



**FEATURES:**

- RoHS Compliant
- High efficiency up to 89%
- Low ripple and noise
- 7 pin SIP package
- Operating temperature -40°C to +85°C
- Pin compatible with multiple manufacturers
- Input / Output Isolation 1000, 3000 VDC
- Non-Conductive Plastic Case



**Models**  
Single output

| Model            | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Efficiency (%) |
|------------------|-------------------|--------------------|-------------------------|-----------------|--------------------------|----------------|
| AM2D-0505S-RZ    | 4.5-5.5           | 5                  | 400                     | 1000            | 220                      | 81             |
| AM2D-0509S-RZ    | 4.5-5.5           | 9                  | 222                     | 1000            | 220                      | 85             |
| AM2D-0512S-RZ    | 4.5-5.5           | 12                 | 167                     | 1000            | 100                      | 85             |
| AM2D-0515S-RZ    | 4.5-5.5           | 15                 | 134                     | 1000            | 100                      | 86             |
| AM2D-1205S-RZ    | 10.8-13.2         | 5                  | 400                     | 1000            | 220                      | 84             |
| AM2D-1209S-RZ    | 10.8-13.2         | 9                  | 222                     | 1000            | 220                      | 86             |
| AM2D-1212S-RZ    | 10.8-13.2         | 12                 | 167                     | 1000            | 100                      | 88             |
| AM2D-1215S-RZ    | 10.8-13.2         | 15                 | 134                     | 1000            | 100                      | 88             |
| AM2D-1505S-RZ    | 13.5-16.5         | 5                  | 400                     | 1000            | 220                      | 85             |
| AM2D-1509S-RZ    | 13.5-16.5         | 9                  | 222                     | 1000            | 220                      | 87             |
| AM2D-1512S-RZ    | 13.5-16.5         | 12                 | 167                     | 1000            | 100                      | 87             |
| AM2D-1515S-RZ    | 13.5-16.5         | 15                 | 134                     | 1000            | 100                      | 88             |
| AM2D-2405S-RZ    | 21.6-26.4         | 5                  | 400                     | 1000            | 220                      | 82             |
| AM2D-2409S-RZ    | 21.6-26.4         | 9                  | 222                     | 1000            | 220                      | 84             |
| AM2D-2412S-RZ    | 21.6-26.4         | 12                 | 167                     | 1000            | 100                      | 86             |
| AM2D-2415S-RZ    | 21.6-26.4         | 15                 | 134                     | 1000            | 100                      | 87             |
| AM2D-0505SH30-RZ | 4.5-5.5           | 5                  | 400                     | 3000            | 220                      | 81             |
| AM2D-0509SH30-RZ | 4.5-5.5           | 9                  | 222                     | 3000            | 220                      | 85             |
| AM2D-0512SH30-RZ | 4.5-5.5           | 12                 | 167                     | 3000            | 100                      | 85             |
| AM2D-0515SH30-RZ | 4.5-5.5           | 15                 | 134                     | 3000            | 100                      | 86             |
| AM2D-1205SH30-RZ | 10.8-13.2         | 5                  | 400                     | 3000            | 220                      | 84             |
| AM2D-1209SH30-RZ | 10.8-13.2         | 9                  | 222                     | 3000            | 220                      | 86             |
| AM2D-1212SH30-RZ | 10.8-13.2         | 12                 | 167                     | 3000            | 100                      | 88             |
| AM2D-1215SH30-RZ | 10.8-13.2         | 15                 | 134                     | 3000            | 100                      | 88             |
| AM2D-1505SH30-RZ | 13.5-16.5         | 5                  | 400                     | 3000            | 220                      | 85             |
| AM2D-1509SH30-RZ | 13.5-16.5         | 9                  | 222                     | 3000            | 220                      | 87             |
| AM2D-1512SH30-RZ | 13.5-16.5         | 12                 | 167                     | 3000            | 100                      | 87             |
| AM2D-1515SH30-RZ | 13.5-16.5         | 15                 | 134                     | 3000            | 100                      | 88             |
| AM2D-2405SH30-RZ | 21.6-26.4         | 5                  | 400                     | 3000            | 220                      | 82             |
| AM2D-2409SH30-RZ | 21.6-26.4         | 9                  | 222                     | 3000            | 220                      | 84             |
| AM2D-2412SH30-RZ | 21.6-26.4         | 12                 | 167                     | 3000            | 100                      | 86             |
| AM2D-2415SH30-RZ | 21.6-26.4         | 15                 | 134                     | 3000            | 100                      | 87             |

**Models**  
Dual output

| Model         | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Efficiency (%) |
|---------------|-------------------|--------------------|-------------------------|-----------------|--------------------------|----------------|
| AM2D-0505D-RZ | 4.5-5.5           | ±5                 | ±200                    | 1000            | ±100                     | 82             |
| AM2D-0509D-RZ | 4.5-5.5           | ±9                 | ±111                    | 1000            | ±100                     | 85             |
| AM2D-0512D-RZ | 4.5-5.5           | ±12                | ±83                     | 1000            | ±47                      | 86             |
| AM2D-0515D-RZ | 4.5-5.5           | ±15                | ±67                     | 1000            | ±47                      | 87             |
| AM2D-1205D-RZ | 10.8-13.2         | ±5                 | ±200                    | 1000            | ±100                     | 84             |
| AM2D-1209D-RZ | 10.8-13.2         | ±9                 | ±111                    | 1000            | ±100                     | 88             |
| AM2D-1212D-RZ | 10.8-13.2         | ±12                | ±83                     | 1000            | ±47                      | 89             |
| AM2D-1215D-RZ | 10.8-13.2         | ±15                | ±67                     | 1000            | ±47                      | 89             |

## Models

### Dual output (continued)

| Model            | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Efficiency (%) |
|------------------|-------------------|--------------------|-------------------------|-----------------|--------------------------|----------------|
| AM2D-1505D-RZ    | 13.5-16.5         | ±5                 | ±200                    | 1000            | ±100                     | 85             |
| AM2D-1509D-RZ    | 13.5-16.5         | ±9                 | ±111                    | 1000            | ±100                     | 88             |
| AM2D-1512D-RZ    | 13.5-16.5         | ±12                | ±83                     | 1000            | ±47                      | 88             |
| AM2D-1515D-RZ    | 13.5-16.5         | ±15                | ±67                     | 1000            | ±47                      | 88             |
| AM2D-2405D-RZ    | 21.6-26.4         | ±5                 | ±200                    | 1000            | ±100                     | 82             |
| AM2D-2409D-RZ    | 21.6-26.4         | ±9                 | ±111                    | 1000            | ±100                     | 85             |
| AM2D-2412D-RZ    | 21.6-26.4         | ±12                | ±83                     | 1000            | ±47                      | 86             |
| AM2D-2415D-RZ    | 21.6-26.4         | ±15                | ±67                     | 1000            | ±47                      | 87             |
| AM2D-0505DH30-RZ | 4.5-5.5           | ±5                 | ±200                    | 3000            | ±100                     | 82             |
| AM2D-0509DH30-RZ | 4.5-5.5           | ±9                 | ±111                    | 3000            | ±100                     | 85             |
| AM2D-0512DH30-RZ | 4.5-5.5           | ±12                | ±83                     | 3000            | ±47                      | 86             |
| AM2D-0515DH30-RZ | 4.5-5.5           | ±15                | ±67                     | 3000            | ±47                      | 87             |
| AM2D-1205DH30-RZ | 10.8-13.2         | ±5                 | ±200                    | 3000            | ±100                     | 84             |
| AM2D-1209DH30-RZ | 10.8-13.2         | ±9                 | ±111                    | 3000            | ±100                     | 88             |
| AM2D-1212DH30-RZ | 10.8-13.2         | ±12                | ±83                     | 3000            | ±47                      | 89             |
| AM2D-1215DH30-RZ | 10.8-13.2         | ±15                | ±67                     | 3000            | ±47                      | 89             |
| AM2D-1505DH30-RZ | 13.5-16.5         | ±5                 | ±200                    | 3000            | ±100                     | 85             |
| AM2D-1509DH30-RZ | 13.5-16.5         | ±9                 | ±111                    | 3000            | ±100                     | 88             |
| AM2D-1512DH30-RZ | 13.5-16.5         | ±12                | ±83                     | 3000            | ±47                      | 88             |
| AM2D-1515DH30-RZ | 13.5-16.5         | ±15                | ±67                     | 3000            | ±47                      | 88             |
| AM2D-2405DH30-RZ | 21.6-26.4         | ±5                 | ±200                    | 3000            | ±100                     | 82             |
| AM2D-2409DH30-RZ | 21.6-26.4         | ±9                 | ±111                    | 3000            | ±100                     | 85             |
| AM2D-2412DH30-RZ | 21.6-26.4         | ±12                | ±83                     | 3000            | ±47                      | 86             |
| AM2D-2415DH30-RZ | 21.6-26.4         | ±15                | ±67                     | 3000            | ±47                      | 87             |

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

## Input Specifications

| Parameters              | Nominal   | Typical   | Maximum | Units |
|-------------------------|-----------|-----------|---------|-------|
| Voltage range           | 5         | 4.5-5.5   |         | VDC   |
|                         | 12        | 10.8-13.2 |         |       |
|                         | 15        | 13.5-16.5 |         |       |
|                         | 24        | 21.6-26.4 |         |       |
| Filter                  | Capacitor |           |         |       |
| Absolute Maximum Rating | 5 Vin     |           | 9       | VDC   |
|                         | 12 Vin    |           | 18      |       |
|                         | 15 Vin    |           | 20      |       |
|                         | 24 Vin    |           | 30      |       |
| Peak Input Voltage time |           |           | 100     | ms    |
| No Load Input Current   |           | 50        |         | mA    |

## Isolation Specifications

| Parameters         | Conditions | Typical | Maximum    | Units |
|--------------------|------------|---------|------------|-------|
| Tested I/O voltage | 3 sec      |         | 1000, 3000 | VDC   |
| Resistance         |            | >1000   |            | MOhm  |
| Capacitance        |            | 60      |            | pF    |

## Output Specifications

| Parameters               | Conditions      | Typical           | Maximum | Units    |
|--------------------------|-----------------|-------------------|---------|----------|
| Voltage accuracy         |                 | +2, -4            |         | %        |
| Short Circuit protection |                 | Momentary (1sec). |         |          |
| Line voltage regulation  | For 1.0% of Vin | 1.2               |         | % of Vin |

### Output Specifications (continued)

| Parameters              | Conditions      | Typical | Maximum | Units    |
|-------------------------|-----------------|---------|---------|----------|
| Load voltage regulation | Load 10~100%    | ±5      |         | %        |
| Temperature coefficient |                 | ±0.02   |         | %/°C     |
| Ripple & Noise          | 20MHz Bandwidth | 50      |         | mV p-p   |
| Minimum Load Current    |                 | 10      |         | % of Max |

### General Specifications

| Parameters                    | Conditions                 | Typical   | Maximum                 | Units |
|-------------------------------|----------------------------|---|-------------------------|-------|
| Switching frequency           | 100% load                  | 70  |                         | KHz   |
| Operating temperature         |                            | -40 to +85  |                         | °C    |
| Storage temperature           |                            | -40 to +125   |                         | °C    |
| Maximum case temperature      |                            |   | 100                     | °C    |
| Cooling                       |                            | Free Air Convection                                     |                         |       |
| Humidity                      |                            |   | 95                      | % RH  |
| Case material                 |                            | Plastic UL94V-0   |                         |       |
| Weight                        |                            | 2.8   |                         | g     |
| Dimensions (L x W x H)        |                            | 0.76 x 0.28 x 0.39 inch                                 | 19.50 x 7.20 x 10.00 mm |       |
| MTBF                          |                            | >1.9 Mhrs (MIL-HDBK -217F, Ground Benign, t=+25°C)hours |                         |       |
| Maximum soldering temperature | 1.5mm from case for 10 sec |   | 260                     | °C    |

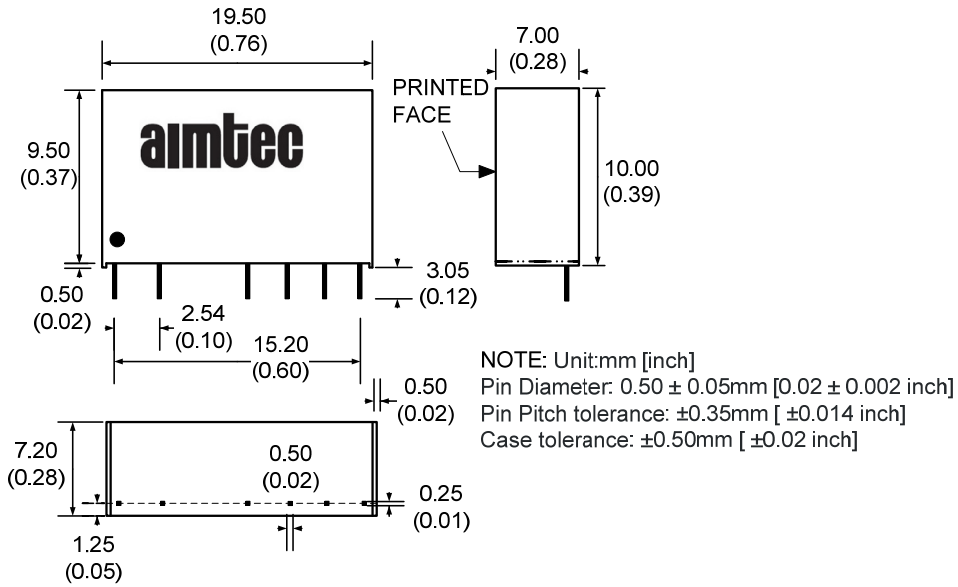
### Safety Specifications

| Parameters      |                                    |
|-----------------|------------------------------------|
| Agency Approval | CE                                 |
| Standards       | EN55022: 2006 + A1: 2007, Class B  |
|                 | EN55024: 1998 + A1: 2001 + A2:2003 |
|                 | IEC61000-4-2:2008                  |
|                 | IEC61000-4-3: 2006 + A1: 2007      |
|                 | IEC61000-4-4, 2004                 |
|                 | IEC61000-4-6: 2008                 |
|                 | IEC61000-4-8: 1993 + A1:2000       |

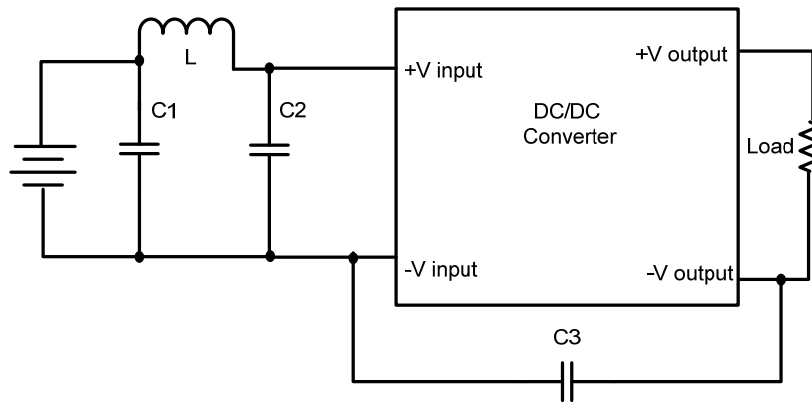
### Pin Out Specifications

| Pin | 1000 VDC   |            | 3000 VDC  |           |
|-----|------------|------------|-----------|-----------|
|     | Single     | Dual       | Single    | Dual      |
| 1   | + V Input  | + V Input  | + V Input | + V Input |
| 2   | - V Input  | - V Input  | - V Input | - V Input |
| 4   | - V Output | - V Output | No pin    | No pin    |
| 5   | No pin     | Common     | -V Output | -V Output |
| 6   | + V Output | + V Output | No pin    | Common    |
| 7   | No pin     | No pin     | +V Output | +V Output |

## Dimensions

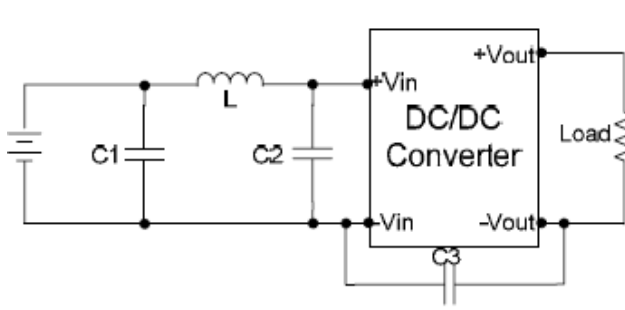


## Application Circuit



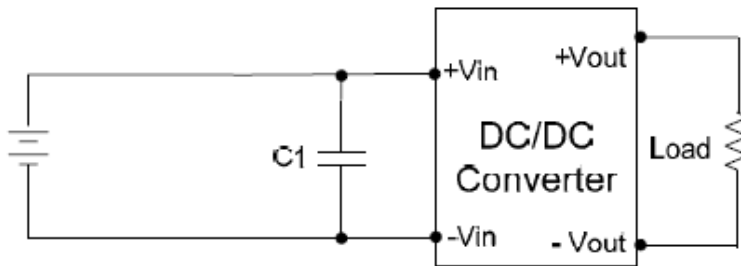
| Input Voltage (VDC) | C1         | L    | C2         | C3        |
|---------------------|------------|------|------------|-----------|
| 5                   | 2.2uF/100V | 18uH | N/A        | N/A       |
| 12                  | 2.2uF/100V | 18uH | N/A        | N/A       |
| 15                  | 2.2uF/100V | 18uH | N/A        | N/A       |
| 24                  | 2.2uF/100V | 18uH | 2.2uF/100V | 470pF/2KV |

**Conducted Emissions**



|               | C1               | L    | C2               | C3             |
|---------------|------------------|------|------------------|----------------|
| AMxD-05XXz-yZ | 1210 2.2uF/100V  | 18uH |                  |                |
| AMxD-12XXz-yZ | 1210, 2.2uF/100V | 18uH |                  |                |
| AMxD-15XXz-yZ | 1210 2.2uF/100V  | 18uH |                  |                |
| AMxD-24XXz-yZ | 1210, 2.2uF/100V | 18uH | 1210 2.2uF/100V  | 1206 470pF/2KV |
| AMxD-48XXz-yZ | 1210 2.2uF/100V  | 18uH | 1210, 2.2uF/100V | 1206 470pF/2KV |

**EFT**



|               | C1          |
|---------------|-------------|
| AMxD-05XXz-yZ | 220uF, 100V |
| AMxD-12XXz-yZ |             |
| AMxD-15XXz-yZ |             |
| AMxD-24XXz-yZ |             |
| AMxD-48XXz-yZ |             |

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