

Series AM1D-NZ

1 Watt | DC-DC Converter



FEATURES:

- RoHS compliant
- 7 pin SIP package
- High efficiency up to 82%
- Low profile plastic package
- Operating temperature -40°C to + 85°C or -40°C to + 105°C on 6000V models
- 1 sec short circuit protection or continuous on 6000V models
- Pin compatible with multiple manufacturers

Models Single output



| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (Ma) | Input Current Max No Load (mA) | Isolation (VDC) | Efficiency (%) |
|-------------------|-------------------|--------------------|-------------------------|----------------------------------|-----------------|----------------|
| AM1D-0505S-NZ | 4.5-5.5 | 5 | 200 | 250 20 | 1000 | 72 |
| AM1D-0512S-NZ | 4.5-5.5 | 12 | 83 | 250 20 | 1000 | 77 |
| *AM1D-0515S-NZ | 4.5-5.5 | 15 | 70 | 248 20 | 1000 | 79 |
| *AM1D-1205S-NZ | 10.8-13.2 | 5 | 200 | 92 15 | 1000 | 73 |
| AM1D-0505SH30-NZ | 4.5-5.5 | 5 | 200 | 250 20 | 3000 | 70 |
| AM1D-0509SH30-NZ | 4.5-5.5 | 9 | 110 | 250 20 | 3000 | 75 |
| *AM1D-0515SH30-NZ | 4.5-5.5 | 15 | 70 | 248 20 | 3000 | 80 |
| AM1D-1205SH30-NZ | 10.8-13.2 | 5 | 200 | 92 15 | 3000 | 72 |
| AM1D-2415SH30-NZ | 21.6-26.4 | 15 | 70 | 52 7 | 3000 | 82 |
| AM1D-0505SH60-NZ | 4.5-5.5 | 5 | 200 | 256 30 | 6000 | 75 |
| AM1D-0509SH60-NZ | 4.5-5.5 | 9 | 110 | 253 30 | 6000 | 75 |
| AM1D-0515SH60-NZ | 4.5-5.5 | 15 | 70 | 253 30 | 6000 | 78 |
| AM1D-1205SH60-NZ | 10.8-13.2 | 5 | 200 | 104 20 | 6000 | 78 |
| AM1D-1209SH60-NZ | 10.8-13.2 | 9 | 110 | 104 20 | 6000 | 76 |
| AM1D-1212SH60-NZ | 10.8-13.2 | 12 | 83 | 104 20 | 6000 | 79 |
| AM1D-1215SH60-NZ | 10.8-13.2 | 15 | 70 | 104 20 | 6000 | 81 |

Models Dual output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current (mA) | Input Current Max No Load (mA) | Isolation (VDC) | Efficiency (%) |
|-------------------|-------------------|--------------------|---------------------|----------------------------------|-----------------|----------------|
| AM1D-0505D-NZ | 4.5-5.5 | ±5 | ±100 | 250 20 | 1000 | 72 |
| AM1D-0509D-NZ | 4.5-5.5 | ±9 | ±55 | 250 20 | 1000 | 75 |
| AM1D-0512D-NZ | 4.5-5.5 | ±12 | ±42 | 250 20 | 1000 | 78 |
| AM1D-0515D-NZ | 4.5-5.5 | ±15 | ±35 | 248 20 | 1000 | 79 |
| AM1D-1212D-NZ | 10.8-13.2 | ±12 | ±42 | 92 15 | 1000 | 79 |
| AM1D-2412D-NZ | 21.6-26.4 | ±12 | ±42 | 51 7 | 1000 | 80 |
| AM1D-0505DH30-NZ | 4.5-5.5 | ±5 | ±100 | 250 20 | 3000 | 72 |
| AM1D-0512DH30-NZ | 4.5-5.5 | ±12 | ±42 | 250 20 | 3000 | 78 |
| AM1D-1212DH30-NZ | 10.8-13.2 | ±12 | ±42 | 92 15 | 3000 | 79 |
| *AM1D-1215DH30-NZ | 10.8-13.2 | ±15 | ±35 | 90 15 | 3000 | 80 |
| AM1D-2405DH30-NZ | 21.6-26.4 | ±5 | ±100 | 56 7 | 3000 | 74 |
| AM1D-2415DH30-NZ | 21.6-26.4 | ±15 | ±35 | 52 7 | 3000 | 81 |
| AM1D-0505DH60-NZ | 4.5-5.5 | ±5 | ±100 | 256 30 | 6000 | 75 |
| AM1D-0509DH60-NZ | 4.5-5.5 | ±9 | ±55 | 253 30 | 6000 | 75 |
| AM1D-0512DH60-NZ | 4.5-5.5 | ±12 | ±42 | 253 30 | 6000 | 78 |
| AM1D-0515DH60-NZ | 4.5-5.5 | ±15 | ±35 | 253 30 | 6000 | 78 |

Models

Dual output (continued)

| Model | Input Voltage (V) | Output Voltage (V) | Output Current (mA) | Input Current Max No Load (mA) | Isolation (VDC) | Efficiency (%) |
|------------------|-------------------|--------------------|---------------------|----------------------------------|-----------------|----------------|
| AM1D-1205DH60-NZ | 10.8-13.2 | ±5 | ±100 | 104 20 | 6000 | 78 |
| AM1D-1209DH60-NZ | 10.8-13.2 | ±9 | ±55 | 102 20 | 6000 | 79 |
| AM1D-1212DH60-NZ | 10.8-13.2 | ±12 | ±42 | 103 20 | 6000 | 81 |
| AM1D-1215DH60-NZ | 10.8-13.2 | ±15 | ±35 | 102 20 | 6000 | 81 |

*Not recommended for new design

Input Specifications

| Parameters | Nominal | Typical | Maximum | Units |
|---------------|-----------|-----------|---------|-------|
| Voltage range | 5 | 4.5-5.5 | | VDC |
| | 12 | 10.8-13.2 | | |
| | 24 | 21.6-26.4 | | |
| Filter | Capacitor | | | |

Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|--------------------|------------|---------|-------------------|-------|
| Tested I/O voltage | 60 sec | | 1000, 3000 & 6000 | VDC |
| Resistance | | > 1000 | | MOhm |
| Capacitance | | 60 | | pF |

Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|----------------------------------|--------------------|--|---------|--------|
| Voltage accuracy | | ±5 | | % |
| Voltage balance | Dual Output | ±1 | | % |
| Short Circuit protection | | Momentary (1 sec.) Continuous on 6000V models | | |
| Line voltage regulation (Single) | For 1.0% of Vin | ±1.2 | | % |
| Line voltage regulation (Dual) | For 1.0% of Vin | ±1.2 | | % |
| Load voltage regulation (Single) | load 10~100% | 10 | | % |
| Load voltage regulation (Dual) | load 10~100% | 10 | | % |
| Temperature coefficient | | ±0.03 | | %/°C |
| Ripple & Noise | At 20MHz Bandwidth | 75 | | mV p-p |

General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|------------------------|----------------------------------|---|---------|------------------------|
| Switching frequency | 100% load (6000V models only) | 150 40 | | KHz |
| Max Case temperature | | | +125 | °C |
| Operating temperature | | -40 to +85 Up to +105 on 6000V models only, see derating table | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Derating | | Not-Required | | |
| Cooling | | Free air convection | | |
| Humidity | | | 90 | % |
| Case material | | Non-conductive black plasticUL94V-0 | | |
| Weight | | 2 | | g |
| Dimensions (L x W x H) | 1000 & 3000VDC | 0.76 x 0.24 x 0.37 inch | | 19.5 x 6.00 x 9.35 mm |
| | 6000VDC | 0.76 x 0.39 x 0.49 inch | | 19.50 x 9.80 x 12.5 mm |
| MTBF | | >1 100 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) | | |

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

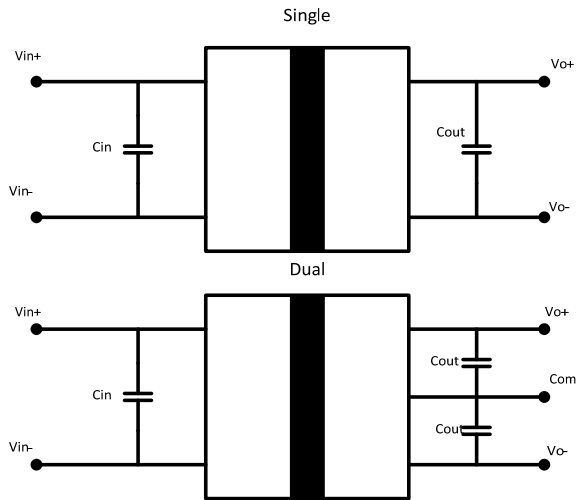
Safety Specifications

| Parameters | |
|------------------|--|
| Standards | UL60950-1: 2001 |
| Agency approvals | cULus (without 6000VDC Isolated dual output models); |
| | CE (for 3000VDC Isolation models and single 1000VDC Isolation models) |
| | NOTE: all other models not referenced above are designed to meet standard IEC 60950-1:2001 |

Pin Out Specifications

| Pin | 1000 VDC | | 3000, 6000 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 |

Recommended Circuit



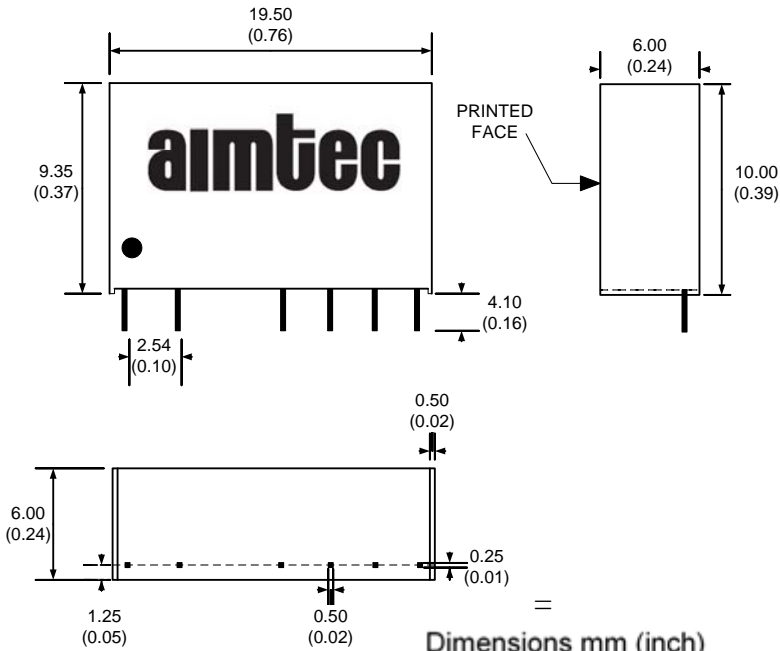
External capacitor – Single output

| Vin (VDC) | External capacitor (μF) | Vout (VDC) | External capacitor (μF) |
|-----------|-------------------------|------------|-------------------------|
| 5 | 4.7 | 5 | 10 |
| 12 | 2.2 | 9 | 4.7 |
| 24 | 1 | 12 | 2.2 |
| - | - | 15 | 1 |

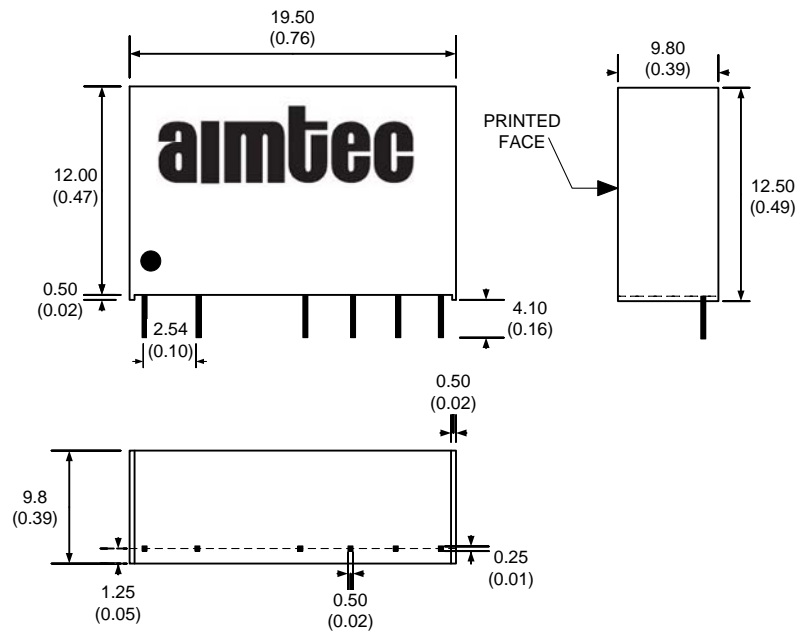
External capacitor – Dual output

| Vin (VDC) | External capacitor (μF) | Vout (VDC) | External capacitor (μF) |
|-----------|-------------------------|------------|-------------------------|
| 5 | 4.7 | 5 | 10 |
| 12 | 2.2 | 9 | 4.7 |
| 24 | 1 | 12 | 2.2 |
| - | - | 15 | 1 |

Dimensions
1000 and 3000VDC

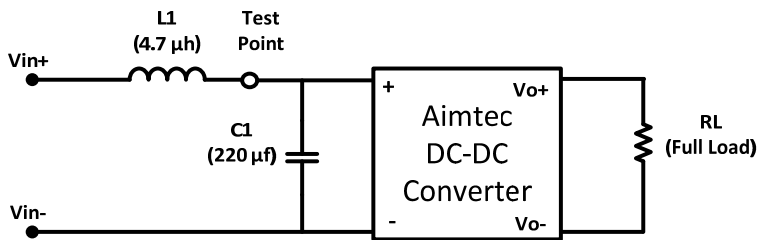


Dimensions
6000VDC



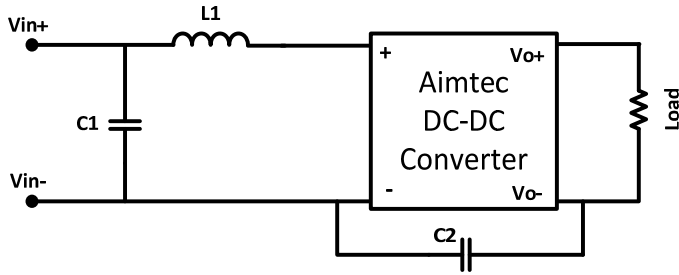
Dimensions mm (inch)
Case Tolerance ± 0.5 (± 0.02)
Pin Diameter $0.60 \Phi \pm 0.05$ (± 0.002)
Pin Pitch Tolerance ± 0.50 (± 0.02)

Input Reflected Ripple



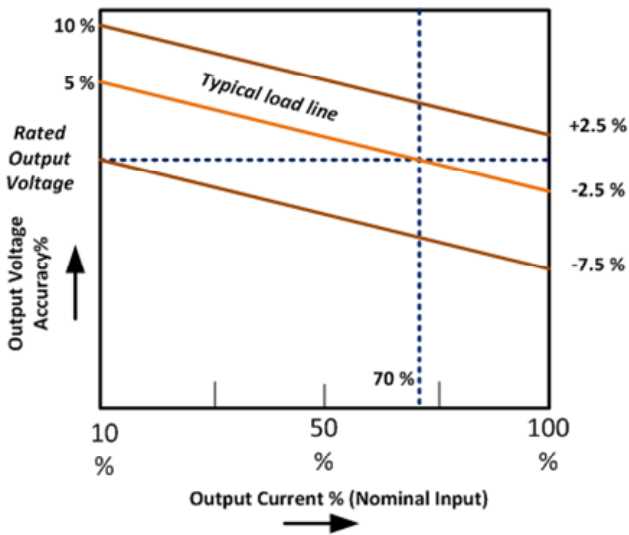
* Tested at full load, and nominal input

EMI Filter

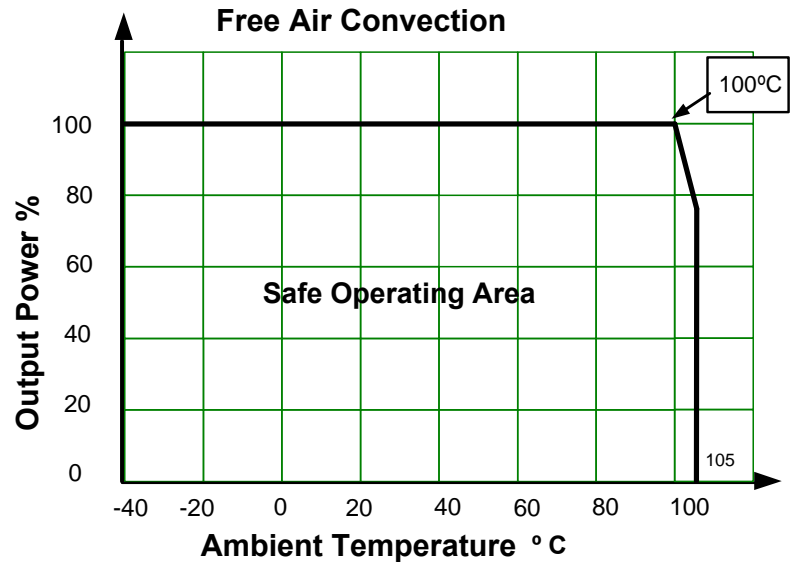


| Vin | C1 | L1 | C2 |
|--------------|-------------------|-------------|--------------|
| 5, 9, 12 Vdc | 4.7 μ F / 50V | 6.8 μ H | |
| 15 Vdc | 4.7 μ F / 50V | 6.8 μ H | 470 pF / 2kV |

Regulation Graph



Derating Chart (6000V Isolation Models Only)



NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity < 75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other than the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Isolated DC/DC Converters](#) category:

Click to view products by [Aimtec](#) manufacturer:

Other Similar products are found below :

[ESM6D044440C05AAQ](#) [FMD15.24G](#) [PSL486-7LR](#) [PSR152.5-7IR](#) [Q48T30020-NBB0](#) [AVO240-48S12B-6L](#) [AVO250-48S28B-6L](#) [NAN-0505](#) [HW-L16D](#) [JAHW100Y1](#) [217-1617-001](#) [22827](#) [SPB05C-12](#) [SQ24S15033-PS0S](#) [18952](#) [19-130041](#) [CE-1003](#) [CE-1004](#) [GQ2541-7R](#) [PSE1000DCDC-12V](#) [RDS180245](#) [MAU228](#) [419-2065-201](#) [449-2075-101](#) [TME 0303S](#) [TME 0505S](#) [TME 1205S](#) [TME 1212S](#) [TME 2405S](#) [TME 2412S](#) [V300C24C150BG](#) [419-2062-200](#) [419-2063-401](#) [419-2067-101](#) [419-2067-501](#) [419-2068-001](#) [DCG40-5G](#) [DFC15U48D15](#) [449-2067-000](#) [XGS-0512](#) [XGS-1205](#) [XGS-1212](#) [XGS-2412](#) [XGS-2415](#) [XKS-1215](#) [033456](#) [NCT1000N040R050B](#) [SPB05B-15](#) [SPB05C-15](#) [TME 0509S](#)