

## NON-ISOLATED DC/DC CONVERTERS

3 - 15V Input / Programmable Output / 30A VRM 8.5 Compatible

**bel**  
POWER PRODUCTS

### G7NA-30D180

- High efficiency means less power dissipation
- Remote on/off
- Ultrawide input range (3V - 15V)
- Very wide trim range (-100%, +200%)
- 2-Wire Remote sense
- 5 bit VID digital voltage programming.
- Single wire current sharing



### Description

The G7NA-30D Series is a non-isolated step down DC/DC converters providing up to 30A of output current and designed to be compatible to the Intel VRM8.5 specification. Standard features include current share, remote on/off, over current protection, remote sense and a power good signal. Optional features include adjustable undervoltage lockout, output current monitor and output trim. This product also makes use of adaptive positioning to improve transient response performance. These products may be used almost anywhere low-voltage silicon is being employed and a nominal 12V, 5V or 3.3V source is available. Typical applications include file servers, routers, and other computing and communications equipment.

### Input Specifications

Parameter	Min	Typ	Max	Notes
Input Voltage Range	3 VDC		15 VDC	
Input Current (disabled)		17mA		
Input Current (full load)			22A	
Reflected Ripple Current			200mA rms	With 100uF, 25mOhm capacitor and 200nH of input inductance.

### Output Specifications

Parameter	Min	Typ	Max	Notes
Voltage Adjustability	-100%		+200%	
Output Current	0A		30A	
Set Point Accuracy	1.85V	1.87	1.89	no load, excluding Adaptive positioning
Adaptive Positioning (Droop Impedance)		3.214 mOhm		
Ripple and Noise		20mV		pk-pk, 0 to 20MHz Bandwidth Full load with external 1800uF oscon capacitor on output.
Turn on Time		6mS	10mS	
Transient Response				di/dt = 5A/uS Load step =50% of max load.
Deviation		85mV		
Settling Time		35uS		
Remote Sense Compensation		±0.3VDC		
Output Capacitance	1800uF		20,000uF	For applications requiring higher or lower output capacitance please consult factory.

# NON-ISOLATED DC/DC CONVERTERS

3 – 15V Input / Programmable Output / 30A VRM 8.5



## General Specifications

Parameter	Specification
Switching Frequency	540kHz typical (fixed)
Dimensions	inches mm
	2.75 x 1.5 x 0.48 69.8 x 38.1 x 27.9
Weight	TBD
Operating Temperature	0°C to 70°C
Non-Operating Temperature	-40°C to 100°C
Protection Features	Over current Undervoltage
	115% to 200% max Io UVLO Vin < 9.5V
Remote On/Off	Active High
Efficiency (full load)	1.8V output 82%

## Voltage Identification (VID) Code

VID25mV	VID3	VID2	VID1	VID0	Vo (VDC)
0	0	1	0	0	1.05
1	0	1	0	0	1.075
0	0	0	1	1	1.1
1	0	0	1	1	1.125
0	0	0	1	0	1.15
1	0	0	1	0	1.175
0	0	0	0	1	1.2
1	0	0	0	1	1.225
0	0	0	0	0	1.25
1	0	0	0	0	1.275
0	1	1	1	1	1.3
1	1	1	1	1	1.325
0	1	1	1	0	1.35
1	1	1	1	0	1.375
0	1	1	0	1	1.4
1	1	1	0	1	1.425
0	1	1	0	0	1.45
1	1	1	0	0	1.475
0	1	0	1	1	1.5
1	1	0	1	1	1.525
0	1	0	1	0	1.55
1	1	0	1	0	1.575
0	1	0	0	1	1.6
1	1	0	0	1	1.625
0	1	0	0	0	1.65
1	1	0	0	0	1.675
0	0	1	1	1	1.7
1	0	1	1	1	1.725
0	0	1	1	0	1.75
1	0	1	1	0	1.775
0	0	1	0	1	1.8
1	0	1	0	1	1.825

## Pin Connections

	Row A		Row B
Pin	Function	Pin	Function
1	Vin	50	Vin
2	Vin	49	Vin
3	Vin	48	Vin
4	Vin	47	Vin
5	Reserved	46	Reserved
6	Reserved	45	Reserved
7	Trim	44	No contact
8	VID 0	43	VID 1
9	VID 2	42	VID 3
10	VID 25mV	41	PWRGD
11	OUTEN	40	Ishare
12	Vtt_pwrkd	39	Vtt
13	-Vsense	38	RTN
14	+Vsense	37	RTN
15	Vout	36	Vout
16	RTN	35	RTN
17	Vout	34	Vout
18	RTN	33	RTN
19	Vout	32	Vout
20	RTN	31	RTN
21	Vout	30	Vout
22	RTN	29	RTN
23	Vout	28	Vout
24	RTN	27	RTN
25	Vout	26	Vout

### Notes:

- Mechanical key between pins 17 & 18 and 33 & 34
- If Vtt circuitry is not used, tie Vtt (pin 39) to a voltage of 1.5V or greater.
- Use mating connector Tyco AMP 145432-2 or equivalent

©2003 Bel Fuse Inc. Specifications subject to change without notice. 081903

### CORPORATE

Bel Fuse Inc.  
206 Van Vorst Street  
Jersey City, NJ 07302  
Tel 201-432-0463  
Fax 201-432-9542  
[www.belfuse.com](http://www.belfuse.com)

### FAR EAST

Bel Fuse Ltd.  
8F/ 8 Luk Hop Street  
San Po Kong  
Kowloon, Hong Kong  
Tel 852-2328-5515  
Fax 852-2352-3706  
[www.belfuse.com](http://www.belfuse.com)

### EUROPE

Bel Fuse Europe Ltd.  
Preston Technology Management Centre  
Marsh Lane, Suite G7, Preston  
Lancashire, PR1 8UD, U.K.  
Tel 44-1772-556601  
Fax 44-1772-888366  
[www.belfuse.com](http://www.belfuse.com)