

# A100UHI Series

## Ultra High Isolation, 1W Single & Dual Output DC/DC Converters



### Key Features:

- 1W Output Power
- 12,000 VDC Isolation
- Short Circuit Protection
- High Efficiency
- Compact DIP Case
- Single & Dual Outputs
- Meets EN55022
- 1.0 MH MTBF

### 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 |                    | 10.8 | 12.0 | 13.2 | VDC   |
| Input Filter        | Internal Capacitor |      |      |      |       |

#### Output

| Parameter               | Conditions                | Min. | Typ. | Max.  | Units    |
|-------------------------|---------------------------|------|------|-------|----------|
| Output Voltage Accuracy |                           |      | ±2.5 |       | %        |
| Line Regulation         | For Vin Change of 1%      |      |      | ±1.2  | %        |
| Load Regulation         | Iout = 10% to 100%        |      |      | ±15.0 | %        |
| Ripple & Noise (20 MHz) | See Note 1                |      |      | 100   | mV P - P |
| Maximum Capacitive Load | A102UHI                   |      |      | 100   | μF       |
|                         | A105UHI                   |      |      | ±100  |          |
| Temperature Coefficient |                           |      |      | ±0.03 | %/°C     |
| Output Short Circuit    | Continuous (Autorecovery) |      |      |       |          |

#### General

| Parameter                  | Conditions                                 | Min.                           | Typ. | Max. | Units |
|----------------------------|--|--------------------------------|------|------|-------|
| Isolation Voltage, Rated   | 60 Seconds                                 | 12,000                         |      |      | VDC   |
| Isolation Resistance       | 500 VDC                                    | 1,000                          |      |      | MΩ    |
| Isolation Capacitance      | 100 kHz, 0.1V                              |                                |      | 5    | pF    |
| EMI/RFI, See Note 2        | Conducted                                  | CISPR22/EN 55022 Level B       |      |      |       |
|                            | Radiated                                   | CISPR22/EN 55022 Level B       |      |      |       |
| EMC Compliance, See Note 2 | Electrostatic Discharge (ESD)              | EN 61000-4-2 Level B 8 kV/6 kV |      |      |       |
|                            | RF Field Susceptibility                    | EN 61000-4-3 Level A 10V/m     |      |      |       |
|                            | Electrical Fast Transients/Bursts On Mains | EN 61000-4-4 Level B 2 kV      |      |      |       |
|                            | Surge                                      | EN 61000-4-5 Level B 1 kV      |      |      |       |
|                            | CS   | EN 61000-4-6 Level A 10V rms   |      |      |       |
|                            | PFM  | EN 61000-4-8 Level A 10A/m     |      |      |       |
|                            | Volt. Dips, Short & Inter. Immunity        | EN 61000-4-29 Level B 0 - 40%  |      |      |       |
| Switching Frequency        |  |                                | 100  |      | kHz   |

#### 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     | 1.475 x 0.906 x 0.591 Inches (37.0 x 23.0 x 15.0 mm) |  |  |  |  |
| Case Material | Non-Conductive Black Plastic (UL94-V0)               |  |  |  |  |
| Weight        | 0.81 Oz (23.0g)                                      |  |  |  |  |

#### Reliability Specifications

| Parameter | Conditions                      | Min.  | Typ. | Max. | Units  |
|-----------|---------------------------------|-------|------|------|--------|
| MTBF      | MIL HDBK 217F, 25°C, Gnd Benign | 1,000 |      |      | kHours |

#### Absolute Maximum Ratings

| Parameter                   | Conditions                  | Min. | Typ. | Max. | Units |
|-----------------------------|-----------------------------|------|------|------|-------|
| Input Voltage Surge (1 Sec) |                             | -0.7 |      | 21.0 | VDC   |
| 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.

RoHS



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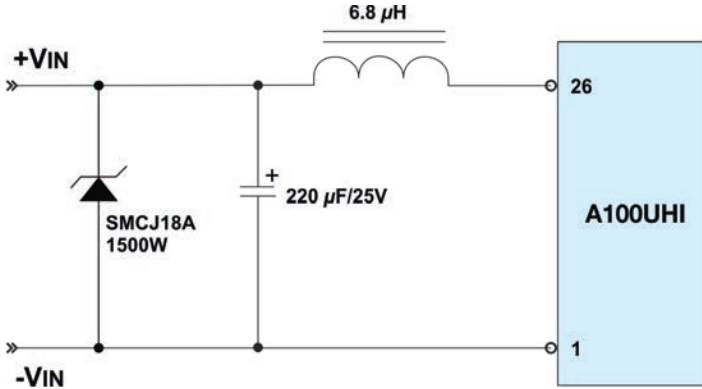


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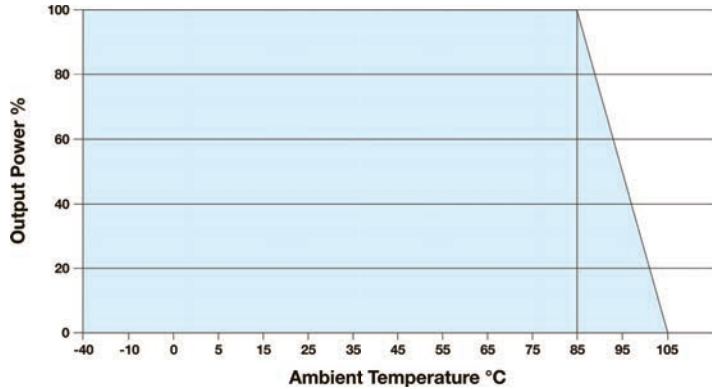
| Model Number | Input         |             |              |         | Output        |                   |                   | Efficiency (% Typ) | Fuse Rating Slow-Blow (mA) |
|--------------|---------------|-------------|--------------|---------|---------------|-------------------|-------------------|--------------------|----------------------------|
|              | Voltage (VDC) |             | Current (mA) |         | Voltage (VDC) | Current (mA, Max) | Current (mA, Min) |                    |                            |
|              | Nominal       | Range       | Full-Load    | No-Load |               |                   |                   |                    |                            |
| A102UHI      | 12            | 10.8 - 13.2 | 106          | 15      | 12.0          | 83                | 9.0               | 78                 | 200                        |
| A105UHI      | 12            | 10.8 - 13.2 | 106          | 15      | ±12.0         | ±41.6             | ±5.0              | 78                 | 200                        |

- Notes:**
- When measuring output ripple, it is recommended that an external 2.2  $\mu$ F 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.
  - To meet the level B requirements of EN 55022, EN 61000-4-4 (EFT) and EN 61000-4-5 (Surge), use the input circuit shown below.
  - Operation at no-load will not damage these units. However, they may not meet all specifications. It is recommended that the minimum levels shown above be used.
  - It is recommended that a fuse be used on the input of a power supply for protection. See the table above for the correct rating.

Input Filter Connection



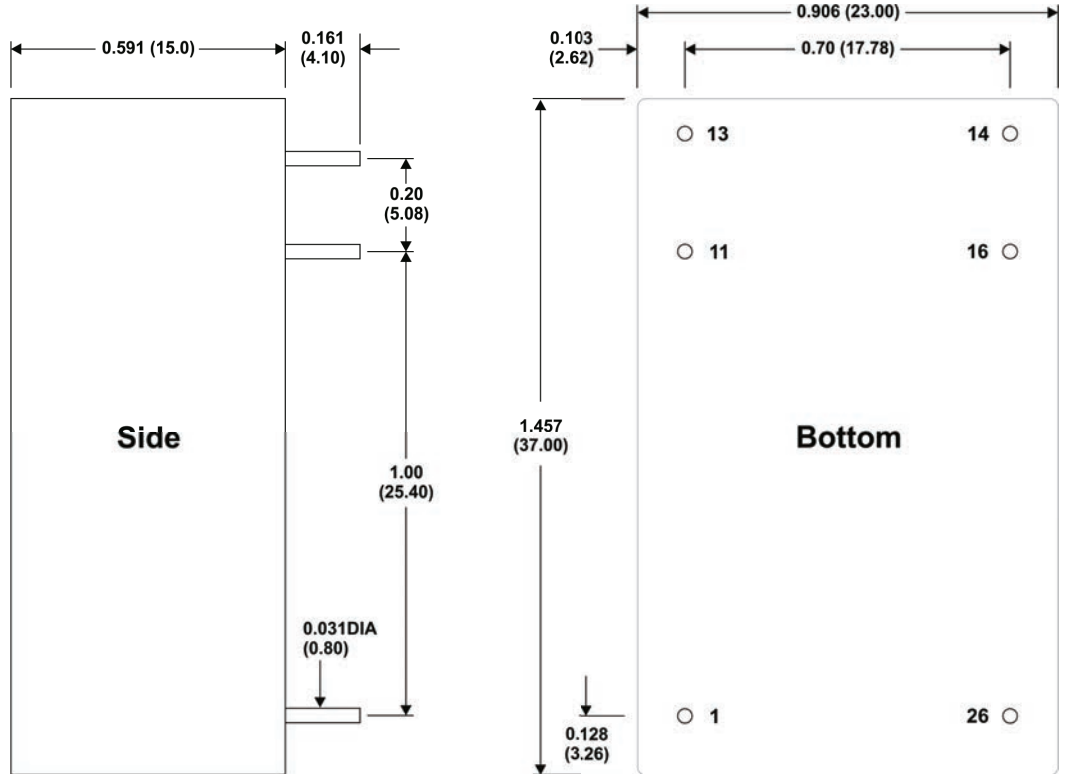
Derating Curve



Mechanical Dimensions

Pin Connections

| Pin | Single | Dual   |
|-----|--------|--------|
| 1   | -Vin   | -Vin   |
| 11  | NC     | -Vout  |
| 13  | -Vout  | Common |
| 14  | -Vout  | Common |
| 16  | +Vout  | +Vout  |
| 26  | +Vin   | +Vin   |



- Mechanical Notes:**
- All dimensions are typical in inches (mm)
  - Tolerance x.xx = ±0.02 (±0.50)



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