



MicroPower Direct



Compact MiniDIP, 2W
Single & Dual Output
DC/DC Converters
G200 Series

Key Features

- Miniature DIP Package
- 2W Output Power
- 3.6 MH MTBF
- 1.0 kVDC Isolation
- Single & Dual Outputs
- Low Cost

Electrical Specifications

Specifications typical @ +25°C with 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 | |
| | 48 VDC Input | 43.2 | 48.0 | 52.8 | |
| Input Filter | Internal Capacitor | | | | |
| Reverse Polarity Input Current | | | | 0.3 | A |

Output

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-------------------------|------------------------------|------|-------|-------|----------|
| Output Voltage Accuracy | | | ±1.0 | ±3.0 | % |
| Output Voltage Balance | Dual Output , Balanced Loads | | ±0.1 | ±1.0 | % |
| Line Regulation | For Vin Change of 1% | | ±1.2 | ±1.5 | % |
| Load Regulation | See Model Selection Guide | | | | |
| Ripple & Noise (20 MHz) | | | 100 | 150 | mV P - P |
| Ripple & Noise (20 MHz) | Over Line, Load & Temp. | | | 200 | mV P - P |
| Ripple & Noise (20 MHz) | | | | 5 | mV rms |
| Output Power Protection | | 120 | | | % |
| Temperature Coefficient | | | ±0.01 | ±0.02 | %/1C |
| Output Short Circuit | Momentary (0.5 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 | | 80 | 120 | pF |
| Switching Frequency | | 50 | 80 | 100 | kHz |

Environmental

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------------|---------------------|------|------|------|-------|
| Operating Temperature Range | | -40 | +25 | +70 | 1C |
| Storage Temperature Range | | -40 | | +125 | 1C |
| Cooling | Free Air Convection | | | | |
| Humidity | RH, Non-condensing | | | 95 | % |

Physical

| | |
|---------------------------------------|---|
| Case Size, 5V, 12V & 24V Input Models | 0.80 x 0.40 x 0.27 Inches (20.32 x 10.16 x 6.85 mm) |
| Case Size, 48VDC Input Models | 0.80 x 0.40 x 0.30 Inches (20.32 x 10.16 x 7.50 mm) |
| Case Material | Non-Conductive Black Plastic |
| Weight | 0.09 Oz (2.7g) |

Reliability Specifications

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------|---------------------------------|------|------|------|--------|
| MTBF | MIL HDBK 217F, 251C, Gnd Benign | | 3.6 | | MHours |

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 | |
| | 48 VDC Input | -0.7 | | 55.0 | |
| Internal Power Dissipation | All Models | | | 650 | mW |

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

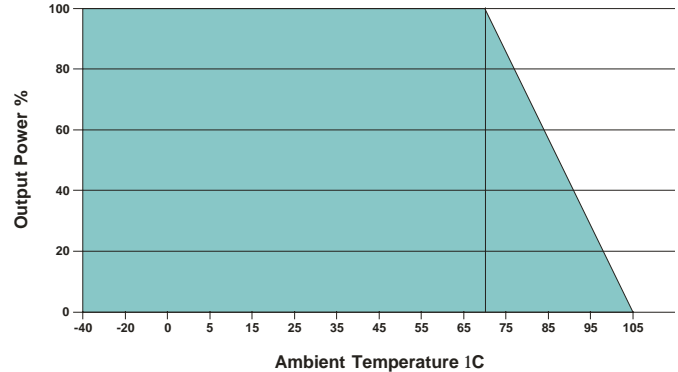
Model Selection Guide

| Model Number | Input | | | | Output | | | Load Regulation (% Max) | Efficiency (% Typ) | Fuse Rating Slow-Blow (mA) |
|--------------|---------------|-------------|--------------|---------|---------------|-------------------|-------------------|-------------------------|--------------------|----------------------------|
| | Voltage (VDC) | | Current (mA) | | Voltage (VDC) | Current (mA, Max) | Current (mA, Min) | | | |
| | Nominal | Range | Full-Load | No-Load | | | | | | |
| G201 | 5 | 4.5 - 5.5 | 452 | 35 | 3.3 | 500.0 | 10.0 | 11 | 73 | 1,000 |
| G202 | 5 | 4.5 - 5.5 | 526 | 35 | 5.0 | 400.0 | 8.0 | 11 | 76 | 1,000 |
| G203 | 5 | 4.5 - 5.5 | 495 | 35 | 12.0 | 165.0 | 3.0 | 7 | 80 | 1,000 |
| G204 | 5 | 4.5 - 5.5 | 499 | 35 | 15.0 | 133.0 | 2.5 | 7 | 80 | 1,000 |
| G205 | 5 | 4.5 - 5.5 | 519 | 35 | ±5.0 | ±200.0 | ±4.0 | 10 | 77 | 1,000 |
| G206 | 5 | 4.5 - 5.5 | 504 | 35 | ±12.0 | ±83.0 | ±1.5 | 7 | 79 | 1,000 |
| G207 | 5 | 4.5 - 5.5 | 501 | 35 | ±15.0 | ±66.0 | ±1.0 | 7 | 79 | 1,000 |
| G211 | 12 | 10.8 - 13.2 | 185 | 25 | 3.3 | 500.0 | 10.0 | 8 | 74 | 500 |
| G212 | 12 | 10.8 - 13.2 | 212 | 25 | 5.0 | 400.0 | 8.0 | 8 | 78 | 500 |
| G213 | 12 | 10.8 - 13.2 | 200 | 25 | 12.0 | 165.0 | 3.0 | 5 | 82 | 500 |
| G214 | 12 | 10.8 - 13.2 | 200 | 25 | 15.0 | 133.0 | 2.5 | 5 | 83 | 500 |
| G215 | 12 | 10.8 - 13.2 | 222 | 25 | ±5.0 | ±200.0 | ±4.0 | 8 | 75 | 500 |
| G216 | 12 | 10.8 - 13.2 | 201 | 25 | ±12.0 | ±83.0 | ±1.5 | 5 | 82 | 500 |
| G217 | 12 | 10.8 - 13.2 | 200 | 25 | ±15.0 | ±66.0 | ±1.0 | 5 | 82 | 500 |
| G221 | 24 | 21.6 - 26.4 | 92 | 10 | 3.3 | 500.0 | 10.0 | 8 | 74 | 200 |
| G222 | 24 | 21.6 - 26.4 | 108 | 10 | 5.0 | 400.0 | 8.0 | 8 | 77 | 200 |
| G223 | 24 | 21.6 - 26.4 | 101 | 10 | 12.0 | 165.0 | 3.0 | 5 | 81 | 200 |
| G224 | 24 | 21.6 - 26.4 | 101 | 10 | 15.0 | 133.0 | 2.5 | 5 | 82 | 200 |
| G225 | 24 | 21.6 - 26.4 | 111 | 10 | ±5.0 | ±200.0 | ±4.0 | 8 | 75 | 200 |
| G226 | 24 | 21.6 - 26.4 | 102 | 10 | ±12.0 | ±83.0 | ±1.5 | 5 | 81 | 200 |
| G227 | 24 | 21.6 - 26.4 | 100 | 10 | ±15.0 | ±66.0 | ±1.0 | 5 | 82 | 200 |
| G231 | 48 | 43.2 - 54.8 | 28 | 6 | 3.3 | 500.0 | 10.0 | 8 | 74 | 100 |
| G232 | 48 | 43.2 - 54.8 | 27 | 6 | 5.0 | 400.0 | 8.0 | 8 | 77 | 100 |
| G233 | 48 | 43.2 - 54.8 | 26 | 6 | 12.0 | 165.0 | 3.0 | 5 | 81 | 100 |
| G234 | 48 | 43.2 - 54.8 | 25 | 6 | 15.0 | 133.0 | 2.5 | 5 | 82 | 100 |
| G235 | 48 | 43.2 - 54.8 | 28 | 6 | ±5.0 | ±200.0 | ±4.0 | 8 | 75 | 100 |
| G236 | 48 | 43.2 - 54.8 | 26 | 6 | ±12.0 | ±83.0 | ±1.5 | 5 | 81 | 100 |
| G237 | 48 | 43.2 - 54.8 | 25 | 6 | ±15.0 | ±66.0 | ±1.0 | 5 | 82 | 100 |

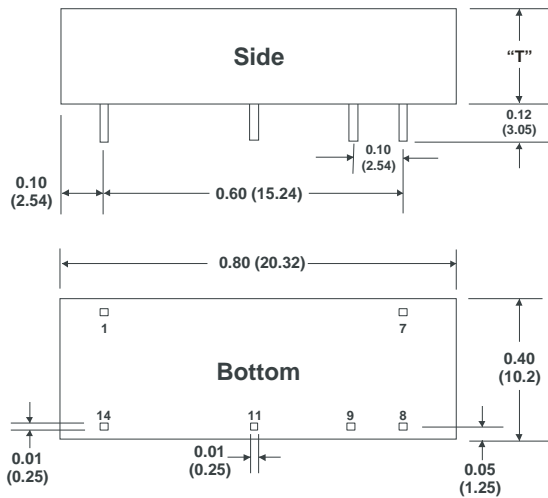
Notes:

- Dual output units may be connected to provide a 10V, 24V or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.
- These units do not require external components to operate, but the use of an input capacitor (10 µF) may enhance performance in some applications. An output capacitor (4.7 µF to 10 µF) may be used to reduce ripple.

Derating Curve



Mechanical Dimensions



Note: "T" = 0.27 (6.85) For 5, 12 & 24 VDC Input Models
0.30 (7.50) For 48 VDC Input Models

Pin Connections

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

NC = No Connection

Capacitive Load

| Single Output µF Max | Dual Output µF Max |
|----------------------|--------------------|
| 470 | ±390 |

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



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