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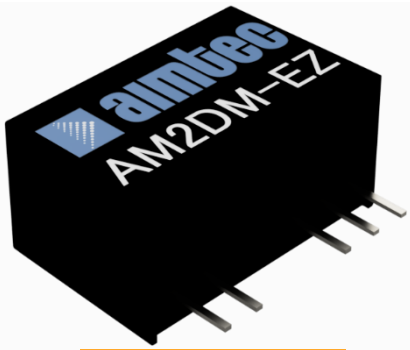
# AM2DM-EZ




SIP7 Package

The AM2DM-EZ is a 2W SIP7 DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 5-24VDC as well as an output voltage of -5-24V. This compact SIP7 design will surely benefit your new system design.

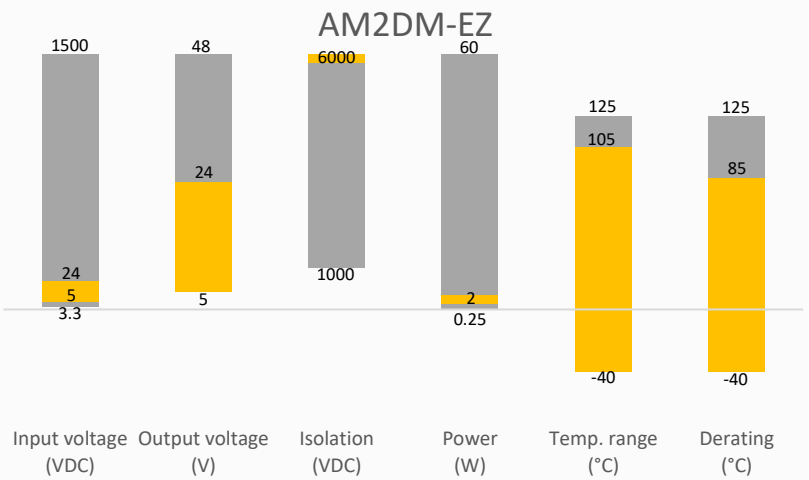
This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, an isolation of 5000VAC or 6000VDC for improved reliability and system safety as well as a great 3,500,000h MTBF come standard.

The AM2DM-EZ is suitable for many applications such as medical collection isolation, high voltage collection circuits, and IGBT drive circuits.

## Features

- High I/O Isolation of 5000VAC or 6000VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +105 °C
- Industry standard SIP7 pin-out
- Efficiency up to 84%
- Unregulated output
- Leakage current < 2µA
- Designed to meet IEC/EN 62368-1, 60601-1
- Agency approval UL 62368-1, 60601-1
- Made in Taiwan

## Summary




## Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

## Applications

Industrial

Portable Equipment

Medical

IoT

# Models & Specifications

## Single Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Output Current max | Isolation (VAC/VDC) | Maximum capacitive Load (µF) | Efficiency Typ. (%) |
|---|---|---|---|---|---|---|
| AM2DM-0505SH60EZ | 5 (4.5-5.5) | 5 | 400 | 5000/6000 | 1000 | 80 |
| AM2DM-0509SH60EZ | 5 (4.5-5.5) | 9 | 222 | 5000/6000 | 680 | 80 |
| AM2DM-0512SH60EZ | 5 (4.5-5.5) | 12 | 167 | 5000/6000 | 330 | 81 |
| AM2DM-0515SH60EZ | 5 (4.5-5.5) | 15 | 133 | 5000/6000 | 330 | 81 |
| AM2DM-0524SH60EZ | 5 (4.5-5.5) | 24 | 84 | 5000/6000 | 100 | 81 |
| AM2DM-1205SH60EZ | 12 (10.8-13.2) | 5 | 400 | 5000/6000 | 1000 | 80 |
| AM2DM-1209SH60EZ | 12 (10.8-13.2) | 9 | 222 | 5000/6000 | 680 | 82 |
| AM2DM-1212SH60EZ | 12 (10.8-13.2) | 12 | 167 | 5000/6000 | 330 | 84 |
| AM2DM-1215SH60EZ | 12 (10.8-13.2) | 15 | 133 | 5000/6000 | 330 | 84 |
| AM2DM-1224SH60EZ | 12 (10.8-13.2) | 24 | 84 | 5000/6000 | 100 | 84 |
| AM2DM-1505SH60EZ | 15 (13.5-16.5) | 5 | 400 | 5000/6000 | 1000 | 80 |
| AM2DM-1509SH60EZ | 15 (13.5-16.5) | 9 | 222 | 5000/6000 | 680 | 82 |
| AM2DM-1512SH60EZ | 15 (13.5-16.5) | 12 | 167 | 5000/6000 | 330 | 84 |
| AM2DM-1515SH60EZ | 15 (13.5-16.5) | 15 | 133 | 5000/6000 | 330 | 84 |
| AM2DM-1524SH60EZ | 15 (13.5-16.5) | 24 | 84 | 5000/6000 | 100 | 84 |
| AM2DM-2405SH60EZ | 24 (21.6-26.4) | 5 | 400 | 5000/6000 | 1000 | 80 |
| AM2DM-2409SH60EZ | 24 (21.6-26.4) | 9 | 222 | 5000/6000 | 680 | 82 |
| AM2DM-2412SH60EZ | 24 (21.6-26.4) | 12 | 167 | 5000/6000 | 330 | 84 |
| AM2DM-2415SH60EZ | 24 (21.6-26.4) | 15 | 133 | 5000/6000 | 330 | 84 |
| AM2DM-2424SH60EZ | 24 (21.6-26.4) | 24 | 84 | 5000/6000 | 100 | 84 |

## Dual Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Output Current max \| min (mA)* | Isolation (VAC/VDC) | Maximum capacitive Load (µF) | Efficiency Typ. (%) |
|---|---|---|---|---|---|---|
| AM2DM-0505DH60EZ | 5 (4.5-5.5) | ±5 | ±200 | 5000/6000 | ±470 | 80 |
| AM2DM-0509DH60EZ | 5 (4.5-5.5) | ±9 | ±111 | 5000/6000 | ±330 | 80 |
| AM2DM-0512DH60EZ | 5 (4.5-5.5) | ±12 | ±84 | 5000/6000 | ±100 | 81 |
| AM2DM-0515DH60EZ | 5 (4.5-5.5) | ±15 | ±67 | 5000/6000 | ±100 | 81 |
| AM2DM-0524DH60EZ | 5 (4.5-5.5) | ±24 | ±42 | 5000/6000 | ±47 | 81 |
| AM2DM-1205DH60EZ | 12 (10.8-13.2) | ±5 | ±200 | 5000/6000 | ±470 | 80 |
| AM2DM-1209DH60EZ | 12 (10.8-13.2) | ±9 | ±111 | 5000/6000 | ±330 | 82 |
| AM2DM-1212DH60EZ | 12 (10.8-13.2) | ±12 | ±84 | 5000/6000 | ±100 | 84 |
| AM2DM-1215DH60EZ | 12 (10.8-13.2) | ±15 | ±67 | 5000/6000 | ±100 | 84 |
| AM2DM-1224DH60EZ | 12 (10.8-13.2) | ±24 | ±42 | 5000/6000 | ±47 | 84 |
| AM2DM-1505DH60EZ | 15 (13.5-16.5) | ±5 | ±200 | 5000/6000 | ±470 | 80 |
| AM2DM-1509DH60EZ | 15 (13.5-16.5) | ±9 | ±111 | 5000/6000 | ±330 | 82 |
| AM2DM-1512DH60EZ | 15 (13.5-16.5) | ±12 | ±84 | 5000/6000 | ±100 | 84 |
| AM2DM-1515DH60EZ | 15 (13.5-16.5) | ±15 | ±67 | 5000/6000 | ±100 | 84 |
| AM2DM-1524DH60EZ | 15 (13.5-16.5) | ±24 | ±42 | 5000/6000 | ±47 | 84 |
| AM2DM-2405DH60EZ | 24 (21.6-26.4) | ±5 | ±200 | 5000/6000 | ±470 | 80 |
| AM2DM-2409DH60EZ | 24 (21.6-26.4) | ±9 | ±111 | 5000/6000 | ±330 | 82 |

| | | | | | | |
|---|---|---|---|---|---|---|
| AM2DM-2412DH60EZ | 24 (21.6-26.4) | ±12 | ±84 | 5000/6000 | ±100 | 84 |
| AM2DM-2415DH60EZ | 24 (21.6-26.4) | ±15 | ±67 | 5000/6000 | ±100 | 84 |
| AM2DM-2424DH60EZ | 24 (21.6-26.4) | ±24 | ±42 | 5000/6000 | ±47 | 84 |

## Input Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Filter | Capacitor | | | |
| Input Voltage Tolerance | Vo, Io Nom | ±10 | | % |

## Isolation Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Tested I/O voltage | 60 sec | 5000 | | VAC |
| | | 6000 | | VDC |
| Patient leakage current | 250VAC, 50/60Hz | | 2 | µA |
| Resistance | 500VDC | >1000 | | MΩ |
| Capacitance | 100kHz/0.1V | 4 | | pF |
| Creepage & clearance distance | | >5 | | mm |

## Output Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage accuracy | 100% full load | | ±5 | % |
| Line regulation | Per 1% Vin change | 1.2 | | % |
| Load regulation | 10-100% load, 5V output models | | 20 | % |
| | 10-100% load, other output models | | 15 | % |
| Ripple & Noise* | 5V output models | 100 | 150 | mV p-p |
| | Other output models | 80 | 120 | mV p-p |

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the Typical test circuit.

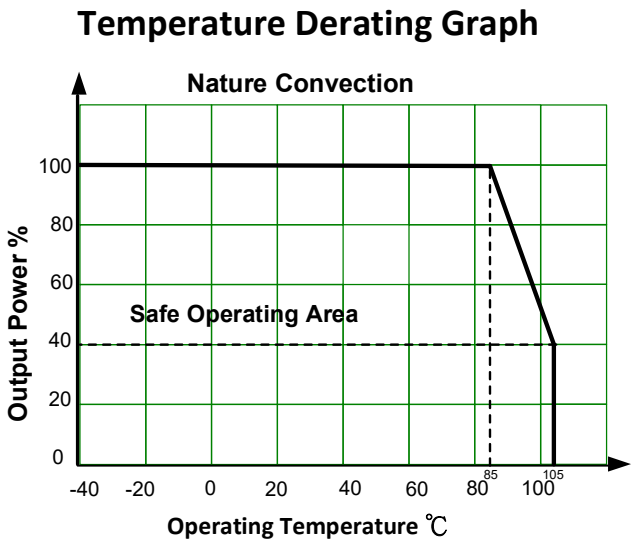
## General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Switching frequency | 100% load, nominal input voltage 5V output models | 215 | | KHz |
| | 100% load, nominal input voltage other output models | 250 | | KHz |
| Short circuit protection | Continuous | | | |
| Operating temperature | | -40 to +105 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Black plastic (flammability to UL 94V-0) | | | |
| Weight | | 4.0 | | g |
| Dimensions (L x W x H) | 0.77 x 0.39 x 0.49 inches (19.50 x 9.80 x 12.50 mm) | | | |
| MTBF | 3 500 000 hrs (MIL-HDBK -217F, t=+25°C) | | | |
| Creepage & clearance distance | Minimum of 5 mm | | | |

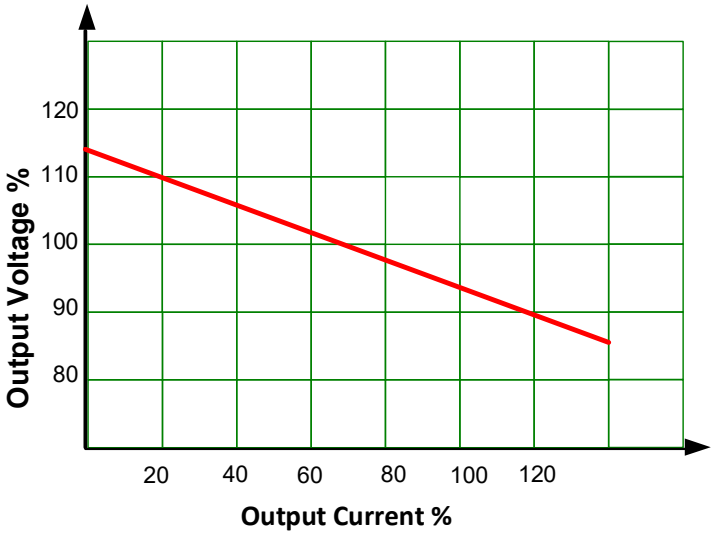
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

| Safety Specifications | | |
|---|---|---|
| **Parameters** | | |
| Agency approvals | UL 62368-1, 60601-1 | |
| **Standards** | Information technology Equipment | Designed to meet IEC/EN 62368-1, 60601-1 |
| | EMC - Conducted and radiated emission | CISPR32/EN55032 CLASS B (see Recommended EMC circuit) |
| | Electrostatic Discharge Immunity | IEC/EN61000-4-2 Air ±8kV, Contact ±6kV perf. Criteria B |

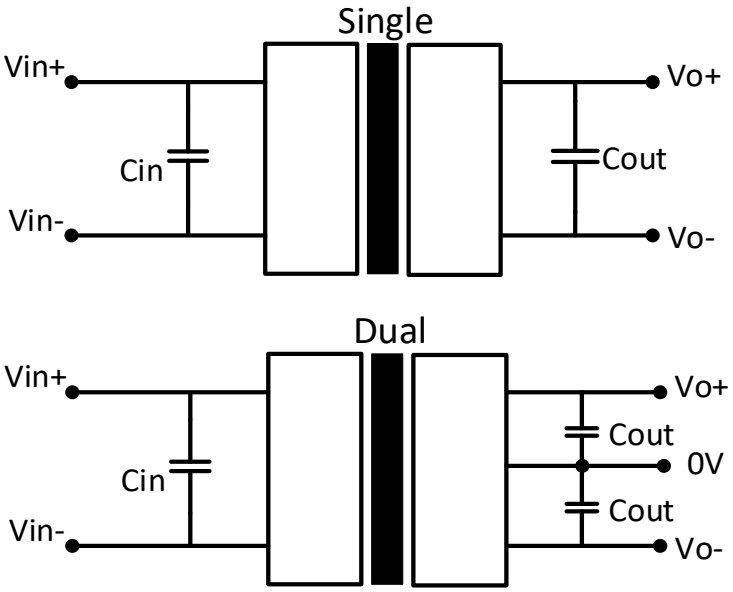
## Derating




## Tolerance Envelop Graph



## Typical test circuit

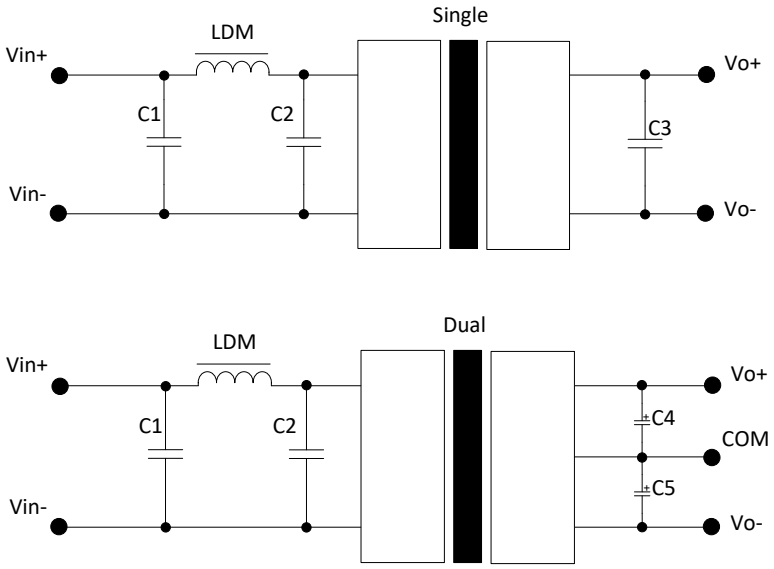



| Vin | Cin |
|---|---|
| 5VDC | 4.7μF/25V |
| 12VDC | 2.2μF/25V |
| 15VDC | 2.2μF/25V |
| 24VDC | 1μF/50V |

| Single Vout | Cout |
|---|---|
| 5VDC | 10μF/16V |
| 9VDC | 2.2μF/16V |
| 12VDC | 2.2μF/25V |
| 15VDC | 1μF/25V |
| 24VDC | 1μF/50V |

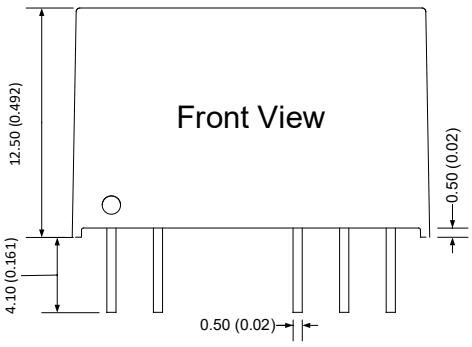
| Dual Vout | Cout |
|---|---|
| ±5VDC | 4.7μF/16V |
| ±9VDC | 1μF/16V |
| ±12VDC | 1μF/25V |
| ±15VDC | 1μF/25V |
| ±24VDC | 1μF/50V |

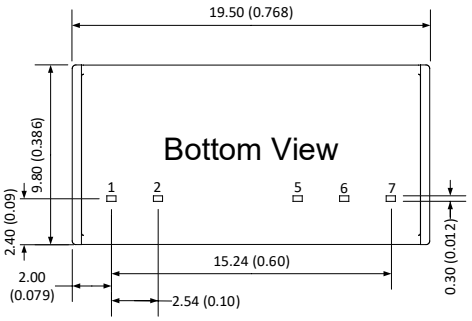
## Recommended EMC circuit

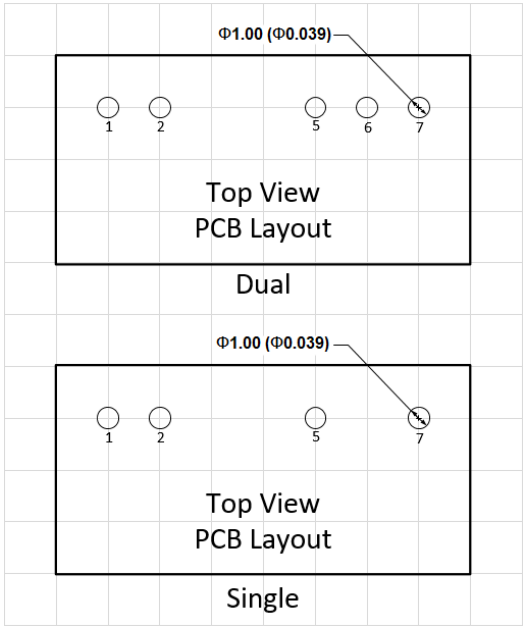



| EMC recommended circuit value table | |
|---|---|
| C1 | 22μF/50V |
| C2 | 22μF/50V |
| C3 | Refer Typical test circuit |
| C4 | Refer Typical test circuit |
| C5 | Refer Typical test circuit |
| LDM | 22μH |

# Dimensions




| Pin Out Specifications | | |
|---|---|---|
| Pin | Single output | Dual output |
| 1 | +V Input | +V Input |
| 2 | -V Input | -V Input |
| 5 | -V Output | -V Output |
| 6 | No Pin | Com |
| 7 | +V Output | +V Output |

Note:
Grid 2.54 x 2.54mm
Unit: mm(inch)
General tolerances: ±0.50(±0.020)

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