



### Features

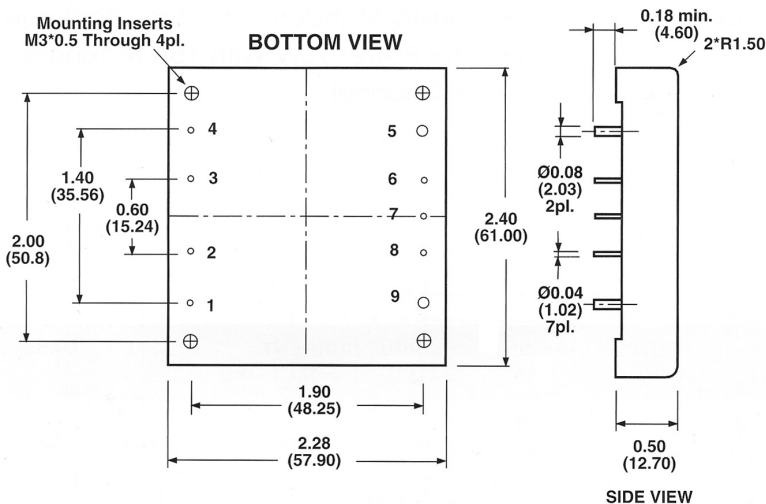
- 37.5W-75W isolated output
- Efficiency to 85%
- 300KHz switching frequency
- 4:1 input range
- Regulated outputs
- Continuous short circuit protection
- Industry standard half-brick package
- Five-sided metal case



Model Number	Input Voltage	Output Voltage	Output Current	Input Current		
				No Load	Full Load	Efficiency
VHB75W-Q24-S3R3	9-36 VDC	3.3 VDC	15 A	50 mA	2611 mA	79%
VHB75W-Q24-S5	9-36 VDC	5 VDC	15 A	50 mA	3811 mA	82%
VHB75W-Q24-S12	9-36 VDC	12 VDC	6.25 A	50 mA	3765 mA	83%
VHB75W-Q24-S15	9-36 VDC	15 VDC	5 A	50 mA	3720 mA	84%
VHB75W-Q24-S24	9-36 VDC	24 VDC	3.12 A	50 mA	3720 mA	84%
VHB75W-Q48-S3R3	18-75 VDC	3.3 VDC	15 A	50 mA	1320 mA	78%
VHB75W-Q48-S5	18-75 VDC	5 VDC	15 A	50 mA	1905 mA	82%
VHB75W-Q48-S12	18-75 VDC	12 VDC	6.25 A	50 mA	1860 mA	84%
VHB75W-Q48-S15	18-75 VDC	15 VDC	5 A	50 mA	1860 mA	84%
VHB75W-Q48-S24	18-75 VDC	24 VDC	3.12 A	50 mA	1860 mA	84%

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

## Input

Input Voltage Range	24V:	9-36V
	48V:	18-75V
Under Voltage Lockout	24V:	power up 8.8V power down 8V
	48Vin:	power up 17V power down 16V
ON/OFF Control	see notes 3&4	
Input Filter	PI Type	

## Output

Voltage Accuracy	±1% max.	
Transient Response: 25% Step Load Change	<500μ sec.	
External Trim Adj. Range	±10%	
Ripple & Noise	3.3V, 5V	40mV RMS., max
	20MHz BW	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	
Safety	approved to UL60950-1 (E222736)	
Line Regulation <sup>1</sup>	±0.2% max	
Load Regulation <sup>2</sup>	±0.2% max	
Over Voltage Protection trip Range, % Vo nom.	115-140%	
Current Limit	110%-160% Nominal Output	

## General Specifications

Efficiency	see table	
Isolation Voltage	Input/Output	1500VDC min.
	Input/Case	1500VDC min.
	Output/Case	1500VDC min.
Isolation Resistance	10 <sup>7</sup> Ohm min.	
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.	
Dimensions	2.28x2.40x0.50 inches (57.9x61.0x12.7mm)	
Case Material	aluminum	

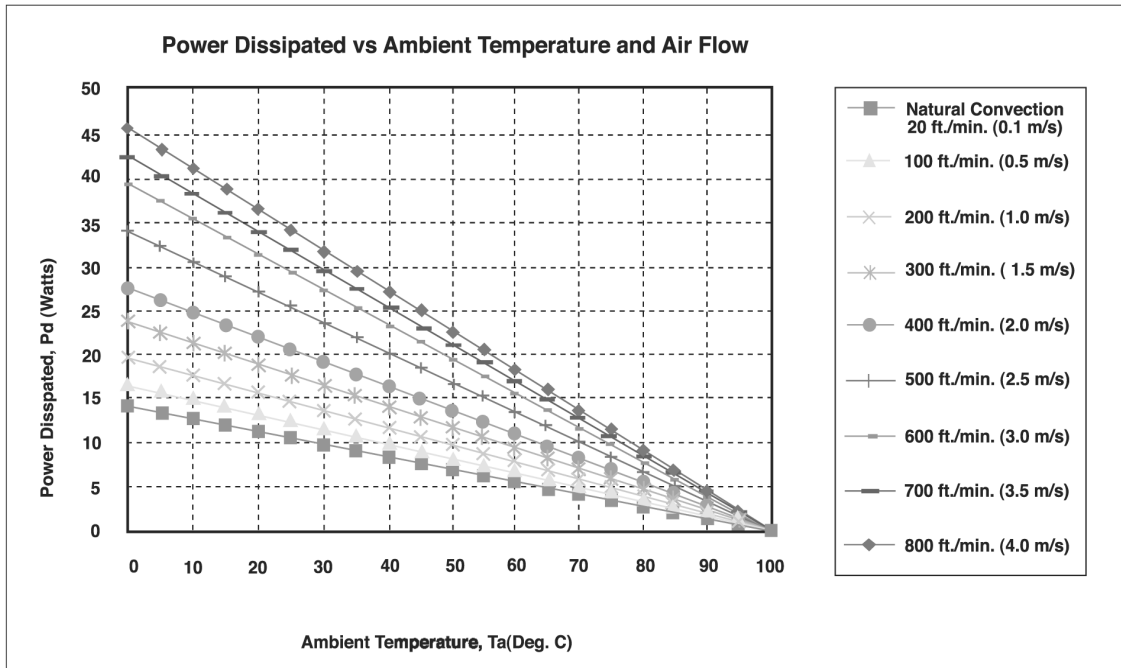
### NOTES:

1. Measured from high line to low line
2. Measured from full load to zero load
3. On/Off Control: Positive logic default. Referenced to -Vin. Open collector.  
Module ON...open circuit  
Module OFF...<0.8Vdc
4. For negative logic On/Off control, add suffix "N" to the model number

## Application Notes

Derating:

The operating case temperature range of the VHB75 series is -40°C to +100°C. When operating the VHB75, proper derating or cooling is needed. Following is the derating curve of VHB75 without heat sink.



Forced Convection Power Derating without Heat Sink

Where:

The power dissipation (P<sub>d</sub>) is

$$P_d = P_i - P_o = P_o (1 - \eta) / \eta$$

The thermal resistances are listed below.

Chart of Thermal Resistance vs Air Flow:

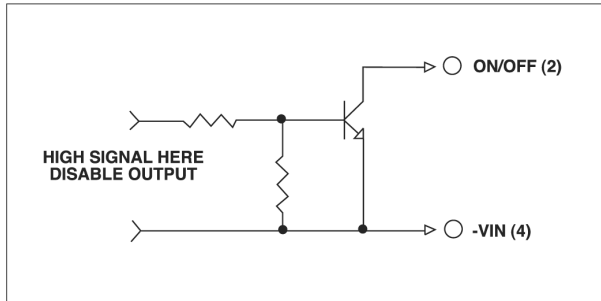
AIR FLOW RATE	TYPICAL R <sub>ca</sub>
Natural Convection 20ft./min. (0.1m/s)	7.12 °C/W
100 ft./min. (0.5m/s)	6.21 °C/W
200 ft./min. (1.0m/s)	5.17 °C/W
300 ft./min. (1.5m/s)	4.29 °C/W
400 ft./min. (2.0m/s)	3.64 °C/W
500 ft./min. (2.5m/s)	2.96 °C/W
600 ft./min. (3.0m/s)	2.53 °C/W
700 ft./min. (3.5m/s)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

The temperature rise (ΔT):

$$\Delta T = P_d * R_{ca}$$

## Remote On/Off Control

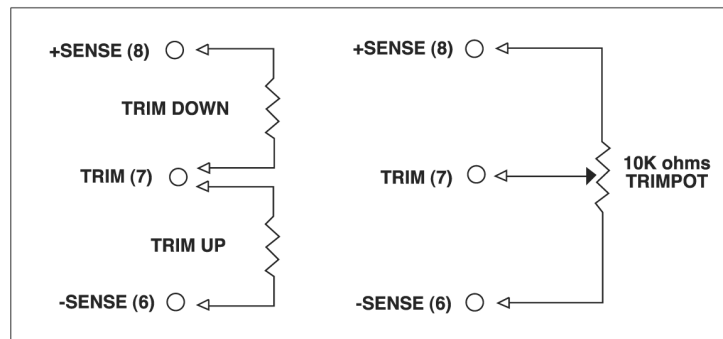
The VHB75 series allows the user to switch the module on and off electronically with the remote on/off feature. Logic control defaults to “positive” logic. The diagram shows the recommended circuits for positive logic. The “negative logic” option is also available.


**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

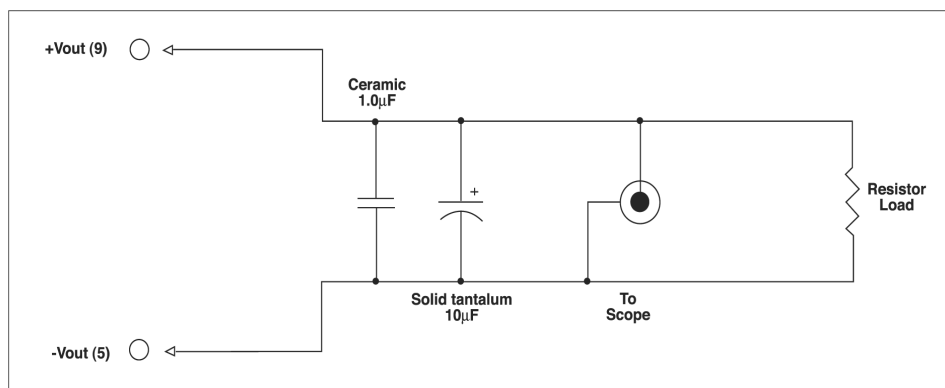
## External Output Trimming

Output may optionally be trimmed ( $\pm 10\%$ ) with external fixed resistors or an external trimpot as shown.



## Output Noise

The output noise is measured with a 10uF tantalum capacitor and a 1.0uF ceramic capacitor across the output.



Output Noise Test Circuit schematic