip Range ,% Vo nom. 115-140%
Current Limit .....110% ~140% Nominal Output

GENERAL SPECIFICATIONS:

Efficiency.....See Table
Isolation Voltage .....Input/Output..... 1500VDC min.
Input/Case..... 1500VDC min.
Output/Case..... 1500VDC min.
Isolation Resistance ..... 10^7 ohm min.
Switching Frequency ..... 500KHz ,Typ.
Operating case Temperature ..... -40˚C to 100˚C
Storage Temperature ..... -40˚C to +105˚C
Thermal Shutdown, Case Temp. .....100˚C Typ.
Dimensions .....2.28x2.40x0.50 inches
(57.9x61.0x12.7 mm)
Case Material .....Aluminum

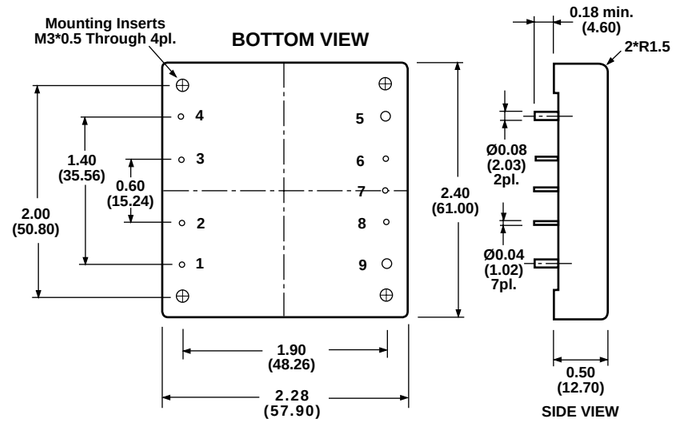
NOTE:

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 ..... Open Circuit
   Module OFF ..... < 0.8Vdc
4. Suffix "N" to the Model Number with Negative Logic Remote ON/OFF.

CASE HB

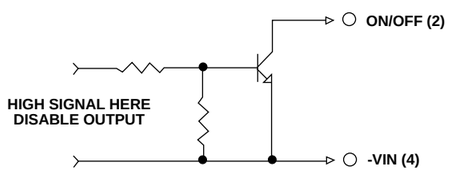
All Dimensions In Inches(mm)

				Pin
Tolerances	Inches	.XX±.02	.XXX±.010	±0.02
	Millimeters	.X±.5	.XX±.25	±0.5

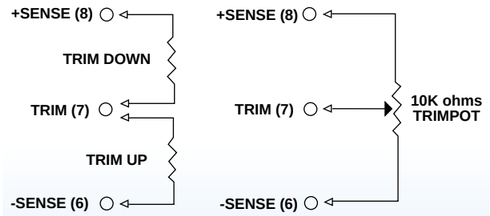


PIN CONNECTION	
Pin	Function
1.	+Vin
2.	ON/OFF
3.	CASE
4.	-Vin
5.	-Vout
6.	-Sense
7.	Trim
8.	+Sense
9.	+Vout

Remote ON/OFF Control



External Output Trim

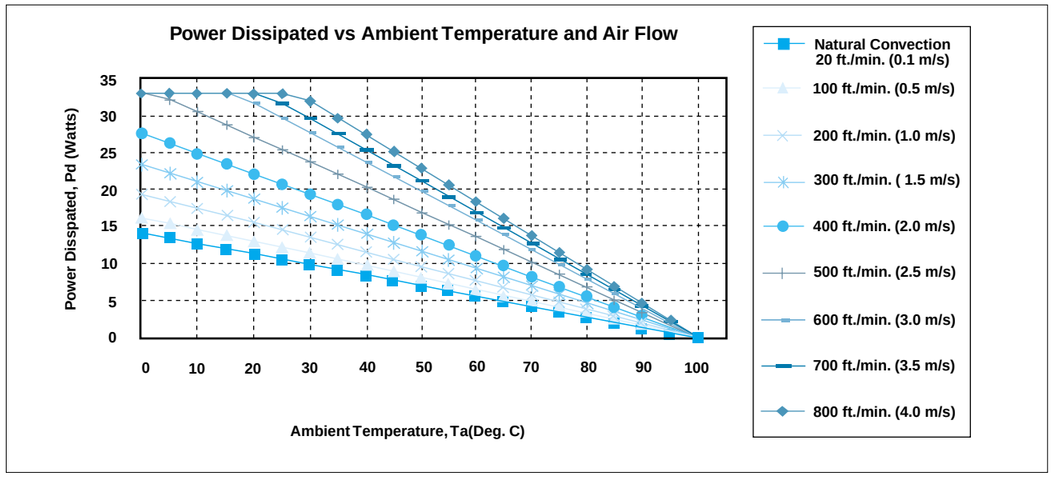


All Specifications Typical At Nominal Line, Full Load and 25˚C Unless Otherwise Noted.

Application Note

Derating

The operating case temperature range of the CHB100/150 series is -40˚C to +100˚C. When operating the CHB100/150 series, proper derating or cooling is needed .
Following is the derating curve of CHB100/150 without heat sink.



Forced Convection Power Derating with No Heat Sink

Where:

The power dissipation (Pd):

$$Pd = Pi - Po = Po (1-\eta) / \eta$$

The thermal resistance are list below:

Chart of Thermal Resistance vs Air Flow:

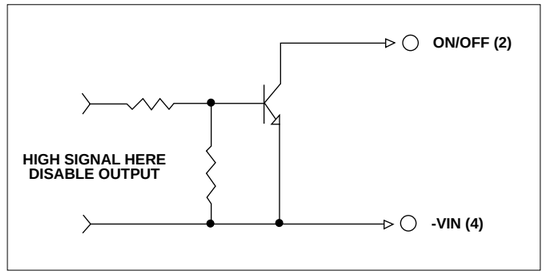
AIR FLOW RATE	TYPICAL Rca
Natural Convection 20ft./min. (0.1m/s)	7.12 ˚C/W
100 ft./min. (0.5m/s)	6.21 ˚C/W
200 ft./min. (1.0m/s)	5.17 ˚C/W
300 ft./min. (1.5m/s)	4.29 ˚C/W
400 ft./min. (2.0m/s)	3.64 ˚C/W
500 ft./min. (2.5m/s)	2.96 ˚C/W
600 ft./min. (3.0m/s)	2.53 ˚C/W
700 ft./min. (3.5m/s)	2.37 ˚C/W
800 ft./min. (4.0m/s)	2.19 ˚C/W

The temperature rise ($\triangle T$):

$$\triangle T = Pd * Rca$$

Remote ON/OFF Control

The CHB100/150 Series allows the user to switch the module on and off electronically with remote on/off feature. The CHB100/150 Series are available with "positive logic" or "negative logic" (option).

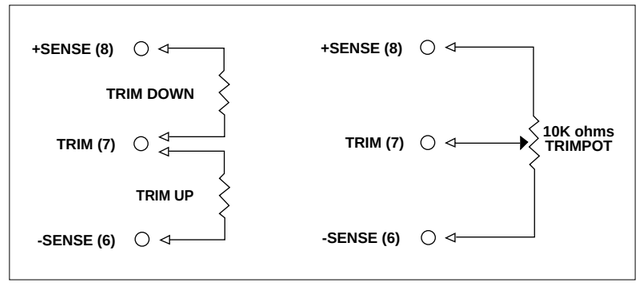


Logic Table

Logic State (Pin 2)	Negative Logic	Positive Logic
Logic Low - Switch Closed	Module on	Module off
Logic High - Switch Open	Module off	Module on

External Output Trimming

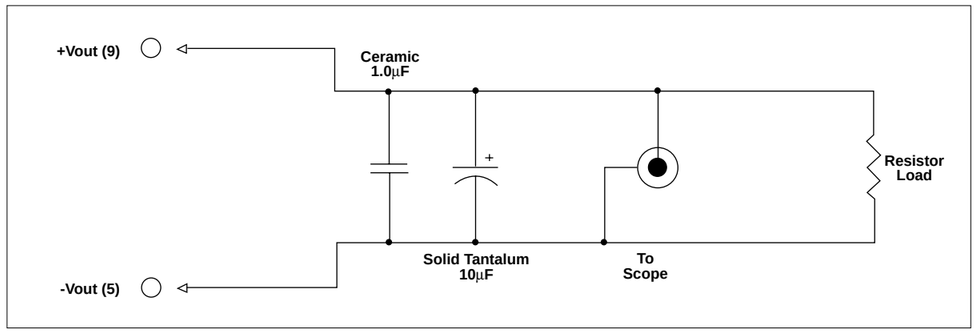
Output may optionally be externally trimmed (±10%) with a fixed resistor or an external trimpot as shown.



External Output

Output Noise

The output noise is measured with 10μF tantalum capacitor and 1.0μF ceramic capacitor across output.



Output Noise Test Circuit schematic