# Series AM2LV-NZ

## 2 Watt | DC-DC Converter


### FEATURES:

- SMD package
- Wide (2:1) input range
- 1500VDC isolation
- Continuous short circuit protection
- Operating temperature: -40°C to +85°C
- Regulated single/dual output
- MTBF>1,000,000 hours
- RoHS compliant

## Models
## Single output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Efficiency (%) |
|---|---|---|---|---|---|
| AM2LV-1203S-NZ | 9-18 | 3.3 | 500 | 1500 | 70 |
| AM2LV-1205S-NZ | 9-18 | 5 | 400 | 1500 | 74 |
| AM2LV-1209S-NZ | 9-18 | 9 | 222 | 1500 | 76 |
| AM2LV-1212S-NZ | 9-18 | 12 | 167 | 1500 | 78 |
| AM2LV-1215S-NZ | 9-18 | 15 | 133 | 1500 | 79 |
| AM2LV-2403S-NZ | 18-36 | 3.3 | 500 | 1500 | 72 |
| AM2LV-2405S-NZ | 18-36 | 5 | 400 | 1500 | 76 |
| AM2LV-2409S-NZ | 18-36 | 9 | 222 | 1500 | 78 |
| AM2LV-2412S-NZ | 18-36 | 12 | 167 | 1500 | 80 |
| AM2LV-2415S-NZ | 18-36 | 15 | 133 | 1500 | 80 |

## Models
## Dual output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Efficiency (%) |
|---|---|---|---|---|---|
| AM2LV-1205D-NZ | 9-18 | ±5 | ±200 | 1500 | 74 |
| AM2LV-1209D-NZ | 9-18 | ±9 | ±111 | 1500 | 76 |
| AM2LV-1212D-NZ | 9-18 | ±12 | ±83 | 1500 | 78 |
| AM2LV-1215D-NZ | 9-18 | ±15 | ±67 | 1500 | 80 |
| AM2LV-2405D-NZ | 18-36 | ±5 | ±200 | 1500 | 74 |
| AM2LV-2409D-NZ | 18-36 | ±9 | ±111 | 1500 | 76 |
| AM2LV-2412D-NZ | 18-36 | ±12 | ±83 | 1500 | 78 |
| AM2LV-2415D-NZ | 18-36 | ±15 | ±67 | 1500 | 80 |

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

## Input Specifications

| Parameters | Nominal | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage range | 12<br>24 | 9-18<br>18-36 | | VDC |
| Absolute Maximum Rating | 12<br>24 | | 22<br>40 | VDC |
| Peak Input Voltage time | | | 100 | ms |

## Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|---|---|---|---|---|
| Tested I/O voltage | 60 sec | | 1500 | VDC |
| Resistance | At 500 Vdc | 1000 | | MOhm |
| Capacitance | Input to Output | 85 | | pF |

## Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage accuracy | | ±5 | | % |
| Short Circuit protection | Continuous | | | |
| Short circuit restart | Auto-Recovery | | | |
| Line voltage regulation (Single) | From Low in to High In | ±0.5 | | % |
| Load voltage regulation (Single) | From 10% to 100% load | ±1 | | % |
| Load voltage regulation (Dual) | From 10% to 100% load<br>Each output loaded within 5% of each other | ±5 | | % |
| Temperature coefficient | | ±0.03 | | %/°C |
| Ripple & Noise * | 20MHz Bandwidth with 10% load | 75 | | mV p-p |
| Minimum Load Current** | | 10 | | % of Max |

* Test Ripple & Noise by "Parallel Cable Method" as described in Application Note "Ripple and Noise Measurement of Brick & POL DC-DC Converters" available on Aimtec's website www.aimtec.com. Converters are designed to operate with a minimum load of 10%. If converter is operated with a load less than 10% the ripple will increase.

** Operation under 10% load will not damage the converter; However, not all specifications will be met.

## General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Switching frequency | 100% load | 300 | | KHz |
| Operating temperature | -40 to +85 | | | °C |
| Storage temperature | -55 to +125 | | | °C |
| Maximum case temperature | | | | °C |
| Derating | Above 71° | 2.9 | | %/°C |
| Cooling | Free Air Convection | | | |
| Humidity | | | 95 | % RH |
| Case material | Plastic (UL94-V0) | | | |
| Weight | 5.2 | | | g |
| Dimensions (L x W x H) | 0.94 x 0.54 x 0.32 inches 23.86 x 13.70 x 8.20 mm | | | |
| MTBF | >1,000,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C) | | | |
| Maximum Soldering Temperature | 1.5mm from case for 10 seconds | | 245 | °C |

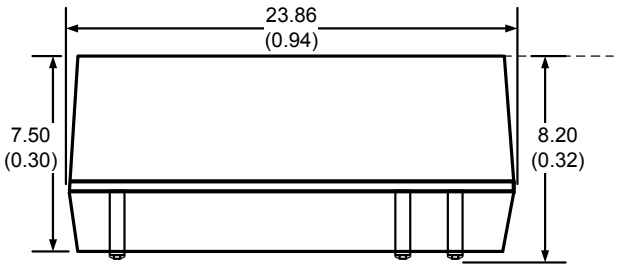
## Pin Out Specifications

| Pin | Single | Dual |
|---|---|---|
| 1 | - Vin | - Vin |
| 7 | NC | NC |
| 8 | NC | Common |
| 9 | +Vout | +Vout |
| 10 | - Vout | -Vout |
| 16 | + Vin | + Vin |

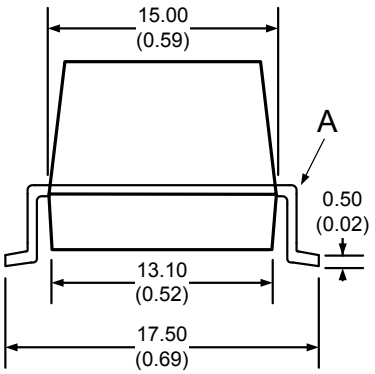
NC – not connected

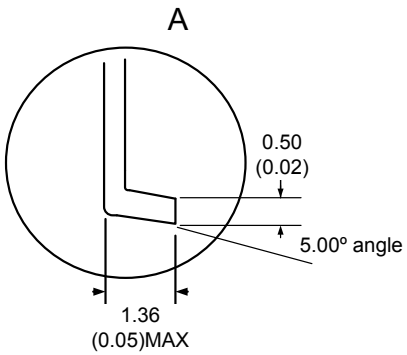
## Dimensions

**Side View**

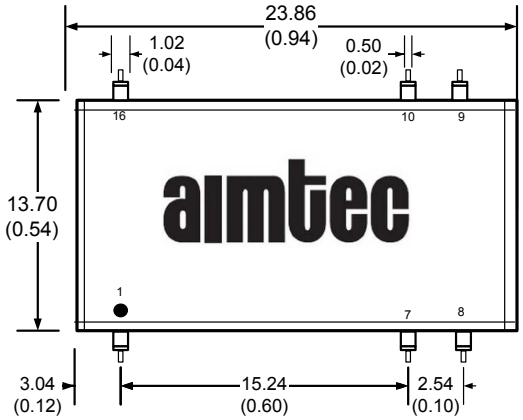



**Front View**

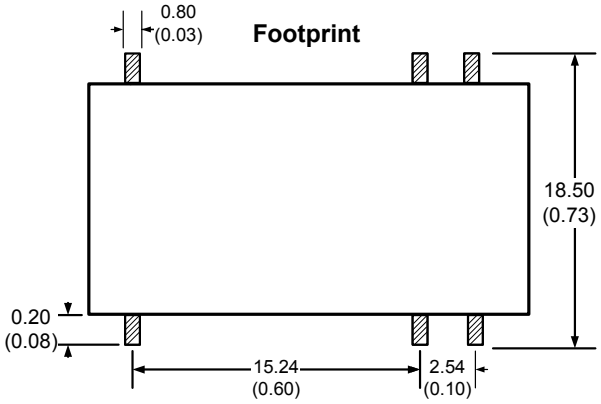


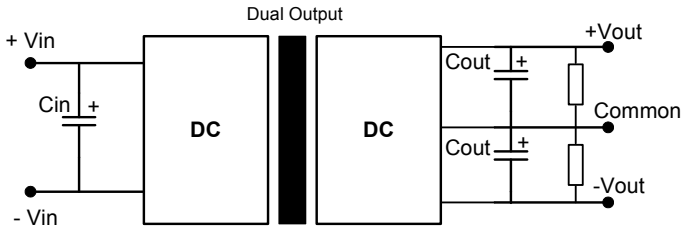

**Top View**

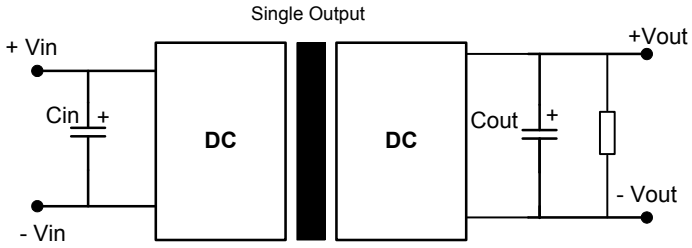



**Footprint**



## Recommended Filter Circuit




All the AM2LV-Z Series have been tested with the above recommended test circuit. This series should be tested under load.

If it is necessary to further decrease the input/output ripple, the value of the filter capacitor can be increased; a capacitor with a low ESR should be used. Excessive filter capacitance can cause start up problems with the converter.

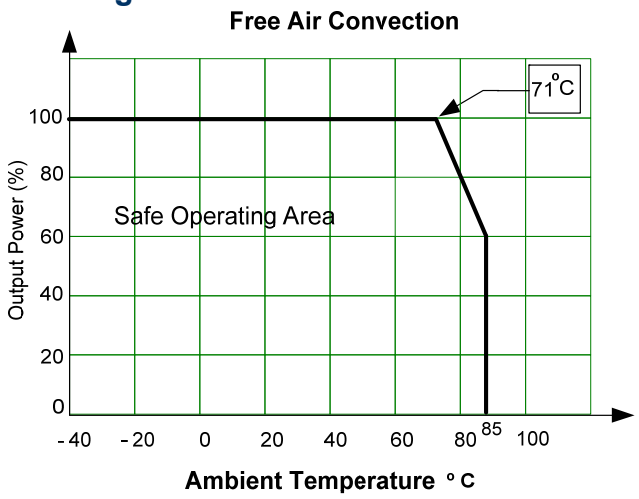
In general, the recommended capacitance values are:
Cin: 12V input 100µF, 24V input 10µF~47µF
Cout: 10µF/100mA

Refer to table below for maximum capacitor values:

## External Capacitor Value

| Single Output Vout (VDC) | Cout (uF) | Dual Output Vout (VDC) | Cout (uF) |
|---|---|---|---|
| 3.3 | 2200 | ±5 | ±680 |
| 5 | 1000 | ±9 | ±470 |
| 9 | 680 | ±12 | ±330 |
| 12 | 470 | ±15 | ±220 |
| 15 | 330 | | |

## Derating

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