

10 Watts

- 2:1 Input range
- 2 x 1" package
- Single and dual outputs
- Efficiency up to 86%
- 1500VDC Isolation
- -40 to 85°C Operation
- 5 Year warranty



The HCA10 series of low cost DC/DC converters comes in both single and dual outputs. Inputs are available in 12, 24 & 48V versions with 2:1 range and outputs from 3.3 to 24V single and dual. The units operate from -40 to +85°C. 1500VDC isolation as standard with up to 3500VDC available (-H model). All models have a FiDUS 5 year warranty.

Dimensions:

2.00 x 1.00 x 0.40" (50.80 x 25.40 x 10.16mm)

Models & Ratings

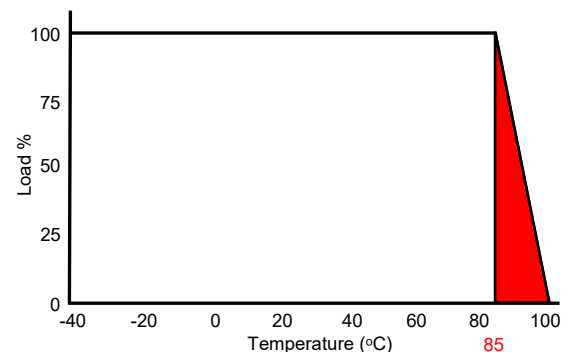
Model Number ⁽²⁾	Input Voltage	Output Voltage	Output Current	Input Current		Maximum Capacitive Load	Efficiency
				No Load	Full Load		
HCA101203	9-18V	3.3V	2000mA	30mA	705mA	2200uF	78%
HCA101205		5V	2000mA	30mA	1016mA	2200uF	82%
HCA101212		12V	833mA	30mA	992mA	680uF	84%
HCA101215		15V	666mA	30mA	992mA	470uF	84%
HCA101224		24V	416mA	30mA	980mA	330uF	85%
HCA101205D		±5V	±1000mA	30mA	1016mA	±1000uF	82%
HCA101212D		±12V	±416mA	30mA	992mA	±470uF	84%
HCA101215D		±15V	±333mA	30mA	980mA	±330uF	85%
HCA101224D	±24V	±208mA	30mA	980mA	±220uF	85%	
HCA102403	18-36V	3.3V	2000mA	25mA	352mA	2200uF	78%
HCA102405 ⁽¹⁾		5V	2000mA	25mA	508mA	2200uF	82%
HCA102412		12V	833mA	25mA	496mA	680uF	84%
HCA102415		15V	666mA	25mA	490mA	470uF	85%
HCA102424		24V	416mA	25mA	484mA	330uF	86%
HCA102405D		±5V	±1000mA	25mA	508mA	±1000uF	82%
HCA102412D		±12V	±416mA	25mA	496mA	±470uF	84%
HCA102415D		±15V	±333mA	25mA	496mA	±330uF	84%
HCA102424D	±24V	±208mA	25mA	490mA	±220uF	85%	
HCA104803	36-72V	3.3V	2000mA	20mA	176mA	2200uF	78%
HCA104805		5V	2000mA	20mA	251mA	2200uF	83%
HCA104812		12V	833mA	20mA	248mA	680uF	84%
HCA104815		15V	666mA	20mA	248mA	470uF	84%
HCA104824		24V	416mA	20mA	245mA	330uF	86%
HCA104805D		±5V	±1000mA	20mA	254mA	±1000uF	82%
HCA104812D		±12V	±416mA	20mA	245mA	±470uF	85%
HCA104815D		±15V	±333mA	20mA	245mA	±330uF	85%
HCA104824D	±24V	±208mA	20mA	242mA	±220uF	86%	

Notes

1. High stock items
2. Add 'H' to model number for 3500VDC isolation
3. Under no load conditions the unit may not meet all specifications
4. Do not operate continuously in the red area of the derating curve

Input	
Parameter	Rating
Input voltage range	See table
Input reflected ripple current	35mA pk-pk through 12uH inductor
Input surge (100mS max)	12V Models 25V DC Max. 24V Models 50VDC Max. 48V Models 100VDC Max.
Input filter	Pi type

Derating curve



Output

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Output voltage	3.3		24	VDC	See Model & Ratings table
Set point accuracy			±1	%	
Line regulation			±0.5	%	Low line to High line
Load regulation			±0.5	%	Single outputs. 0 to 100% load change
			±1		Dual outputs. 0 to 100% load change
Ripple & Noise			100	mV pk-pk	All models measured with 1uF ceramic capacitor. 20 MHz bandwidth
Transient response			±3	% Deviation	For a 25% load change, recovery to within 3% within 250uS typically.
Short circuit protection					Continuous with automatic recovery
Maximum capacitive load					See Model and Ratings table

General

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	78		86	%	See Model & Ratings table
Isolation	1500		3500	VDC	Input to output
Isolation resistance	1000			M Ohm	
Isolation capacitance		500		pF	
Switching frequency		200		KHz	
Power density			12.5	W/In ³	
MTBF		>1.121		MHrs	As per MIL-HDBK-217F, 25°C GB

Environmental

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating temperature	-40		85	°C	See derating curve
Storage temperature	-40		125	°C	
Case temperature			100	°C	
Cooling					Convection cooled
Humidity			95	% RH	Non-condensing
Temperature coefficient			±0.02	%/°C	

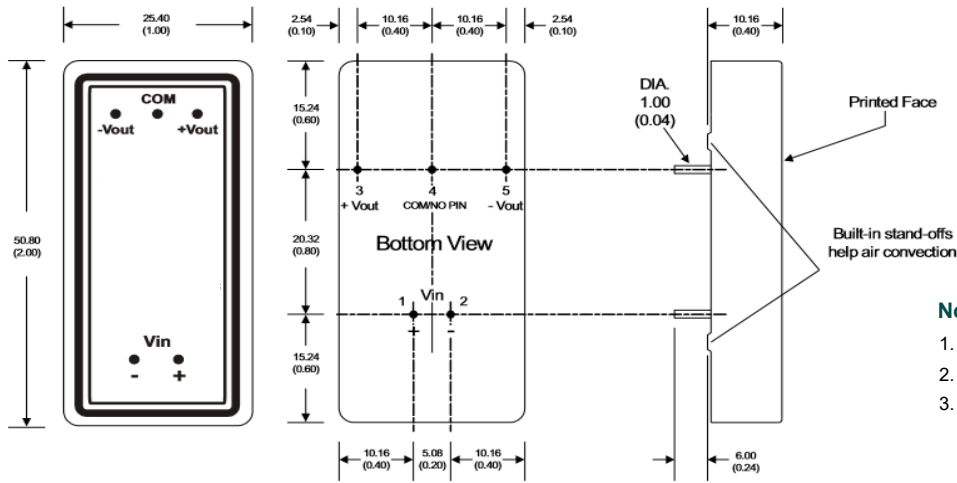
EMC: Emissions

	Standard	Test level	Notes & Conditions
Conducted	EN55022	Class A	See application notes
Radiated	EN55022	Class A	

EMC: Immunity

	Standard	Test level	Criteria	Notes & Conditions
ESD	EN61000-4-2	3	A	8KV Air, 6KV Contact
Radiated	EN61000-4-3	3	A	80-100MHz. 10V/m, 80%AM (1KHz)
EFT/Burst	EN61000-4-4	3	A	Power Line: 2KV
Surges	EN61000-4-5	2	A	1.2/50us Open Circuit Voltage, 8/20 us Short Circuit Current, DC port, line to line 0.5KV (A 220uF/100V capacitor is required)
Conducted	EN61000-4-6	3	A	0.15-80MHz, 10Vrms, 80%AM (1KHz)
Magnetic fields	EN61000-4-8	1A/m	A	50hZ

Mechanical Details



Pin Connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	N.P.	0V
5	-Vout	-Vout

Notes

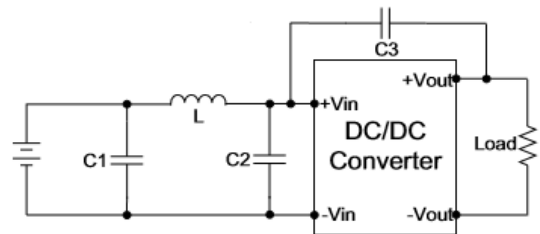
1. All dimensions shown in millimetres (inches)
2. Pin diameter 1.0 ± 0.05 (0.04 ± 0.002)
3. Case tolerance ± 0.5 (± 0.002)

Physical

Parameter	Rating
Case material	Nickel coated brass
Pin material	1.0mm Brass solder coated
Potting material	Epoxy (UL94V-0)
Weight	31g
Dimensions	2.00 x 1.00 x 0.40"
Soldering temperature	1.5mm from case, 10s and 260°C max.

EMI Filter

The input filter components C1, L, C2 and C3 can be fitted to help meet conducted emission requirements for the system. They should be mounted as close as possible to the module. Lead lengths should be minimized and where possible avoid running input and output tracks under the module as part of good design practice for best EMC performance. If the module is embedded in a system running from a AC/DC converter, this will have its own additional immunity protection and EMI filtering that will impact the overall system EMI performance.



Model number	C1	L	C2	C3
HCA1012XX	330uF/100V	12uH	100uF/100V	1808, 1000pF/3KV
HCA1024XX	330uF/100V	12uH	100uF/100V	1808, 1000pF/3KV
HCA1048XX	330uF/100V	12uH	100uF/100V	1808, 1000pF/3KV