

Size:
1.25 x 0.80 x 0.50 inches
31.7 x 20.3 x 12.65 mm

APPLICATIONS

- Battery Operated Equipment
- Telecom
- Industry Control Systems
- Wireless Networks
- Measurement Equipment

FEATURES

- 2:1 Wide Input Voltage Ranges
- 5~6 Watts Output Power
- RoHS Compliant
- No Minimum Load Requirement
- Single and Dual Outputs
- High Efficiency up to 85%
- -40°C to +85°C Operating Temperature Range
- 4000VACrms I/O Isolation Voltage
- 6000Vpk Isolation Test Voltage
- Short Circuit Protection: Continuous & Auto-Recovery
- Over Voltage Protection: Clamp Mode
- 24-Pin DIP Package with Industry-Standard Footprint

DESCRIPTION

The DCHAA series of DC/DC power converters provides up to 6 Watts of continuous output power in a 1.25” x 0.80” x 0.50” 24-pin DIP package. This series consists of single and dual output models with 2:1 input voltage ranges of 9~18VDC, 18~36VDC, and 36~75VDC. Some features include high efficiency up to 85%, 4000VACrms I/O isolation, -40°C to +85°C operating temperature range, and no minimum load requirement. The DCHAA series is RoHS and UL94V-0 compliant. These converters are best suited for use in battery operated equipment, measurement equipment, telecom, wireless networks, industry control systems, and anywhere where isolated and compact size are required.

MODEL SELECTION TABLE

SINGLE OUTPUT MODELS

Model Number	Input Voltage Range	Output Voltage	Output Current	Input Current		Output Power	Efficiency (1)	Maximum Capacitive Load
				No Load	Full Load			
DCHAA12S5-5H	12 VDC (9 – 18 VDC)	5 VDC	1000mA	22mA	541mA	5W	81%	2000µF
DCHAA12S12-6H		12 VDC	500mA	35mA	630mA	6W	83%	470µF
DCHAA24S5-5H	24 VDC (18 – 36 VDC)	5 VDC	1000mA	13mA	265mA	5W	82%	2000µF
DCHAA24S12-6H		12 VDC	500mA	13mA	309mA	6W	85%	470µF
DCHAA48S5-5H	48 VDC (36 – 75 VDC)	5 VDC	1000mA	8mA	135mA	5W	81%	2000µF
DCHAA48S12-6H		12 VDC	500mA	9mA	158mA	6W	83%	470µF

DUAL OUTPUT MODELS

Model Number	Input Voltage Range	Output Voltage	Output Current	Input Current		Output Power	Efficiency (1)	Maximum (2) Capacitive Load
				No Load	Full Load			
DCHAA12D12-6H	12 VDC (9 – 18 VDC)	±12 VDC	±250mA	36mA	630mA	6W	83%	±220µF
DCHAA12D15-6H		±15 VDC	±200mA	37mA	630mA	6W	83%	±220µF
DCHAA24D12-6H	24 VDC (18 – 36 VDC)	±12 VDC	±250mA	19mA	313mA	6W	84%	±220µF
DCHAA24D15-6H		±15 VDC	±200mA	21mA	309mA	6W	85%	±220µF
DCHAA48D12-6H	48 VDC (36 – 75 VDC)	±12 VDC	±250mA	11mA	158mA	6W	83%	±220µF
DCHAA48D15-6H		±15 VDC	±200mA	12mA	158mA	6W	83%	±220µF

NOTES

1. Typical value tested at nominal input and full load.

2. For each output.

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

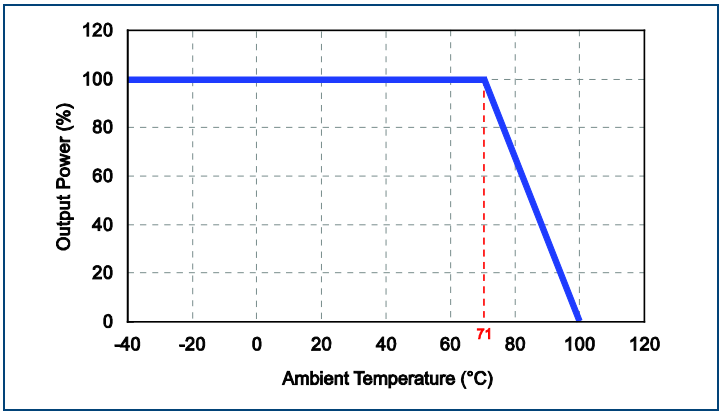
TECHNICAL SPECIFICATIONS: DCHAA SERIES

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

SPECIFICATION	TEST CONDITIONS		Min	Nom	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	12VDC nominal input models		9	12	18	VDC
	24VDC nominal input models		18	24	36	
	48VDC nominal input models		36	48	75	
Input Surge Voltage (100ms max.)	12VDC nominal input models			25		VDC
	24VDC nominal input models			50		
	48VDC nominal input models			100		
Input Reflected Ripple Current	Nominal Vin and full load				76	mAp-p
Input Current			See Table			
Input Filter			Pi type			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy	Nominal Vin and full load		-1		+1	%
Output Current			See Table			
Minimum Load			0			A
Line Regulation	LL to HL at full load		-0.5		+0.5	%
Load Regulation	Single Outputs	25% load to full load	-0.5		+0.5	%
	Dual Outputs	Balanced Load	-0.5		+0.5	
		Unbalanced Load: 25% to 100% load	-3		+3	
Capacitive Load			See Table			
Output Power			See Table			
Ripple & Noise (20MHz BW)	5V Output Models			110	150	mVp-p
	12 V Output Models				70	
	Others			150	200	
Start-Up Time	Nominal Vin and constant resistive load				510	ms
Transient Response Settling Time	50% load step change				780	µs
Transient Response Overshoot	di/dt = 0.8/µs				±5	% Vo
Temperature Coefficient			-0.02		+0.02	%/°C
PROTECTION						
Short Circuit Protection			Continuous, automatic recovery			
Over Load Protection	% of full load		120			%
Over Voltage Protection	5V Output Models	Zener diode clamp		6.2		VDC
	12V Output Models			15		
	15V Output Models			18		
GENERAL SPECIFICATIONS						
Efficiency	Nominal input and full load		See Table			
Switching Frequency				150		KHz
I/O Isolation Voltage (rated)	60 seconds		4000			VACrms
I/O Isolation Test Voltage	Flash tested for 1 second		6000			Vpk
Isolation Resistance	500VDC		1			GΩ
Isolation Capacitance				12		pF
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature	Full load		-40		+85	°C
Case Temperature					+95	°C
Storage Temperature			-50		+125	°C
Relative Humidity			5		95	% RH
Cooling			Free air convection			
MTBF			70,000			hours
PHYSICAL SPECIFICATIONS						
Case Material			Non-conductive black plastic			
Potting Material			Silicon rubber (UL94V-0)			
Weight			0.56oz (16g)			
Dimensions (L x W x H)			1.25 x 0.80 x 0.50 inches (31.7 x 20.3 x 12.65 mm)			
EMC CHARACTERISTICS						
EMI	EN55022 (radiation)		Meets class A			

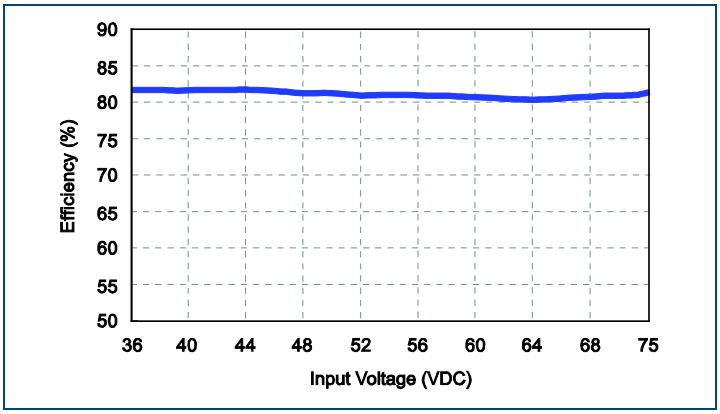
DERATING

DCHAA48S5-5H Derating Curve

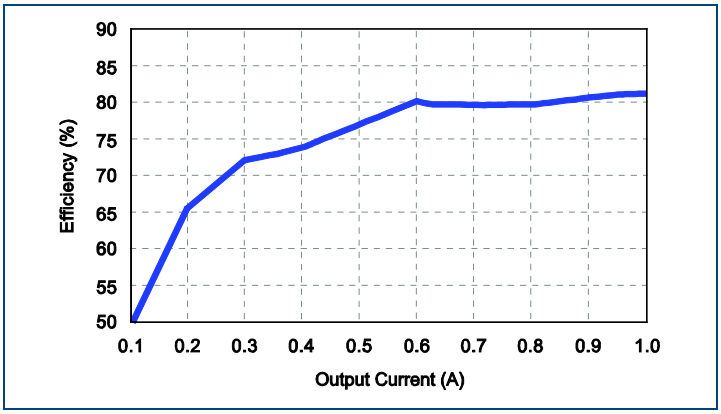


EFFICIENCY

DCHAA48S5-5H Efficiency vs Input Voltage

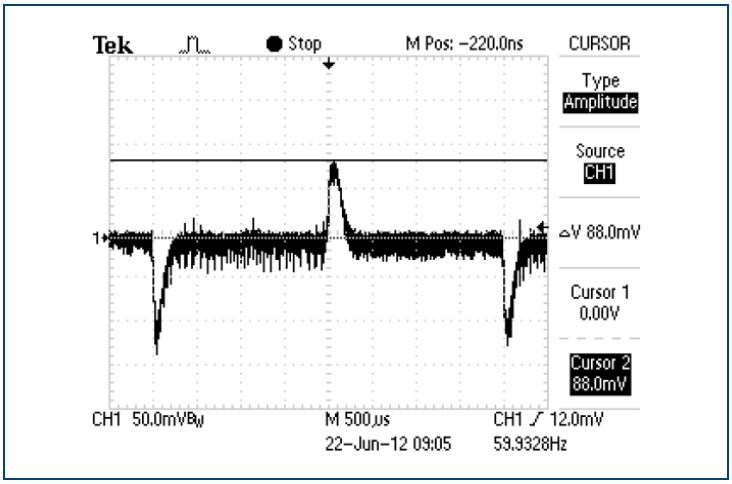


DCHAA48S5-5H Efficiency vs Output Current

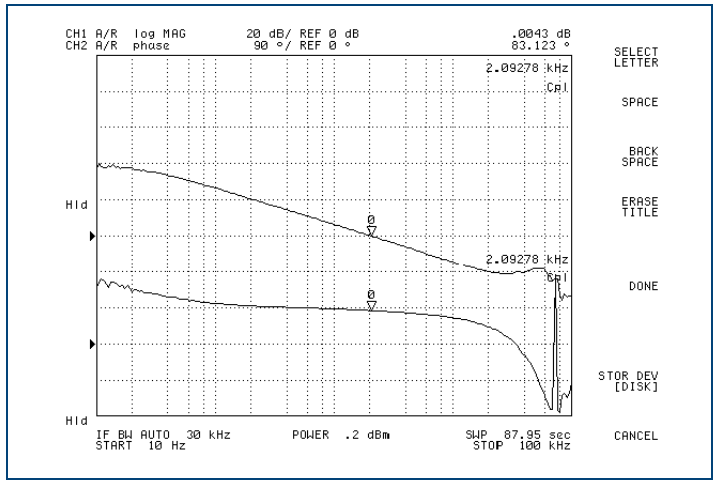


CHARACTERISTICS

DCHAA48S5-5H
Transient Response at 50%~100% Load

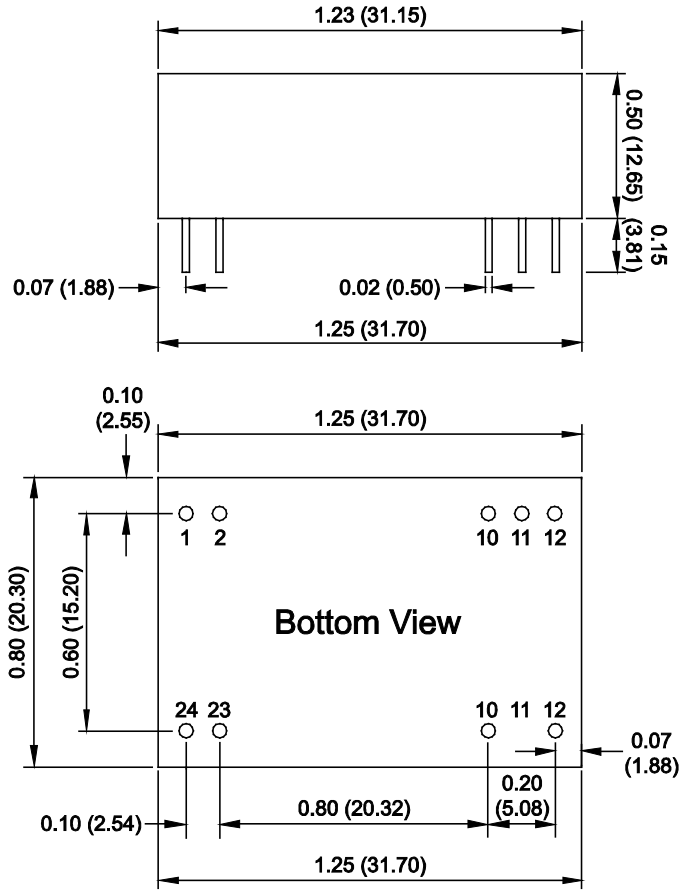


DCHAA48S5-5H
Loop Gain & Phase at Vi=48V, Full load



MECHANICAL DRAWING

Unit: inches (mm)



PIN CONNECTIONS		
Pin	**Single Output**	**Dual Output**
1	+Vin	+Vin
2	+Vin	+Vin
10	No Connection	Common
11	No Connection	Common
12	-Vout	No Connection
13	+Vout	-Vout
15	No Connection	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

NOTES:

1. Tolerance: X.XX ±0.01 (±0.25)
2. Case Material: non-conductive black plastic
3. Potting Material: Silicon rubber (UL94V-0)
4. Dimensions: 1.25 x 0.80 x 0.50 inches
5. Weight: 0.56oz (16g)
6. All dimensions are for reference only

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 ISO9001-2008 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.

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