

A100ERU Series

Single & Dual Output, 1.5W Ultra-Wide Input Range DC/DC Converters



Key Features:

- 1.5W Output Power
- 4:1 Input Voltage Range
- 1,500 VDC Isolation
- -40°C to +85°C Temp Range
- Compact DIP Case
- Single & Dual Outputs
- 1.0 MH MTBF
- Industry Standard Pin-Out
- **Low, Low Cost!**



RoHS



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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, See Note 1 | 24 VDC Input | 9.0 | 24.0 | 36.0 | VDC |
| | 48 VDC Input | 18.0 | 48.0 | 72.0 | |
| Input Filter | Capacitors | | | | |
| Short Circuit Input Power | | | 1,000 | | mW |

Output

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-------------------------|------------------------------|------|------|-------|----------|
| Output Voltage Accuracy | | | ±1.0 | ±3.0 | % |
| Output Voltage Balance | Dual Output , Balanced Loads | | ±3.0 | | % |
| Line Regulation | Vin = Min to Max | | ±0.2 | ±0.75 | % |
| Load Regulation | Iout = 10% to 100% | | ±0.5 | ±2.0 | % |
| Noise (20 Hz - 300 kHz) | See Note 2 | | 50 | 100 | mV P - P |
| Ripple (DC - 20 MHz) | | | | 50 | mV P - P |
| Output Power Protection | | 120 | | | % |
| Temperature Coefficient | | | | ±0.03 | %/°C |
| Output Short Circuit | Continuous (Autorecovery) | | | | |

General

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------|------------|-------|------|------|-------|
| Isolation Voltage | 60 Seconds | 1,500 | | | VDC |
| Isolation Resistance | 500 VDC | 1,000 | | | MΩ |
| Isolation Capacitance | | | 100 | | pF |
| Switching Frequency | | | | 550 | kHz |

Environmental

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------------|---------------------|------|------|------|-------|
| Operating Temperature Range | Ambient | -40 | | +85 | °C |
| Storage Temperature Range | | -50 | | +125 | °C |
| Cooling | Free Air Convection | | | | |
| Humidity | RH, Non-condensing | | 95 | | % |

Physical

| | | | | | |
|---------------------------|--|--|--|--|--|
| Case Size, See Note 3 | 1.25 x 0.80 x 0.37 Inches (31.8 x 20.3 x 9.5 mm) | | | | |
| Case Material, See Note 3 | Non-Conductive Black Plastic (UL94V-0) | | | | |
| Weight | 0.52 Oz (15g) | | | | |

Reliability Specifications

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------|---------------------------------|------|------|------|--------|
| MTBF | MIL HDBK 217F, 25°C, Gnd Benign | 1.0 | | | MHours |

Absolute Maximum Ratings

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------------|-----------------------------|------|------|-------|-------|
| Input Voltage Surge (1 Sec) | 24 VDC Input | -0.7 | | 50.0 | VDC |
| | 48 VDC Input | -0.7 | | 100.0 | |
| Lead Temperature | 1.5 mm From Case For 10 Sec | | | 300 | °C |
| Internal Power Dissipation | All Models | | | 1,500 | mW |

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

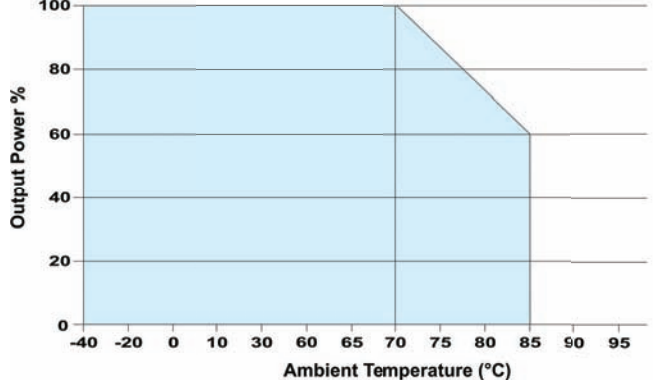
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| Model Number | Input | | | | Output | | | Efficiency (% , Typ) | Fuse Rating Slow-Blow (mA) |
|--------------|---------------|-------------|--------------|---------|---------------|-------------------|-------------------|----------------------|----------------------------|
| | Voltage (VDC) | | Current (mA) | | Voltage (VDC) | Current (mA, Max) | Current (mA, Min) | | |
| | Nominal | Range | Full-Load | No-Load | | | | | |
| A101ERU | 24 | 9.0 - 36.0 | 86 | 20 | 3.3 | 500 | 50.0 | 73 | 200 |
| A102ERU | 24 | 9.0 - 36.0 | 83 | 20 | 5.0 | 300 | 30.0 | 75 | 200 |
| A103ERU | 24 | 9.0 - 36.0 | 80 | 20 | 9.0 | 167 | 17.0 | 78 | 200 |
| A104ERU | 24 | 9.0 - 36.0 | 78 | 20 | 12.0 | 125 | 12.0 | 80 | 200 |
| A105ERU | 24 | 9.0 - 36.0 | 77 | 20 | 15.0 | 100 | 10.0 | 81 | 200 |
| A106ERU | 24 | 9.0 - 36.0 | 85 | 20 | ±5.0 | ±150 | ±15.0 | 73 | 200 |
| A107ERU | 24 | 9.0 - 36.0 | 80 | 20 | ±12.0 | ±63 | ±6.0 | 78 | 200 |
| A108ERU | 24 | 9.0 - 36.0 | 79 | 20 | ±15.0 | ±50 | ±5.0 | 79 | 200 |
| A111ERU | 48 | 18.0 - 72.0 | 43 | 10 | 3.3 | 500 | 50.0 | 72 | 150 |
| A112ERU | 48 | 18.0 - 72.0 | 42 | 10 | 5.0 | 300 | 30.0 | 74 | 150 |
| A113ERU | 48 | 18.0 - 72.0 | 40 | 10 | 5.0 | 167 | 17.0 | 77 | 150 |
| A114ERU | 48 | 18.0 - 72.0 | 39 | 10 | 12.0 | 125 | 12.0 | 79 | 150 |
| A115ERU | 48 | 18.0 - 72.0 | 39 | 10 | 15.0 | 100 | 10.0 | 80 | 150 |
| A116ERU | 48 | 18.0 - 72.0 | 43 | 10 | ±5.0 | ±150 | ±15.0 | 72 | 150 |
| A117ERU | 48 | 18.0 - 72.0 | 40 | 10 | ±12.0 | ±63 | ±6.0 | 77 | 150 |
| A118ERU | 48 | 18.0 - 72.0 | 40 | 10 | ±15.0 | ±50 | ±5.0 | 78 | 150 |

For models with a metal case, add an "M" to the model number (ie: A115ERUM)

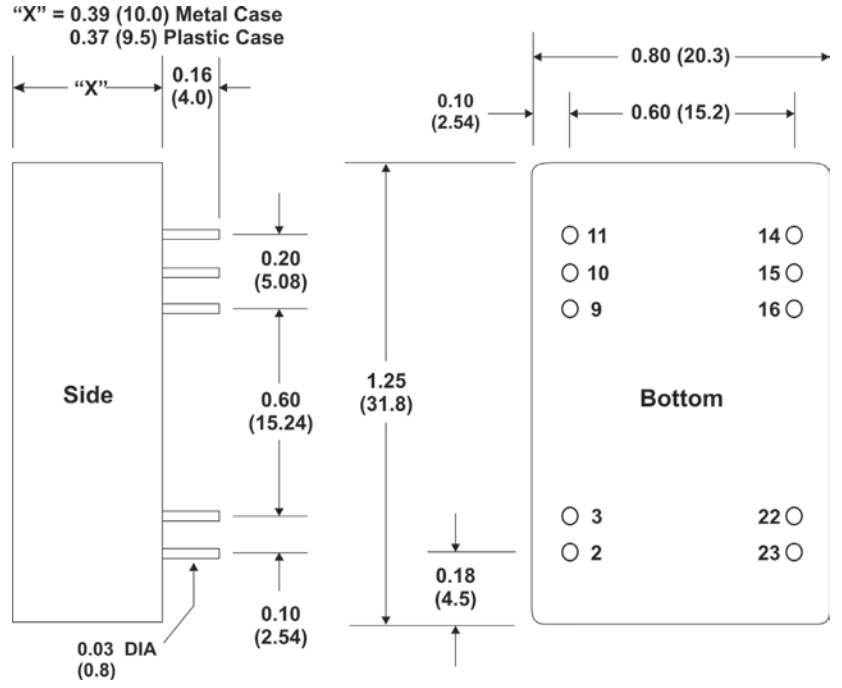
- Notes:**
- Exceeding the input range by a significant margin may damage the units. For 24V input the input voltage should not exceed 40V; for 48V models it should not exceed 80V.
 - When measuring output ripple, it is recommended that an external 0.33 μF ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units.
 - The optional metal package is nickel plated steel. Dimensions are 1.25 x 0.80 x 0.39 Inches (31.8 x 20.3 x 10.0 mm).
 - These units should not be operated with a load under the specified minimum. Operation at no-load will increase ripple significantly and may cause damage to the unit.
 - These converters are specified for operation without external components. However, in some applications the addition of input/output capacitors will enhance stability and reduce output ripple. Recommended capacitor values are:

Derating Curve



| Vin (VDC) | Input Capacitor | Vout (VDC) | Output Capacitor | |
|-----------|-----------------|------------|---------------------------|-------------------------|
| | | | 0 to +70°C (Electrolytic) | -40 to +85°C (Tantalum) |
| 24 | Sing 10 μF | 3.3 | 100 μF | 47 μF |
| | Dual 10 ~ 47 μF | 5 | 100 μF | 47 μF |
| 48 | Sing 10 μF | 12 | 100 μF | 47 μF |
| | Dual 10 ~ 47 μF | 15 | 100 μF | 47 μF |

Mechanical Dimensions



Pin Connections

| Pin | Single | Dual |
|--------|--------|--------|
| 2, 3 | -Vin | -Vin |
| 9 | No Pin | Common |
| 10 | NC | NC |
| 11 | NC | -Vout |
| 14 | +Vout | +Vout |
| 15 | NC | NC |
| 16 | -Vout | Common |
| 22, 23 | +Vin | +Vin |

NC: No Connection

Mechanical Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)