

# NON-ISOLATED DC/DC CONVERTERS

10.3 –13.2V Input / Programmable Output / 120A VRM 10.1



## G7NC-C2A160 PRELIMINARY

- High efficiency means less power dissipation
- Remote on/off
- Wide input range (10.3 – 13.2V)
- 2-Wire Remote sense
- 6 bit VID digital voltage programming.
- Current monitor signal



### Description

The G7NC-C2A Series is a non-isolated step down DC/DC converter providing up to 120A of output current and designed to be compatible to the Intel VRM 10.1 specification. Standard features include current monitor, remote on/off, over current protection, remote sense and a power good signal. 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 source is available. Typical applications include file servers, work stations and other computing applications.

### Part Selection

Output Voltage	Input Voltage	Output Current (Thermal Design)	Output Current (Peak Current)	Typical Efficiency	Model Number
0.83 – 1.6V	12V	105A	120A	TBD%	G7NC-C2160A

### Input Specifications

Parameter	Min	Typ	Max	Notes
Input Voltage Range	10.3 VDC		13.2 VDC	
Input Current (disabled)		17mA		
Input Current (full load)			11A	
Reflected Ripple Current			400mA rms	With 2 330uF, 25mOhm capacitor and 200nH of input inductance.

### Output Specifications

Parameter	Min	Typ	Max	Notes
Output Current	0A		105A 120A	Thermal design Peak current rating
Set Point Accuracy	1.27V	1.28V	1.29V	no load, excluding Adaptive positioning, VID 101101
Adaptive Positioning (Droop Impedance)		0.91 mOhm		
Ripple and Noise		20mV		pk-pk, 0 to 20MHz Bandwidth Full load. Note 3
Turn on Time		8mS	16mS	
Transient Response Deviation Settling Time		TBD TBD		di/dt = 5A/uS Load step =50% of max load.
Remote Sense Compensation			±0.3VDC	
Output Capacitance	TBD uF	8290uF	TBD uF	Consult factory for applications with external capacitance outside of this range

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## General Specifications

Parameter	Specification
Switching Frequency	1.4MHz typical (fixed)
Dimensions	
inches	3.8 x 1.2 x 0.962
mm	96.5 x 30.5 x 24.4
Weight	TBD
Operating Temperature	0°C to 70°C
Non-Operating Temperature	-40°C to 100°C
Protection Features	
Over current	110% to 170% max Io
Undervoltage	UVLO Vin < 10.0V
Remote On/Off	Active High
Efficiency (full load)	
1.3V output	TBD%

## Pin Connections

Row A		Row B	
Pin	Function	Pin	Function
1	VIN-	54	VIN+
2	VIN-	53	VIN+
3	VIN-	52	VIN+
4	VID4	51	VID3
5	VID2	50	VID1
6	VID0	49	VID5
7	VO-sen+	48	VO-sen-
8	PWRGD	47	NC
9	OUTEN	46	LL0
10	Imon	45	LL1
11	NC	44	NC
12	NC	43	NC
13	VO+	42	VO+
14	VO+	41	VO+
15	VO+	40	VO+
16	VO-	39	VO-
17	VO-	38	VO-
18	VO-	37	VO-
19	VO+	36	VO+
20	VO+	35	VO+
21	VO+	34	VO+
22	VO-	33	VO-
23	VO-	32	VO-
24	VO-	31	VO-
25	VO+	30	VO+
26	VO+	29	VO+
27	VO+	28	VO+

### Notes:

1. Mechanical key between pins 3 & 4, 12 & 13, 21 & 22, 33 & 34, 42 & 43, and 51 & 52
2. Contact factory for recommended mating connector.
3. Measured with 14 X 560u 7mOhm ESR Al Poly and 45 X 10u 10mOHm ESR ceramic capacitors on output.

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### 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)

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## Voltage Identification (VID) Code

VID4	VID3	VID2	VID1	VID0	VID5	Vo (VDC)
0	1	0	1	0	0	0.8375
0	1	0	0	1	1	0.85
0	1	0	0	1	0	0.8625
0	1	0	0	0	1	0.875
0	1	0	0	0	0	0.8875
0	0	1	1	1	1	0.9
0	0	1	1	1	0	0.9125
0	0	1	1	0	1	0.925
0	0	1	1	0	0	0.9375
0	0	1	0	1	1	0.95
0	0	1	0	1	0	0.9625
0	0	1	0	0	1	0.975
0	0	1	0	0	0	0.9875
0	0	0	1	1	1	1
0	0	0	1	1	0	1.0125
0	0	0	1	0	1	1.025
0	0	0	1	0	0	1.0375
0	0	0	0	1	1	1.05
0	0	0	0	1	0	1.0625
0	0	0	0	0	1	1.075
0	0	0	0	0	0	1.0875
1	1	1	1	1	1	Output Off
1	1	1	1	1	0	Output Off
1	1	1	1	0	1	1.1
1	1	1	1	0	0	1.1125
1	1	1	0	1	1	1.125
1	1	1	0	1	0	1.1375
1	1	1	0	0	1	1.15
1	1	1	0	0	0	1.1625
1	1	0	1	1	1	1.175
1	1	0	1	1	0	1.1875
1	1	0	1	0	1	1.2
1	1	0	1	0	0	1.2125
1	1	0	0	1	1	1.225
1	1	0	0	1	0	1.2375
1	1	0	0	0	1	1.25
1	1	0	0	0	0	1.2625
1	0	1	1	1	1	1.275
1	0	1	1	1	0	1.2875
1	0	1	1	0	1	1.3
1	0	1	1	0	0	1.3125
1	0	1	0	1	1	1.325
1	0	1	0	1	0	1.3375
1	0	1	0	0	1	1.35
1	0	1	0	0	0	1.3625
1	0	0	1	1	1	1.375
1	0	0	1	1	0	1.3875
1	0	0	1	0	1	1.4
1	0	0	1	0	0	1.4125
1	0	0	0	1	1	1.425
1	0	0	0	1	0	1.4375
1	0	0	0	0	1	1.45
1	0	0	0	0	0	1.4625
0	1	1	1	1	1	1.475
0	1	1	1	1	0	1.4875
0	1	1	1	0	1	1.5
0	1	1	1	0	0	1.5125
0	1	1	0	1	1	1.525
0	1	1	0	1	0	1.5375
0	1	1	0	0	1	1.55
0	1	1	0	0	0	1.5625
0	1	0	1	1	1	1.575
0	1	0	1	1	0	1.5875
0	1	0	1	0	1	1.6