MA300RWI Series

Wide 2:1 Input, 3W, High 3 kVDC Isolation DC/DC Converters

Key Features:
- 3W Output Power
- 2:1 Input Voltage Range
- 3,000 VDC Isolation
- 32 Standard Models
- Single & Dual Outputs
- Compact DIP Case
- -40°C to +85°C Operation
- Industry Standard Pin-Out

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
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</thead>
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<tr>
<td>Input Start Voltage</td>
<td>5 VDC Input</td>
<td>4.5</td>
<td></td>
<td></td>
<td>VDC</td>
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<tr>
<td></td>
<td>12 VDC Input</td>
<td>9.0</td>
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<td>VDC</td>
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<td></td>
<td>24 VDC Input</td>
<td>18.0</td>
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<td>VDC</td>
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<td></td>
<td>48 VDC Input</td>
<td>36.0</td>
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<td>VDC</td>
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<td>4.0</td>
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<td>8.5</td>
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<td></td>
<td>24 VDC Input</td>
<td>17.5</td>
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<td>VDC</td>
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<td></td>
<td>48 VDC Input</td>
<td>35.5</td>
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<td>VDC</td>
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</tbody>
</table>

Input Voltage Accuracy: ±2.0 %
Input Voltage Balance: ±2.0 %
Line Regulation: Vin = Min to Max ±0.3 %
Load Regulation: Iout = 0% to 100% ±1.0 %
Ripple & Noise (20 MHz): 70 mV P-P

EMI Characteristics
Radiated Emissions: EN 55022 Class A
Conducted Emissions: EN 55022 Class A
ESD: EN 61000-4-2 Criteria A: ±8 kV Air ±6 kV Contact
RS: EN 61000-4-3 Criteria A: 10 V/m
Surge: See Note 3
EFT: See Note 3
CS: EN 61000-4-6 Criteria A: 10 V/m

Environmental
Operating Temperature Range: Ambient -40°C to +85°C
Operating Temperature Range: Case -40°C to +100°C
Storage Temperature Range: -50°C to +125°C
Cooling: Free Air Convection
Humidity: RH, Non-condensing

Physical
Case Size: 1.25 x 0.80 x 0.40 Inches (31.75 x 20.32 x 10.16 mm)
Case Material: Non-Conductive Black Plastic (UL94-V0)
Weight: 0.45 Oz (12.8g)

Reliability Specifications
MTBF: MIL HDBK 217F, 25°C, Gnd Benign 1.0 MHours

Absolute Maximum Ratings
Input Voltage Surge (1 Sec): 5 VDC Input -0.7 to 11.0 VDC
Input Voltage Surge (1 Sec): 12 VDC Input -0.7 to 25.0 VDC
Input Voltage Surge (1 Sec): 24 VDC Input -0.7 to 50.0 VDC
Input Voltage Surge (1 Sec): 48 VDC Input -0.7 to 100.0 VDC
Lead Temperature: 1.5 mm From Case for 10 Sec 260°C

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

F is recommended, for 12V input units, a 3.3 µF capacitor be mounted close to the converter. For 5V input units a capacitor on the input to insure start-up. In this case, it is recommended that a low inductive impedance may affect the stability of the converter. In applications where the converter output loading is high and input power is supplied over long lines, it may be necessary to use a capacitor on the input to insure start-up. In this case, it is recommended that a low inductive impedance may affect the stability of the converter. In applications where the converter output loading is high and input power is supplied over long lines, it may be necessary to use a capacitor on the input to insure start-up. In this case, it is recommended that a low inductive impedance may affect the stability of the converter.

The table above for the correct rating.

For 1.5 kV Isolation, See MA300-xxRW Series Datasheet
For 4:1 Inputs, See MA300-xxRU Series Datasheet

Notes:
1. When measuring output ripple, it is recommended that an external 3.3 µF ceramic capacitor be placed from the +Vin pin to the -Vin pin for single output units and from each output to common for dual output units.
2. Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
3. Operation at no-load will not damage these units.
4. An external 220 µF/100V capacitor connected across the input pins is required to meet EN61000-4-4 and EN61000-4-5.
5. Dual output units may be connected to provide a 10, 24 or 30 VDC output. To do this, connect the load across the positive (+VOUT) and negative (-VOUT) outputs and float the output common.
6. The converter should be connected to a low ac-impedance source. An input source with a highly inductive impedance may affect the stability of the converter. In applications where the converter output loading is high and input power is supplied over long lines, it may be necessary to use a capacitor on the input to insure start-up. In this case, it is recommended that a low ESR (ESR < 1.032 at 100 kHz) capacitor be mounted close to the converter. For 5V input units a 3.3 µF capacitor is recommended, for 12V input units, a 3.3 µF capacitor, and for 24V & 48V units a 1.5 µF capacitor.
7. 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.