

G200E Series

Low Cost, 2W Compact MiniDIP DC/DC Converters



Key Features:

- 2W Output Power
- Compact Mini-DIP Case
- UL Approved (File E245422)
- Single & Dual Outputs
- 1,000 VDC Isolation
- >3.5 MHour MTBF
- 24 Standard Models
- **LOW COST**



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Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range	5 VDC Input	4.5	5.0	5.5	VDC
	12 VDC Input	10.8	12.0	13.2	
	24 VDC Input	21.6	24.0	26.4	
Input Filter	Internal Capacitor				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±2.5		%
Output Voltage Balance	Dual Output, Balanced Loads		±1.0		%
Line Regulation	For VIN Change of 1%		±1.2		%
Load Regulation	See Model Selection Guide				
Ripple & Noise (20 MHz)	Single Output Models		75	100	mV P - P
	Dual Output Models		50	75	
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Momentary (1.0 Sec.)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,000			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		60		pF
Switching Frequency			75		kHz

EMI Characteristics, See Note 3

Parameter	Conditions	Min.	Typ.	Max.	Units
Conducted Emissions	EN 55022				Class B
ESD	EN 61000-4-2				Criteria B; ±8 kV Contact

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40		+85	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	0.787 x 0.394 x 0.323 Inches (20.0 x 10.0 x 8.2 mm)				
Case Material	Non-Conductive Black Plastic (UL94-V0)				
Weight	0.07 Oz (2.1g)				

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	3.5			MHours
Safety Standards	UL 1950, EN 60950				

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	5 VDC Input	-0.7		9.0	VDC
	12 VDC Input	-0.7		18.0	
	24 VDC Input	-0.7		30.0	
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C

Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

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Model Number	Input				Output			Load Regulation		Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)	% Typ.	% Max.		
	Nominal	Range	Full-Load	No-Load							
G201E	5	4.5 - 5.5	494	46	5.0	400.0	40.0	10.5	15	81	1,000
G202E	5	4.5 - 5.5	488	32	9.0	222.0	23.0	8.3	15	84	1,000
G203E	5	4.5 - 5.5	476	31	12.0	167.0	17.0	6.8	15	83	1,000
G204E	5	4.5 - 5.5	476	30	15.0	133.0	14.0	6.3	15	84	1,000
G205E	5	4.5 - 5.5	488	31	±5.0	±200.0	±20.0	±10.5	15	82	1,000
G206E	5	4.5 - 5.5	482	35	±9.0	±111.0	±12.0	±8.3	15	85	1,000
G207E	5	4.5 - 5.5	470	40	±12.0	±83.0	±9.0	±6.8	15	86	1,000
G208E	5	4.5 - 5.5	470	35	±15.0	±67.0	±7.0	±6.3	15	82	1,000
G211E	12	10.8 - 13.2	201	17	5.0	400.0	40.0	10.5	15	81	500
G212E	12	10.8 - 13.2	196	21	9.0	222.0	23.0	8.3	15	82	500
G213E	12	10.8 - 13.2	198	16	12.0	167.0	17.0	6.8	15	85	500
G214E	12	10.8 - 13.2	197	20	15.0	133.0	14.0	6.3	15	82	500
G215E	12	10.8 - 13.2	194	17	±5.0	±200.0	±20.0	±10.5	15	81	500
G216E	12	10.8 - 13.2	186	18	±9.0	±111.0	±12.0	±8.3	15	84	500
G217E	12	10.8 - 13.2	190	17	±12.0	±83.0	±9.0	±6.8	15	86	500
G218E	12	10.8 - 13.2	195	16	±15.0	±67.0	±7.0	±6.3	15	82	500
G221E	24	21.6 - 26.4	54	7	5.0	400.0	40.0	10.5	15	80	250
G222E	24	21.6 - 26.4	97	9	9.0	222.0	23.0	8.3	15	83	250
G223E	24	21.6 - 26.4	95	7	12.0	167.0	17.0	6.8	15	84	250
G224E	24	21.6 - 26.4	95	8	15.0	133.0	14.0	6.3	15	84	250
G225E	24	21.6 - 26.4	103	8	±5.0	±200.0	±20.0	±10.5	15	80	250
G226E	24	21.6 - 26.4	96	8	±9.0	±111.0	±12.0	±8.3	15	84	250
G227E	24	21.6 - 26.4	95	8	±12.0	±83.0	±9.0	±6.8	15	84	250
G228E	24	21.6 - 26.4	98	9	±15.0	±67.0	±7.0	±6.3	15	84	250

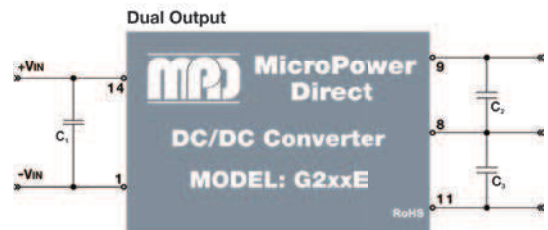
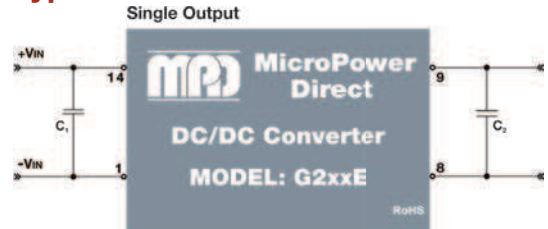
Notes:

- Output load regulation is specified for a load change of 10% to 100%.
- Operation at no load will not damage the units, but they may not meet all specifications. Recommended minimum load is given in the Model Selection Table above.
- These converters will operate without external components. However, to meet the specified EMI limits, a simple external circuit is required. See the typical connection note at right for more information.
- Output power should be derated linearly from 100% at 85°C to 0% at 105°C.
- It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

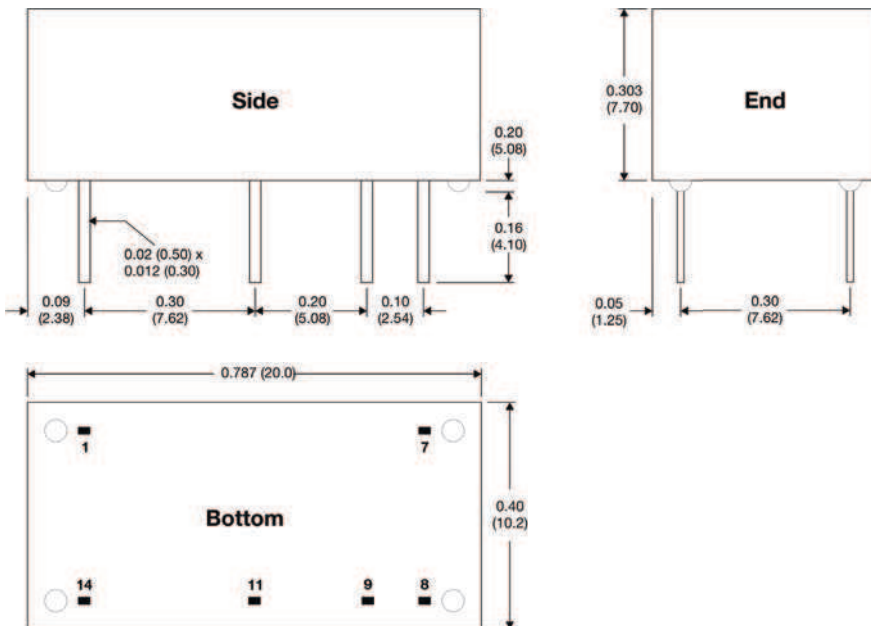
Pin Connections

Pin	Single	Dual	Pin	Single	Dual
1	-Vin	-Vin	9	+Vout	+Vout
7	NC	NC	11	No Pin	-Vout
8	-Vout	Common	14	+Vin	+Vin

Typical Connection



Mechanical Dimensions



These converters will operate without external components. However, to further decrease input/output ripple, the simple circuit shown above is recommended.

Vin	Input Capacitor	Vout	Output Capacitors	
			Single	Dual
5 VDC	4.7 μF	5 VDC	10.0 μF	4.7 μF
12 VDC	2.2 μF	9 VDC	4.7 μF	2.2 μF
24 VDC	1.0 μF	12 VDC	2.2 μF	1.0 μF
		15 VDC	1.0 μF	0.47 μF

The table above gives the recommended values. Capacitors should be mounted as close to the converter as possible. For applications requiring very low output noise levels, a simple LC filter should be effective.

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" or indentation on the top of the unit