

# High Density DC-DC Modules

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## PS200 Series 200 Watt Wide Input DC-DC Converters Single Output

### Features

- 100W - 200W Isolated Output
- Efficiency to 85%
- 300KHz Switching Frequency
- 2 : 1 Input Range
- Regulated Outputs
- Continuous Short Circuit Protection
- Industry Standard Full-Brick Package



### Electrical Specification

#### INPUT

Input Voltage Range	36-75V (48V nominal)
Undervoltage Lockout	34V power up 32.5V power down
Positive Logic Remote ON/OFF	Open collector ref. to -Input. Module ON: open circuit, Module OFF: <0.8VDC Add suffix N to model number for Negative Logic Remote ON/OFF control
Input Filter	PI Type

#### OUTPUT

Voltage Accuracy	±1% max.
Transient Response: 25% Step Load Change	<500µsec.
External Trim Adj. Range	±10%
Ripple & Noise, 20MHz BW	40mV RMS max, 100mV pk-pk max (2.5V, 3.3V & 5V outputs) 60mV RMS max, 150mV pk-pk max (12V & 15V outputs) 100/150/200mV RMS max, 240/280/480mV pk-pk max (24V/28V/48V outputs)

#### ENVIRONMENTAL

Temperature coefficient	+0.03%/°C
Short Circuit Protection	Continuous
Line Regulation	±0.2% max. measured over full input range
Load Regulation	±0.2% max. measured from 0-100% load
Over Voltage Protection trip range, % Vo nom.	115-140%
Current Limit	110%-140% Nominal Output

#### GENERAL

Efficiency	See table
Isolation Voltage	I/P-O/P, I/P-FG, O/P-FG: 1500VDC min
Isolation Resistance	10 <sup>7</sup> ohm min.
Switching Frequency	300KHz Typ.
Operating case Temperature	-40°C to +100°C
Storage Temperature	-40°C to +105°C
Thermal Shutdown, Case Temp.	+100°C Typ.
Dimensions	116.8 x 61.0 x 13.5 mm (4.60 x 2.40 x 0.53 inches)
Case Material	Aluminium Baseplate with Plastic Case

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## Output Voltage and Current Ratings

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		% EFF.
				NO LOAD	FULL LOAD	
PS200-48S25	36-75 VDC	2.5 VDC	40A	25mA	2.8A	74
PS200-48S33	36-75 VDC	3.3 VDC	40A	25mA	3.5A	79
PS200-48S05	36-75 VDC	5 VDC	40A	25mA	5A	83
PS200-48S12	36-75 VDC	12 VDC	17A	25mA	5A	85
PS200-48S15	36-75 VDC	15 VDC	13.3A	25mA	5A	85
PS200-48S24	36-75 VDC	24 VDC	8.33A	25mA	5A	85
PS200-48S28	36-75 VDC	28 VDC	7.14A	25mA	5A	85
PS200-48S48	36-75 VDC	48 VDC	4.2A	25mA	5A	85

NOTE: Nominal Input Voltage 48VDC

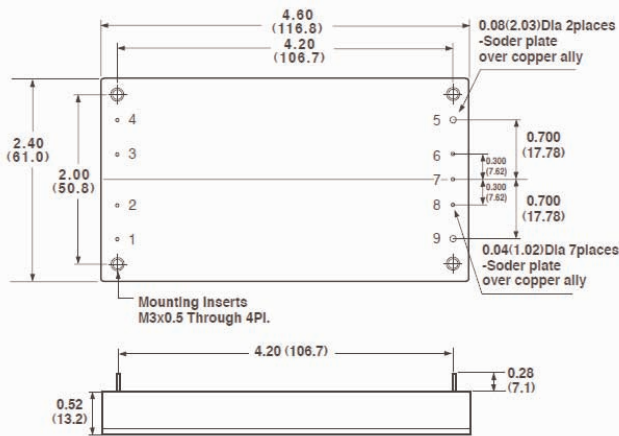
## Mechanical and Connection Details

All dimensions in inches (mm)

Tolerances  
 Inches x.xx ±0.02  
 Millimeters x.x ±0.5

x.xxx ±0.010  
 x.xx ±0.25

Pin ±0.02  
 Pin ±0.5

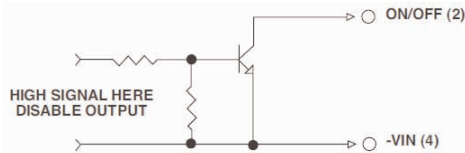


## Pin Connection

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

The PS200 Series allows the user to switch the module on and off electronically with the remote on/off feature. The PS200 Series are available with "positive logic" or "negative logic" (option).

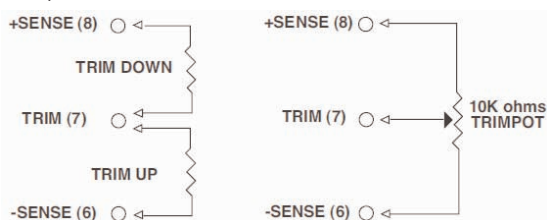


## Logic Table

Logic State (Pin 2)	Negative Logic	Positive Logic
Logic low-Switch closed	Module on	Module off
Logic high-Switch open	Module off	Module on

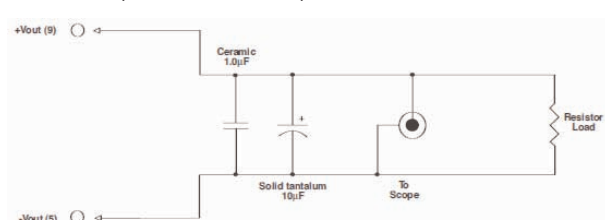
## External Output Trim

The output can be trimmed externally (±10%) using a fixed resistor or a trimpot as shown.



## Output Noise

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



All specifications typical at nominal line, full load and 25°C unless otherwise stated.

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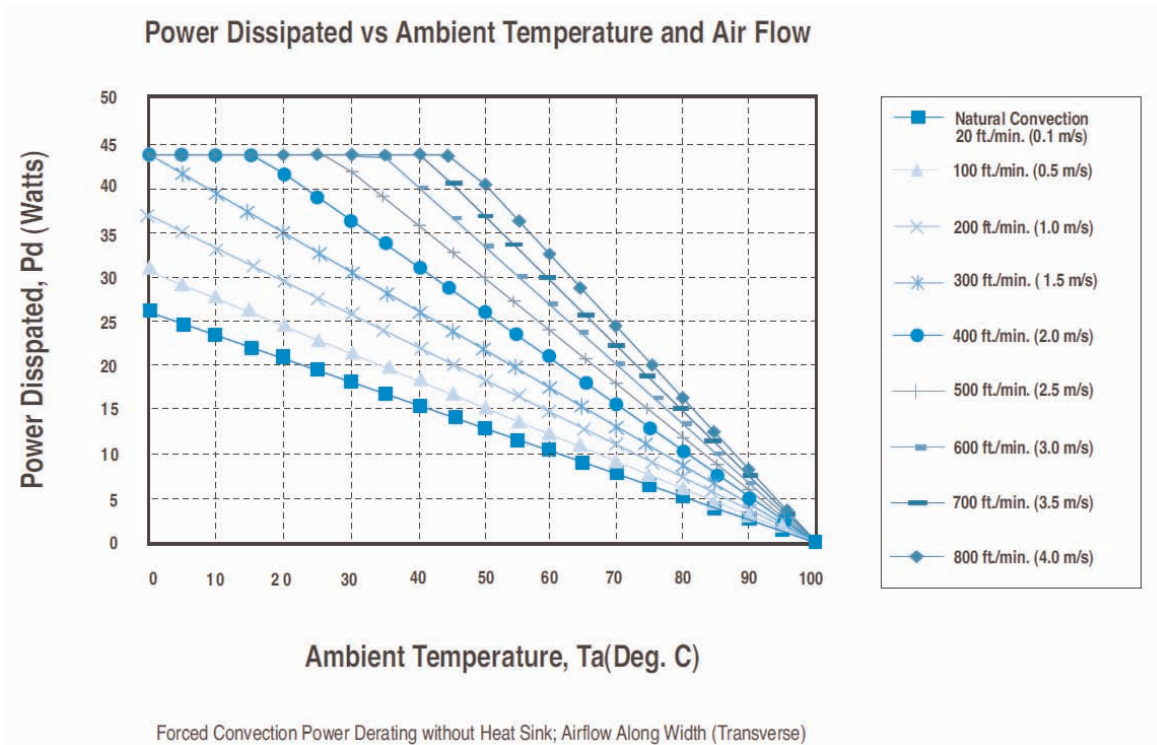
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## Application Note

### Derating:

The case operating temperature range of the PS200 series is -40°C to +100°C. When operating the PS200 series, proper derating or cooling is required.

Following is the derating curve for the PS200 without a heatsink; airflow along width (transverse).



Where:

The power dissipated (Pd):  
 $Pd = Pi - Po = Po (1-n) / n$

The thermal resistances are listed below:

### Chart of Thermal Resistance vs Air Flow:

AIR FLOW RATE	TYPICAL Rca
Natural Convection 20ft/min. (0.1m/s)	3.82°C/W
100ft./min. (0.5m/s)	3.23°C/W
200ft./min. (1.0m/s)	2.71°C/W
300ft./min. (1.5m/s)	2.28°C/W
400ft./min. (2.0m/s)	1.92°C/W
500ft./min. (2.5m/s)	1.68°C/W
600ft./min. (3.0m/s)	1.50°C/W
700ft./min. (3.5m/s)	1.35°C/W
800ft./min. (4.0m/s)	1.23°C/W

The temperature rise ( $\Delta T$ ):

$$\Delta T = Pd * Rca$$