

High Density DC-DC Modules



www.powersolve.co.uk

PSQ75 Series
50 to 75 Watt Wide Input
DC-DC Converters
Single Output



Features

- 50-75W Isolated Output
- Efficiency to 90%
- 300KHz Switching Frequency
- 2:1 Input Range
- Open Frame Version Optional
- Regulated Outputs
- Continuous Short Circuit Protection
- Industry Standard Quarter-Brick Package

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF
				NO LOAD	FULL LOAD	
PSQ75-24S18	18-36 VDC	1.8 VDC	0.5-25 A	60 mA	2259 mA	83
PSQ75-24S25	18-36 VDC	2.5 VDC	0.5-25 A	60 mA	3064 mA	85
PSQ75-24S33	18-36 VDC	3.3 VDC	0.5-20 A	70 mA	3125 mA	88
PSQ75-24S05	18-36 VDC	5 VDC	0.5-15 A	80 mA	3472 mA	90
PSQ75-48S18	36-75 VDC	1.8 VDC	0.5-25 A	50 mA	1116 mA	84
PSQ75-48S25	36-75 VDC	2.5 VDC	0.5-25 A	50 mA	1514 mA	86
PSQ75-48S33	36-75 VDC	3.3 VDC	0.5-20 A	50 mA	1563 mA	88
PSQ75-48S05	36-75 VDC	5 VDC	0.5-15 A	80 mA	1736 mA	90

NOTE: 1. Nominal Input Voltage 24 or 48 VDC

High Density DC-DC Modules



www.powersolve.co.uk

Electrical Specification

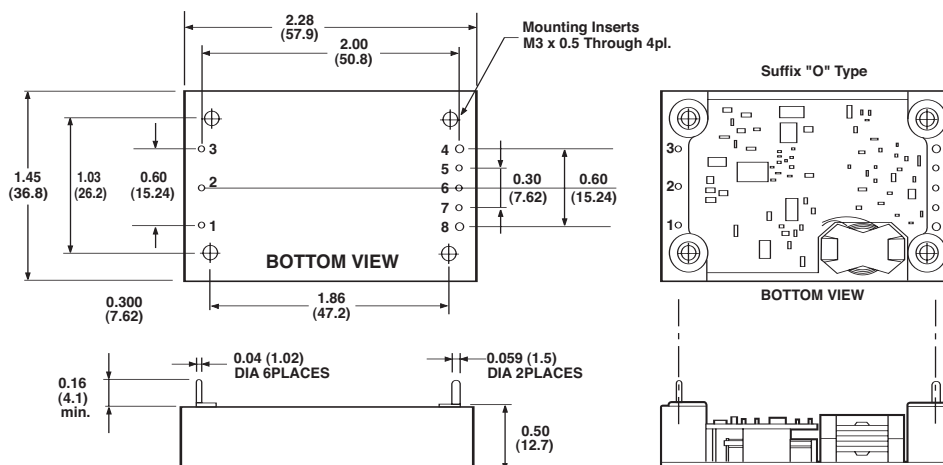
INPUT		
Input Voltage Range	24V	18-36V
	48V	36-75V
Undervoltage lockout	24Vin power up	17V
	power down	15.5V
	48Vin power up	34V
	power down	32.5V
Positive Logic Remote ON/OFF ^{3,4}		
Input Filter		Pi Type
OUTPUT		
Voltage Accuracy :		+1% max.
Transient Response : 75% - 100% Step Load Change		
Error Band		+5% Vout
Recovery Time		<500µs
External Trim Adj. Range		+10%
Ripple & Noise, 20MHz BW,	40mV RMS., max. 100mV 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% ~140% 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		300KHz, Typ.
Operating case Temperature		-40°C to 100°C Typ.
Storage Temperature		-40°C to +105°C
Thermal Shutdown, Case Temp.		100°C Typ.
Dimensions		1.45x2.28x0.50 inches (36.8x57.9x12.7 mm)
Case Material (Standard)		Aluminium baseplate with Plastic Case
(Suffix "O" Type)		Open Frame

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. 5. Suffix "O" to the Model Number with Open Frame Type.

All Dimensions In Inches(mm)

Tolerances X.XX in.±.02 in.(X.X mm ±.5mm)
X.XXX in.±.010 in.(X.XX mm ±.25mm)



Pin Connection

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

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

Powersolve Electronics Ltd. Units 8A, Arnhem Road, Newbury, RG14 5RU. England

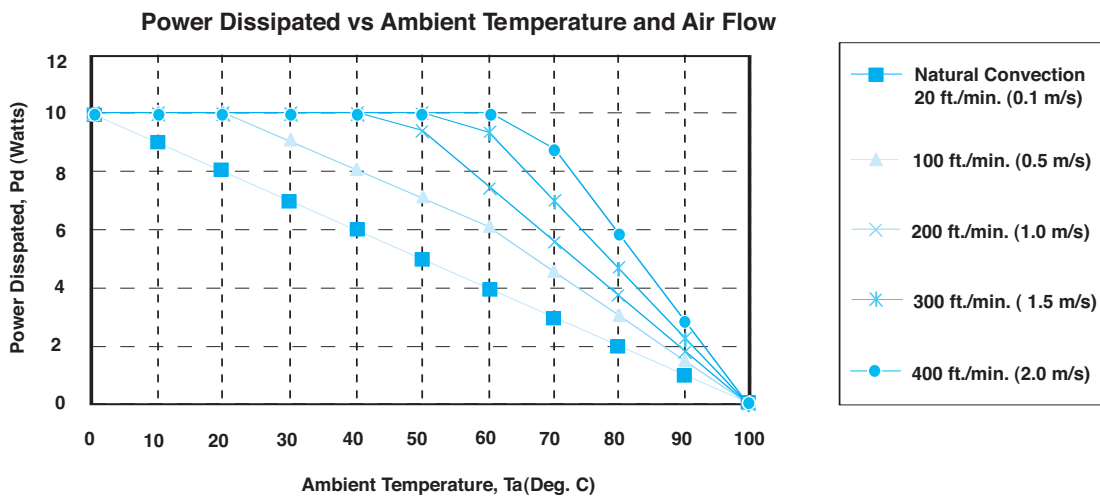
Tel:01635 521858 Fax: 01635 523771 Email: sales@powersolve.co.uk

Application Note

Derating:

The operating case temperature range of the PSQ75 series is -40°C to +100°C. When operating the PSQ75 series, proper derating or cooling is needed.

The following curve is the derating curve of a PSQ75 without heat sink.



External Output

Where:

The power dissipation (Pd):

$$Pd = Pi - Po = Po (1-n) / n$$

The thermal resistance are listed below:

Chart of Thermal Resistance vs Air Flow:

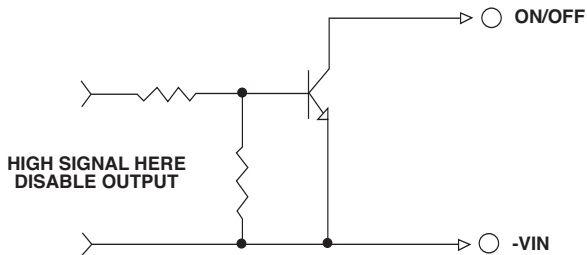
AIR FLOW RATE	TYPICAL Rca
Natural Convection 20ft./min. (0.1m/s)	10.1 °C/W
100 ft./min. (0.5m/s)	8.0 °C/W
200 ft./min. (1.0m/s)	5.4 °C/W
300 ft./min. (1.5m/s)	4.4 °C/W
400 ft./min. (2.0m/s)	3.4 °C/W

The temperature rise (ΔT):

$$\Delta T = Pd * Rca$$

Remote ON/OFF Control

The PSQ75 series allows the user to switch the module on and off electronically with remote on/off feature. The PSQ75 series are available with "positive logic" or "negative logic" (option).

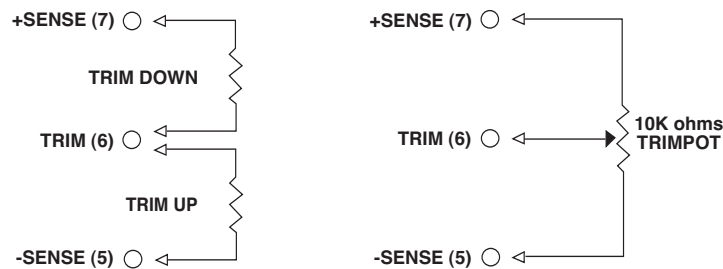


Logic Table

Logic State	Negative Logic	Positive Logic
Logic Low - Switch Closed	Module on	Module off
Logic High - Switch Open	Module off	Module on

External Output Trimming

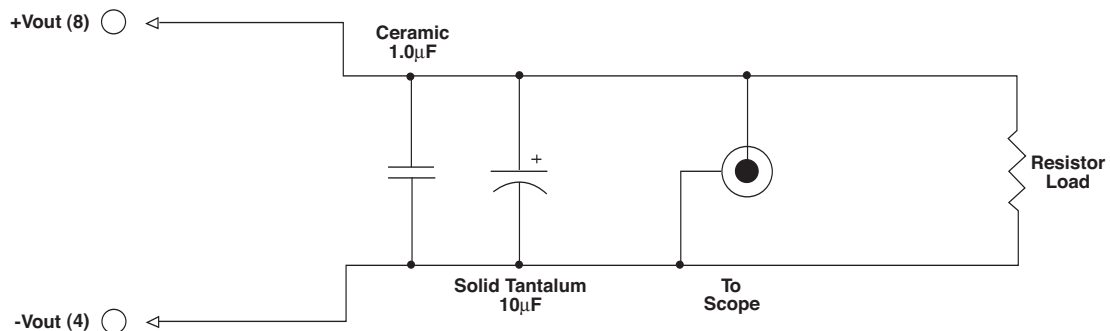
Output may optionally be externally trimmed ($\pm 10\%$) with a fixed resistor or an external trimpot as shown.



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

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