

CHB75

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



Only for Nominal Input Voltage 24 & 48 VDC

Features

- 37.5W-75W Isolated Output
- Efficiency to 85%
- 300KHz 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
CHB75-12S25	9-18 VDC	2.5 VDC	15A	50 mA	4110 mA	76	HB
CHB75-12S33		3.3 VDC	15A		5290 mA	78	
CHB75-12S05		5 VDC	15A		7715 mA	81	
CHB75-12S12		12 VDC	6.25A		7440 mA	84	
CHB75-12S15		15 VDC	5A		7440 mA	84	
CHB75-12S24	24 VDC	3.13A	7440 mA	84			
CHB75-24S25	18-36 VDC	2.5 VDC	15A	50 mA	2029 mA	77	HB
CHB75-24S33		3.3 VDC	15A		2610 mA	79	
CHB75-24S05		5 VDC	15A		3810 mA	82	
CHB75-24S12		12 VDC	6.25A		3675 mA	85	
CHB75-24S15		15 VDC	5A		3675 mA	85	
CHB75-24S24	24 VDC	3.13A	3640 mA	86			
CHB75-48S25	36-75 VDC	2.5 VDC	15A	50 mA	1015 mA	77	HB
CHB75-48S33		3.3 VDC	15A		1305 mA	79	
CHB75-48S05		5 VDC	15A		1883 mA	83	
CHB75-48S12		12 VDC	6.25A		1838 mA	85	
CHB75-48S15		15 VDC	5A		1838 mA	85	
CHB75-48S24	24 VDC	3.13A	1820 mA	86			

NOTE : 1. Nominal Input Voltage 12, 24 & 48 VDC

Specifications

INPUT SPECIFICATIONS:

Input Voltage Range.....	12V.....9-18V
	24V.....18-36V
	48V.....36-75V
Undervoltage lockout	12Vin power up8.8V
	power down8.8V
	24Vin power up17V
	power down16V
	48Vin power up34V
	power down32.5V
Positive Logic Remote ON/OFF (see note 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	20mV RMS., max.
	75mV pk-pk, max.
	12V & 15V30mV RMS., max.
	100mV pk-pk, max.
	24V100mV 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 Protect trip Range, % Vo nom.....	115-140%
Current Limit	110% ~150% 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	(12/24)Vin..... 400KHz ,Typ.
	48Vin..... 300KHz ,Typ.
Operating case Temperature	-40°C to 100°C
Storage Temperature	-55°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

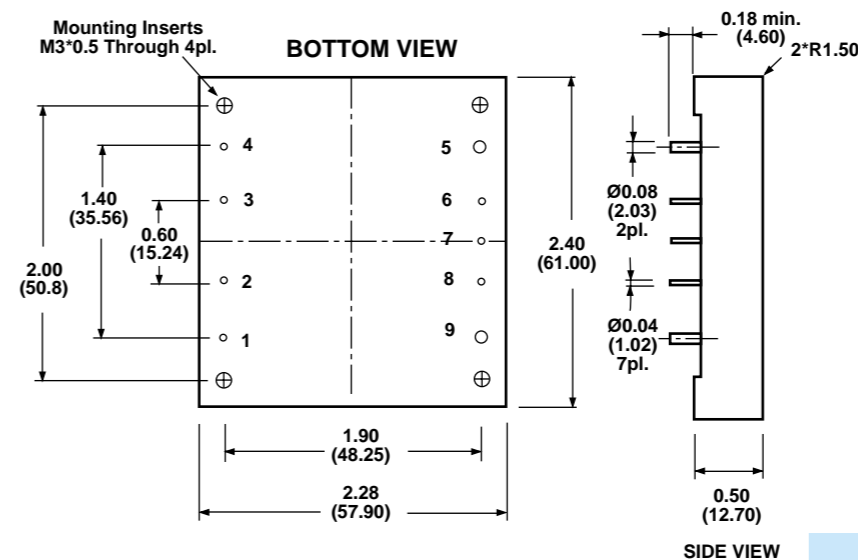
NOTE:

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.

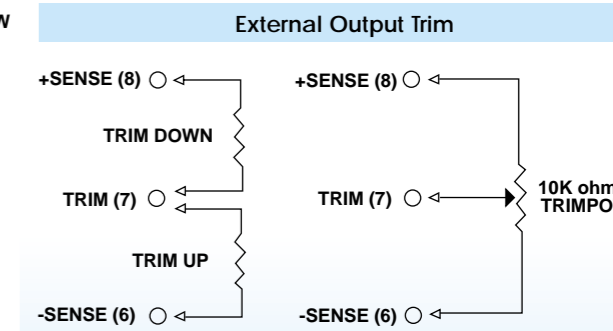
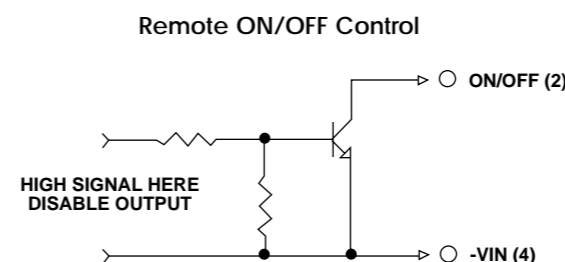
CASE HB

All Dimensions In Inches(mm)

Tolerances	Inches	.XX±.02	.XXX±.010	Pin	±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

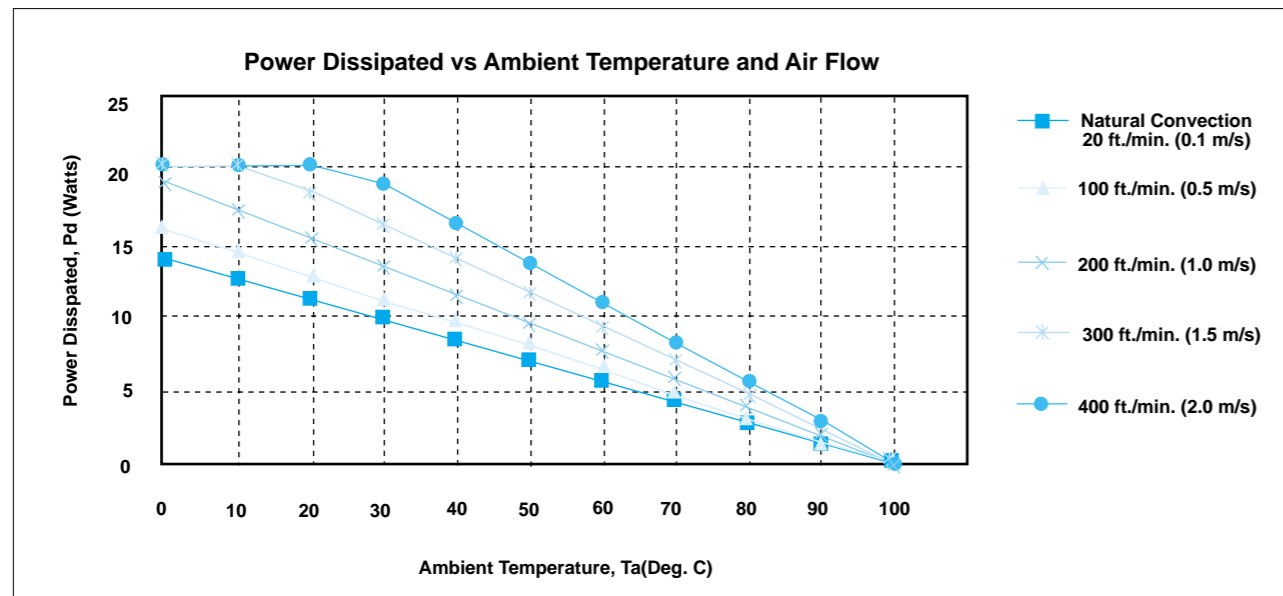


Application Note

Derating

The operating case temperature range of the CHB75 series is -40°C to +100°C. When operating the CHB75, proper derating or cooling is needed.

Following is the derating curve of CHB75 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:

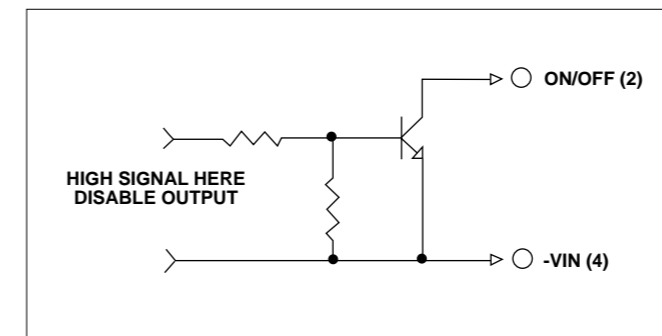
AIR FLOW RATE	TYPICAL Rca
Natural Convection	7.12 °C/W
100 ft./min.	6.21 °C/W
200 ft./min.	5.17 °C/W
300 ft./min.	4.29 °C/W
400 ft./min.	3.64 °C/W

The temperature rise (ΔT):

$$\Delta T = Pd * Rca$$

Remote ON/OFF Control

The CHB75 series allows the user to switch the module on and off electronically with remote on/off feature. The CHB75 series are available with "positive logic" or "negative logic" (option).

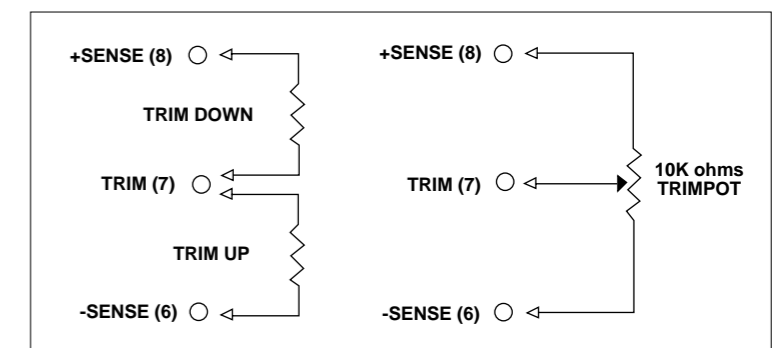


Logic Table

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

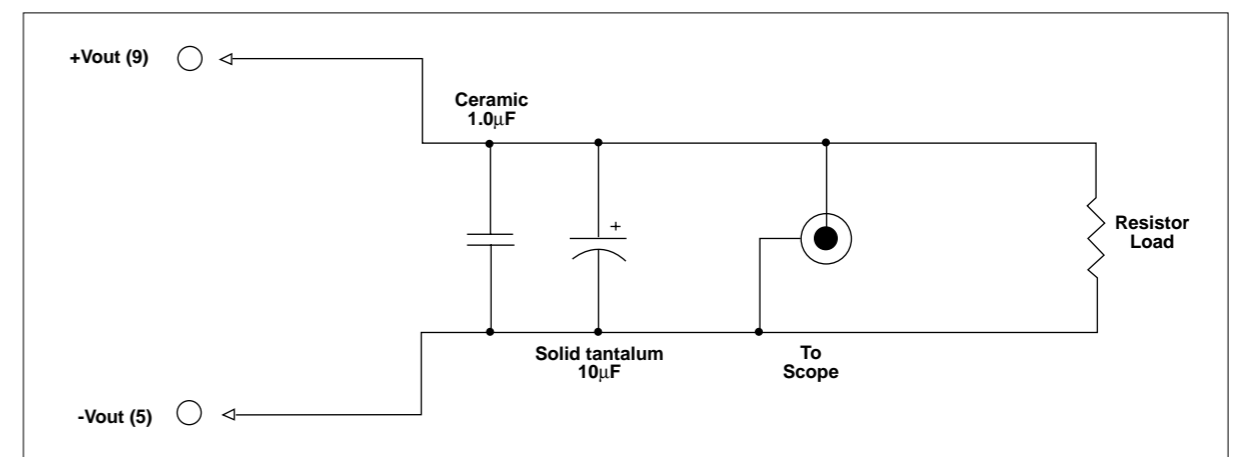
External Output Trimming

Output may optionally be externally trimmed ($\pm 10\%$) with a fixed resistor or an external trim-pot as shown.



Output Noise

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



Output Noise Test Circuit schematic