

GNK04-06 Series

FIDUS
power in motion...

4 to 6 Watts

- 4.5 to 9V Input range
- DIP24 Industry standard package
- Single and dual outputs
- -40 to +85°C Operation
- Optional isolation up to 3500VDC
- Metal case standard
- 3 Year warranty



The GNK04-06 series of low cost DC/DC converters come in both single and dual outputs in a DIP 24 pin package. Units accept a 5V nominal input, with a 4.5—9V range, with outputs from 3.3 to 15V single and dual. The units operate from -40 to +85°C. All models have a FIDUS 3 year warranty.

Dimensions:

1.25 x 0.8 x 0.4" (31.75 x 20.32 x 10.16mm)

Models & Ratings

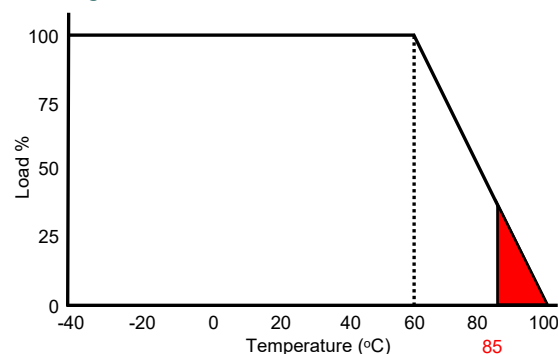
Model Number ⁽²⁾⁽³⁾	Input Voltage	Output Voltage	Output Current	Input Current		Maximum Capacitive Load	Efficiency
				No Load	Full Load		
GNK040503	5V	3.3V	1200mA	25mA	1100mA	3300uF	73%
GNK040505		5V	800mA	25mA	1073mA	1000uF	77%
GNK040512		12V	333mA	30mA	993mA	220uF	81%
GNK040515		15V	266mA	30mA	991mA	100uF	82%
GNK040503D		±3.3V	±600mA	25mA	1077mA	±680uF	76%
GNK040505D		±5V	±400mA	30mA	1032mA	±470uF	79%
GNK040512D		±12V	±166mA	35mA	996mA	±100uF	81%
GNK040515D		±15V	±133mA	40mA	997mA	±47uF	81%
GNK050503		3.3V	1300mA	25mA	1200mA	1000uF	73%
GNK050505		5V	1000mA	25mA	1333mA	1000uF	77%
GNK050512		12V	417mA	30mA	1235mA	330uF	82%
GNK050515		15V	333mA	30mA	1280mA	220uF	82%
GNK050503D		±3.3V	±750mA	25mA	1320mA	±680uF	76%
GNK050505D		±5V	±500mA	30mA	1282mA	±330uF	79%
GNK050512D		±12V	±208mA	35mA	1232mA	±100uF	82%
GNK050515D		±15V	±167mA	40mA	1244mA	±47uF	82%
GNK060503		3.3V	1400mA	25mA	1292mA	1000uF	73%
GNK060505 ⁽¹⁾		5V	1200mA	25mA	1600mA	1000uF	76%
GNK060512		12V	500mA	30mA	1490mA	330uF	82%
GNK060515		15V	400mA	30mA	1472mA	220uF	82%
GNK060503D		±3.3V	±909mA	25mA	1658mA	±680uF	75%
GNK060505D		±5V	±600mA	25mA	1548mA	±330uF	79%
GNK060512D		±12V	±250mA	35mA	1500mA	±100uF	83%
GNK060515D		±15V	±200mA	40mA	1481mA	±47uF	83%

Notes

1. High stock items
2. Add 'H' to model number for 3500VDC isolation
3. Add 'P' to model number for plastic case
4. Dual outputs power-trade
5. Under no load conditions the unit may not meet all specifications
6. Do not operate continuously in the red area of the derating curve

Input	
Parameter	Rating
Input voltage range	4.5 to 9V
Input reflected ripple current	35mA pk-pk through 12uH inductor
Input current no load/ full load	40/1658mA
Input surge (100mS max)	15VDC Max.
Input reverse voltage protection	None

Derating curve



Output					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Output voltage	3.3		15	VDC	See Model & Ratings table
Set point accuracy	3.3/±3.3V outputs ±2%. All other models ±1%			%	
Line regulation			±0.5	%	
Load regulation	3.3/±3.3V outputs ±1.5%. All other models ±0.5%			%	
Minimum load	0			%	
Cross regulation			±5	%	On dual output models when one load is varied by 25 to 100% and the other is 100% load.
Ripple & Noise			60	mV pk-pk	Measured with 1uF ceramic capacitor
Transient response			±3	% Deviation	For a 25% load change, recovery to within 3% within 300uS typically.
Short circuit protection					Continuous with automatic recovery
Maximum capacitive load					See Model and Ratings table

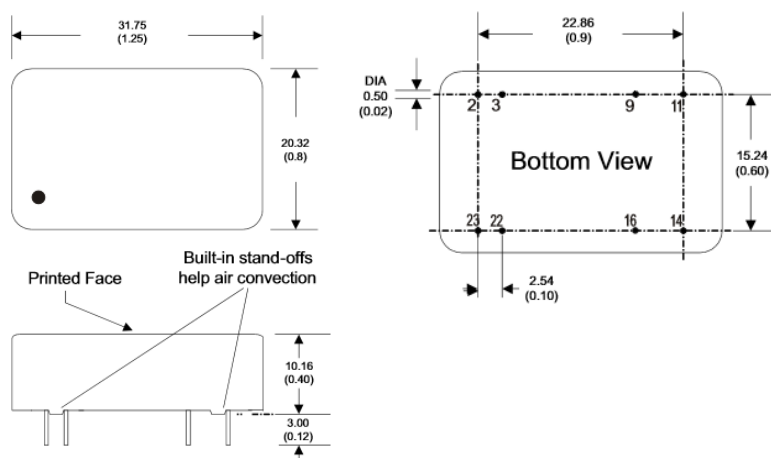
General					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	73		83	%	See Model & Ratings table
Isolation	1500		3500	VDC	Plastic case. Input to output
		1000			Metal case. Input to output
Isolation resistance			1000	M Ohm	
Isolation capacitance		500		pF	
Switching frequency		266		KHz	
Power density	4W 10W/In ³ .5W 12.5W/In ³ . 4W 15W/In ³			W/In ³	
MTBF		>1.121		KHrs	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		60	°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	
Radiated	EN61000-4-3	3	A	
EFT/Burst	EN61000-4-4	3	A	A 330uF/100V capacitor required
Surges	EN61000-4-5	3	A	A 330uF/100V capacitor required
Conducted	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

Mechanical Details



Pin Connections		
Pin	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	N.P	0V
11	N.C	-Vout
14	+Vout	+Vout
16	-Vout	0V
22	+Vin	+Vin
23	+Vin	+Vin

Notes

1. All dimensions shown in millimetres (inches)
2. Pin diameter 0.5 ± 0.05 (0.02 ± 0.002)
3. Case tolerance ± 0.5 (± 0.002)

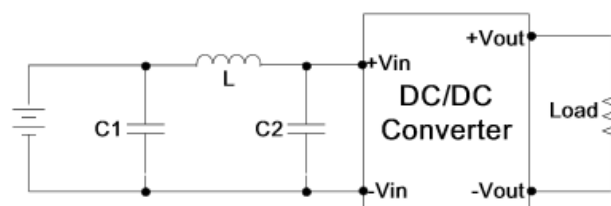
Physical

Parameter	Rating
Case material	Nickel coated copper for standard metal version. Non-conductive black plastic
Pin material	0.5mm Brass solder coated
Potting material	Epoxy (UL94V-0)
Weight	17g metal case. 13.5g plastic case
Dimensions	1.25 x 0.8 x 0.4" (31.75 x 20.32 x 10.16mm)
Soldering temperature	1.5mm from case, 10s and 260°C max.

Application notes

EMI Filter

The input filter components C1, C2 and L 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.



C1	L	C2
330uF, 100V	1.8uH	470uF, 100V