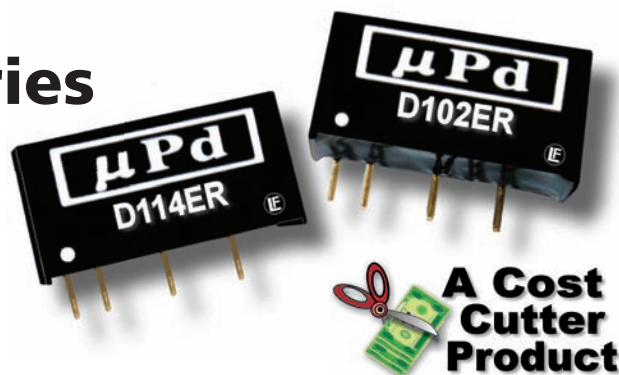


D100ER Series

Low Cost, 1W SIP Tightly Regulated DC/DC Converters



Key Features:

- 1W Output Power
- Tightly Regulated
- Single & Dual Outputs
- Miniature SIP Case
- 1,000 VDC Isolation
- >3.5 MHour MTBF
- 24 Standard Models
- Industry Standard Pin-Out
- LOWEST COST!!



RoHS Compliant

MicroPower Direct

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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 | 4.75 | 5.0 | 5.25 | VDC |
| | 12 VDC Input | 11.4 | 12.0 | 12.6 | |
| | 24 VDC Input | 22.8 | 24.0 | 25.2 | |
| Input Filter | Internal Capacitor | | | | |
| Reverse Polarity Input Current | | | | 0.3 | A |

Output

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|----------------------------------|------------------------------|------|------|-------|----------|
| Output Voltage Accuracy | | | | ±3.0 | % |
| Output Voltage Balance | Dual Output , Balanced Loads | | ±0.1 | ±1.0 | % |
| Line Regulation | For Vin Min to Max | | | ±0.25 | % |
| Load Regulation (Note 1) | For Iout = 10% to 100% | | | ±1.0 | % |
| Ripple & Noise (20 MHz) (Note 3) | | | 10 | 20 | mV P - P |
| Output Power Protection | | 120 | | | % |
| 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 | | | 100 | | kHz |

Environmental

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------------|---------------------|------|------|------|-------|
| Operating Temperature Range | Ambient | -40 | +25 | +85 | °C |
| Operating Temperature Range | Case | -40 | | +90 | °C |
| Storage Temperature Range | | -55 | | +125 | °C |
| Cooling | Free Air Convection | | | | |
| Humidity | RH, Non-condensing | | | 95 | % |

Physical

| | |
|---------------------------|--|
| Case Size (Single Output) | 0.77 x 0.24 x 0.40 Inches (19.6 x 6.0 x 10.2 mm) |
| Case Size (Dual Output) | 1.08 x 0.37 x 0.47 Inches (27.5 x 9.5 x 12.0 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 |

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 |
| Internal Power Dissipation | All Models | | | 450 | mW |

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

Model Selection Guide

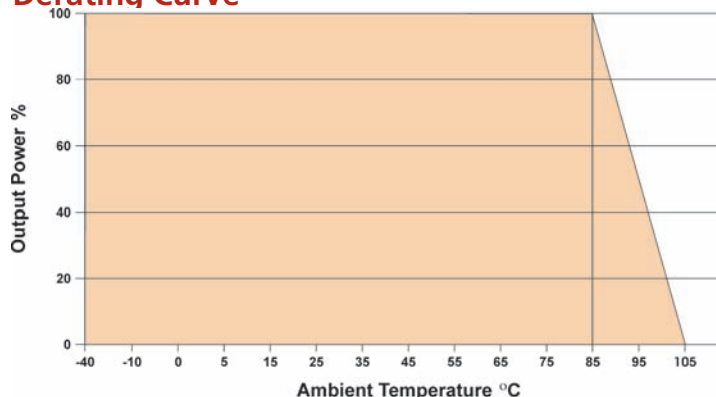
| Model Number | Input | | | | Output | | | Efficiency (% Typ) | Fuse Rating Slow-Blow (mA) |
|--------------|---------------|-------------|--------------|---------|---------------|-------------------|-------------------|--------------------|----------------------------|
| | Voltage (VDC) | | Current (mA) | | Voltage (VDC) | Current (mA, Max) | Current (mA, Min) | | |
| | Nominal | Range | Full-Load | No-Load | | | | | |
| D101ER | 5 | 4.75 - 5.25 | 294 | 30 | 5.0 | 200.0 | 20.0 | 68 | 500 |
| D102ER | 5 | 4.75 - 5.25 | 286 | 30 | 9.0 | 111.0 | 12.0 | 70 | 500 |
| D103ER | 5 | 4.75 - 5.25 | 282 | 30 | 12.0 | 83.0 | 9.0 | 71 | 500 |
| D104ER | 5 | 4.75 - 5.25 | 278 | 30 | 15.0 | 67.0 | 7.0 | 72 | 500 |
| D105ER | 5 | 4.75 - 5.25 | 290 | 30 | ±5.0 | ±100.0 | ±10.0 | 69 | 500 |
| D106ER | 5 | 4.75 - 5.25 | 286 | 30 | ±9.0 | ±56.0 | ±6.0 | 70 | 500 |
| D107ER | 5 | 4.75 - 5.25 | 278 | 30 | ±12.0 | ±42.0 | ±5.0 | 72 | 500 |
| D108ER | 5 | 4.75 - 5.25 | 278 | 30 | ±15.0 | ±33.0 | ±4.0 | 72 | 500 |
| D111ER | 12 | 11.4 - 12.6 | 121 | 15 | 5.0 | 150.0 | 15.0 | 69 | 200 |
| D112ER | 12 | 11.4 - 12.6 | 117 | 15 | 9.0 | 111.0 | 12.0 | 71 | 200 |
| D113ER | 12 | 11.4 - 12.6 | 116 | 15 | 12.0 | 83.0 | 9.0 | 72 | 200 |
| D114ER | 12 | 11.4 - 12.6 | 116 | 15 | 15.0 | 67.0 | 7.0 | 72 | 200 |
| D115ER | 12 | 11.4 - 12.6 | 119 | 15 | ±5.0 | ±100.0 | ±10.0 | 70 | 200 |
| D116ER | 12 | 11.4 - 12.6 | 116 | 15 | ±9.0 | ±56.0 | ±6.0 | 72 | 200 |
| D117ER | 12 | 11.4 - 12.6 | 114 | 15 | ±12.0 | ±42.0 | ±5.0 | 73 | 200 |
| D118ER | 12 | 11.4 - 12.6 | 114 | 15 | ±15.0 | ±33.0 | ±4.0 | 73 | 200 |
| D121ER | 24 | 22.8 - 25.2 | 59 | 8 | 5.0 | 150.0 | 15.0 | 70 | 100 |
| D122ER | 24 | 22.8 - 25.2 | 58 | 8 | 9.0 | 111.0 | 12.0 | 72 | 100 |
| D123ER | 24 | 22.8 - 25.2 | 57 | 8 | 12.0 | 83.0 | 9.0 | 73 | 100 |
| D124ER | 24 | 22.8 - 25.2 | 57 | 8 | 15.0 | 67.0 | 7.0 | 73 | 100 |
| D125ER | 24 | 22.8 - 25.2 | 58 | 8 | ±5.0 | ±100.0 | ±10.0 | 72 | 100 |
| D126ER | 24 | 22.8 - 25.2 | 58 | 8 | ±9.0 | ±56.0 | ±6.0 | 72 | 100 |
| D127ER | 24 | 22.8 - 25.2 | 57 | 8 | ±12.0 | ±42.0 | ±5.0 | 73 | 100 |
| D128ER | 24 | 22.8 - 25.2 | 57 | 8 | ±15.0 | ±33.0 | ±4.0 | 73 | 100 |

Notes:

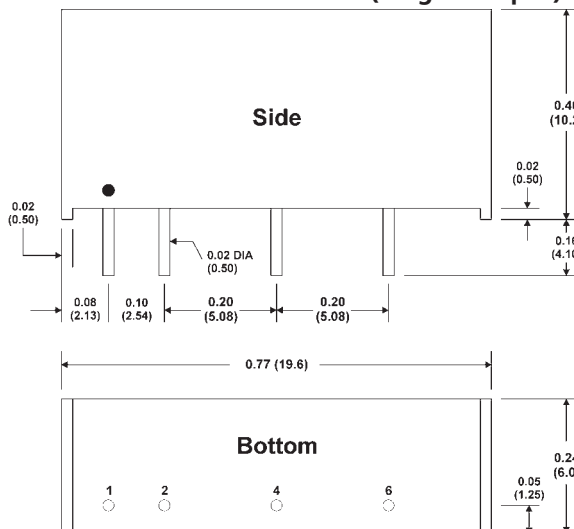
- Output load regulation is specified for a load change of 10% to 100%.
- These units should not be operated with a load under 10% of full load. Operation at no-load may cause damage to the unit.
- These converters will operate without external components. However, when measuring output ripple, it is recommended that an external ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units. An input capacitor will enhance stability over temperature and input line variations. Recommended capacitor values are given in the table at right. For applications requiring very low output noise levels, a simple LC filter should be effective.
- 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.

| Vin | Input Capacitor | Vout | Output Capacitor Single | Dual |
|--------|-----------------|--------|-------------------------|--------------|
| 5 VDC | 4.7 μ F | 5 VDC | 10.0 μ F | 4.7 μ F |
| 12 VDC | 2.2 μ F | 9 VDC | 4.7 μ F | 2.2 μ F |
| 24 VDC | 1.0 μ F | 12 VDC | 2.2 μ F | 1.0 μ F |
| | | 15 VDC | 1.0 μ F | 0.47 μ F |

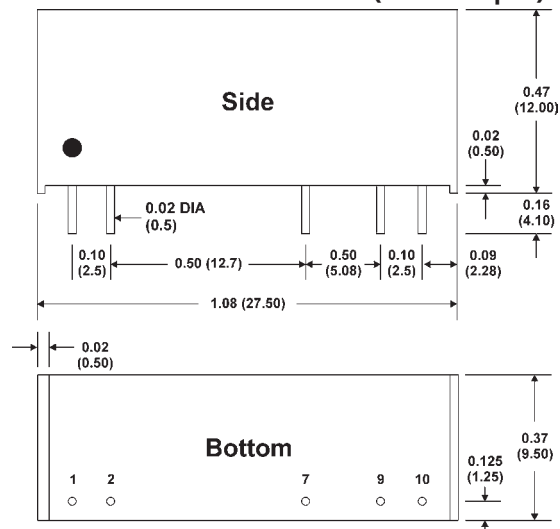
Derating Curve



Mechanical Dimensions (Single Output)



Mechanical Dimensions (Dual Output)



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 side of the unit.



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