



Size: 4.6in x 2.4in x 0.55in
(116.8mm x 61mm x 13.9mm)

FEATURES

- Wide Input Voltage Ranges
- Disable/Enable Control
- Parallel Current Share Function
- Input Over/Under Voltage Protection
- High Reliability, High Efficiency, and High Power Density
- Over Current, Over Voltage, Over Temperature, and Short Circuit Protection

APPLICATIONS

- Radar
- Electronic Warfare
- Industrial Control
- Railway
- Defense

DESCRIPTION

The DCHP1000 series of DC/DC power modules offers up to 1000 watts of output power in a 4.6" x 2.4" x 0.55" package. This series consists with single output models with wide input voltage ranges. Features of this series include high reliability, high efficiency, high power density, as well as disable/enable control, and parallel current share function. This series is also protected against input over/under voltage conditions and over current, over voltage, over temperature, and short circuit conditions.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage ⁽¹⁾	Output Current	Ripple & Noise	Efficiency	Output Power
DCHP1000-300S08*	300VDC (200~400VDC)	8VDC	70.0A	80mV	89%	560-1000 Watts
DCHP1000-300S12		12VDC	70.0A	100mV	90%	
DCHP1000-300S24*		24VDC	41.7A	200mV	92%	
DCHP1000-300S28		28VDC	35.7A	200mV	93.5%	
DCHP1000-300S36		36VDC	27.8A	250mV	94%	
DCHP1000-300S48		48VDC	20.8A	400mV	94%	
DCHP1000-500S08	500VDC (380~650VDC)	8VDC	70.0A	80mV	90%	560-1000 Watts
DCHP1000-500S12*		12VDC	70.0A	100mV	91%	
DCHP1000-500S24		24VDC	41.7A	200mV	93%	
DCHP1000-500S28		28VDC	35.7A	200mV	93.5%	
DCHP1000-500S36		36VDC	27.8A	250mV	94%	
DCHP1000-500S48		48VDC	20.8A	300mV	94%	

***: Under Development

SPECIFICATIONS

All specifications are based on 25°C Baseplate Temperature, Rated Input Voltage, and Rated Output unless otherwise noted.
We reserve the right to change specifications based on technological advances.

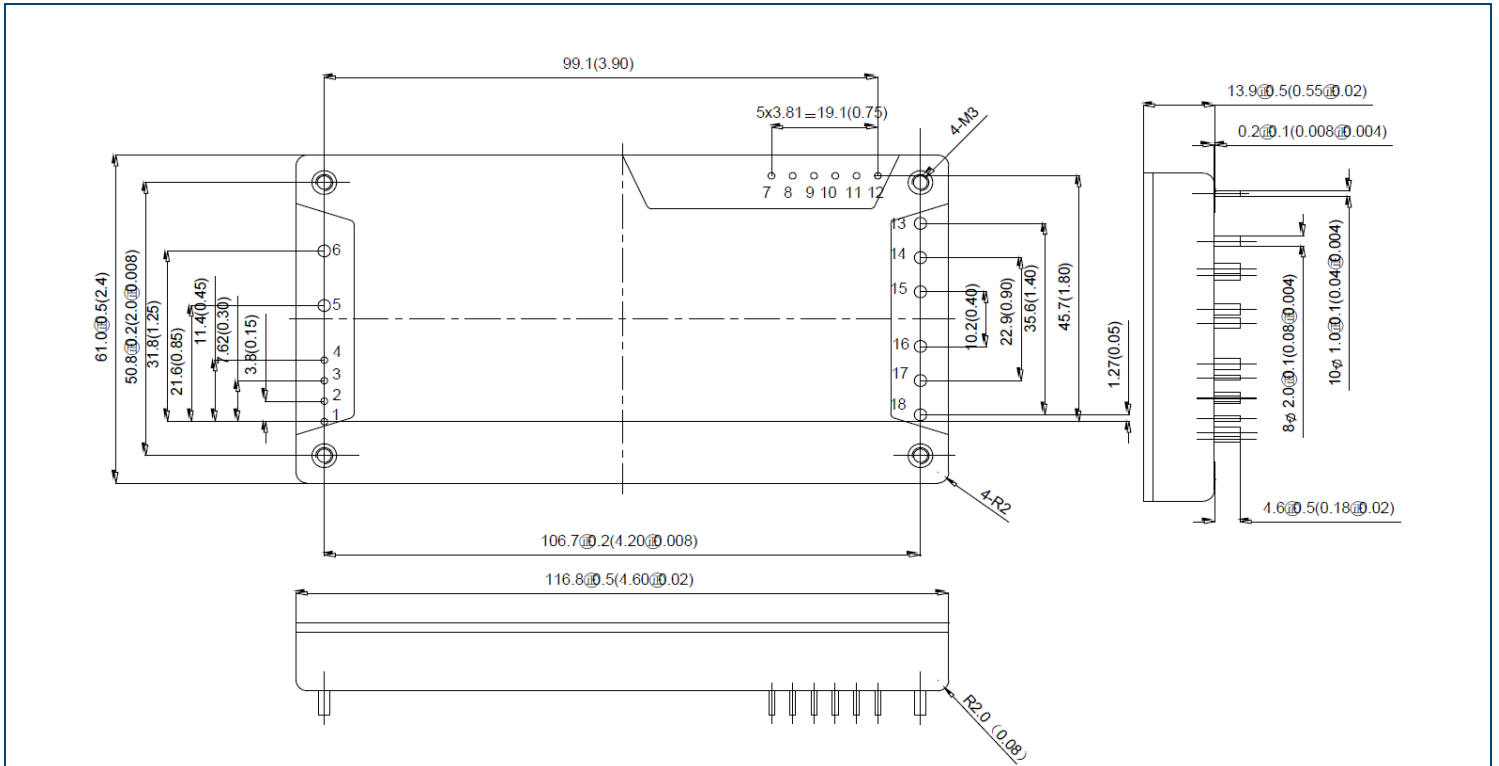
SPECIFICATION		TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS							
Input Voltage Range	300VDC Nominal Input Models		200	300	400		VDC
	500VDC Nominal Input Models		380	500	650		VDC
No Load Input Current	Typical Input, Output No Load, Tc=25°C			100	200		mA
Input Under Voltage Lockout	50% Load	300VDC Nominal Input Models	Turn Off	180	185	190	VDC
			Turn On	190	195	200	
			Hysteresis Voltage		10		
	500VDC Nominal Input Models	Turn Off	345	355	365	VDC	
		Turn On	355	365	375		
		Hysteresis Voltage		10			
Input Over Voltage Protection	50% Load	300VDC Nominal Input Models	Turn Off	410	420	430	VDC
			Turn On	400	410	420	
			Hysteresis Voltage		10		
	500VDC Nominal Input Models	Turn Off	675	385	700	VDC	
		Turn On	650	665	680		
		Hysteresis Voltage		20			
OUTPUT SPECIFICATIONS							
Output Voltage			See Table				
Output Voltage Setpoint	Typical Input, 50% Load					±1	%VDC
Line Regulation	Full Range, 100% Load					±0.20	%
Load Regulation	Typical Input 0-100% Load					±0.50	%
Output Voltage Trim Range	Output Power ≤ Max. Output Power, Output Current ≤ Max. Output Current		-10			+10	%
Output Power			560			1000	W
Output Current			See Table				
Auxiliary Power Supply Voltage	Output 20mA		9	11	13		VDC
Output Current Share Bus Voltage	Input Full Range, Typical Output, Tc=25°C		4.85	5.00	5.15		VDC
Typical Ripple & Noise (p-p) ⁽²⁾	Typical Input, Typical Output, BW=20MHz		See Table				
Current Share Level	(Ii/Ie-ΣI/nIe), 50-100% Load			±5		±10	%
Transient Response ⁽³⁾	25%-50%-25%, 50%-75%-50% load step change, di/dt=2.5A/μs	Overshoot amplitude				±5	%
		Recovery Time				500	μs
Temperature Coefficient	T grade: Tc= -40~100°C, M grade: Tc= -55~100°C					±0.02	%/°C
REMOTE ON/OFF CONTROL							
Negative Logic	Logic High, Control Current ≤6mA, no output		2.4			18.0	VDC
	NC or logic low, normal output		-1.0			0.8	
PROTECTION							
Short Circuit Protection	Can be a long short circuit, automatic recovery						
Output Current Limit	Constant-current hiccup model protection, self-recovery		110			140	%Iomax
Over Voltage Protection	Locked Mode		120			150	%Vout
Over Temperature Protection	Shutdown, Thermistor PCB nearby temp.		100	110		120	°C
	Recovery turn on, thermistor PCB nearby temp		90	100		110	
ENVIRONMENTAL SPECIFICATIONS							
Operating Temperature	DCHP1000-500S28		-40			+80	°C
	DCHP1000-500S24, DCHP1000-500S36, DCHP1000-300S48, DCHP1000-300S36, DCHP1000-300S48		-40			+90	
	DCHP1000-300S12*, DCHP1000-300S24*, DCHP1000-300S28		-40			+100	
	DCHP1000-300S08*, DCHP1000-500S08, DCHP1000-500S12				TBD		
Storage Temperature	Ambient Temperature		-55			+125	°C
Relative Humidity	Non-Condensing		5			95	%
Storage Humidity	Non-Condensing		5			95	%
MTBF	Typical Input, Typical Output, Tc=25°C	300VDC Nominal Input Models	TBD				
		500VDC Nominal Input Models		2,000,000			Hours
GENERAL SPECIFICATIONS							
Efficiency	Typical Input, Typical Output, Tc=25°C		See Table				
Switching Frequency	Full Range	300VDC Nominal Input Models		320			KHz
		500VDC Nominal Input Models		300			
Isolation Voltage	Test condition: 10mA/60s, rate of rise 500VDC/s; no breakdown, no arc	Input to Output	4250				VDC
		Input to Case	3535				
		Output to Case	1500				
Isolation Resistance	Relative humidity 90%, under standard atmospheric pressure, 500VDC		100				MΩ
PHYSICAL SPECIFICATIONS							
Weight	300VDC Nominal Input Models		8.11oz (230g)				
	500VDC Nominal Input Models		8.82oz (250g)				
Dimensions (L x W x H)			4.6 x 2.4 x 0.55in (116.8 x 61 x 13.9mm)				

NOTES

1. M grade and other output voltages are available. Contact factory for more information.
2. Output parallel a 0.1µF ceramic cap and 10µF tantalum cap
3. Output add min. capacitance load (solid capacitors or polymer capacitors)

**Due to advances in technology, specifications subject to change without notice.*

MECHANICAL DRAWINGS



Notes:

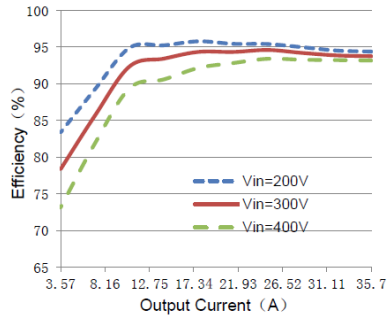
1. Baseplate materials: Aluminum + plastic case
2. Pins 1-4/7-12 Ø1.0mm (0.04in)
3. Other pins Ø2.0mm (0.08in)
4. No individual tolerance: x.x±0.5mm x (±0.02)m, x.xx±0.25mm (±0.01in)

PIN ASSIGNMENT

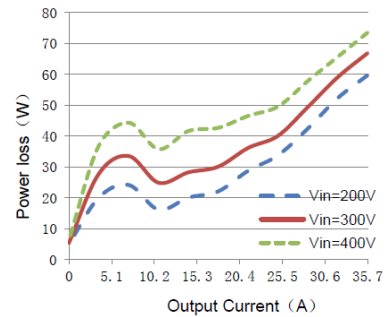
Pin No	Label	Function
1	NC	No Pin
2	NC	No Pin
3	ON/OFF (+)	ON/OFF Remote Control Input (+)
4	ON/OFF (-)	ON/OFF Remote Control Input (-)
5	Vin (+)	Input Voltage (+)
6	Vin (-)	Input Voltage (-)
7	Vaux	Auxiliary Power Input (+) (refer Vout (-))
8	Start Sync	Synchronization Turn On (Optional)
9	Ishare	Current Share
10	Trim	Output Voltage Trim Pin
11	S(+)	Remote Sense (+)
12	S(-)	Remote Sense (-)
13, 14, 15	Vout (-)	Output Voltage (-)
16, 17, 18	Vout (+)	Output Voltage (+)

CHARACTERISTIC CURVES

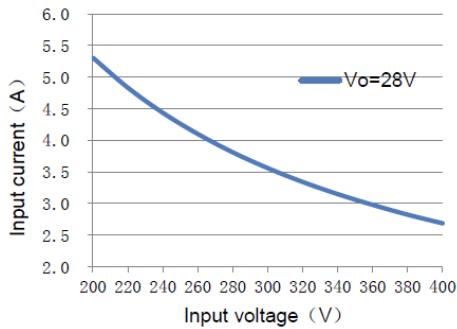
DCHP1000-300S28 Efficiency (Tc=25°C)



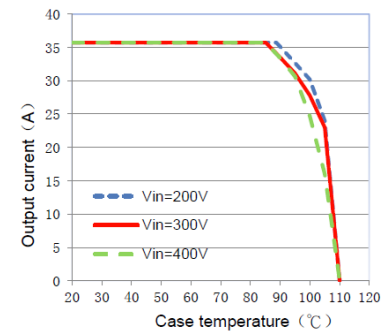
DCHP1000-300S28 Power Dissipation (Tc=25°C)



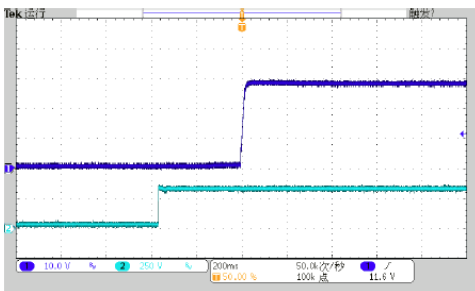
DCHP1000-300S28 Input Current vs. Input Voltage (Tc=25°C)



DCHP1000-300S28 Derating

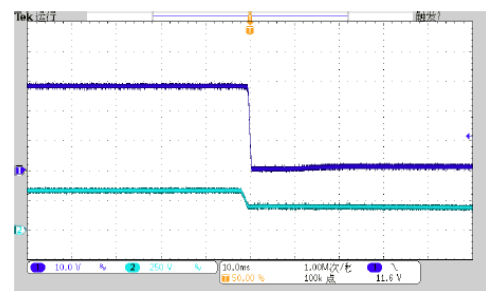


DCHP1000-300S28 Startup



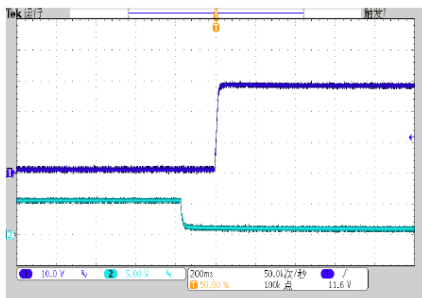
CH1: Output Voltage (10V/div)
CH2: Input Voltage (250V/div)

DCHP1000-300S28 Shutdown



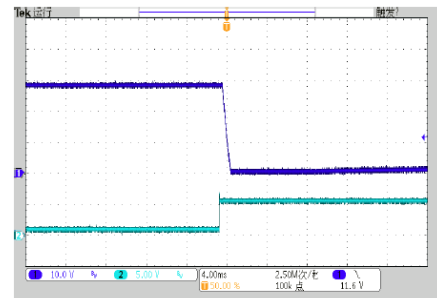
CH1: Output Voltage (10V/div)
CH2: Input Voltage (250V/div)

DCHP1000-300S28 Turn On By ON/OFF



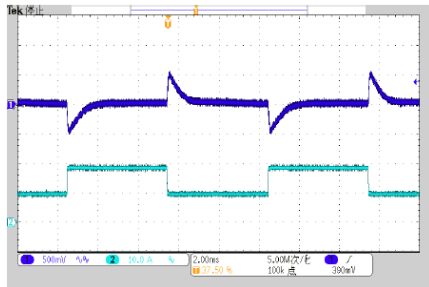
CH1: Output Voltage (10V/div)
CH2: ON/OFF Voltage (20V/div)

DCHP1000-300S28 Turn Off by ON/OFF



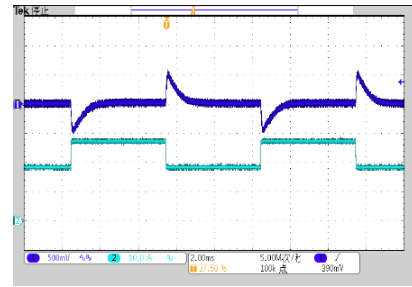
CH1: Output Voltage (10V/div)
CH2: ON/OFF Voltage (20V/div)

DCHP1000-300S28 25%-50%-25% (2.5 μ s) Dynamic



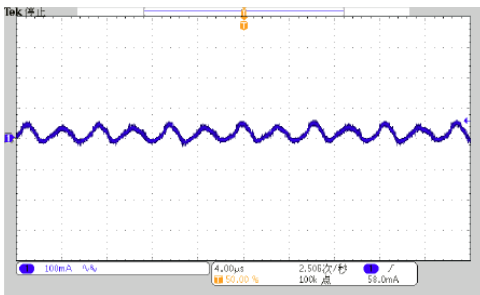
CH1: Output Voltage (0.5V/div)
CH2: Output Current (10.00A/div)

DCHP1000-300S28 50%-75%-50% (2.5A/ μ s) Dynamic



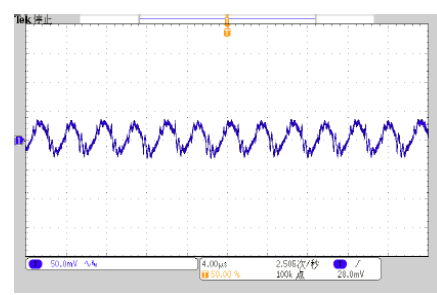
CH1: Output Voltage (0.5V/div)
CH2: Output Current (10.00A/div)

DCHP1000-300S28 Input Terminal Ripple Current



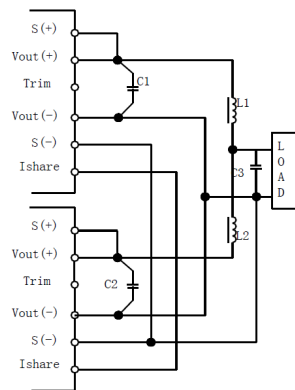
100mA/div

DCHP1000-300S28 Output Voltage Ripple



50mV/div

UNITS IN PARALLEL



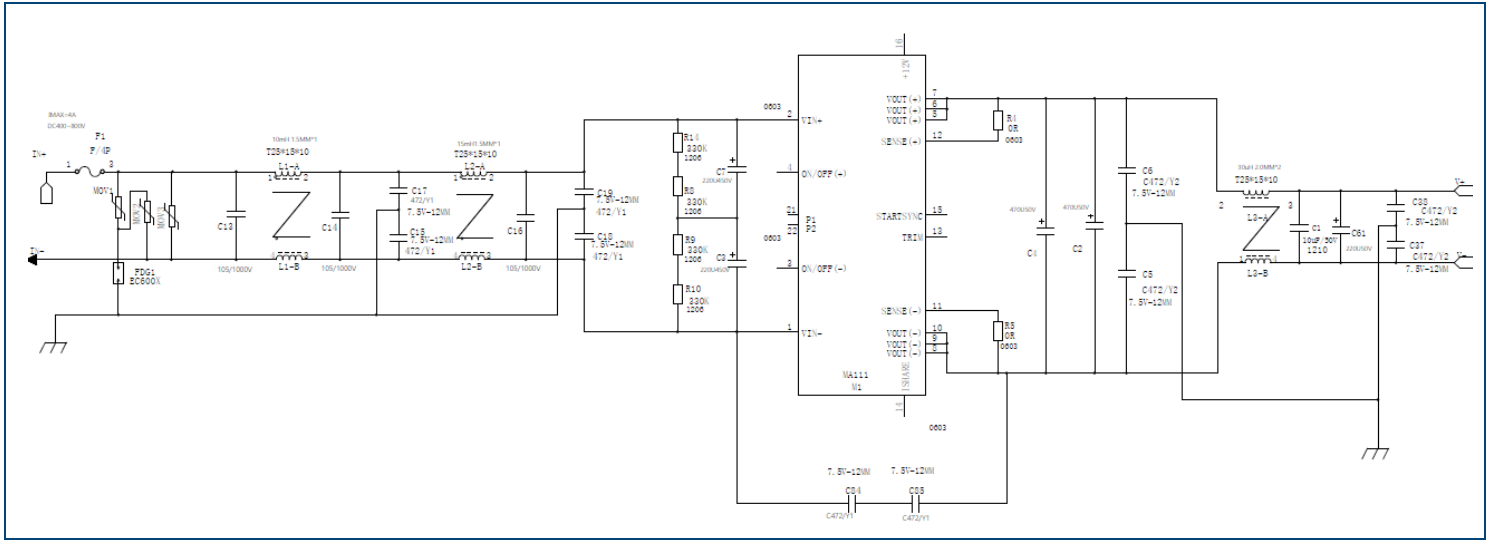
Multiple Units In Parallel

In parallel: Modules' outputs required to be connected in parallel. I share pins of multiple units must be connected together and note to avoid disturbances between cables. Output voltage terminal of each module are connected in parallel directly. Please note that to meet each module output impedances symmetrically before parallel connection. It can support up to 10 modules in parallel.

Note: Current Share in Parallel Error Formula Description

- n – the number of modules in parallel
- i – Modules to calculate the current sharing sensitivity
- I₁, I₂...I_n (2 ≤ n ≤ 10) – Output current of each tested power module.
- I_e – Rated output current of each tested power module
- ΣI – Sum of output current of tested power modules
- nI_e – Sum of rated output current of n tested power modules
- C₁, C₂ – The minimum output capacitance
- L₁, L₂ ≥ 0.15uH
- C₃ – an additional ceramic/aluminum electrolytic capacitors. If necessary to filter output ripple, C₃ recommended ≥ 2000uF

EMI RECOMMENDATIONS



MODEL NUMBER SETUP

DCHP	1000	-	300	S	24	M
Series Name	Output Power		Input Voltage	Output Quantity	Ouput Voltage	Temperature Grade
			300: 200~400VDC 500: 380~650VDC		08: 8VDC 12: 12VDC 24: 24VDC 28: 28VDC 36: 36VDC 48: 48VDC	Blank: -40 to 100°C ⁽¹⁾ M: -55 to 125°C

(1) 48Vout Models have -40 to 90°C baseplate operating tempaure.

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

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