

High Density DC-DC Modules



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PS100 Series
50 to 100 Watt Wide Input
DC-DC Converters
Single Output



Features

- 50W/100W 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	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF
				NO LOAD	FULL LOAD	
PS100-24S25	18-36VDC	2.5 VDC	20 A	50 mA	2705 mA	77
PS100-24S33		3.3 VDC	20 A		3480 mA	79
PS100-24S05		5 VDC	20 A		5020 mA	83
PS100-24S12		12 VDC	8.3 A		4880 mA	85
PS100-24S15		15 VDC	6.7 A		4925 mA	85
PS100-24S24		24 VDC	4.17 A		4905 mA	85
PS100-48S25	36-75VDC	2.5 VDC	20 A	50 mA	1335 mA	78
PS100-48S33		3.3 VDC	20 A		1720 mA	80
PS100-48S05		5 VDC	20 A		2480 mA	84
PS100-48S12		12 VDC	8.3 A		2442 mA	85
PS100-48S15		15 VDC	6.7 A		2463 mA	85
PS100-48S24		24 VDC	4.17 A		2463 mA	85

NOTE: 1. Nominal Input Voltage 24 or 48 VDC

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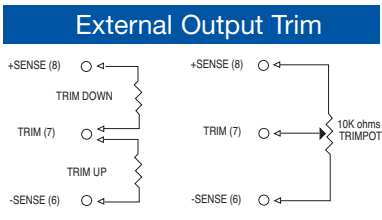
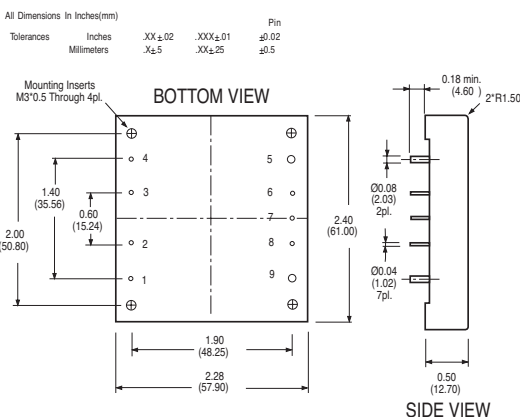


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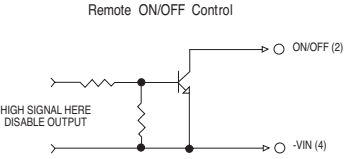
Electrical Specification		
INPUT		
Input Voltage Range	24V	18-36V
	48V	36-75V
Undervoltage lockout	24Vin power up	17V
	24Vin power down	16V
	48Vin power up	34V
	48Vin power down	32.5V
Positive Logic Remote ON/OFF ^{3,4}		
Input Filter		Pi Type
OUTPUT		
Voltage Accuracy :		+1% max.
Transient Response : 25% Step Load Change		<500µsec.
External Trim Adj. Range		+10%
Ripple & Noise, 20MHz BW,	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.
ENVIRONMENTAL		
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% ~150% Nominal Output
GENERAL		
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		Aluminium

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.



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



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

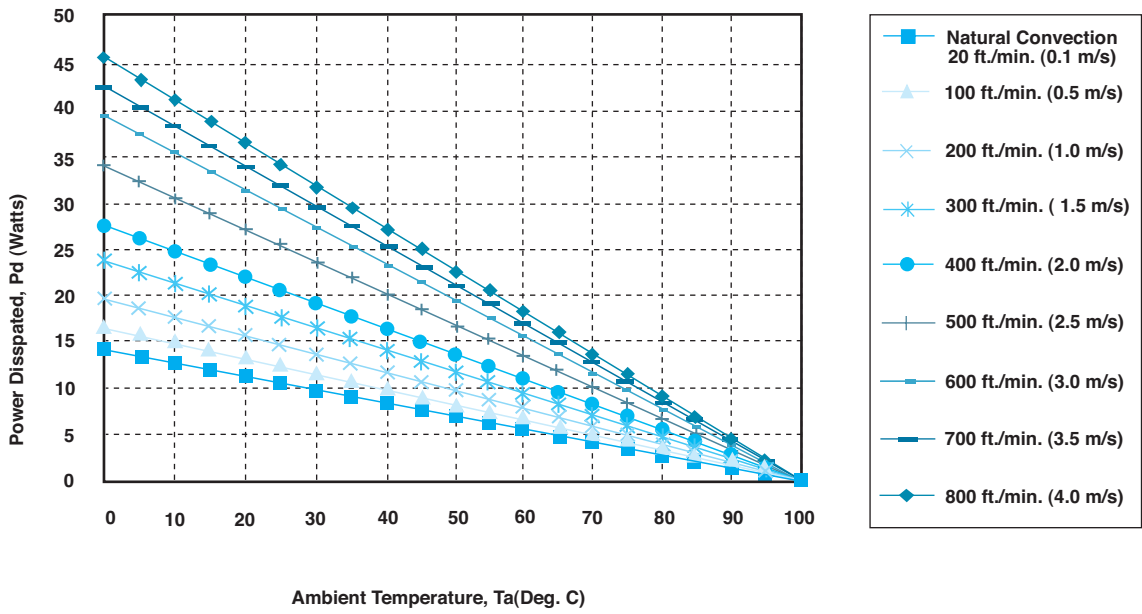
Application Note

Derating:

The operating case temperature range of the PS100 series is -40°C to +100°C. When operating the PS100 series, proper derating or cooling is needed.

The following curve is the derating curve of a PS100 without heat sink.

Power Dissipated vs Ambient Temperature and Air Flow



Forced Convection Power Derating without Heat Sink

Where:

The power dissipation (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)	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):

$$\Delta T = Pd * Rca$$

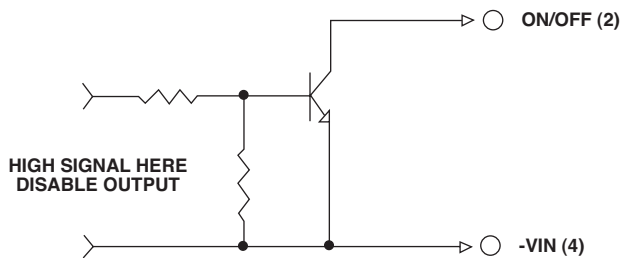
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Remote ON/OFF Control

The PS100 series allows the user to switch the module on and off electronically with remote on/off feature. The PS100 series are available with "positive logic" or "negative logic" (option).

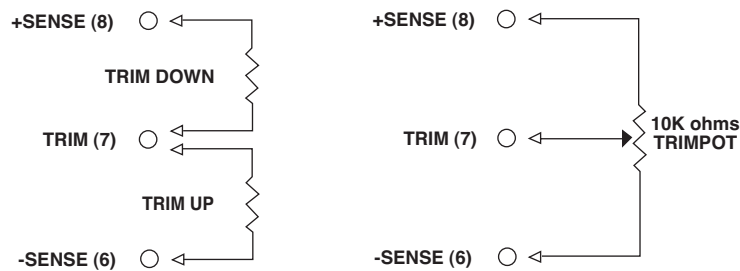


Logic Table

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

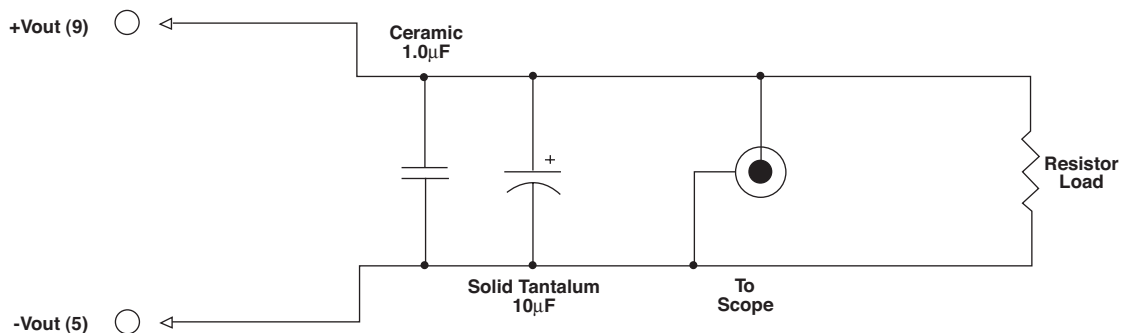
Output may optionally be externally trimmed ($\pm 10\%$) with a fixed resistor or an external trimpot as shown.



External Output

Output Noise

The output noise is measured with $10\mu\text{F}$ tantalum capacitor and $1.0\mu\text{F}$ ceramic capacitor across output.



Output Noise Test Circuit schematic

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